Track rollers

https://www.schaeffler.de/std/1D65

https://www.schaeffler.de/std/1D65

Matrix for bearing preselection

The matrix gives an overview of the types and design features of yoke type track rollers, stud type track rollers and ball bearing track rollers.

It can be used to make a preliminary assessment of whether a bearing is fundamentally suitable for the envisaged application.

The additional information provided in the product chapter (see column "detailed information") and in the Technical principles must, however, be observed in addition to this overview in selection of the bearing.

Design features and suitability			Yoke type roller bearing track rollers			
+++ extremely suitable ++ highly suitable + suitable (+) suitable with restrictions – not suitable/not applicable ✓ available			without axial guidance	with axial guidance	with axial guidance, INA profile, sealed	detailed information ➤ **1380**
Load carrying capacity	radial		+++	+++	+++	➤ *1390|1.2*
	axial, one direction[1]		(+)	(+)	(+)	➤ *1390|1.2*
	axial, both directions[1]		(+)	(+)	(+)	➤ *1390|1.2*
	moments		–	–	–	
Compensation of angular misalignments	static		++	++	++	➤ *1391|1.3*
	dynamic		+	+	+	➤ *1391|1.3*
Bearing design	cylindrical bore		✓	✓	✓	➤ *1380|1.1*
	tapered bore		–	–	–	
	separable		✓	✓[2]	–	➤ *1380|1.1*
Lubrication	greased		✓	✓	✓	➤ *1392|1.4*
Sealing	open		✓	–	–	➤ *1395|1.5*
	non-contact		–	✓	✓	➤ *1395|1.5*
	contact		✓	✓	✓	➤ *1395|1.5*
Operating temperature in °C	from to		–30 +140[3]	–30 +140[3]	–30 +140[3]	➤ *1397|1.8*
Suitability for	high speeds		++	++	++	➤ *1396|1.6*
	high running accuracy		++	++	++	➤ *1398|1.11*
	low-noise running		+	+	+	➤ *1396|1.7* ➤ *27*
	high rigidity		+++	+++	+++	➤ *54*
	reduced friction		++	++	++	➤ *56*
	length compensation within bearing		–	–	–	➤ *25*
	non-locating bearing arrangement		–	–	–	➤ *139*
	locating bearing arrangement		–	–	–	➤ *139*
X-life bearings		X-life	–	–	✓	➤ *1381*
Outside diameter D in mm	from to		16 90	5 310	35 100	➤ *1416*
Product tables	from page ➤		**1416**	**1418**	**1420**	

1) Support of axial forces due to tilting and skewed running ➤ *1391|1.3* and ➤ *1432|2.3*

2) Inner rings or open design only

3) Valid only for yoke or stud type roller bearing track rollers with a metal cage or full complement roller designs, if unsealed or with a gap or labyrinth seal. Other values ➤ *1397|* ▦ *8*

https://www.schaeffler.de/std/1D65

	Stud type needle roller bearing track rollers with axial guidance	Stud type cylindrical roller bearing track rollers with axial guidance	detailed information ➤ 1380	Ball bearing track rollers: single row	double row	stud type ball bearing track rollers	with plastic outer tyre	detailed information ➤ 1428	
	+++	+++	➤ 1390|1.2	+++	+++	+++	+++	➤ 1431|2.2	F_r
	(+)	(+)	➤ 1390|1.2	+	+	+	+	➤ 1431|2.2	F_a
	(+)	(+)	➤ 1390|1.2	+	+	+	+	➤ 1431|2.2	F_a
	–	–		–	–	–	–		M
	++	++	➤ 1391|1.3	++	++	++	++	➤ 1432|2.3	
	+	+	➤ 1391|1.3	++	++	++	++	➤ 1432|2.3	
	✓	✓	➤ 1380|1.1	✓	✓	✓	✓	➤ 1428|2.1	
	–	–		–	–	–	–		
	–	–	➤ 1380|1.1	–	–	–	–	➤ 1428|2.1	
	✓	✓	➤ 1392|1.4	✓	✓	✓	✓	➤ 1432|2.4	
	–	–	➤ 1395|1.5	–	–	–	–	➤ 1432|2.5	
	✓	✓	➤ 1395|1.5	–	✓	✓	✓	➤ 1432|2.5	
	✓	✓	➤ 1395|1.5	✓	✓	✓	✓	➤ 1432|2.5	
	–30 +140[3]	–30 +140[3]	➤ 1397|1.8	–20 +120	–20 +120	–20 +120	–20 +80	➤ 1434|2.8	
	++	++	➤ 1396|1.6	+++	+++	+++	+++	➤ 1433|2.6	n
	++	++	➤ 1398|1.11	++	++	++	++	➤ 1435|2.11 ➤ 114	
	+	+	➤ 1396|1.7 ➤ 27	+	+	+	+	➤ 1433|2.7 ➤ 27	
	++	++	➤ 54	+	+	+	+	➤ 54	
	++	++	➤ 56	+++	+++	+++	+++	➤ 56	
	–	–	➤ 25	–	–	–	–	➤ 25	
	–	–	➤ 139	–	–	–	–	➤ 139	
	–	–	➤ 139	–	–	–	–	➤ 139	
	–	✓	➤ 1384	–	✓	–	–	➤ 1431	X-life
	16 90	35 90	➤ 1422	13 90	17 100	35 80	27,5 46,8	➤ 1440	
	1422	1426		1440	1441	1444	1447		

https://www.schaeffler.de/std/1D65

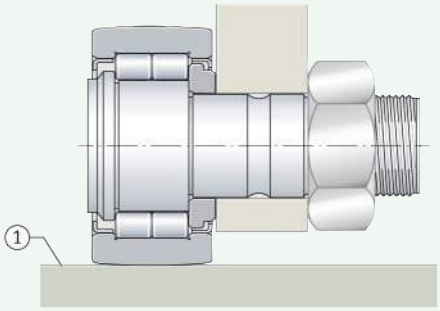
1 Yoke type roller bearing track rollers, stud type roller bearing track rollers

Yoke and stud type roller bearing track rollers:

- are ready-to-fit needle or cylindrical roller bearings of single or double row design ➤*1382*|*2* to ➤*1387*|*14*
- are mounted on shafts or studs (yoke type track rollers) or supplied with a heavy-section roller stud with fixing thread and a mounting aid (stud type track rollers) ➤*1380*|*1*
- have particularly thick-walled outer rings with a crowned outside surface ➤*1380*|*1.1*
- can support high radial loads ➤*1390*|*1.2*
- tolerate axial loads which are due to small misalignment defects, skewed running or temporary contact running impacts ➤*1391*|*1.3*
- are available with or without an inner ring (yoke type track rollers)
- are produced with or without axial guidance of the outer ring (stud type track rollers are always produced with axial guidance)
- are open or sealed on both sides ➤*1395*|*1.5*
- are not mounted in a housing bore, but are supported on a flat mating track ➤*1380*|*1*
- can be adjusted to the mating track in the design with the eccentric collar, thus permitting, for example, larger manufacturing tolerances in the adjacent construction.

1
Double row stud type track roller supported on a flat mating track

① *Mating track*



1.1 Bearing design

✎ *Design variants*

This range of yoke type track rollers comprises bearings:

- with or without an inner ring (without axial guidance) ➤*1382*|*2*, ➤*1382*|*3*
- with an inner ring (with axial guidance)
  - with cage ➤*1383*|*4*
  - full complement needle roller set ➤*1383*|*5*
  - full complement cylindrical roller set ➤*1383*|*6*
  - full complement cylindrical roller set, with central rib ➤*1384*|*7*.

https://www.schaeffler.de/std/1D65

Stud type track rollers are available in the following designs:

- Without eccentric collar
  - with cage ➤*1385*|*8*
  - full complement needle roller set ➤*1385*|*9*
  - full complement cylindrical roller set ➤*1386*|*10*
  - full complement cylindrical roller set and with central rib ➤*1386*|*11*
- With eccentric collar
  - with cage ➤*1387*|*12*
  - full complement cylindrical roller set ➤*1387*|*13*
  - full complement cylindrical roller set and with central rib ➤*1387*|*14*.

Yoke type track rollers (general)

The bearings have thick-walled outer rings and are mounted on shafts or studs

Yoke type track rollers are single or double row units mounted on shafts or studs ➤*1382*|*2* to ➤*1384*|*7*. They comprise thick-walled outer rings with a profiled outside surface and needle roller and cage assemblies or full complement needle roller or cylindrical roller sets. Yoke type track rollers can support high radial loads as well as axial loads arising from slight misalignment and skewed running. The bearings are available with or without an inner ring, with or without axial guidance and in sealed or open versions.

Typical applications

Proven areas of application of these products include cam gears, bed ways, conveying equipment and linear guidance systems.

Outside surface profile of the outer ring

The outside surface is predominantly crowned

Bearings with a crowned outside surface are predominantly used in practice since skewing usually occurs relative to the mating track and edge stresses must be avoided.

Radius of curvature

The radius of curvature of the outside surface is R = 500 mm. In the case of series NNTR..-2ZL, the radius is indicated in the product table.

Optimised INA profile

Yoke type track rollers NATR..-PP, NATV..-PP, NUTR and PWTR..-2RS have an outside surface with the optimised INA profile ➤*1387*. In yoke type track rollers with this curvature profile:

- the Hertzian pressure is lower ➤*1388*|*15*, ➤*1388*|*16*
- edge loading under tilting is lower ➤*1388*|*16*
- wear of the mating track is reduced ➤*1389*|*18*, ➤*1389*|*19*
- the operating life of the mating track is extended ➤*1388*|*17*
- the rigidity in the outer ring contact is increased ➤*1389*|*20*.

X-life premium quality

X-life

Series PWTR is supplied as an X-life design. Due to a modified material and the optimised raceway geometry of the outer rings, the basic rating life has been increased by up to 30%. The static and dynamic load carrying capacity has also been increased. At the same time, the stress placed on the mating track has been reduced as a result of the optimised surface profile and its improved surface quality.

Lower operating costs, higher machine availability

In conclusion, these advantages improve the overall cost-efficiency of the bearing position significantly and thus bring about a sustainable increase in the efficiency of the machine and equipment.

Suffix XL

X-life yoke type track rollers include the suffix XL in the designation.

Yoke type track rollers without inner ring, without axial guidance

The raceway must be designed as a rolling bearing raceway

Yoke type track rollers RSTO and RNA22..-2RSR do not have an inner ring ➤*1382*|*2*. Depending on the design, yoke type track rollers are also available as sealed versions ➤*1395*|*1.5*. They are particularly compact but require a hardened and ground raceway on the shaft or stud.
Series RSTO is not self-retaining, which means that the outer ring and the needle roller and cage assembly can be fitted independently of each other. This gives simplified mounting of the bearings.

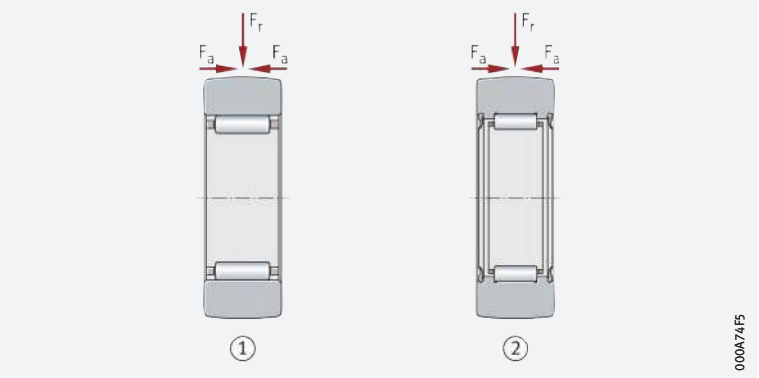
https://www.schaeffler.de/std/1D65

The rolling elements are guided by the cage. These designs do not have axial guidance of the outer ring. Axial guidance of the outer ring and needle roller and cage assembly (for RSTO only) must be provided in the adjacent construction.

2
Yoke type track rollers without inner ring, without axial guidance, open or sealed on both sides

F_r = *radial load*
F_a = *axial load*

① *Open (RSTO)*
② *Contact seals (RNA22..-2RSR)*



Yoke type track rollers with inner ring, without axial guidance

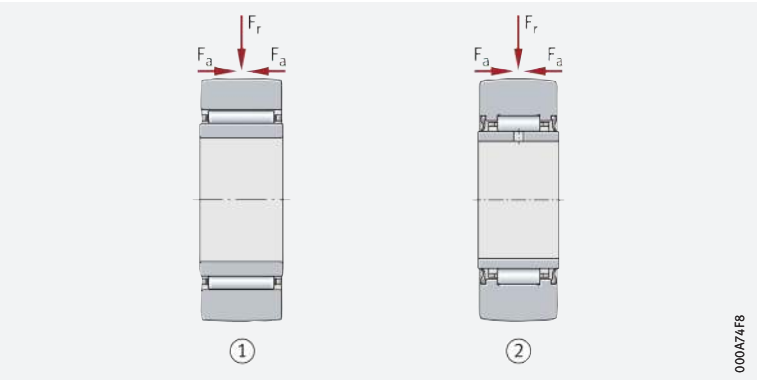
Yoke type track rollers STO and NA22..-2RSR have an inner ring ➤*1382*|*3*. Depending on the design, yoke type track rollers are also available as sealed versions ➤*1395*|*1.5*. Bearings with an inner ring are used if the shaft or stud does not have a hardened and ground raceway. Series STO is not self-retaining. This means that the outer ring, needle roller and cage assembly and the inner ring can be fitted independently of each other. This gives simplified mounting of the bearings.

The rolling elements are guided by the cage. These designs do not have axial guidance of the outer ring. Axial guidance of the outer ring and needle roller and cage assembly (for STO only) must be provided in the adjacent construction.

3
Yoke type track rollers with inner ring, without axial guidance, open or sealed on both sides

F_r = *radial load*
F_a = *axial load*

① *Open (STO)*
② *Contact seals (NA22..-2RSR)*



Yoke type track rollers with inner ring, with axial guidance

Yoke type track rollers with an inner ring are used if the shaft or stud does not have a hardened and ground raceway.

✎ *Designs*

The series NATR and NATR..-PP have a cage ➤*1383*|*4*.
The series NATV and NATV..-PP have a full complement needle roller set, while yoke type track rollers NUTR have a full complement cylindrical roller set ➤*1383*|*5* and ➤*1383*|*6*. Yoke type track rollers PWTR..-2RS and NNTR..-2ZL have a full complement cylindrical roller set and a central rib ➤*1384*|*7*. Depending on the design, yoke type track rollers are also available as sealed versions ➤*1395*|*1.5*.

https://www.schaeffler.de/std/1D65

Bearings without a cage have the largest possible number of rolling elements and therefore have particularly high load carrying capacity. Due to the kinematic conditions, however, the speeds achievable with these bearings are somewhat lower than those achievable with the cage-guided yoke type track rollers.

Axial guidance of outer ring

The type of guidance is dependent on the series

In NATR and NATV, axial guidance is provided directly by contact washers, while in NATR..-PP and NATV..-PP this is provided by contact washers and plastic axial plain washers. In NUTR, the outer ring is guided by the rolling elements, in PWTR..-2RS and NNTR..-2ZL it is guided by the central rib and the rolling elements.

Corrosion protection

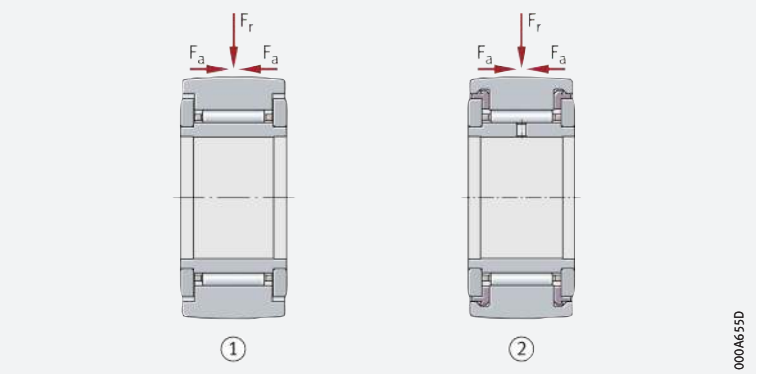
Corrosion protection by Corrotect

Series PWTR..-2RS-RR is protected against corrosion by the special Cr(VI)-free coating Corrotect ➤*1389*. These bearings have the suffix RR.

4
Yoke type track rollers with inner ring, with cage, with axial guidance, open or sealed on both sides

F_r = *radial load*
F_a = *axial load*

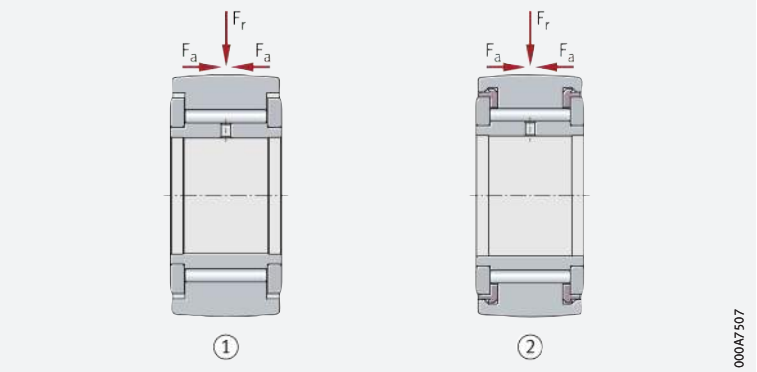
① *Gap seals (NATR)*
② *Plastic axial plain washers (NATR..-PP)*



5
Yoke type track rollers with inner ring, full complement needle roller set, with axial guidance, open or sealed on both sides

F_r = *radial load*
F_a = *axial load*

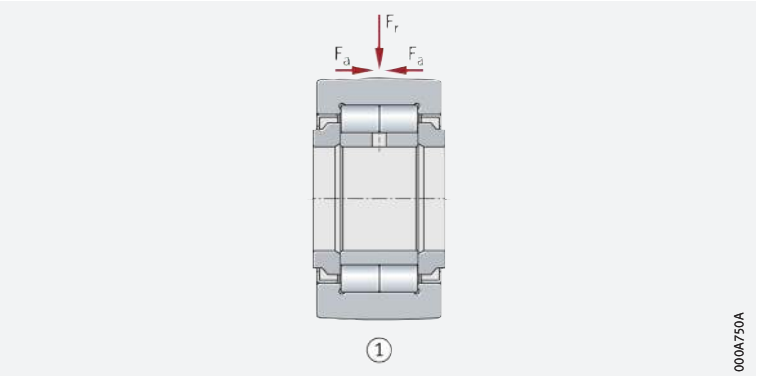
① *Gap seals (NATV)*
② *Plastic axial plain washers (NATV..-PP)*



6
Yoke type track roller with inner ring, full complement cylindrical roller set, with axial guidance, sealed on both sides

F_r = *radial load*
F_a = *axial load*

① *Labyrinth seals (NUTR)*



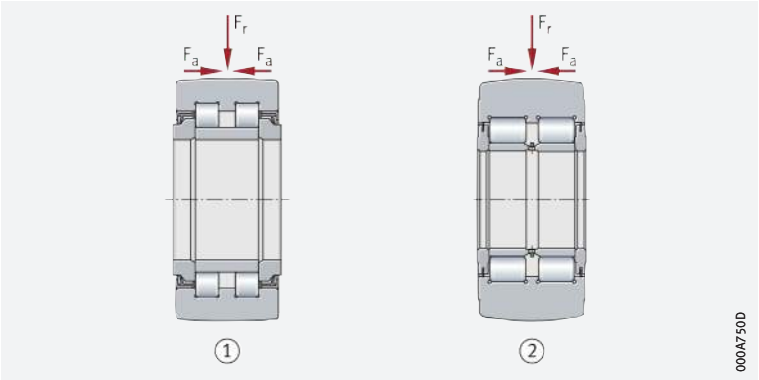
https://www.schaeffler.de/std/1D65

7

Yoke type track rollers with inner ring, full complement cylindrical roller set, with central rib, with axial guidance, sealed on both sides

F_r = *radial load*
F_a = *axial load*

① *Protected lip seals (PWTR..-2RS)*
② *Contact washers with lamellar ring (NNTR..-2ZL)*



Stud type track rollers (general)

The bearings have thick-walled outer rings and a heavy-section roller stud

Stud type track rollers are similar in their construction to single and double row yoke type track rollers with axial guidance, except that the raceway is formed by a heavy-section roller stud with a fixing thread and type-dependent mounting aid, and with a type-dependent relubrication facility. Due to the thick-walled outer ring with profiled outside surface and the rolling element set, they can support high radial loads as well as axial loads arising from slight misalignment and skewed running. The stud type track rollers are available with or without an eccentric collar ➤*1385*|*8* to ➤*1387*|*14*.

Typical applications

Proven areas of application of these products include cam gears, bed ways, conveying equipment and linear guidance systems.

Outside surface profile of the outer ring

The outside surface is crowned

Stud type track rollers with a crowned outside surface are predominantly used since skewing usually occurs relative to the mating track and edge stresses must be avoided.

Radius of curvature

In series KR, the radius of curvature is R = 500 mm. The series KR..-PP, KRE..-PP, KRV..-PP, NUKR, NUKRE, PWKR..-2RS and PWKRE..-2RS have an outside surface with the optimised INA profile.

Optimised INA profile

In stud type track rollers with the optimised INA profile:

- the Hertzian pressure is lower ➤*1388*|*15*, ➤*1388*|*16*
- edge loading under tilting is lower ➤*1388*|*16*
- wear of the mating track is reduced ➤*1389*|*18*, ➤*1389*|*19*
- the operating life of the mating track is extended ➤*1388*|*17*
- the rigidity in the outer ring contact is increased ➤*1389*|*20*.

X-life premium quality

X-life

Stud type track rollers PWKR(E) are supplied in the X-life design. Due to a modified material and the optimised raceway geometry of the outer rings, the basic rating life has been increased by up to 30%. The static and dynamic load carrying capacity has also been increased. At the same time, the stress placed on the mating track has been reduced as a result of the optimised surface profile and its improved surface quality.

Lower operating costs, higher machine availability

In conclusion, these advantages improve the overall cost-efficiency of the bearing position significantly and thus bring about a sustainable increase in the efficiency of the machine and equipment.

Suffix XL

X-life stud type track rollers include the suffix XL in the designation.

Stud type track rollers without eccentric collar

Stud type track rollers without an eccentric collar do not have a defined adjustment facility in relation to the mating track on the adjacent construction in mounting of the bearings.

Designs

The series KR and KR..-PP have a cage, the design KRV..-PP has a full complement needle roller set. Series NUKR has a full complement cylindrical roller set, series PWKR..-2RS has a full complement cylindrical roller set and a central rib ➤*1385*|*8* to ➤*1386*|*11*.

https://www.schaeffler.de/std/1D65

Bearings without a cage have the largest possible number of rolling elements and therefore have particularly high load carrying capacity. Due to the kinematic conditions, however, the speeds achievable with these bearings are somewhat lower than those achievable with the cage-guided stud type track rollers.

Axial guidance of outer ring

The type of guidance is dependent on the series

In KR, axial guidance is provided directly by the contact flange and contact washer, while in KR..-PP and KRV..-PP this is provided by plastic axial plain washers, the contact flange and contact washer ➤*1385*|*8* and ➤*1385*|*9*. The outer rings of series NUKR and PWKR..-2RS are guided by the rolling elements and ribs ➤*1386*|*10* and ➤*1386*|*11*.

Relubrication facility

Stud type track rollers KR16 and KR19 with a hexagonal socket cannot be relubricated, while stud type track rollers KR16 and KR19 with a mounting slot have a relubrication facility.

Corrosion protection

Corrosion protection by Corrotect

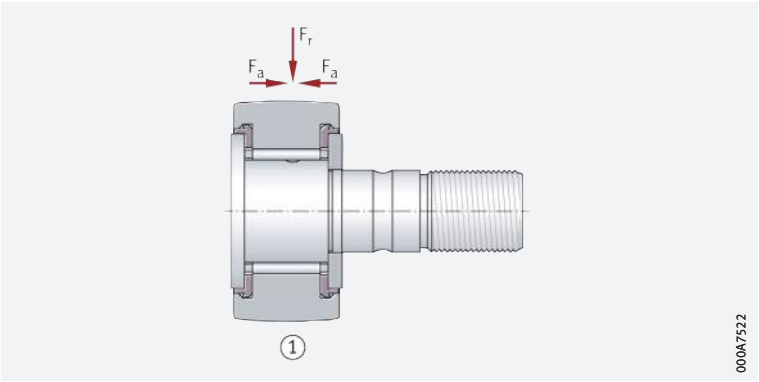
Series PWKR(E)..-2RS-RR is protected against corrosion by the special Cr(VI)-free coating Corrotect ➤*1389*. These bearings have the suffix RR.

8

Stud type track roller without eccentric collar, with cage, sealed on both sides

F_r = *radial load*
F_a = *axial load*

① *Plastic axial plain washers (for KR..-PP) or gap seals (for KR)*

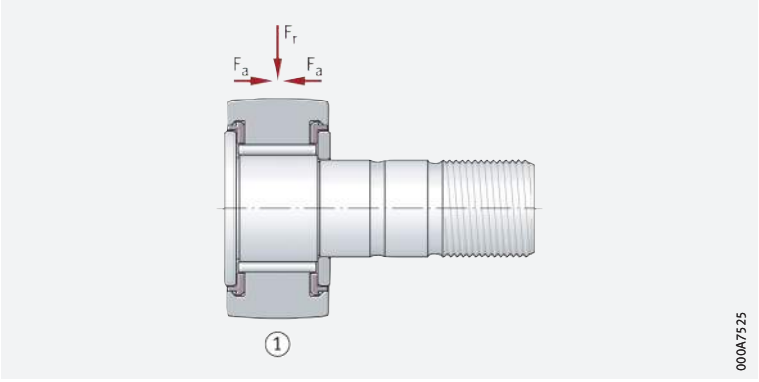


9

Stud type track roller without eccentric collar, full complement needle roller set, sealed on both sides

F_r = *radial load*
F_a = *axial load*

① *Plastic axial plain washers (KRV..-PP)*

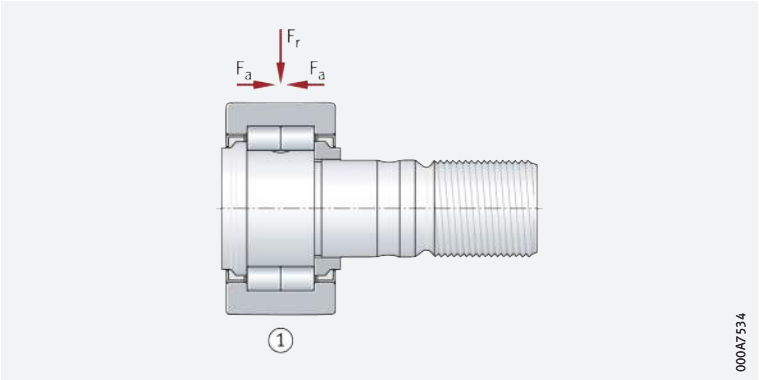


https://www.schaeffler.de/std/1D65

10
Stud type track roller without eccentric collar, full complement cylindrical roller set, sealed on both sides

F_r = *radial load*
F_a = *axial load*

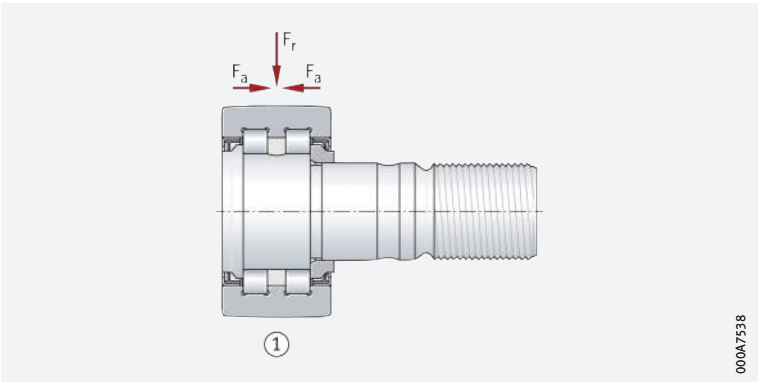
① *Labyrinth seals (NUKR)*



11
Stud type track roller without eccentric collar, full complement cylindrical roller set, with central rib, sealed on both sides

F_r = *radial load*
F_a = *axial load*

① *Protected lip seals (PWKR..-2RS)*



Stud type track rollers with eccentric collar

The bearings have a defined adjustment facility relative to the mating track

Designs with an eccentric collar can be adjusted by means of a hexagonal socket on the flanged or threaded side of the roller stud. The outer ring outside surface can thus be adjusted against the mating track. As a result, larger manufacturing tolerances can be tolerated in the adjacent construction. Furthermore, this gives improved load distribution when using several stud type track rollers and also allows preloaded linear systems to be easily realised.

Highest point of the eccentric collar

The highest point of the eccentric collar is indicated on the roller stud side, the eccentricity e is stated in the product tables. This is also the location of the radial relubrication holes, which should lie in the unloaded zone of the rolling contact.

Designs

Series KRE..-PP has a cage, NUKRE and PWKRE..-2RS have a full complement cylindrical roller set ➤*1387*| *12* to ➤*1387*| *14*.

Bearings with a full complement cylindrical roller set have the largest possible number of rolling elements and therefore have particularly high load carrying capacity. Due to the kinematic conditions, however, the speeds achievable with these bearings are somewhat lower than those achievable with the cage-guided stud type track rollers.

Axial guidance of outer ring

The type of guidance is dependent on the series

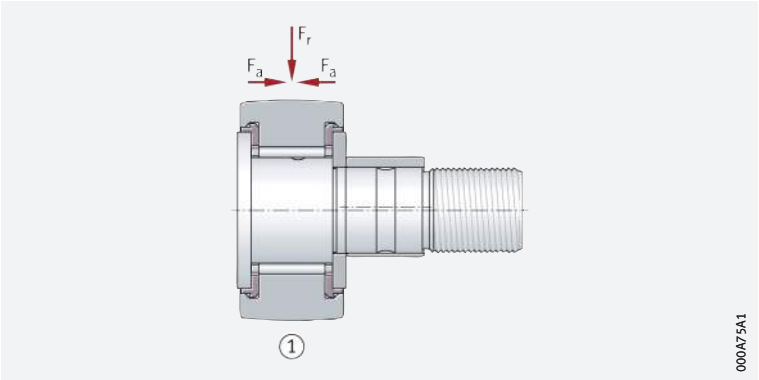
In the series KRE..-PP, axial guidance is provided by the plastic axial plain washers, contact flange and contact washers. In NUKRE, the outer ring is guided axially by the rolling elements, in PWKRE axial guidance of the outer ring is provided by the central rib and rolling elements.

https://www.schaeffler.de/std/1D65

12
Stud type track roller with eccentric collar, with cage, sealed on both sides

F_r = *radial load*
F_a = *axial load*

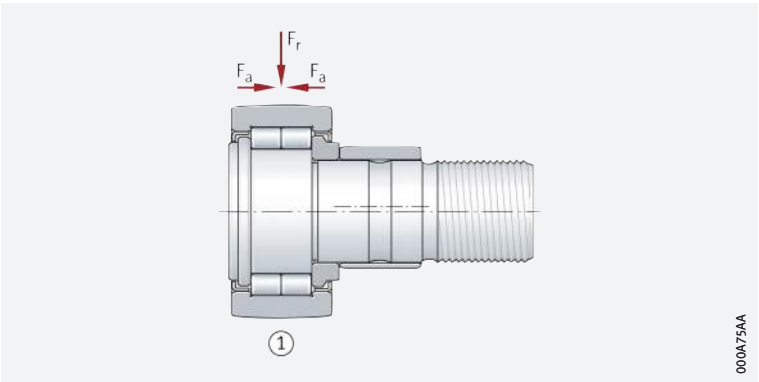
① *Plastic axial plain washers (KRE..-PP)*



13
Stud type track roller with eccentric collar, full complement cylindrical roller set, sealed on both sides

F_r = *radial load*
F_a = *axial load*

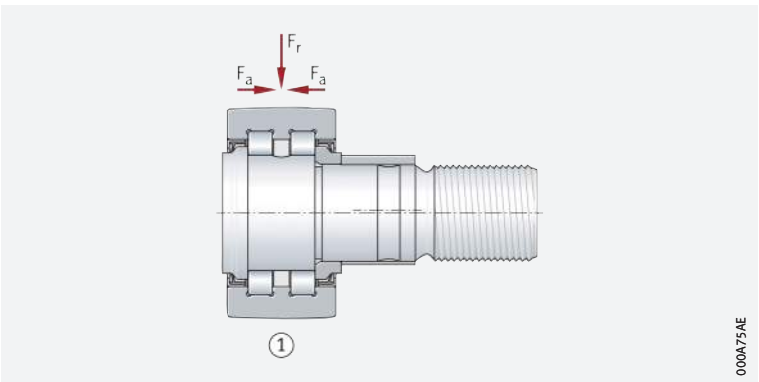
① *Labyrinth seals (NUKRE)*



14
Stud type track roller with eccentric collar, full complement cylindrical roller set, with central rib, sealed on both sides

F_r = *radial load*
F_a = *axial load*

① *Protected lip seals (PWKRE..-2RS)*



Optimised INA profile

✎ *Advantages*

The advantages of the optimised INA profile are:

- lower Hertzian pressure under tilting ➤ *1388* | *15* and ➤ *1388* | *16*
- higher basic rating life of the outer ring and mating track ➤ *1388* | *17*
- reduced wear between the outer ring outside surface and the mating track ➤ *1389* | *18* and ➤ *1389* | *19*
- increased rigidity in the outer ring contact ➤ *1389* | *20*.

Hertzian pressure curve

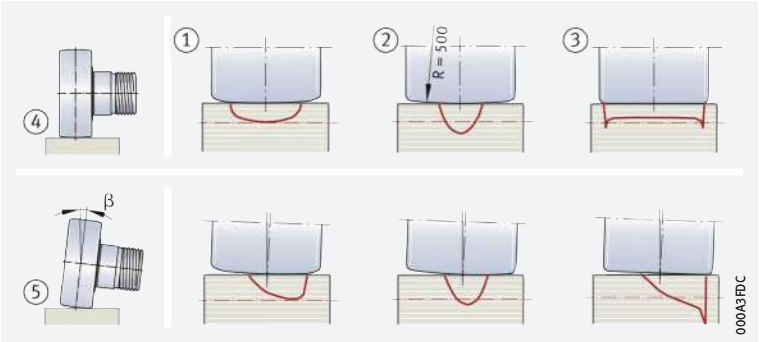
✎ *Optimised INA profile, profile R = 500, cylindrical profile*

The Hertzian pressure curve is more favourable for bearings with an optimised INA profile than for bearings with a cylindrical profile or with a profile where R = 500 mm (load $C_{rw}/P_r = 5$) ➤ *1388* | *15*.

https://www.schaeffler.de/std/1D65

15
Hertzian pressure curve

① *Optimised INA profile*
② *Profile R = 500*
③ *Cylindrical profile*
④ *Untilted running, β = 0 mrad*
⑤ *Tilted running, β = 3 mrad*



Maximum Hertzian pressure

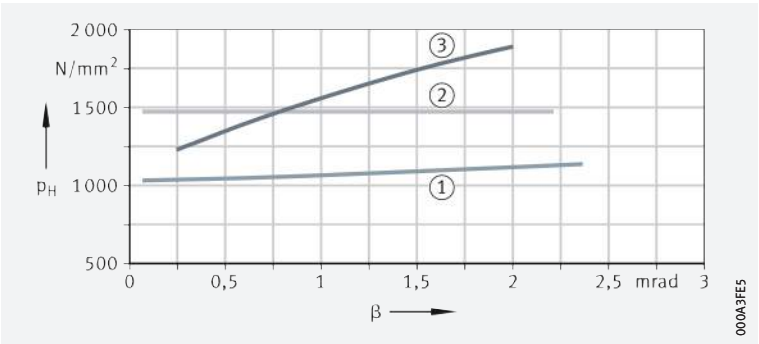
✎ Reduced Hertzian pressure with optimised INA profile

The maximum Hertzian pressure is significantly lower for bearings with an optimised INA profile than for bearings with a cylindrical profile or with the profile R = 500 mm ➤*1388*|🗀 *16*.

16
Maximum Hertzian pressure, stud type track roller NUKR80, F_r = 13 800 N ($C_{r\,w}/P_r$ = 5)

p_H = *maximum Hertzian pressure*
β = *tilt angle*

① *Optimised INA profile*
② *Profile R = 500*
③ *Cylindrical profile*



Basic rating life of mating track

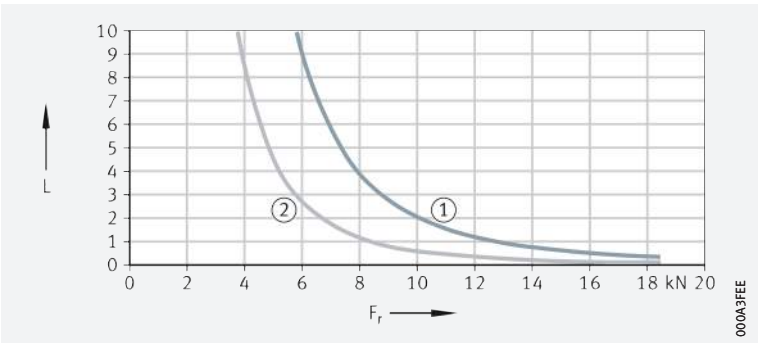
✎ Longer rating life of mating track

The rating life of the mating track is significantly longer for outer rings with an optimised INA profile than for bearings with the profile R = 500 mm ➤*1388*|🗀 *17*. Yoke type track rollers NUTR15 ➤*1389*|🗀 *18* were used as comparative bearings.

17
Basic rating life of the mating track, track made from 42CrMo4 V, hardness 350 HV

L = *basic rating life in millions of overrolling motions*
F_r = *radial load*

① *Optimised INA profile*
② *Profile R = 500*



Wear of the mating track

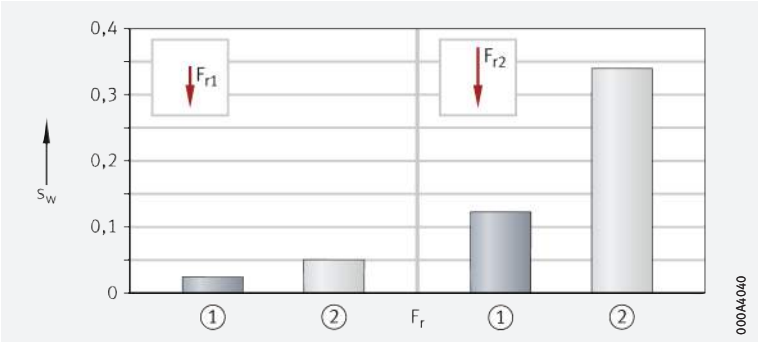
✎ Reduced wear of the mating track

The mating track wears to a lesser extent with the optimised INA profile ➤*1389*|🗀 *18*: mating track made from EN-GJS-500-7, mean value derived from several test runs after 360 000 overrolling motions.

https://www.schaeffler.de/std/1D65

18
Wear of the mating track, track made from EN-GJS-500-7

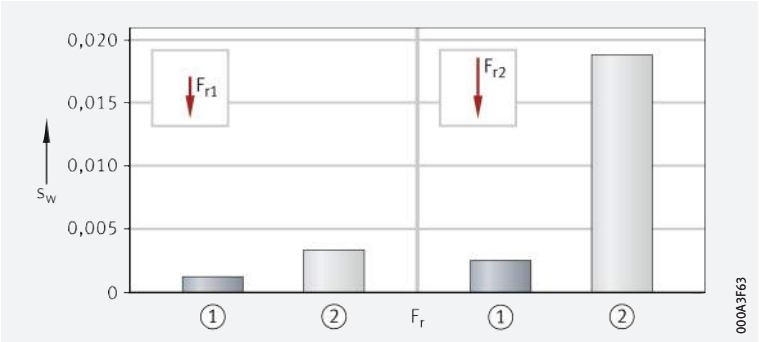
s_w = *wear*
F_{r1} = *low radial load*
F_{r2} = *high radial load*
① *Optimised INA profile*
② *Profile R = 500*



Mating track made from 58CrV4, mean value derived from several test runs after 800 000 overrolling motions ➤*1389*|*19*.

19
Wear of the mating track, track made from 58CrV4

s_w = *wear*
F_{r1} = *low radial load*
F_{r2} = *high radial load*
① *Optimised INA profile*
② *Profile R = 500*



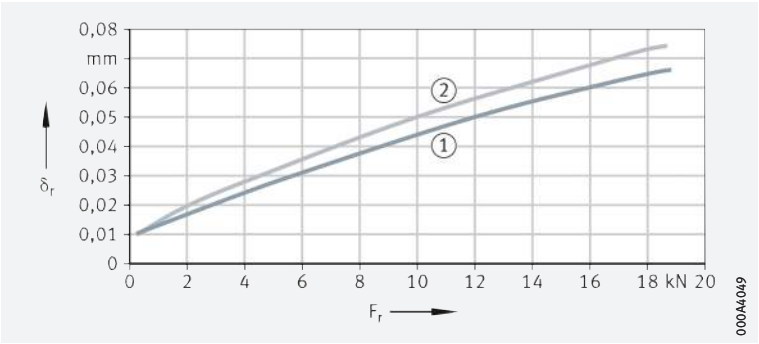
Rigidity in outer ring contact

✎ *Radial deflection*

The radial deflection of the outer ring and rolling element set is smaller for bearings with an optimised INA profile than for bearings with the profile R = 500 mm ➤*1389*|*20*. Example, yoke type track roller NUTR15.

20
Rigidity in outer ring contact

δ_r = *radial deflection*
F_r = *radial load*
① *Optimised INA profile*
② *Profile R = 500*



Corrosion protection by Corrotect

✎ *A Corrotect coating is often more economical than using corrosion-resistant steels*

Track rollers are often subjected to aggressive media. In such applications, corrosion protection is therefore a decisive factor in achieving a long operating life of the bearings. In principle, corrosion-resistant steels may be used here. In many applications, however, the application of a special coating using available Corrotect thin film coating technology is more cost-effective and should therefore be queried in advance.
The series PWTR..-2RS-RR and PWKR(E)..-2RS-RR are therefore available with a Corrotect coating. These bearings have the suffix RR ➤*1398*|*1.12*. Other series are also available as a special design with high performance Corrotect systems, which are matched to the specific application.

Before Corrotect-coated units are used, the compatibility of the coating with the existing media should always be checked.

https://www.schaeffler.de/std/1D65

Corrotect systems

Corrotect coating thicknesses

Corrotect methods are available which permit the application of an extremely thin coating and, as a result, do not need to be included in the bearing tolerance (0,5 µm to 3 µm or 2 µm to 5 µm). Increased demands on corrosion protection can be fulfilled with increasing coating thicknesses or completely different Corrotect methods. In isolated cases, dimensional changes resulting from the coating must be taken into account in a further processing step.

Cr(VI)-free coatings

The current Corrotect systems are all free from Cr(VI), protect effectively against corrosion and, as a result, extend the useful life of the Schaeffler components ➤ *1390*|*21*.

Further detailed information on the modular coating tool box and on the individual coating systems can be found in Technical Product Information ➤ *TPI 186* "*Higher Performance Capacity through the Use of Coatings*". This publication can be requested from Schaeffler.

Fitting of Corrotect-coated bearings

Take account of larger tolerances

The tolerances are increased by the thickness of the coating. In order to reduce the press-in forces, the surface of the parts should be lightly greased for fitting.

21
Uncoated and coated stud type track roller in the salt spray test

1.2 Load carrying capacity

Suitable for high radial loads

The bearings can support high radial loads. Yoke or stud type track rollers with axial guidance tolerate axial loads which are due to slight misalignments, skewed running or temporary contact running impacts.

Installation as yoke or stud type track roller

If used as a yoke and stud type track roller, the outer rings undergo elastic deformation

If the yoke and stud type track rollers are used on a flat mating track, the outer rings undergo elastic deformation. Compared with rolling bearings supported in a housing bore, yoke and stud type track rollers therefore have the following characteristics:

- modified load distribution in the bearing.
  This is taken into consideration by the effective basic load ratings $C_{r\,w}$ and $C_{0r\,w}$ used in the calculation of the rating life.
- bending stresses and reverse bending strengths in the outer ring.
  These are taken into consideration by the permissible effective radial loads $F_{r\,per}$ and $F_{0r\,per}$. The bending stresses and reverse bending strengths must not exceed the permissible strength values of the material.

https://www.schaeffler.de/std/1D65

Permissible radial load under dynamic loading

✎ $C_{r\,w}$ *is valid*

For rotating bearings under dynamic load, the effective basic dynamic load rating $C_{r\,w}$ is used. $C_{r\,w}$ is used to calculate the basic rating life.

The permissible dynamic radial load $F_{r\,per}$ must not be exceeded. If a value for $F_{r\,per}$ is not given, the effective basic dynamic load rating $C_{r\,w}$ is used as a substitute. This basic load rating must also not be exceeded by the radial load present. If the basic static load rating $C_{0r\,w}$ is lower than the basic dynamic load rating $C_{r\,w}$, then $C_{0r\,w}$ applies.

Permissible radial load under static loading

✎ $C_{0r\,w}$ *is valid*

For bearings under static load, either stationary or with only infrequent rotary motion, the effective basic static load rating $C_{0r\,w}$ applies. $C_{0r\,w}$ is used to calculate the static load safety factor S_0.

The permissible basic static radial load $F_{0r\,per}$ must not be exceeded. If a value for $F_{0r\,per}$ is not given, the effective basic static load rating $C_{0r\,w}$ is used as a substitute. This basic load rating must also not be exceeded by the radial load present. In addition to the permissible radial load of the bearing, the permissible radial load of the mating track must also be taken into consideration ➤*1404*.

1.3 Angular misalignment

Skewed running

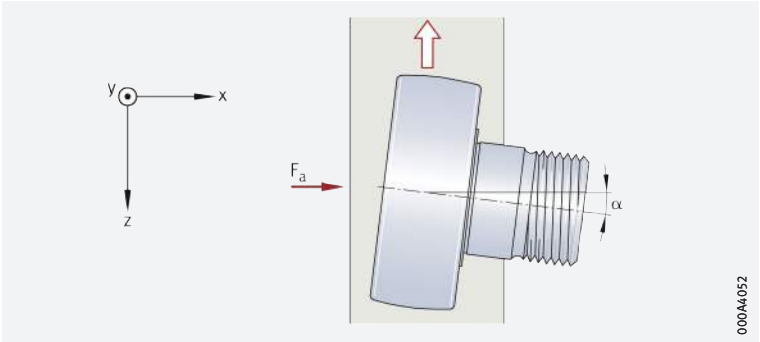
✎ *Additional axial load under skewed running*

Skewed running leads to additional axial load on the rolling bearing and axial slippage in the rolling contact between the outer ring and mating track ➤*1391*|🗀*22*. Depending on the skewed running angle α and the lubrication, wear can occur in these cases.

A complete loss of adhesive friction between the outer ring and raceway, with correspondingly severe wear, is to be expected with a skewed running angle $\alpha \geqq 1{,}4 \cdot 10^{-4} \cdot p_H$ (°) or $\alpha \geqq 2{,}5 \cdot 10^{-3} \cdot p_H$ (mrad).

🗀*22*
Skewed running

α = *skewed running angle*



Tilting

✎ *Cylindrical outer ring*

If tilting occurs during running, increased edge stresses occur, especially in yoke and stud type track rollers with cylindrical outer rings.

✎ *Crowned outer ring*

Track rollers with a crowned outer ring are less sensitive to tilting and should therefore be used in preference.

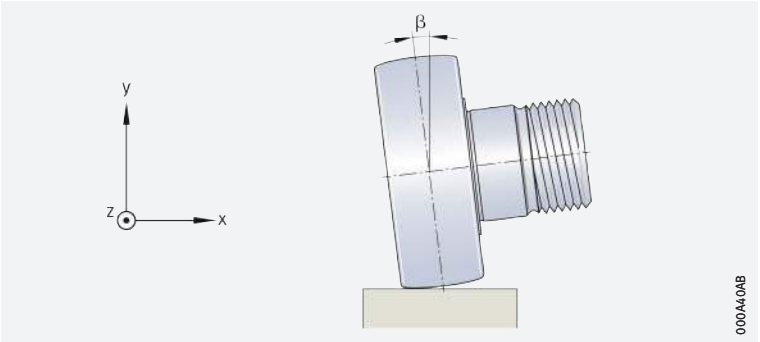
✎ *Limits for tilting*

In practice, track rollers with a cylindrical outside surface and a tilting angle of $\beta > 0{,}1°$ (1,7 mrad) and for yoke and stud type track rollers wth a crowned outside surface and a tilting angle of $\beta > 0{,}25°$ (4,4 mrad) have proved susceptible to damage ➤*1392*|🗀*23*.

https://www.schaeffler.de/std/1D65

23
Tilting

β = *tilt angle*



1.4 Lubrication

Two contact zones

Lubricate the rolling elements, rolling element raceway and mating track

Two contact zones must be lubricated and considered separately:

- the rolling elements and rolling element raceway
- the outside surface of the track roller and the mating track.

The contact zone between the rolling elements and the rolling element raceway is covered in the chapter Technical principles, Lubrication.

Lubrication of the bearing

Greased with a lubricating grease to GA08

For yoke and stud type track rollers, a lithium complex soap grease with a mineral oil base and EP additives to GA08 is used. Yoke type track rollers can be lubricated via the inner ring, stud type track rollers have a type-dependent relubrication facility via the roller stud.
Greases for initial greasing are listed in the chapter Lubrication ➤*90*| *6*.
For relubrication, greases in accordance with ➤*1392*| *1* are suitable.

In stud type track rollers with an eccentric collar, the eccentric collar covers the radial lubrication hole in the shank. Relubrication must therefore be carried out via the end faces.

1
Arcanol rolling bearing greases for relubrication

Arcanol grease	Designation to DIN 51825	Type of grease	Track roller
LOAD150	KP2N–20	Lithium soap grease with mineral oil base	Yoke and stud type roller bearing track rollers
LOAD220	KP2N–20	Lithium calcium soap grease with mineral oil base	Yoke and stud type roller bearing track rollers
MULTI3	KP3K–30	Lithium soap grease with mineral oil base	Yoke and stud type ball bearing track rollers

Lubrication of mating track

Suitable lubricants

For lubrication of the mating track, all lubricants suitable for rolling bearing lubrication may be used. However, there are applications in which the mating track must not be lubricated.

If the contact point cannot be lubricated, wear must be expected, especially under high loads and at high speeds.

Oil lubrication

For oil lubrication, oils of type CLP to DIN 51517 are recommended.

Grease lubrication

For grease lubrication, lithium soap greases to DIN 51825 should be used. Relubrication intervals can only be determined under operating conditions. Relubrication must be carried out at the latest when fretting corrosion first occurs; this can be identified by a reddish discolouration of the mating track or the outer ring.

Solid lubricants and anti-friction coatings

These substances are also suitable for lubrication. At high traverse or rotational speeds, however, they provide effective lubrication for a significantly shorter period than oil or grease lubrication.

https://www.schaeffler.de/std/1D65

Central lubrication system for stud type track rollers

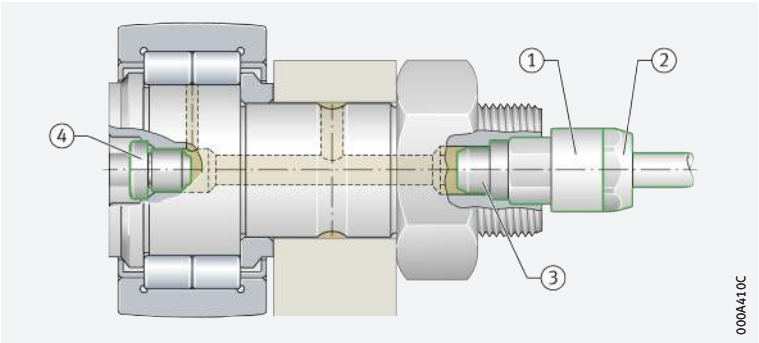
✎ Connection adapter with rapid-fit connection cartridge

If a central lubrication system is to be used, a patented central lubrication adapter can be used to connect the standard roller stud of stud type track rollers with hexagonal sockets on both sides ➤ *1393* | *24*.
This connector comprises a connection adapter with a hexagonal end and a rapid-fit connection cartridge.

The connection adapter is connected to the roller stud on one end of the stud type track roller by replacing the funnel type lubrication nipple with the fitting cylinder. The hexagonal end prevents rotation of the adapter. The other end of the stud type track roller is closed off using the supplied funnel type lubrication nipple ➤ *1393* | *24*.

24
Central lubrication adapter and funnel type lubrication nipple

① *Connection adapter with M10×1 internal thread*
② *Rapid-fit connection cartridge*
③ *Fitting cylinder*
④ *Funnel type lubrication nipple*



✎ Hard PA pipes should be used in preference

The connection adapter has an M10×1 internal thread. This is used for screw mounting and sealing of the rapid-fit connection cartridge. The cartridge gives firm retention and sealing of the plastic pipe. It is therefore not necessary to screw the pipe and adapter onto each other. Hard PA pipes should be used in preference. In this instance, the operating limits according to DIN 73378 and the manufacturer's guidance must be observed. The maximum excess pressure for pipes made from PA11 or PA12 is as follows at +23 °C: 31 bar to 62 bar. The maximum excess pressure when using other screw-in connectors is 80 bar.

✎ Dimensions

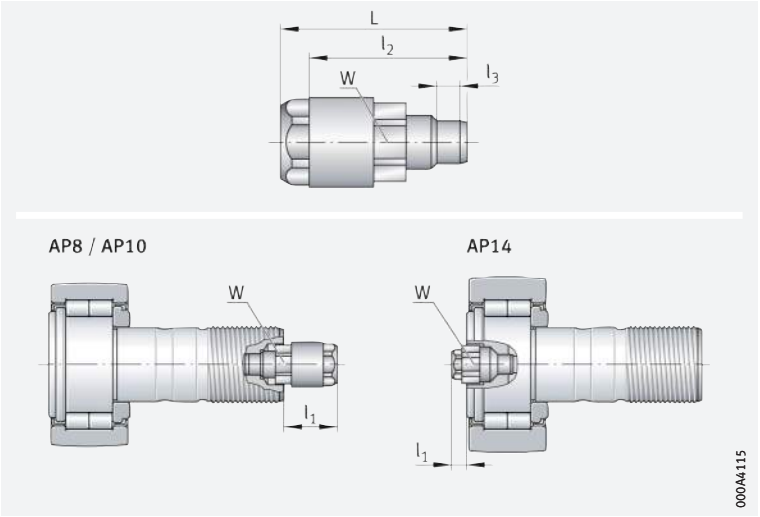
For dimensions of the adapters ➤ *1393* | *2* and ➤ *1394* | *25*.

2
Dimensions of adapter

Central lubrication adapter	Dimensions					
	W	L	l_1	l_2	l_3	For polyamide pipe to DIN 73378
Designation			max.		approx.	$d_1 \times s_{nom}$
AP8	8	27	16	22	4	4×0,75
AP10	10	27	15	22	5	4×0,75
AP14	14	25	8	20	6	4×0,75

https://www.schaeffler.de/std/1D65

25
Dimensions of central lubrication adapters



Calculation of relubrication intervals

Simplified determination of lubrication impulses

The relubrication quantities for central lubrication using flowable grease and their conversion to the number of relubrication impulses for conventional metering nipple sizes are given in the table ➤*1394*|▦*3*. The data are valid for EP additives, for a lithium soap flowable grease with a mineral oil base ISO VG 100 to ISO VG 220 or NLGI 00 or NLGI 000.

3
Relubrication quantities for stud type track rollers

Series[1]	Outside diameter D mm		Central lubrication adapter Designation	Relubrication quantity[2] g	Relubrication impulses for metering nipple of size	
	from	up to			30 mm³	50 mm³
NUKR, NUKRE	35	40	AP8	1,1	40	24
	47	52	AP10	2,4	89	53
	62	90	AP14	7,3	271	163
KR, KRE	35	40	AP8	1,2	44	27
	47	52	AP10	1,6	60	36
	62	90	AP14	6	222	133
KRV, KRVE	35	40	AP8	0,7	26	16
	47	52	AP10	1	37	22
	62	90	AP14	3,2	120	72

1) *For stud type track rollers with hexagonal socket on both sides.*

2) *Relubrication quantity and relubrication intervals for central lubrication using flowable grease for the majority of applications. Note the quantity required to fill the feed lines.*

Relubrication periods

Approximate definition

The approximate definition of the relubrication periods for single shift operation and the majority of applications is shown in ➤*1394*|▦*4* and ➤*1395*|▦*5*. The data are valid for single shift operation; the relubrication quantity and relubrication intervals are valid for the majority of applications. They are based on approximate calculation of the relubrication interval t_{fR}. For definition of the relubrication interval see chapter Relubrication ➤*70*|*6.1*. Within these periods, the number of relubrication impulses determined in accordance with ➤*1394*|▦*3* should be evenly distributed.

4
Relubrication period for calculating the relubrication intervals

Load ratio $C_{0r\,w}/P_r$	Maximum operating speed n_{max} in % of $n_{D\,G}$			
	10	25	50	100
$5 > C_{0r\,w}/P_r \geqq 3$	$^1/_2$ yearly	–	–	–
$10 > C_{0r\,w}/P_r \geqq 5$	yearly	4 months	monthly	–
$C_{0r\,w}/P_r \geqq 10$	yearly	8 months	2 months	14 days

https://www.schaeffler.de/std/1D65

5 *Periods in single shift operation*

Months	Weeks	Working days	Working hours
1/2	2	10	80
1	4	20	160
2	8	40	320
4	16	80	640
6	24	120	960
8	32	160	1 280
12	48	240	1 920

Fitting of central lubrication adapter

Mount the stud type track roller first

The stud type track roller must be mounted before fitting the adapter. The unused lubrication hole in the roller stud must be closed off using the funnel type lubrication nipple supplied. Only the lubrication nipples supplied should be used.

Guidelines for mounting of the adapter

The central lubrication adapter should preferably be pressed in using a manual lever press under low, uniform pressure or carefully driven into the unused hexagonal socket of the roller stud by means of light blows with a plastic hammer; pay attention to the press-in depth l_3 and the position of the hexagon ➤ *1394* | *25* and ➤ *1393* | *2*.

Fitting of the polyamide pipe

The plastic pipe must be cut off straight across and inserted into the cartridge until it stops. Only polyamide pipes to DIN 73378 should be used. Check the seating of the pipe. Note maximum pressures, maximum temperatures and minimum bending radius. The maximum pipe length up to the distributor is 1 m.

1.5 Sealing

Yoke type track rollers

Available in open or sealed designs

Yoke type track rollers are available in open designs and with non-contact or contact type seals ➤ *1395* | *6*.

6 *Seals used in yoke type track rollers*

Yoke type track roller	Seal
STO	Open
RSTO	
RNA22..-2RSR	Lip seal on both sides
NA22..-2RSR	
PWTR..-2RS	Protected lip seal on both sides

continued ▼

6 *Seals used in yoke type track rollers*

Yoke type track roller	Seal
NATR..-PP	Three-stage sealing on both sides plastic axial plain washers
NATV..-PP	
NATR	Gap seal on both sides
NATV	
NUTR	Labyrinth seal on both sides
NNTR..-2ZL	Contact washer with lamellar ring on both sides

continued ▲

Stud type track rollers

Available with seals on both sides

Stud type track rollers are sealed on both sides. Depending on the series, non-contact or contact type seals are used. A three-stage seal, comprising plastic axial plain washers with formed seal lips, is also used on both sides of the bearing ➤ *1396* | *7*.

https://www.schaeffler.de/std/1D65

7 *Seals used in stud type track rollers*

Stud type track roller	Seal
KR	Gap seal on both sides
KR..-PP	Three-stage sealing on both sides by plastic axial plain washers
KRE..-PP	
KRV..-PP	
NUKR	Labyrinth seal on both sides
NUKRE	
PWKR..-2RS	Protected lip seal on both sides
PWKRE..-2RS	

Three-stage seal

Seal design

In the three-stage concept, there is a gap seal between the plastic axial plain washer and the outer ring, as well as a labyrinth seal between the formed seal lip and an undercut in the outer ring. The disc spring shape of the axial plain washer gives a preloaded contact seal as the third stage. It also provides axial sliding contact between the outer ring and contact washers, thus reducing friction and grease consumption.

1.6 Speeds

Speeds $n_{D\,G}$

The maximum possible speed is essentially determined by the permissible operating temperature of the yoke and stud type track rollers.
The speed thus depends on the type of bearing, the load, the lubrication conditions and the cooling conditions.

Speeds with lip seals

The speed of track rollers with lip seals is additionally restricted by the permissible sliding speed at the seal lip.

Speed during continuous operation

Criteria for guide values

The speeds $n_{D\,G}$ in the product tables are guide values. They were determined for:

- grease lubrication
- loads during continuous operation of $< 0{,}05 \cdot C_{0r\,w}$
- skewed running angles of $\alpha < 0{,}03°$ ($< 0{,}5$ mrad)
- an ambient temperature of +20 °C
- outer ring temperatures of +70 °C
- lubricated mating tracks
- no external axial load.

Reducing the speed

The speeds must be reduced under the following conditions:

- loads $> 0{,}05 \cdot C_{0r\,w}$
- additional axial forces (skewed running)
- insufficient heat dissipation.

Higher speeds

Higher speeds can be achieved with intermittent operation and oil impulse lubrication.

1.7 Noise

Schaeffler Noise Index

The Schaeffler Noise Index (SGI) is not yet available for this bearing type ➤*69*. The data for these bearing series will be introduced and updated in stages.

Further information:

- ***medias*** ➤ *https://medias.schaeffler.com*.

https://www.schaeffler.de/std/1D65

1.8 Temperature range

Limiting values

The operating temperature of the yoke and stud type track rollers is limited by:

- the dimensional stability of the bearing rings and rolling elements
- the cage
- the lubricant
- the seals.

8 *Permissible temperature ranges*

Operating temperature	Yoke and stud type track rollers							
	Open or with gap seal or labyrinth seal		With lip seals 2RS, 2RSR		With plastic cages TV		With three-stage seal PP	
	from	to	from	to	from	to	from	to
	°C							
	−30	+140	−30	+120	−30	+120	−30	+100

Note the information on the operating temperature range in the chapter Technical principles, Lubrication.

In the event of anticipated temperatures which lie outside the stated values, please contact Schaeffler.

1.9 Cages

Yoke type track rollers

Yoke type track rollers without inner ring

With cage

Yoke type track rollers RSTO and RNA22..-2RSR have a sheet steel cage as standard. Yoke type track rollers RSTO up to D = 24 mm have a plastic cage made from polyamide PA66 (suffix TV). Series RSTO does not have axial guidance of the needle roller and cage assembly and of the outer ring. As a result, lateral guidance is required.

Yoke type track rollers with inner ring

With cage, with full complement needle roller or cylindrical roller set

The series STO, NA22..-2RSR, NATR and NATR..-PP have a sheet steel cage as standard. Yoke type track rollers STO up to D = 24 mm have a plastic cage made from polyamide PA66 (suffix TV). The series NATV and NATV..-PP have a full complement needle roller set, while yoke type track rollers NUTR, PWTR..-2RS and NNTR..-2ZL have a full complement cylindrical roller set. Series STO does not have axial guidance of the needle roller and cage assembly and of the outer ring. As a result, lateral guidance is required.

Stud type track rollers

Stud type track rollers without eccentric collar

With cage, with full complement needle roller or cylindrical roller set

Stud type track rollers KR and KR..-PP have a sheet steel cage, the design KRV..-PP has a full complement needle roller set. The series NUKR and PWKR..-2RS have a full complement cylindrical roller set.

Axial guidance of outer ring

In KR, axial guidance is provided directly by the contact flange and contact washer, while in KR..-PP and KRV..-PP this is provided by plastic axial plain washers, the contact flange and contact washer. In NUKR, the outer ring is guided axially by the rolling elements, in PWKR, axial guidance of the outer ring is provided by the central rib and rolling elements.

Stud type track rollers with eccentric collar

With cage or full complement cylindrical roller set

Series KRE..-PP has a sheet steel cage, NUKRE and PWKRE..-2RS have a full complement cylindrical roller set.

Axial guidance of outer ring

In KRE..-PP, axial guidance is provided by the plastic axial plain washers, contact flange and contact washer. In NUKRE, the outer ring is guided axially by the rolling elements, in PWKRE, axial guidance of the outer ring is provided by the central rib and rolling elements.

https://www.schaeffler.de/std/1D65

1.10 Internal clearance

Radial internal clearance

✎ *Standard corresponds approximately to C2 or CN*

The radial internal bearing clearance of yoke and stud type track rollers corresponds approximately to tolerance class C2 (Group 2) and, in the case of STO and NA22..-2RSR, to tolerance class CN (Group N). Values ➤ *1398*|▦ *9*.

The values for radial internal clearance correspond to DIN 620-4:2004 (ISO 5753-1:2009). These are valid for bearings which are free from load and measurement forces (without elastic deformation).

▦ ***9***
Radial internal clearance for yoke and stud type track rollers

Nominal bore diameter d mm		Radial internal clearance							
		C2 (Group 2) µm		CN (Group N) µm		C3 (Group 3) µm		C4 (Group 4) µm	
over	incl.	min.	max.	min.	max.	min.	max.	min.	max.
–	24	0	25	20	45	35	60	50	75
24	30	0	25	20	45	35	60	50	75
30	40	5	30	25	50	45	70	60	85
40	50	5	35	30	60	50	80	70	100
50	65	10	40	40	70	60	90	80	110
65	80	10	45	40	75	65	100	90	125
80	100	15	50	50	85	75	110	105	140
100	120	15	55	50	90	85	125	125	165
120	140	15	60	60	105	100	145	145	190

1.11 Dimensions, tolerances

Tolerances

The dimensional and running tolerances correspond to the tolerance class Normal in accordance with ISO 492, for KR, KRE and KRV to ISO 7063.

✎ *Deviations from ISO 492*

The following deviations from ISO 492 apply:

- the diameter deviations of the profiled outside surface 0/–0,05 mm
- for NNTR, the diameter tolerance class h10
- for NATR, NATV, NUTR, PWTR..-2RS, the tolerance class h12 for width B
- for NATR, NATV, the roundness of the inner ring
- for stud type track rollers, the tolerance class of the shank diameter h7 and the eccentric collar diameter h9.

✎ *Tolerances for Corrotect-coated bearings*

For PWTR..-2RS-RR and PWKR..-2RS-RR , the tolerances are increased by the thickness of the Corrotect special coating.

Enveloping circle

✎ *Yoke type track rollers without inner ring*

For yoke type track rollers without an inner ring, RSTO and RNA22..-2RSR, the needle enveloping circle F_w is in the tolerance class F6. The enveloping circle is the inner inscribed circle of the needle rollers in clearance-free contact with the adjacent construction.

1.12 Suffixes

For a description of the suffixes used in this chapter ➤ *1399*|▦ *10* and ***medias*** interchange ➤ *https://www.schaeffler.de/std/1D52*.

https://www.schaeffler.de/std/1D65

10
Suffixes and corresponding descriptions

Suffix	Description of suffix	
PP	Plastic axial plain washer with formed seal lip on both sides of the bearing, giving a three-stage seal	Standard
RR	Protected against corrosion by Corrotect special coating in the case of PWTR..-2RS and PWKR(E)..-2RS	
SK	Hexagonal socket only on the flange-side end face, no relubrication facility	
TV	Plastic cage	
XL	X-life design	
2RS	Protected lip seal on both sides	
2RSR	Radial contact lip seal on both sides	
2ZL	Contact washer with lamellar ring on both sides	

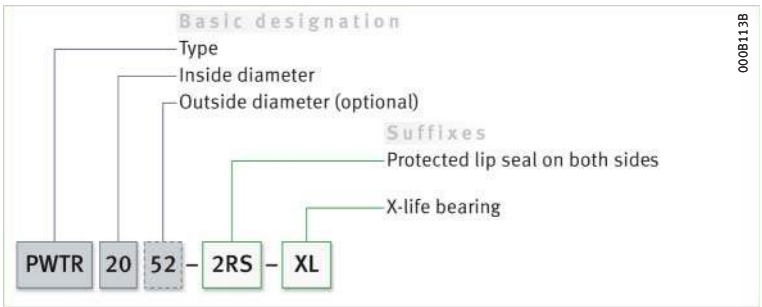
1.13 Structure of bearing designation

Examples of composition of bearing designation

The designation of bearings follows a set model. Examples ➤1399|26 to ➤1399|29.

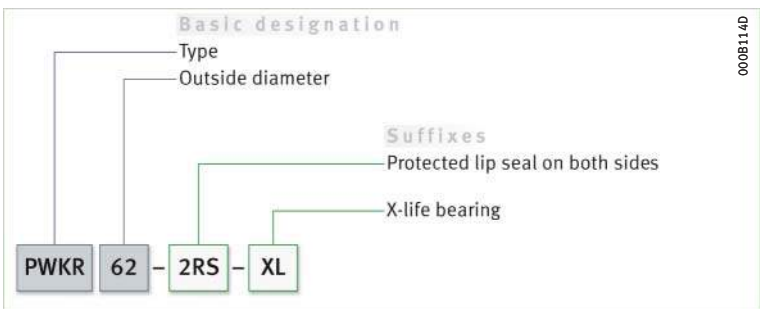
26
Yoke type track roller, single row, without inner ring, without seal, without axial guidance, open design, plastic cage, R = 500: designation structure

27
Yoke type track roller, double row, with inner ring, sealed, with axial guidance, optimised INA profile: designation structure



28
Stud type needle roller bearing track roller, full complement needle roller set, with axial guidance, three-stage seal, optimised INA profile: designation structure

29
Stud type cylindrical roller bearing track roller, full complement cylindrical roller set, with axial guidance, X-life design, optimised INA profile: designation structure



https://www.schaeffler.de/std/1D65

1.14 Dimensioning

Calculation of the rating life

The methods for calculating the rating life are:

- the basic rating life to DIN ISO 281
- the adjusted basic rating life to DIN ISO 281
- the expanded calculation of the adjusted reference rating life to DIN ISO 281-4.

Use effective basic dynamic/static load ratings

These methods are described in the chapter Load carrying capacity and life. For yoke and stud type track rollers, use the following values (values ➤*1416*|▦):

- for C_r, the effective basic dynamic load rating $C_{r\,w}$
- for C_{0r}, the effective basic static load rating $C_{0r\,w}$
- for C_{ur}, the effective fatigue limit load $C_{ur\,w}$.

Other rating life equations

Other equations for calculating the rating life ➤*1400*|*f1*, ➤*1400*|*f2* and ➤*1400*|*f3*.

f1
Basic rating life

$$L_s = 0{,}0314 \cdot D \cdot \left(\frac{C_{r\,w}}{P_r}\right)^p$$

f2
Basic rating life in oscillating operation

$$L_h = 26{,}18 \cdot \frac{D}{H \cdot n_{osc}} \cdot \left(\frac{C_{r\,w}}{P_r}\right)^p$$

f3
Basic rating life

$$L_h = 52{,}36 \cdot \frac{D}{\bar{v}} \cdot \left(\frac{C_{r\,w}}{P_r}\right)^p$$

Legend

L_s	10^5 m	Basic rating life in 10^5 m
L_h	h	Basic rating life in operating hours
$C_{r\,w}$	N	Effective basic dynamic load rating. $C_{r\,w}$ is that load of constant magnitude and direction which a sufficiently large group of apparently identical track rollers can endure for a basic rating life of one million revolutions
P_r	N	Equivalent dynamic bearing load (radial load)
p	–	Life exponent: p = 3 for yoke or stud type track rollers based on balls p = 10/3 for yoke and stud type track rollers based on needle or cylindrical rollers
n	min^{-1}	Operating speed
D	mm	Outside diameter of track roller
H	m	Single stroke length for oscillating motion
n_{osc}	min^{-1}	Number of return strokes per minute
$\bar{v}$	m/min	Mean travel velocity.

Operating life

Life actually achieved

The operating life is defined as the life actually achieved by a yoke type track roller, stud type track roller or ball bearing track roller. This can deviate significantly from the calculated basic rating life.

https://www.schaeffler.de/std/1D65

✎ *Cause of deviations*

Possible causes of a deviation between the basic rating life and the operating life are wear or fatigue as a result of:

- deviations in the operating data
- misalignment between the track roller and mating track
- insufficient or excessive operating clearance
- contamination of the track roller
- inadequate lubrication
- excessive operating temperature
- oscillating bearing motion with very small swivel angles, leading to false brinelling
- wear between the outer ring outside surface and mating track
- high vibration and false brinelling
- very high shock loads, static overloading
- prior damage during mounting.

Due to the variety of mounting and operating conditions, the operating life cannot be precisely calculated in advance. The most reliable way of arriving at a close estimate is by comparison with similar applications.

Static load safety factor

✎ $S_0 = C_{0r\,w}/F_{0r}$

In addition to the basic rating life L, it is also always necessary to check the static load safety factor S_0 ➤ *1401* | *f 4*.

f 4
Static load safety factor

$$S_0 = \frac{C_{0r\,w}}{F_{0r}}$$

Legend

S_0	–	Static load safety factor
$C_{0r\,w}$	N	Effective radial basic static load rating in accordance with product table
F_{0r}	N	Maximum static radial load on track roller.

Track rollers are regarded as heavily loaded at a static load safety factor of $S_0 < 8$. Static load safety factors of $S_0 < 1$ cause plastic deformation of the rolling elements and the raceways, which can impair smooth running. This is only permissible for bearings with small rotary motions or in secondary applications.

If an application has a static load safety factor of $S_0 < 2$, please consult Schaeffler.

Frictional torque

✎ *Calculation only possible in approximate terms*

The frictional torque M_R of a yoke type, stud type or ball bearing track roller depends on many influencing factors such as load, speed and type, as well as the lubrication conditions and seal friction. Due to the wide range of these influencing factors, the frictional torque can only be calculated approximately.

For designs without contact seals, the frictional torque can be calculated under normal operating conditions and moderate speed range in accordance with ➤ *1401* | *f 5*.

f 5
Frictional torque

$$M_R = f \cdot F_r \cdot \frac{d_M}{2}$$

Legend

M_R	Nmm	Frictional torque of track roller
f	–	Coefficient of friction ➤ *1402*	*11* and ➤ *1402*	*12*
F_r	N	Radial load
d_M	mm	Mean bearing diameter of track roller (d + D)/2.

https://www.schaeffler.de/std/1D65

11
Coefficient of friction for yoke and stud type track rollers

Type	Coefficient of friction f
Cylindrical roller bearing, full complement	0,002 to 0,003
Needle roller bearing, with cage	0,003 to 0,004
Needle roller bearing, full complement	0,005 to 0,007

12
Coefficient of friction for track rollers

Type	Coefficient of friction f
Ball bearing, single row	0,0015 to 0,002
Ball bearing, double row	0,002 to 0,003

Validity of coefficients of friction

The stated factors f are valid for yoke type, stud type and ball bearing track rollers, which are unsealed or have a contact seal and are subjected to radial load. If sealed designs are used, higher coefficients of friction must be expected.

Influence of additional axial forces

Additional axial forces, such as those occurring under large skewed running angles, can lead to a substantial increase in the values, especially in the case of track rollers based on needle rollers. Track rollers based on ball bearings can support axial loads without a significant change in friction.

Displacement resistance

When an outer ring rolls on a track, it must overcome not only the friction within the bearing but also the rolling friction between the outer ring and the mating track. The displacement resistance is determined from the rolling friction and the frictional torque M_R in accordance with ➤ *1402* | *f 6*.

f 6
Displacement resistance

$$F_v = \frac{2 \cdot (f_R \cdot F_r + M_R)}{D}$$

Legend

F_v	N	Displacement resistance
f_R	mm	Coefficient of rolling friction for tracks made from hardened steel: $f_R = 0{,}05$ mm
F_r	N	Radial load
M_R	Nmm	Frictional torque
D	mm	Outside diameter of track roller.

1.15 Minimum load

Minimum load $C_{0rw}/F_r < 60$

In order to ensure that the outer ring is driven, that no slippage occurs and that the track roller does not lift from the mating track, the track roller must be subjected to a minimum load in dynamic operation. In general, the minimum load is calculated using the ratio $C_{0rw}/F_r < 60$.

1.16 Design of bearing arrangements

Adjacent construction for yoke type track rollers

Yoke type track rollers without inner ring, raceway design

For yoke type track rollers without an inner ring, the rolling element raceway on the shaft or stud must be hardened and ground ➤ *1402* | *13*. The surface hardness must be 670 HV to 840 HV, the hardening depths CHD or SHD must be sufficiently large.

13
Tolerances and surface design

Diameter tolerance of shafts or studs		Roughness	Roundness tolerance	Parallelism tolerance
Without inner ring	With inner ring		max.	max.
k5 Ⓔ	g6 Ⓔ (with point load)	Ramax 0,4 (Rzmax 2)	25% of diameter tolerance	50% of diameter tolerance

https://www.schaeffler.de/std/1D65

Location of yoke type track rollers without axial guidance

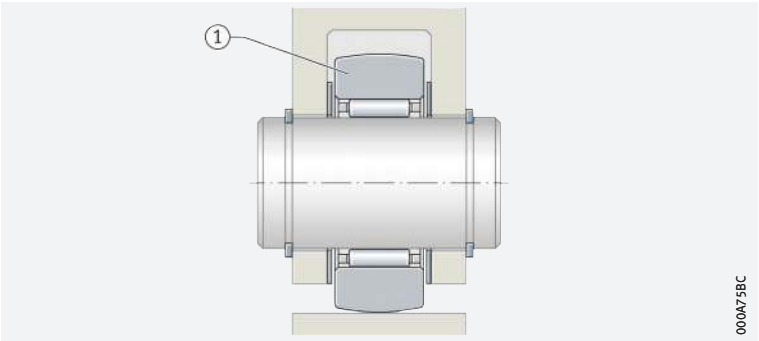
For yoke type track rollers without axial guidance, the outer ring and needle roller and cage assembly must be laterally guided ➤*1403*|*30*. The contact surfaces for the outer rings must be precision machined, wear-resistant and lubricated (Ramax 2 recommended).

Bearing parts must not be interchanged with parts from other bearings during fitting

Yoke type track rollers without axial guidance are not self-retaining. The outer ring and the needle roller and cage assembly are matched to each other and must not be interchanged during mounting with components from other bearings of the same size. The inner rings are matched to the enveloping circle tolerance class F6 and can be interchanged within their accuracy class (used in different combinations).

30
Lateral guidance of outer ring and needle roller and cage assembly

① *RSTO*



Location of yoke type track rollers with axial guidance

Observe dimension d_2

Yoke type track rollers with axial guidance must be axially clamped in place. The thrust washers must be axially supported if axial loads occur. The dimension d_2 in the product tables must be observed ➤*1403*|*31*.

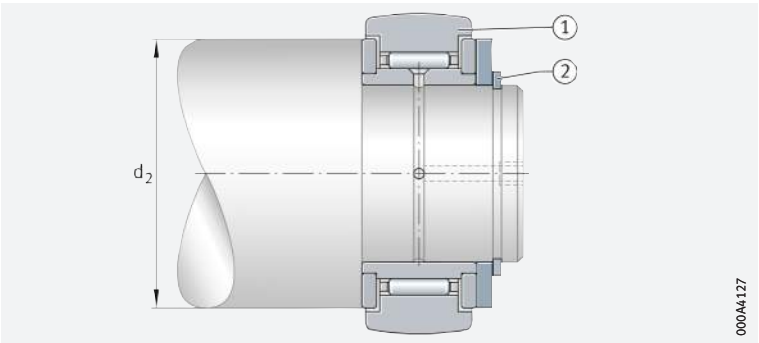
Location by snap ring

Yoke type track rollers NATR and NATV can be located using conventional fasteners such as snap rings ➤*1403*|*31*.

31
Location by snap ring

d_2 = *abutment diameter*

① *NATR*
② *Snap ring*

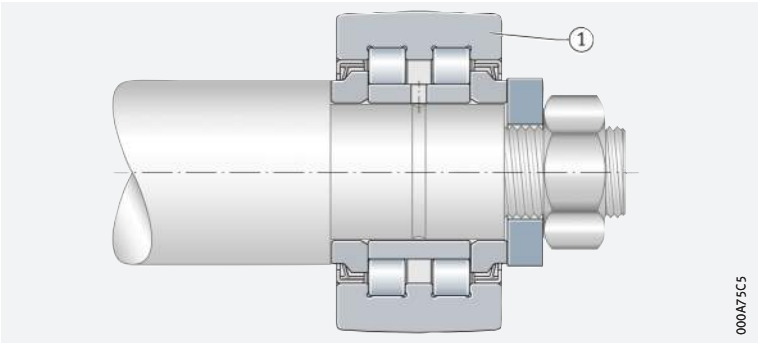


Firmly locate inner ring and thrust rings axially

For yoke type track rollers NNTR..-2ZL, NUTR and PWTR..-2RS, the inner ring and thrust rings must be located axially ➤*1403*|*32*.

32
Clamping of inner ring and thrust rings

① *PWTR..-2RS*



https://www.schaeffler.de/std/1D65

Adjacent construction for stud type track rollers

Bore tolerance H7

The bore tolerance H7 produces a clearance fit since the stud tolerance is h7 for studs without eccentric collar and h9 for studs with eccentric collar.

Design of locating surfaces

The locating surfaces for stud type track rollers must be flat, perpendicular and of sufficient height. The strength of the nut locating surface must be sufficiently high. The dimension must not be less than the dimension d_2 in the product tables.

Lead chamfer

The lead chamfer on the locating bore must not be more than 0,5×45°.

Axial location

Axial location

Stud type track rollers must be axially secured using a hexagon nut. The nuts of grade 8 to ISO 4032 (M6, M8), ISO 8673, are not included in the delivery and must be ordered separately.

If heavy vibration occurs, the stud type track rollers can be located using self-locking nuts in accordance with DIN 985 or special locking washers.

For self-locking nuts, a higher tightening torque must be observed; the advice given by the nut manufacturer must be followed.

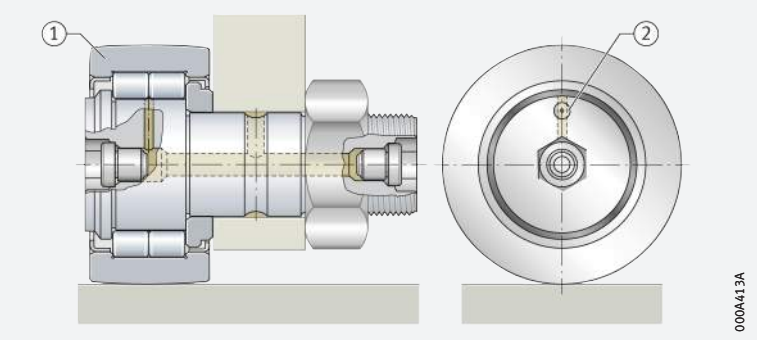
Position of lubrication hole

Ensure that the lubrication hole is positioned correctly

The position of the radial lubrication hole is indicated on the flanged side of the roller stud ➤*1404*| *33*. This must not be positioned in the loaded zone.

33
Position of lubrication hole

① *NUKR*
② *Marking (position of radial lubrication hole)*



Design of mating track

Take account of Hertzian pressure

In the design of the mating track (material and strength, heat treatment, surface), the Hertzian pressure p_H must be taken into consideration. This is dependent on the load, the contact geometry (point contact or line contact) and the modulus of elasticity of the materials.

Nomogram for determining the Hertzian pressure

The Hertzian pressure can be read from the nomogram and calculated ➤*1406*| *35*. The nomogram is valid for mating tracks made from steel. For other materials, the correction factor k must be taken into consideration ➤*1407*| *15*.

Additional conditions

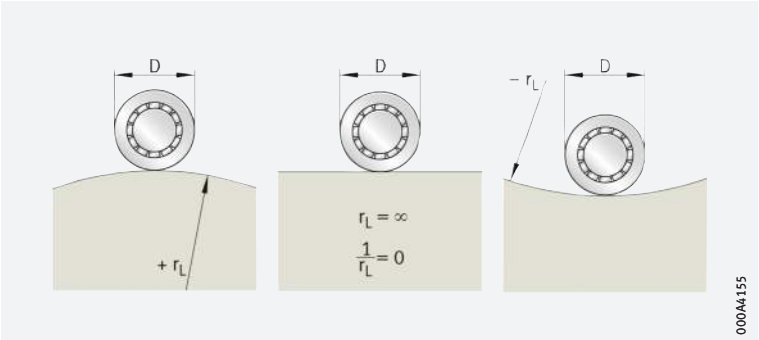
Other conditions:

- point contact
- radius of curvature R = 500. For radii R > 500 and the optimised INA profile, correction values must be calculated ➤*1407*| *10*
- mating track flat in the direction of the track roller axis
- signs according to ➤*1405*| *34*.

https://www.schaeffler.de/std/1D65

34
Raceway radii and signs

D = *outside diameter of track roller*
r_L = *raceway radius*



Example

NUKR35

- stud type track roller NUKR35 with optimised INA profile
- D = 35 mm
- outer ring width C = 18 mm
- radial load F_r = 2 500 N
- cam plate, radius r_L = 80 mm.

Curvature sum

Calculating the curvature sum

The curvature sum is calculated from the raceway radius r_L and the diameter D of the track roller ➤ *1405* | *f 7*.

f 7
Curvature sum

$$\frac{1}{r_L} + \frac{2}{D} = \frac{1}{80} + \frac{2}{35} = 0{,}07\ \text{mm}^{-1}$$

p_{H500} = 1 250 N/mm²

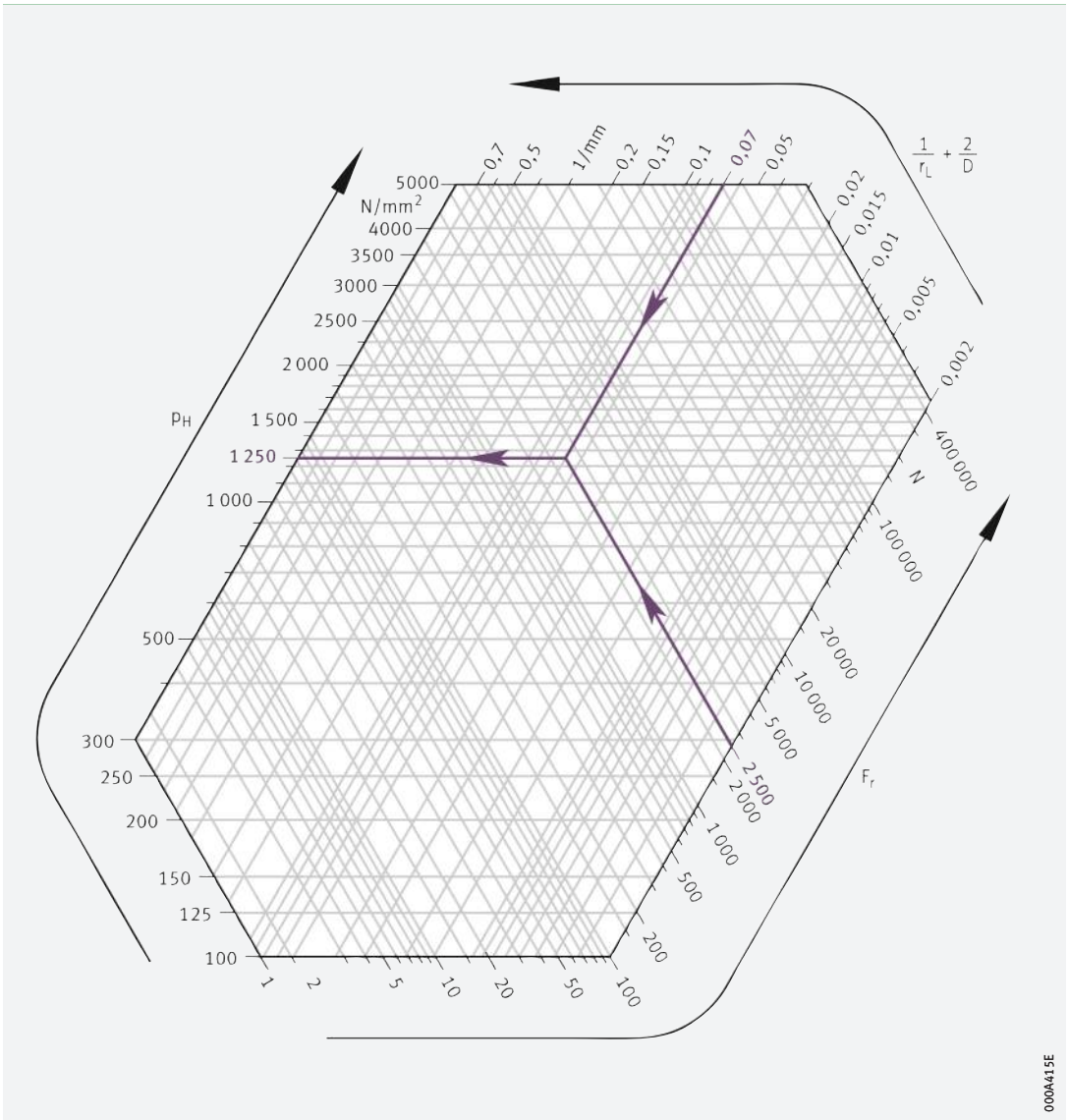
f 8
Hertzian pressure

$$p_{H\ \text{opt. INA profile}} \approx 1\,250\ \text{N/mm}^2 \cdot k_{pH}$$

= 1 250 N/mm² · 0,85
= 1 063 N/mm²
(1 025 N/mm² from calculation program BEARINX),
k_{pH} ➤ *1406* | ▦ *14*.

https://www.schaeffler.de/std/1D65

35 *Nomogram for determining Hertzian pressure, calculation example (purple)*



Track rollers with optimised INA profile

For an outer ring with the optimised INA profile, the following calculation provides sufficiently precise values ➤*1406*| *9* and ➤*1406*| *14*.

9
Optimised INA profile

$$p_{H\,opt.\,INA\,profile} \approx k_{pH} \cdot p_{H500}$$

14
Pressure factor k_{pH}

Outer ring width C mm	Pressure factor k_{pH}
$10 \leqq C \leqq 15$	1
$15 < C \leqq 20$	0,85
$20 < C \leqq 30$	0,83
$30 < C \leqq 35$	0,8

https://www.schaeffler.de/std/1D65

Radius of curvature R > 500 mm

If the outer ring has a radius of curvature of R > 500 mm, ➤*1407*| *10*.

10
R > 500 mm

$$p_{HR} = p_{H\,500} \cdot \left(\frac{500}{R}\right)^{0,185}$$

Materials for mating track

✎ *High load on the mating track*

The mating track is subjected to high load during overrolling. This produces high Hertzian contact pressures. The strength and surface hardness of the material must be matched to this load.

✎ *Correction factors*

For raceways subjected to high loads, through hardened steels, case hardened steels and steels for flame or induction hardening are recommended. For raceways subjected to low loads, construction steels and cast steel or cast iron materials can be used ➤*1407*| *11* ➤*1407*| *15*.

11
Correction for mating track material

$$p_H = k \cdot p_H(\text{steel / steel})$$

15
Correction factor k

Material	Material no.	Correction factor for mating track with k	
		for point contact	for line contact
EN-GJL-200	0.6020	0,74	0,8
EN-GJL-300	0.6030	0,81	0,85
GG-40	–	0,85	0,88
EN-GJS-400-15	0.7040	0,92	0,94
EN-GJS-600-3	0.7060	0,94	0,96
EN-GJS-800-2	0.7080	0,96	0,97

Guide values for permissible Hertzian pressure

✎ *Selection by material*

The table ➤*1408*| *16* gives a selection of materials with the associated values. The values were determined on steel test specimens; load cycles of 10^7 were achieved.

On a similar basis to the calculation of the load carrying capacity of rolling bearings, this gives:

- $p_{H\,stat}$ for predominantly static load
- $p_{H\,dyn}$ for predominantly dynamic load.

https://www.schaeffler.de/std/1D65

16
Materials and guide values for permissible Hertzian pressure (selection)

Material	Material designation		Material no.		Hertzian pressure		Proof stress of material
	new	old			$p_{H\,stat}$ N/mm²	$p_{H\,dyn}$ N/mm²	$R_{p0,2}$ N/mm²
Flake graphite cast iron	EN-GJL-150	GG-15	EN-JL1020	0.6015	850	340	120
	EN-GJL-200	GG-20	EN-JL1030	0.6020	1 050	420	150
	EN-GJL-250	GG-25	EN-JL1040	0.6025	1 200	480	190
	EN-GJL-300	GG-30	EN-JL1050	0.6030	1 350	540	220
	EN-GJL-350	GG-35	EN-JL1060	0.6035	1 450	580	250
	GG-40		–		1 500	600	280
Spheroidal graphite cast iron	EN-GJS-400-15	GGG-40	EN-JS1030	0.7040	1 000	490	250
	EN-GJS-500-7	GGG-50	EN-JS1050	0.7050	1 150	560	320
	EN-GJS-600-3	GGG-60	EN-JS1060	0.7060	1 400	680	380
	EN-GJS-700-2	GGG-70	EN-JS1070	0.7070	1 550	750	440
	EN-GJS-800-2	GGG-80	EN-JS1080	0.7080	1 650	800	500
Cast steel	GE200	GS-38	1.0420		780	380	200
	GE240	GS-45	1.0446		920	450	230
	GS-52		1.0552		1 050	510	260
	GE300	GS-60	1.0558		1 250	600	300
	GS-62		–		1 300	630	350
	GS-70		–		1 450	700	420
Construction steel	S235JR	St 37-2	1.0037		690	340	235
	S275JR	St 44-2	1.0044		860	420	275
	S355J2G3+N	St 52-3	1.0570		980	480	355
Quenched and tempered steel	C45 V		1.0503		1 400	670	500
	Cf53 V		1.1213		1 450	710	520
	Cf56 V		–		1 550	760	550
	C60 V		1.0601		1 600	780	580
	46Cr2 V		1.7006		1 750	850	650
	42CrMo4 V		1.7225		2 000	980	900
	50CrV4 V		1.8159		2 000	980	900
Hardened steel and with tempering at low temperatures	100Cr6 H		1.3505		4 000	1 500	1 900
	16MnCr5[1]		1.7131		4 000	1 500	770[3]
	Cf53[2]		1.1213		4 000	1 500	730[3]
	Cf56[2]		–		4 000	1 500	760[3]

1) *Case hardened.*
2) *Induction surface layer hardening.*
3) *Proof stress of the core.*

Hardenable materials

✎ *Suitable steels*

The following materials with a purity level corresponding to that of alloyed construction steels may be used:

- through hardening steels to ISO 683-17, such as 100Cr6. In special cases, surface hardening is possible.
- case hardening steels to ISO 683-17, such as 17MnCr5, or in accordance with EN 10084, such as 16MnCr5. Both the hardenability and the core strength must be taken into consideration. For case hardening, a fine grained hardening structure and a case hardening depth CHD in accordance with ➤ *1409* | *12* is necessary.
- steels for flame or induction hardening to ISO 683-17, such as C56E2, or to DIN 17212, such as Cf53. For flame or induction hardening, only the parts of the machine component used as raceways must be hardened. The material should be quenched and tempered before hardening. The surface hardening depth SHD is determined in accordance with ➤ *1409* | *13*.

https://www.schaeffler.de/std/1D65

Heat treatment of the mating track

Specifications for heat treatment

The following apply for hardened mating tracks:

- a surface hardness of 670 HV to 840 HV
- CHD and SHD according to ➤*1409*|𝑓*12* and ➤*1409*|𝑓*13* – in accordance with DIN 50190, the depth of the hardened surface zone at which there is still a hardness of 550 HV
- hardness curves according to ➤*1409*|*36* and ➤*1409*|*37*
- a hardening depth of ≧ 0,3 mm.

The equations are based on the hardness curves normally achieved with skilled heat treatment.

Case hardening

𝑓12
Case hardening depth

$$CHD \geqq 2{,}73 \cdot 10^{-5} \cdot \frac{p_H}{\left(\frac{1}{r_L} + \frac{2}{D}\right)}$$

Flame and induction hardening

𝑓13
Surface hardening depth

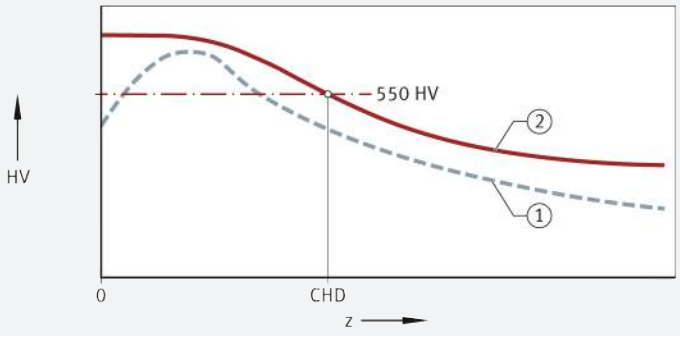
$$SHD \geqq 10^{-5} \cdot \frac{\left(4{,}4 \cdot \frac{p_H{}^2}{R_{p0,2}} - 3{,}5 \cdot p_H\right)}{\left(\frac{1}{r_L} + \frac{2}{D}\right)}$$

Legend

p_H	N/mm²	Max. Hertzian pressure
CHD	mm	Case hardening depth
SHD	mm	Surface hardening depth
D	mm	Outside diameter of track roller
$R_{p0,2}$	N/mm²	Proof stress of mating track material ➤*1408*|▤*16*
r_L	mm	Radius of mating track – the raceway must be flat in the direction of the yoke type track roller axis ➤*1405*|*34*.

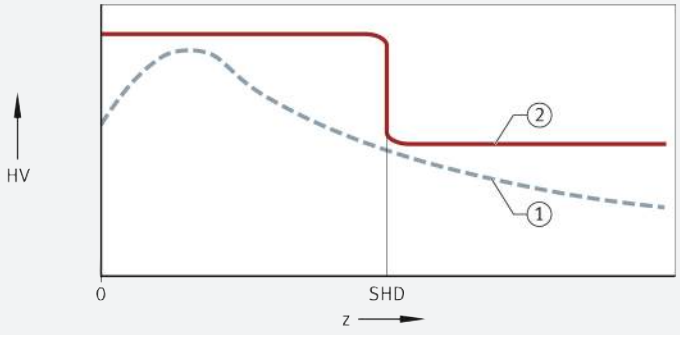
36
Case hardening depth CHD, hardness curve

CHD = *case hardening depth with hardness 550 HV*
HV = *hardness*
z = *distance from surface*
① *Required hardness*
② *Case hardening*



37
Surface hardening depth SHD, hardness curve

SHD = *surface hardening depth*
HV = *hardness*
z = *distance from surface*
① *Required hardness*
② *Flame or induction hardening*



https://www.schaeffler.de/std/1D65

Schaeffler guideways as mating tracks

✎ *Ready-to-fit units*

The Schaeffler guideways are ready-to-fit units from the Schaeffler linear range. They are to the appropriate grade Q20 for yoke and stud type track rollers and correspond to the dimensions of standard profiles:

- parallelism 20 µm/m
- surface quality Ramax 0,8
- hardness 58 HRC to 62 HRC
- angular misalignment between the raceways max. 1 mrad (1 µm/mm)
- deviations of the guideway cross-section +0,05/+0,015
- length tolerance of the individual guideway +1/0 mm/m.

Enquiry and delivery address

✎ *Address*

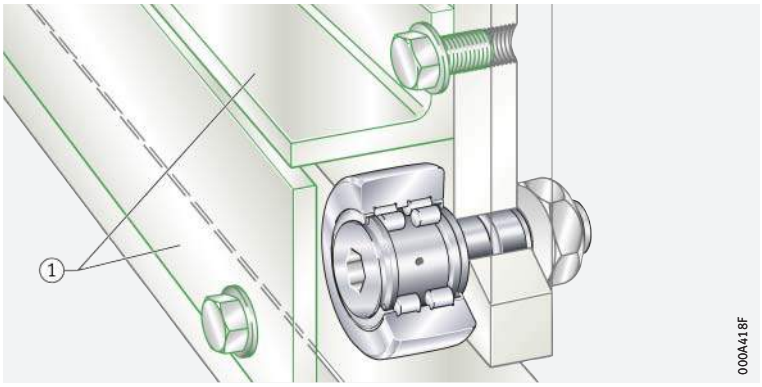
Schaeffler Technologies AG & Co. KG
Linear Technology Division
66406 Homburg (Saar)
Internet ➤ *www.schaeffler.de/en*
E-mail ➤ *info.linear@schaeffler.com*
Telephone 0180 5003872
Fax 0180 5003873

Protection of mating track

The mating track must be protected against contamination. Where necessary, covers and wipers, for instance made from felt, should be placed ahead of the track roller ➤ *1410* | *38*.

38
Protection of mating track against contamination

① *Covers*



https://www.schaeffler.de/std/1D65

1.17 Mounting and dismounting

✎ *Mounting*

Track rollers must be handled with care before and during assembly. Their trouble-free operation depends largely on the care taken during mounting.

✎ *Guidelines for mounting*

The products must be protected against dust, contaminants and moisture. Contaminants have a detrimental influence on the running and operating life of rolling bearings.

Do not cool the bearings excessively. Moisture due to condensation can lead to corrosion in the bearings and bearing seats.

Yoke type track rollers RSTO and STO are not self-retaining. The outer ring and the needle roller and cage assembly are matched to each other and must not be interchanged during mounting with components from other bearings of the same size.

The assembly area must be kept clean and free from dust.

Check the seat of the axis for dimensional, geometrical and positional accuracy and for cleanliness.

The seating surfaces of the bearing rings must be lightly oiled or rubbed with solid lubricant.

After mounting, the bearings must be supplied with lubricant.
Finally, the correct functioning of the bearing arrangement must be checked.

✎ *Mounting tools*

Depending on the application, the following are suitable:

- induction heaters; note the manufacturer's guidance on grease and seals
- heating cupboard; heating up to +80 °C
- mechanical or hydraulic presses; use mounting sleeves that cover the whole circumference of the bearing ring end faces
- hammer and mounting sleeves; blows should only be applied concentrically to the sleeve.

Mounting forces must never be directed through the rolling elements. Avoid direct blows on the bearing rings in all cases. Ensure that the seals are not damaged.

✎ *Guidelines for dismounting*

Dismounting should be taken into consideration in the original design of the bearing position. If the bearing is to be reused:

- avoid direct blows on the bearing rings
- dismounting forces should not be applied through the rolling elements
- carefully clean the bearings after dismounting
- do not use a concentrated or "hard" flame.

Mounting and dismounting of yoke type track rollers

✎ *Use a mounting press*

If the tolerances are unfavourable, the yoke type track roller should be pressed onto the shaft or stud using a mounting press ➤*1412*|*39*.
The inner ring must be mounted such that the pressing-in force is distributed uniformly over the end face of the inner ring.

✎ *Lubrication hole*

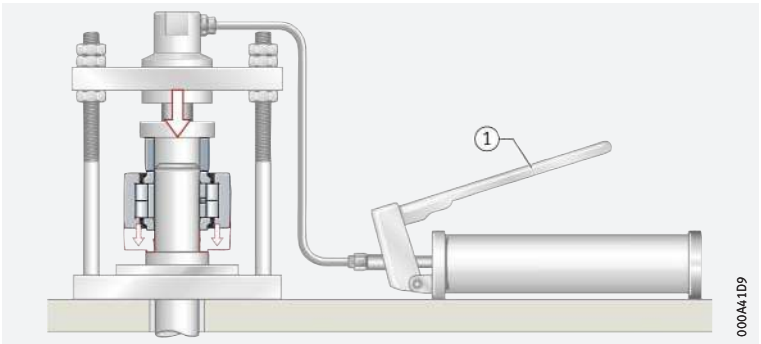
The bearings must be mounted such that the lubrication hole is positioned in the unloaded zone. For yoke type track rollers PWTR and NNTR, defined positioning of the lubrication hole is not required.

https://www.schaeffler.de/std/1D65

39
Mounting of yoke type track roller using a mounting press

NUTR

① *Mounting press*



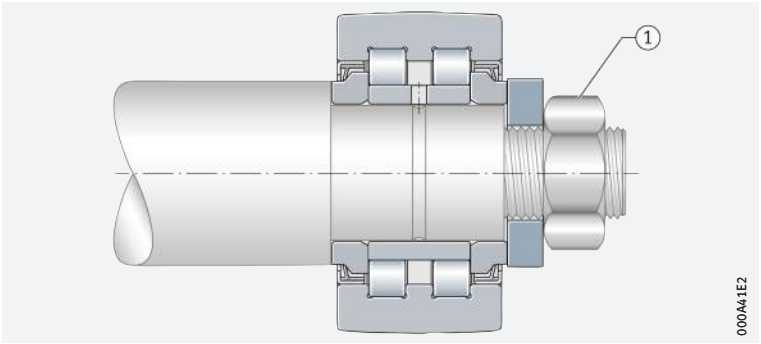
✎ *Axial location*

Yoke type track rollers NUTR, PWTR and NNTR must be axially clamped in place ➤*1412*|*40*.

40
Axial location

PWTR..-2RS

① *Hexagon nut*



Mounting and dismounting of stud type track rollers

✎ *Use a mounting press*

Stud type track rollers should be mounted using a mounting press if possible ➤*1412*|*39*.

Blows on the flange of the roller stud must be avoided. The position of the lubrication hole is indicated on the flanged side of the roller stud. It must not be positioned in the loaded zone ➤*1404*|*33*.

Drive fit lubrication nipples for stud type track rollers

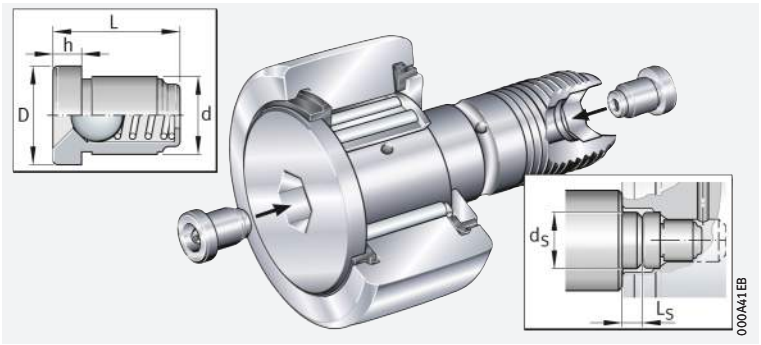
✎ *Fit the lubrication nipples before mounting the bearings*

Stud type track rollers are supplied with loose drive fit lubrication nipples that must be pressed in correctly before mounting of the bearings ➤*1412*|*41*. For lubrication of stud type track rollers using the central lubrication adapter ➤*1393*|*24*.

Only the lubrication nipples supplied may be used ➤*1413*|*17*. If lubrication is to be carried out via the locating bore, the axial lubrication holes in the stud type track roller must be closed off using the lubrication nipples before mounting ➤*1412*|*41*.

41
Stud type track roller with drive fit lubrication nipple and dimensions for pressing mandrel

KR..-PP



https://www.schaeffler.de/std/1D65

17 *Drive fit lubrication nipples*

Lubrication nipple	Dimensions						Suitable for outside diameter
	D	d	L	h	d_S ±0,1	L_S	D
	mm	mm	mm	mm	mm	mm	
NIPA1	6	4	6	1,5[1)]	–	–	16 and 19
NIPA1×4,5	4,7	4	4,5	1	4,5	5	22 to 32
NIPA2×7,5	7,5	6	7,5	2	7,5	6	35 to 52
NIPA3×9,5	9,5	8	9,5	3	10	9	62 to 90

1) *Projection of lubrication nipple, see product tables*

Axial location of stud type track rollers

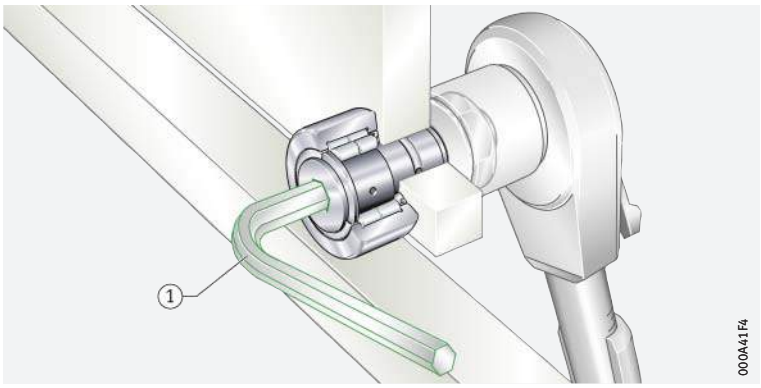
Secure bearings axially

Stud type track rollers must be axially secured using a hexagon nut. The slot or hexagonal socket on the end of the roller stud can be used to hold the bearing by means of a key while tightening the fixing nut and to adjust the eccentric collar ➤*1413*|*42*. If heavy vibration occurs, self-locking nuts to DIN 985 or special locking washers can be used.

The tightening torque for the fixing nuts stated in the product tables must be observed. It is only in this way that the permissible radial load can be ensured. If this cannot be adhered to, an interference fit is required. For self-locking nuts, a higher tightening torque must be observed; the advice given by the nut manufacturer must be followed.

42 *Securing the bearing using an Allen key*

① *Allen key*



Stud type track rollers with eccentric collar

Highest point on the eccentric collar

The highest point on the eccentric collar is indicated on the roller stud side, which also gives the position of the radial lubrication hole.

Commissioning and relubrication

Position of the relubrication holes

Stud type track rollers have a lubrication hole for relubrication:

- on the flange side of the roller stud
- on the thread-side end face for outside diameters from 22 mm
- on the shank of the roller stud, for outside diameters from 30 mm with an additional lubrication groove.

Stud type track rollers with an eccentric collar cannot be relubricated via the stud. The eccentric collar covers the lubrication hole.

For lubrication, only grease guns with needle-point nozzles may be used that have an opening angle ≦ 60° ➤*1414*|*43*.

Before commissioning, the lubrication holes and feed pipes must be filled with grease in order to ensure protection against corrosion; lubrication can be carried out at the same time.

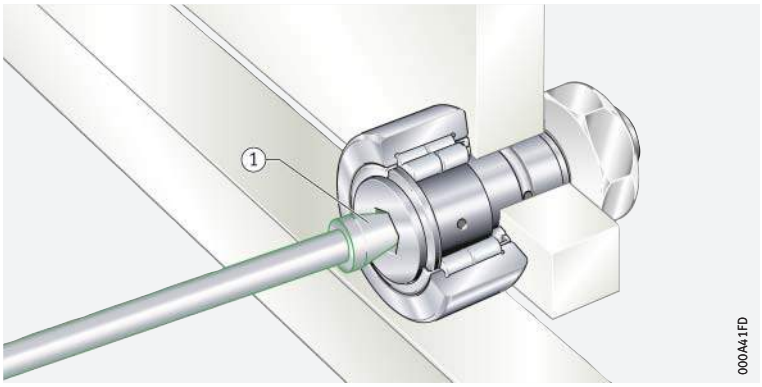
Lubrication will be more difficult if a rolling element is located over the radial lubrication hole. Relubrication should therefore be carried out with the bearing still warm from operation and rotating if safe to do so, before the bearing comes to rest if safe to do so and before extended breaks in operation.

https://www.schaeffler.de/std/1D65

The grease used for relubrication should be the same as that used for initial greasing. If this is not possible, the miscibility and compatibility of the greases must be checked. Relubrication should continue until a fresh collar of grease appears at the seal gaps. The old grease must be able to leave the bearing unhindered.

43
Relubrication using a grease gun

① *Needle-point nozzle, opening angle ≦ 60°*



Schaeffler Mounting Handbook

✎ Rolling bearings must be handled with great care

Rolling bearings are well-proven precision machine elements for the design of economical and reliable bearing arrangements, which offer high operational security. In order that these products can function correctly and achieve the envisaged operating life without detrimental effect, they must be handled with care.

The Schaeffler Mounting Handbook MH 1 gives comprehensive information about the correct storage, mounting, dismounting and maintenance of rotary rolling bearings ➤ *https://www.schaeffler.de/std/1D53*. It also provides information which should be observed by the designer, in relation to the mounting, dismounting and maintenance of bearings, in the original design of the bearing position. This book is available from Schaeffler on request.

1.18 Legal notice regarding data freshness

✎ The further development of products may also result in technical changes to catalogue products

Of central interest to Schaeffler is the further development and optimisation of its products and the satisfaction of its customers. In order that you, as the customer, can keep yourself optimally informed about the progress that is being made here and with regard to the current technical status of the products, we publish any product changes which differ from the printed version in our electronic product catalogue.

We therefore reserve the right to make changes to the data and illustrations in this catalogue. This catalogue reflects the status at the time of printing. More recent publications released by us (as printed or digital media) will automatically precede this catalogue if they involve the same subject. Therefore, please always use our electronic product catalogue to check whether more up-to-date information or modification notices exist for your desired product.

Link to electronic product catalogue

The following link will take you to the Schaeffler electronic product catalogue: ➤ *https://medias.schaeffler.com*.

https://www.schaeffler.de/std/1D65

1.19 Further information

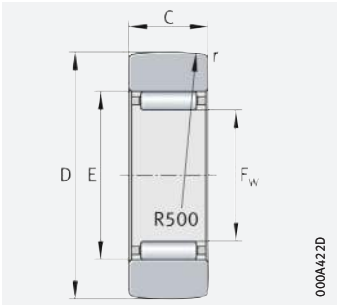
In addition to the data in this chapter, the following chapters in Technical principles must also be observed in the design of bearing arrangements:

- Determining the bearing size ➤*34*
- Rigidity ➤*54*
- Friction and increases in temperature ➤*56*
- Speeds ➤*64*
- Bearing data ➤*97*
- Lubrication ➤*70*
- Sealing ➤*182*
- Design of bearing arrangements ➤*139*
- Mounting and dismounting ➤*191*.

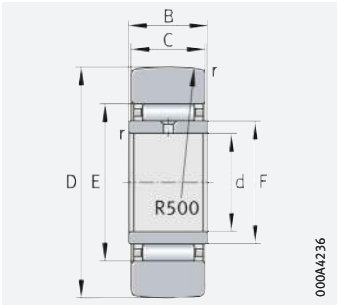
https://www.schaeffler.de/std/1D65

Yoke type roller bearing track rollers

Without axial guidance
Open



RSTO



STO

D = 16 – 90 mm

Main dimensions			Basic load ratings		Fatigue limit load	Speed	Mass	Without inner ring Designation	Dimensions	
D	F F_w [1]	C	dyn. $C_{r\,w}$	stat. $C_{0r\,w}$	$C_{ur\,w}$	$n_{D\,G}$	m	➤*1398*|*1.12* ➤*1399*|*1.13*	E	r
			N	N	N	min^{-1}	≈ g			min.
16	7	7,8	2 550	2 600	330	16 000	8,5	**RSTO5-TV**	10	0,3
19	10	9,8	3 750	4 550	650	10 000	12,5	**RSTO6-TV**	13	0,3
24	12	9,8	4 200	5 500	780	8 000	21	**RSTO8-TV**	15	0,3
30	14	11,8	8 400	9 300	1 370	5 500	42	**RSTO10**	20	0,3
32	16	11,8	9 000	10 300	1 530	4 500	49	**RSTO12**	22	0,3
35	20	11,8	9 100	10 900	1 640	3 300	50	**RSTO15**	26	0,3
40	22	15,8	14 200	17 900	2 550	2 800	88	**RSTO17**	29	0,3
47	25	15,8	16 100	21 700	3 050	2 400	130	**RSTO20**	32	0,3
52	30	15,8	16 400	23 200	3 300	1 800	150	**RSTO25**	37	0,3
62	38	19,8	23 100	35 000	4 700	1 300	255	**RSTO30**	46	0,6
72	42	19,8	25 000	40 500	5 400	1 100	375	**RSTO35**	50	0,6
80	50	19,8	23 700	39 500	5 900	850	420	**RSTO40**	58	1
85	55	19,8	25 000	43 500	5 900	750	453	**RSTO45**	63	1
90	60	19,8	25 500	46 000	6 300	650	481	**RSTO50**	68	1

Main dimensions			Basic load ratings		Fatigue limit load	Speed	Mass	With inner ring Designation	Dimensions			
D	F [1]	C	dyn. $C_{r\,w}$	stat. $C_{0r\,w}$	$C_{ur\,w}$	$n_{D\,G}$	m	➤*1398*|*1.12* ➤*1399*|*1.13*	d	B	E	r
			N	N	N	min^{-1}	≈ g					min.
19	10	9,8	3 750	4 550	650	10 000	17	**STO6-TV**	6	10	13	0,3
24	12	9,8	4 200	5 500	780	8 000	26	**STO8-TV**	8	10	15	0,3
30	14	11,8	8 400	9 300	1 370	5 500	49	**STO10**	10	12	20	0,3
32	16	11,8	9 000	10 300	1 530	4 500	57	**STO12**	12	12	22	0,3
35	20	11,8	9 100	10 900	1 640	3 300	63	**STO15**	15	12	26	0,3
40	22	15,8	14 200	17 900	2 550	2 800	107	**STO17**	17	16	29	0,3
47	25	15,8	16 100	21 700	3 050	2 400	152	**STO20**	20	16	32	0,3
52	30	15,8	16 400	23 200	3 300	1 800	177	**STO25**	25	16	37	0,3
62	38	19,8	23 100	35 000	4 700	1 300	308	**STO30**	30	20	46	0,6
72	42	19,8	25 000	40 500	5 400	1 100	441	**STO35**	35	20	50	0,6
80	50	19,8	23 700	39 500	5 900	850	530	**STO40**	40	20	58	1
85	55	19,8	25 000	43 500	5 900	750	576	**STO45**	45	20	63	1
90	60	19,8	25 500	46 000	6 300	650	617	**STO50**	50	20	68	1

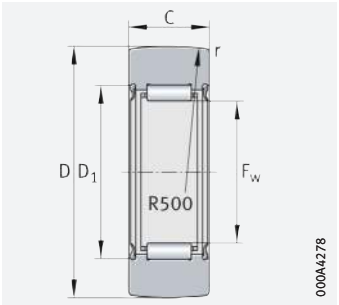
medias ➤ *https://www.schaeffler.de/std/1E1D*

[1] F = raceway diameter of inner ring; F_w = needle roller enveloping circle in tolerance class F6.

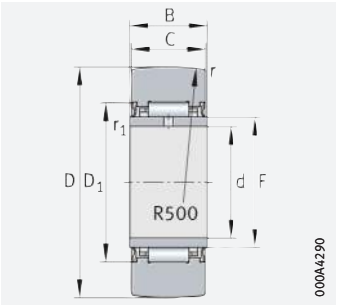
https://www.schaeffler.de/std/1D65

Yoke type roller bearing track rollers

Without axial guidance
Sealed



RNA22
With seal 2RSR



NA22
With seal 2RSR

D = 19 – 90 mm

Main dimensions			Basic load ratings		Fatigue limit load	Speed	Mass	Without inner ring Designation	Dimensions	
D	F F_w [1]	C	dyn. $C_{r\,w}$	stat. $C_{0r\,w}$	$C_{ur\,w}$	$n_{D\,G}$	m	➤ *1398 | 1.12* ➤ *1399 | 1.13*	D_1	r
			N	N	N	min^{-1}	≈ g		min.	min.
19	10	11,8	3 900	3 700	485	9 000	18	**RNA22/6-2RSR**	15,15	0,3
24	12	11,8	4 800	4 300	630	7 000	29	**RNA22/8-2RSR**	18	0,3
30	14	13,8	7 000	6 900	1 090	5 500	52	**RNA2200-2RSR**	20	0,6
32	16	13,8	7 500	8 300	1 270	4 700	57	**RNA2201-2RSR**	22	0,6
35	20	13,8	7 600	9 800	1 370	3 400	60	**RNA2202-2RSR**	26	0,6
40	22	15,8	9 900	14 000	1 840	3 000	94	**RNA2203-2RSR**	28	1
47	25	17,8	14 000	19 100	2 650	2 300	152	**RNA2204-2RSR**	33	1
52	30	17,8	14 400	20 800	2 900	1 800	179	**RNA2205-2RSR**	38	1
62	35	19,8	17 100	26 000	3 550	1 400	284	**RNA2206-2RSR**	43	1
72	42	22,7	21 500	36 000	5 200	1 100	432	**RNA2207-2RSR**	50	1,1
80	48	22,7	26 000	41 000	5 300	850	530	**RNA2208-2RSR**	57	1,1

Main dimensions			Basic load ratings		Fatigue limit load	Speed	Mass	With inner ring Designation	Dimensions				
D	F [1]	C	dyn. $C_{r\,w}$	stat. $C_{0r\,w}$	$C_{ur\,w}$	$n_{D\,G}$	m	➤ *1398 | 1.12* ➤ *1399 | 1.13*	d	B	D_1	r	r_1
			N	N	N	min^{-1}	≈ g				min.	min.	min.
19	10	11,8	3 900	3 700	485	9 000	22	**NA22/6-2RSR**	6	12	16	0,3	0,3
24	12	11,8	4 800	4 300	630	7 000	34	**NA22/8-2RSR**	8	12	18	0,3	0,3
30	14	13,8	7 000	6 900	1 090	5 500	60	**NA2200-2RSR**	10	14	20	0,6	0,3
32	16	13,8	7 500	8 300	1 270	4 700	67	**NA2201-2RSR**	12	14	22	0,6	0,3
35	20	13,8	7 600	9 800	1 370	3 400	75	**NA2202-2RSR**	15	14	26	0,6	0,3
40	22	15,8	9 900	14 000	1 840	3 000	112	**NA2203-2RSR**	17	16	28	1	0,3
47	25	17,8	14 000	19 100	2 650	2 300	177	**NA2204-2RSR**	20	18	33	1	0,3
52	30	17,8	14 400	20 800	2 900	1 800	209	**NA2205-2RSR**	25	18	38	1	0,3
62	35	19,8	17 100	26 000	3 550	1 400	324	**NA2206-2RSR**	30	20	43	1	0,3
72	42	22,7	21 500	36 000	5 200	1 100	505	**NA2207-2RSR**	35	23	50	1,1	0,6
80	48	22,7	26 000	41 000	5 300	850	628	**NA2208-2RSR**	40	23	57	1,1	0,6
90	58	22,7	26 000	43 000	5 600	650	690	**NA2210-2RSR**	50	23	68	1,1	0,6

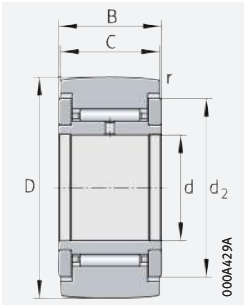
medias ➤ *https://www.schaeffler.de/std/1E1E*

[1] F = raceway diameter of inner ring; F_w = needle roller enveloping circle in tolerance class F6.

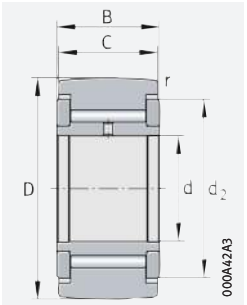
https://www.schaeffler.de/std/1D65

Yoke type roller bearing track rollers

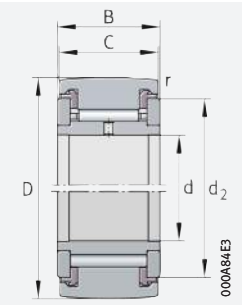
With axial guidance
Gap seal or
axial plain washer



NATR (R = 500 mm)
With gap seal



NATV (R = 500 mm)
With gap seal



NATR, NATV
With optimised INA profile
With axial plain washer

D = 5 – 50 mm

Main dimensions			Basic load ratings		Fatigue limit load	Speed	Mass	Designation[1]	Mass	Designation[2]	Dimensions		
d	D	B	dyn. C_{rw}	stat. C_{0rw}	C_{urw}	n_{DG}	m	➤*1398|1.12* ➤*1399|1.13*	m	➤*1398|1.12* ➤*1399|1.13*	C	d_2	r
			N	N	N	min^{-1}	≈ g		≈ g				min.
5	16	12	3 150	3 350	450	14 000	14	**NATR5**	14	**NATR5-PP**	11	12,5	0,15
	16	12	4 900	6 600	950	3 800	15	**NATV5**	15	**NATV5-PP**	11	12,5	0,15
6	19	12	3 500	4 000	540	11 000	20	**NATR6**	19	**NATR6-PP**	11	15	0,15
	19	12	5 400	8 000	1 170	3 100	21	**NATV6**	21	**NATV6-PP**	11	15	0,15
8	24	15	5 500	6 600	930	7 500	41	**NATR8**	38	**NATR8-PP**	14	19	0,3
	24	15	7 800	11 600	1 590	2 500	42	**NATV8**	41	**NATV8-PP**	14	19	0,3
10	30	15	6 800	8 600	1 220	5 500	64	**NATR10**	64	**NATR10-PP**	14	23	0,6
	30	15	9 500	14 900	2 050	2 100	65	**NATV10**	64	**NATV10-PP**	14	23	0,6
12	32	15	7 000	9 000	1 290	4 500	71	**NATR12**	66	**NATR12-PP**	14	25	0,6
	32	15	9 700	15 700	2 170	1 800	72	**NATV12**	69	**NATV12-PP**	14	25	0,6
15	35	19	9 700	14 300	1 830	3 600	101	**NATR15**	95	**NATR15-PP**	18	27,6	0,6
	35	19	12 600	23 100	3 200	1 600	109	**NATV15**	101	**NATV15-PP**	18	27,6	0,6
17	40	21	10 900	15 800	2 090	2 900	144	**NATR17**	139	**NATR17-PP**	20	31,5	1
	40	21	14 700	26 500	3 500	1 400	152	**NATV17**	147	**NATV17-PP**	20	31,5	1
20	47	25	15 400	26 000	3 400	2 400	246	**NATR20**	236	**NATR20-PP**	24	36,5	1
	47	25	20 300	42 000	5 900	1 300	254	**NATV20**	245	**NATV20-PP**	24	36,5	1
25	52	25	15 300	27 000	3 550	1 800	275	**NATR25**	271	**NATR25-PP**	24	41,5	1
	52	25	20 200	44 000	6 200	1 000	285	**NATV25**	281	**NATV25-PP**	24	41,5	1
30	62	29	23 200	39 000	5 200	1 300	470	**NATR30**	444	**NATR30-PP**	28	51	1
	62	29	30 000	62 000	8 800	850	481	**NATV30**	468	**NATV30-PP**	28	51	1
35	72	29	24 800	44 500	5 900	1 000	–	–	547	**NATR35-PP**	28	58	1,1
	72	29	32 500	71 000	10 100	750	–	–	630	**NATV35-PP**	28	58	1,1
40	80	32	32 000	58 000	8 300	850	–	–	795	**NATR40-PP**	30	66	1,1
	80	32	40 000	88 000	13 000	650	–	–	832	**NATV40-PP**	30	66	1,1
50	90	32	31 000	59 000	8 400	650	–	–	867	**NATR50-PP**	30	76	1,1
	90	32	39 000	92 000	13 600	550	–	–	969	**NATV50-PP**	30	76	1,1

medias ➤ *https://www.schaeffler.de/std/1E1F*

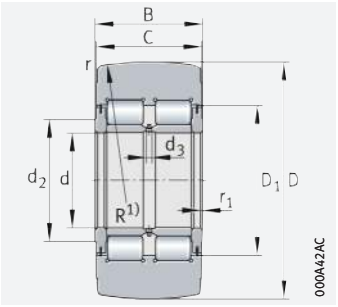
[1] Bearings with gap seals and radius of curvature of R = 500 mm.

[2] Bearings with plastic axial plain washer and optimised INA profile.
Permissible operating temperature: –30 °C to +100 °C (continuous operation).

https://www.schaeffler.de/std/1D65

Yoke type roller bearing track rollers

With axial guidance
Sealed



NNTR
With seal 2ZL

D = 130 – 310 mm

Main dimensions			Basic load ratings				Fatigue limit load	Speed	Mass	Designation[1]
D	d	B	dyn. $C_{r\,w}$	stat. $C_{0r\,w}$	dyn. $F_{r\,per}$	stat. $F_{0r\,per}$	$C_{ur\,w}$	$n_{D\,G}$	m	➤*1398|1.12* ➤*1399|1.13*
h10			N	N	N	N	N	min^{-1}	≈ kg	
130	50	65	193 000	265 000	265 000	265 000	37 000	1 100	5 200	**NNTR50×130×65-2ZL**
140	55	70	226 000	315 000	280 000	315 000	44 500	850	6 400	**NNTR55×140×70-2ZL**
150	60	75	255 000	365 000	330 000	365 000	53 000	800	7 800	**NNTR60×150×75-2ZL**
160	65	75	280 000	395 000	350 000	395 000	56 000	700	8 800	**NNTR65×160×75-2ZL**
180	70	85	355 000	510 000	465 000	510 000	75 000	600	13 000	**NNTR70×180×85-2ZL**
200	80	90	415 000	610 000	550 000	610 000	87 000	500	16 800	**NNTR80×200×90-2ZL**
220	90	100	500 000	750 000	600 000	750 000	104 000	400	22 500	**NNTR90×220×100-2ZL**
240	100	105	560 000	870 000	710 000	870 000	118 000	340	28 000	**NNTR100×240×105-2ZL**
260	110	115	670 000	1 050 000	820 000	1 050 000	143 000	300	35 600	**NNTR110×260×115-2ZL**
290	120	135	880 000	1 400 000	1 110 000	1 400 000	187 000	260	52 800	**NNTR120×290×135-2ZL**
310	130	146	1 010 000	1 630 000	1 280 000	1 630 000	216 000	240	65 200	**NNTR130×310×146-2ZL**

Dimensions				Mounting dimensions			Number of lubrication holes	Designation[1]
D	C	r	r_1	d_2	D_1	d_3		➤*1398|1.12* ➤*1399|1.13*
h10		min.	min.					
130	63	3	2	63	80	3	3	**NNTR50×130×65-2ZL**
140	68	3	2	73	91	4	3	**NNTR55×140×70-2ZL**
150	73	3	2	78	97	4	3	**NNTR60×150×75-2ZL**
160	73	3	2	82	103	5	3	**NNTR65×160×75-2ZL**
180	83	3	2	92	115	5	3	**NNTR70×180×85-2ZL**
200	88	4	2	102	127	5	3	**NNTR80×200×90-2ZL**
220	98	4	2,5	119	146	5	3	**NNTR90×220×100-2ZL**
240	103	4	2,5	132	160	6	6	**NNTR100×240×105-2ZL**
260	113	4	2,5	143	174	6	6	**NNTR110×260×115-2ZL**
290	133	4	3	155	191	8	6	**NNTR120×290×135-2ZL**
310	144	5	3	165	204	8	6	**NNTR130×310×146-2ZL**

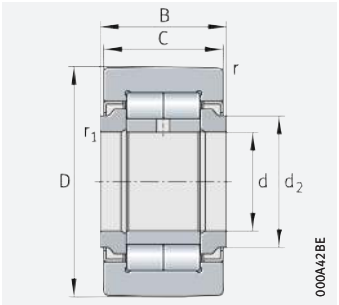
medias ➤ *https://www.schaeffler.de/std/1E20*

[1] Radius of curvature R = 10 000 for NNTR50×130×65-2ZL to NNTR110×260×115-2ZL.
Radius of curvature R = 15 000 for NNTR120×290×135-2ZL to NNTR130×310×146-2ZL.

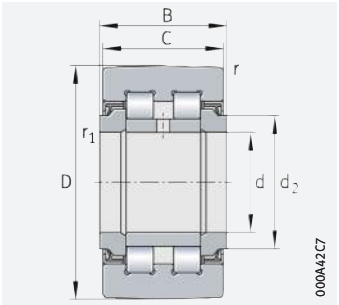
https://www.schaeffler.de/std/1D65

Yoke type roller bearing track rollers

With optimised INA profile and axial guidance
Sealed



NUTR
With optimised INA profile and labyrinth seal



PWTR
With optimised INA profile and seal 2RS

D = 35 – 110 mm

Main dimensions			Basic load ratings				Fatigue limit load	Speed	Mass	Designation	Dimensions			
D	d	B	dyn. $C_{r\,w}$	stat. $C_{0r\,w}$	dyn. $F_{r\,per}$	stat. $F_{0r\,per}$	$C_{ur\,w}$	$n_{D\,G}$	m	➤*1398*|*1.12* ➤*1399*|*1.13* X-life ➤*1384*	C	d_2	r	r_1
			N	N	N	N	N	min^{-1}	≈ g				min.	min.
35	15	19	15 300	18 700	8 500	16 800	2 430	6 500	99	**NUTR15**	18	20	0,6	0,3
	15	19	12 600	14 600	10 700	14 600	1 760	6 000	99	**PWTR15-2RS-XL**	18	20	0,6	0,3
40	17	21	18 700	24 900	13 000	24 900	3 150	5 500	147	**NUTR17**	20	22	1	0,5
	17	21	14 300	17 900	16 500	17 900	2 160	5 000	147	**PWTR17-2RS-XL**	20	22	1	0,5
42	15	19	18 300	24 300	24 300	24 300	3 100	6 500	158	**NUTR1542**	18	20	0,6	0,3
	15	19	14 700	16 200	16 200	16 200	2 140	6 000	158	**PWTR1542-2RS-XL**	18	20	0,6	0,3
47	17	21	21 600	30 500	30 500	30 500	3 850	5 500	220	**NUTR1747**	20	22	1	0,5
	17	21	15 900	18 400	18 400	18 400	2 440	5 000	220	**PWTR1747-2RS-XL**	20	22	1	0,5
	20	25	28 500	37 500	16 200	32 500	4 850	4 200	245	**NUTR20**	24	27	1	0,5
	20	25	24 500	30 500	20 700	30 500	3 750	3 800	245	**PWTR20-2RS-XL**	24	27	1	0,5
52	20	25	32 000	44 000	38 000	44 000	5 700	4 200	321	**NUTR2052**	24	27	1	0,5
	20	25	27 000	35 000	31 000	35 000	4 250	3 800	321	**PWTR2052-2RS-XL**	24	27	1	0,5
	25	25	29 000	40 500	17 100	34 000	5 300	4 200	281	**NUTR25**	24	31	1	0,5
	25	25	25 000	33 000	21 800	33 000	4 100	3 800	281	**PWTR25-2RS-XL**	24	31	1	0,5
62	25	25	35 500	54 000	54 000	54 000	6 900	4 200	450	**NUTR2562**	24	31	1	0,5
	25	25	30 000	42 500	42 500	42 500	5 200	3 800	450	**PWTR2562-2RS-XL**	24	31	1	0,5
	30	29	40 000	55 000	23 400	46 000	7 300	2 600	465	**NUTR30**	28	38	1	0,5
	30	29	35 000	45 500	29 000	45 500	5 800	2 200	465	**PWTR30-2RS-XL**	28	38	1	0,5

medias ➤ *https://www.schaeffler.de/std/1E21*

https://www.schaeffler.de/std/1D65

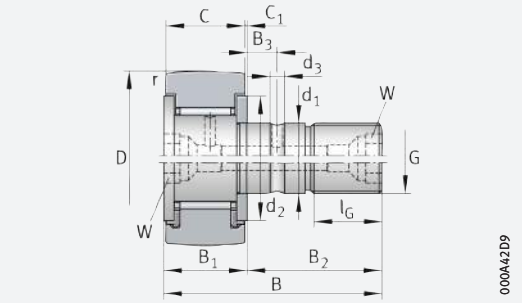
Main dimensions			Basic load ratings				Fatigue limit load	Speed	Mass	Designation	Dimensions			
D	d	B	dyn. $C_{r\,w}$	stat. $C_{0r\,w}$	dyn. $F_{r\,per}$	stat. $F_{0r\,per}$	$C_{ur\,w}$	$n_{D\,G}$	m	➤*1398*|*1.12* ➤*1399*|*1.13* X-life ➤*1384*	C	d_2	r	r_1
			N	N	N	N	N	min^{-1}	≈ g				min.	min.
72	30	29	48 000	70 000	68 000	70 000	9 200	2 600	697	**NUTR3072**	28	38	1	0,5
	30	29	41 000	56 000	54 000	56 000	7 200	2 200	697	**PWTR3072-2RS-XL**	28	38	1	0,5
	35	29	45 000	65 000	31 500	63 000	8 700	2 100	630	**NUTR35**	28	44	1,1	0,6
	35	29	38 500	54 000	39 000	54 000	6 900	1 800	630	**PWTR35-2RS-XL**	28	44	1,1	0,6
80	35	29	51 000	78 000	76 000	78 000	10 300	2 100	836	**NUTR3580**	28	44	1,1	0,6
	35	29	43 500	63 000	59 000	63 000	8 100	1 800	836	**PWTR3580-2RS-XL**	28	44	1,1	0,6
	40	32	56 000	80 000	31 000	60 000	11 000	1 600	816	**NUTR40**	30	50,5	1,1	0,6
	40	32	45 000	61 000	39 500	61 000	7 900	1 500	816	**PWTR40-2RS-XL**	30	50,5	1,1	0,6
85	45	32	56 000	83 000	32 000	62 000	11 500	1 400	883	**NUTR45**	30	55,2	1,1	0,6
	45	32	45 500	63 000	41 000	63 000	8 200	1 300	883	**PWTR45-2RS-XL**	30	55,2	1,1	0,6
90	40	32	66 000	101 000	84 000	101 000	13 900	1 600	1 129	**NUTR4090**	30	50,5	1,1	0,6
	40	32	52 000	75 000	67 000	75 000	9 600	1 500	1 129	**PWTR4090-2RS-XL**	30	50,5	1,1	0,6
	50	32	56 000	86 000	32 500	63 000	11 900	1 300	950	**NUTR50**	30	59,8	1,1	0,6
	50	32	46 000	66 000	42 000	66 000	8 500	1 100	950	**PWTR50-2RS-XL**	30	59,8	1,1	0,6
100	45	32	72 000	115 000	106 000	115 000	15 800	1 400	1 396	**NUTR45100**	30	55,2	1,1	0,6
	45	32	56 000	85 000	85 000	85 000	10 900	1 300	1 396	**PWTR45100-2RS-XL**	30	55,2	1,1	0,6
110	50	32	76 000	128 000	128 000	128 000	17 600	1 300	1 690	**NUTR50110**	30	59,8	1,1	0,6
	50	32	59 000	94 000	94 000	94 000	12 100	1 100	1 690	**PWTR50110-2RS-XL**	30	59,8	1,1	0,6

medias ➤ *https://www.schaeffler.de/std/1E22*

https://www.schaeffler.de/std/1D65

Stud type needle roller bearing track rollers

With axial guidance
Open or sealed



D ≧ 22 mm: KR (top: R = 500 mm);
KR..-PP (bottom: with optimised INA profile)

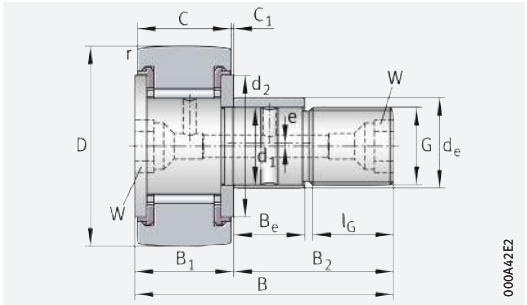
D = 16 – 32 mm

Main dimensions			Basic load ratings		Fatigue limit load	Speed	Mass	Designation	Mass	With eccentric collar Designation
D	d_1	B	dyn. C_{rw}	stat. C_{0rw}	C_{urw}	n_{DG}	m	➤*1398|1.12* ➤*1399|1.13*	m	➤*1398|1.12* ➤*1399|1.13*
	h7		N	N	N	min^{-1}	≈ g		≈ g	
16	6	28	3 150	3 350	450	14 000	19	**KR16**[3]	–	–
	6	28	3 150	3 350	450	14 000	18	**KR16-PP**[3]	20	**KRE16-PP**[3]
	6	28	3 150	3 350	450	14 000	19	**KR16-SK-PP**[4]	–	–
	6	28	4 900	6 600	950	3 800	19	**KRV16-PP**[3]	–	–
19	8	32	3 500	4 000	540	11 000	29	**KR19**[3]	–	–
	8	32	3 500	4 000	540	11 000	29	**KR19-PP**[3]	32	**KRE19-PP**[3]
	8	32	3 500	4 000	540	11 000	29	**KR19-SK-PP**[4]	–	–
	8	32	5 400	8 000	1 170	3 100	31	**KRV19-PP**[3]	–	–
22	10	36	4 550	5 300	730	8 000	45	**KR22**	–	–
	10	36	4 550	5 300	730	8 000	43	**KR22-PP**	47	**KRE22-PP**
	10	36	6 200	9 200	1 210	2 600	45	**KRV22-PP**	–	–
26	10	36	5 100	6 400	840	8 000	59	**KR26**	–	–
	10	36	5 100	6 400	840	8 000	57	**KR26-PP**	62	**KRE26-PP**
	10	36	7 300	11 500	1 500	2 600	59	**KRV26-PP**	–	–
30	12	40	6 800	8 600	1 220	5 500	92	**KR30**	–	–
	12	40	6 800	8 600	1 220	5 500	88	**KR30-PP**	93	**KRE30-PP**
	12	40	9 500	14 900	2 050	2 100	91	**KRV30-PP**	–	–
32	12	40	7 100	9 200	1 290	5 500	103	**KR32**	–	–
	12	40	7 100	9 200	1 290	5 500	98	**KR32-PP**	104	**KRE32-PP**
	12	40	10 000	16 100	2 200	2 100	101	**KRV32-PP**	–	–

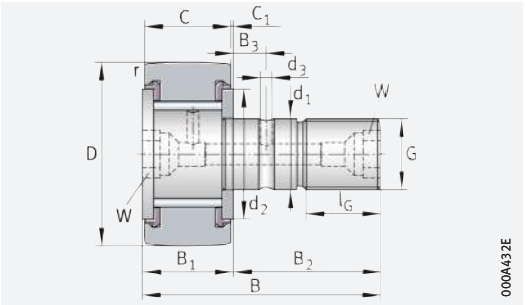
medias ➤ *https://www.schaeffler.de/std/1E23*

[1] Drive fit lubrication nipples are supplied loose. Only these lubrication nipples should be used.
[2] Nominal dimension for hexagonal socket.
[3] Relubrication hole only on the flange-side end face with slot for countertensioning during fitting.
[4] Hexagonal socket only on the flange-side end face. No relubrication facility.

https://www.schaeffler.de/std/1D65

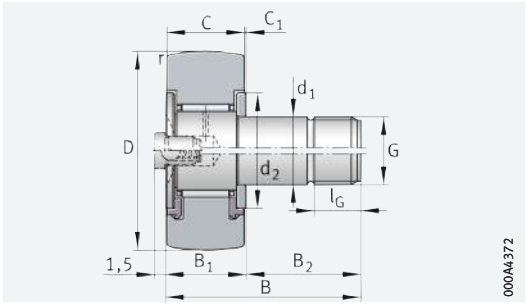


D ≧ 22 mm: KRE..-PP, with optimised INA profile

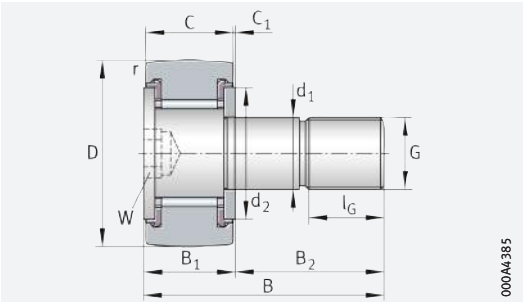


D ≧ 22 mm: KRV..-PP, with optimised INA profile

Dimensions															Drive fit lubrication nipple[1]	Nut tightening torque
D	B_1	B_2	B_3	C	C_1	r	d_2	d_3	G	l_G	W[2]	Eccentric collar				M_A
												d_e	B_e	e		
	max.					min.						h9				Nm
16	12,2	16	–	11	0,6	0,15	12,5	–	M6	8	–	–	–	–	NIPA1	3
	12,2	16	–	11	0,6	0,15	12,5	–	M6	8	–	9	7	0,5	NIPA1	3
	12,2	16	–	11	0,6	0,15	12,5	–	M6	8	4	–	–	–	–	3
	12,2	16	–	11	0,6	0,15	12,5	–	M6	8	–	–	–	–	NIPA1	3
19	12,2	20	–	11	0,6	0,15	15	–	M8	10	–	–	–	–	NIPA1	8
	12,2	20	–	11	0,6	0,15	15	–	M8	10	–	11	9	0,5	NIPA1	8
	12,2	20	–	11	0,6	0,15	15	–	M8	10	4	–	–	–	–	8
	12,2	20	–	11	0,6	0,15	15	–	M8	10	–	–	–	–	NIPA1	8
22	13,2	23	–	12	0,6	0,3	17,5	–	M10×1	12	5	–	–	–	NIPA1×4,5	15
	13,2	23	–	12	0,6	0,3	17,5	–	M10×1	12	5	13	10	0,5	NIPA1×4,5	15
	13,2	23	–	12	0,6	0,3	17,5	–	M10×1	12	5	–	–	–	NIPA1×4,5	15
26	13,2	23	–	12	0,6	0,3	17,5	–	M10×1	12	5	–	–	–	NIPA1×4,5	15
	13,2	23	–	12	0,6	0,3	17,5	–	M10×1	12	5	13	10	0,5	NIPA1×4,5	15
	13,2	23	–	12	0,6	0,3	17,5	–	M10×1	12	5	–	–	–	NIPA1×4,5	15
30	15,2	25	6	14	0,6	0,6	23	3	M12×1,5	13	6	–	–	–	NIPA1×4,5	22
	15,2	25	6	14	0,6	0,6	23	3	M12×1,5	13	6	15	11	0,5	NIPA1×4,5	22
	15,2	25	6	14	0,6	0,6	23	3	M12×1,5	13	6	–	–	–	NIPA1×4,5	22
32	15,2	25	6	14	0,6	0,6	23	3	M12×1,5	13	6	–	–	–	NIPA1×4,5	22
	15,2	25	6	14	0,6	0,6	23	3	M12×1,5	13	6	15	11	0,5	NIPA1×4,5	22
	15,2	25	6	14	0,6	0,6	23	3	M12×1,5	13	6	–	–	–	NIPA1×4,5	22



KR16, KR19 (top)
KR16-PP, KR19-PP (KRV16-PP, KRV19-PP) (bottom)

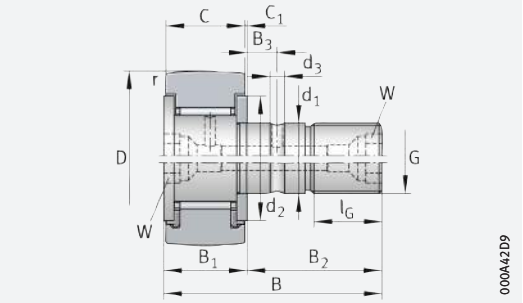


KR16-SK-PP, KR19-SK-PP

https://www.schaeffler.de/std/1D65

Stud type needle roller bearing track rollers

With axial guidance
Open or sealed



KR (top: R = 500 mm);
KR..-PP (bottom: with optimised INA profile)

D = 35 – 90 mm

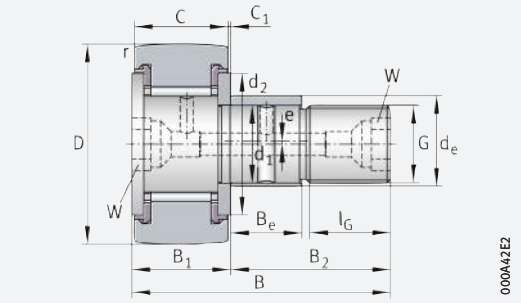
Main dimensions			Basic load ratings		Fatigue limit load	Speed	Mass	Designation	Mass	With eccentric collar Designation
D	d_1	B	dyn. C_{rw}	stat. C_{0rw}	C_{urw}	n_{DG}	m	➤*1398|1.12* ➤*1399|1.13*	m	➤*1398|1.12* ➤*1399|1.13*
	h7		N	N	N	min^{-1}	≈ g		≈ g	
35	16	52	9 700	14 300	1 830	3 600	173	**KR35**	–	–
	16	52	9 700	14 300	1 830	3 600	164	**KR35-PP**	177	**KRE35-PP**
	16	52	12 600	23 100	3 200	1 600	166	**KRV35-PP**	–	–
40	18	58	10 900	15 800	2 090	2 900	247	**KR40**	–	–
	18	58	10 900	15 800	2 090	2 900	239	**KR40-PP**	255	**KRE40-PP**
	18	58	14 700	26 500	3 500	1 400	247	**KRV40-PP**	–	–
47	20	66	15 400	26 000	3 400	2 400	381	**KR47-PP**	400	**KRE47-PP**
	20	66	20 300	42 000	5 900	1 300	390	**KRV47-PP**	–	–
52	20	66	16 600	29 000	3 800	2 400	454	**KR52-PP**	473	**KRE52-PP**
	20	66	22 300	48 000	6 700	1 300	463	**KRV52-PP**	–	–
62	24	80	26 000	48 000	6 800	1 900	770	**KR62-PP**	789	**KRE62-PP**
	24	80	33 500	75 000	11 200	1 100	787	**KRV62-PP**	–	–
72	24	80	28 000	53 000	7 200	1 900	1 010	**KR72-PP**	1 038	**KRE72-PP**
	24	80	36 500	85 000	12 600	1 100	1 027	**KRV72-PP**	–	–
80	30	100	38 500	77 000	11 000	1 300	1 608	**KR80-PP**	1 665	**KRE80-PP**
	30	100	48 500	117 000	17 400	850	1 636	**KRV80-PP**	–	–
90	30	100	40 500	83 000	11 700	1 300	1 975	**KR90-PP**	2 032	**KRE90-PP**
	30	100	52 000	129 000	19 000	850	2 003	**KRV90-PP**	–	–

medias ➤ *https://www.schaeffler.de/std/1E24*

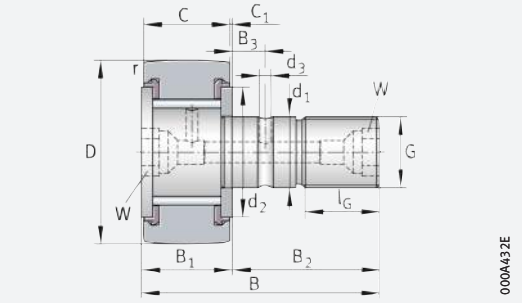
[1] Drive fit lubrication nipples are supplied loose. Only these lubrication nipples should be used.

[2] Nominal dimension for hexagonal socket.
Suitable central lubrication adapter for connection to a central lubrication system ➤*1393*.

https://www.schaeffler.de/std/1D65



KRE..-PP, with optimised INA profile



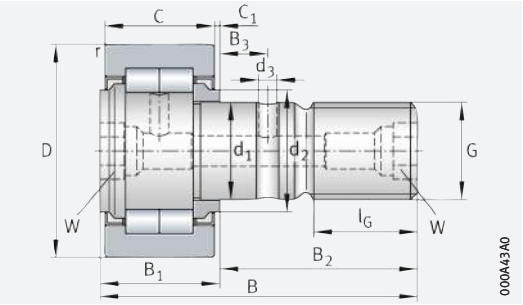
KRV..-PP, with optimised INA profile

Dimensions															Drive fit lubrication nipple[1]	Nut tightening torque
D	B_1	B_2	B_3	C	C_1	r	d_2	d_3	G	l_G	W[2]	Eccentric collar				M_A
												d_e	B_e	e		
	max.					min.						h9				Nm
35	19,6	32,5	8	18	0,8	0,6	27,6	3	M16×1,5	17	8	–	–	–	NIPA2×7,5	58
	19,6	32,5	8	18	0,8	0,6	27,6	3	M16×1,5	17	8	20	14	1	NIPA2×7,5	58
	19,6	32,5	8	18	0,8	0,6	27,6	3	M16×1,5	17	8	–	–	–	NIPA2×7,5	58
40	21,6	36,5	8	20	0,8	1	31,5	3	M18×1,5	19	8	–	–	–	NIPA2×7,5	87
	21,6	36,5	8	20	0,8	1	31,5	3	M18×1,5	19	8	22	16	1	NIPA2×7,5	87
	21,6	36,5	8	20	0,8	1	31,5	3	M18×1,5	19	8	–	–	–	NIPA2×7,5	87
47	25,6	40,5	9	24	0,8	1	36,5	4	M20×1,5	21	10	24	18	1	NIPA2×7,5	120
	25,6	40,5	9	24	0,8	1	36,5	4	M20×1,5	21	10	–	–	–	NIPA2×7,5	120
52	25,6	40,5	9	24	0,8	1	36,5	4	M20×1,5	21	10	24	18	1	NIPA2×7,5	120
	25,6	40,5	9	24	0,8	1	36,5	4	M20×1,5	21	10	–	–	–	NIPA2×7,5	120
62	30,6	49,5	11	29	0,8	1	44	4	M24×1,5	25	14	28	22	1	NIPA3×9,5	220
	30,6	49,5	11	29	0,8	1	44	4	M24×1,5	25	14	–	–	–	NIPA3×9,5	220
72	30,6	49,5	11	29	0,8	1,1	44	4	M24×1,5	25	14	28	22	1	NIPA3×9,5	220
	30,6	49,5	11	29	0,8	1,1	44	4	M24×1,5	25	14	–	–	–	NIPA3×9,5	220
80	37	63	15	35	1	1,1	53	4	M30×1,5	32	14	35	29	1,5	NIPA3×9,5	450
	37	63	15	35	1	1,1	53	4	M30×1,5	32	14	–	–	–	NIPA3×9,5	450
90	37	63	15	35	1	1,1	53	4	M30×1,5	32	14	35	29	1,5	NIPA3×9,5	450
	37	63	15	35	1	1,1	53	4	M30×1,5	32	14	–	–	–	NIPA3×9,5	450

https://www.schaeffler.de/std/1D65

Stud type cylindrical roller bearing track rollers

With axial guidance



NUKR, with optimised INA profile

D = 35 – 90 mm

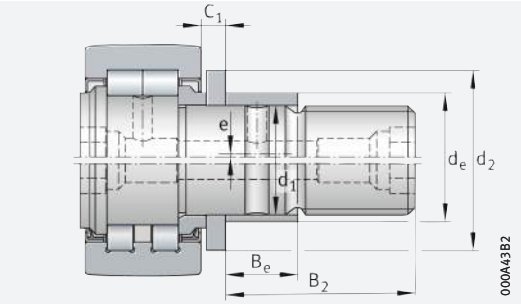
Main dimensions			Basic load ratings				Fatigue limit load	Speed	Mass	Without eccentric collar Designation	Mass	With eccentric collar Designation
D	d_1	B	dyn. $C_{r\,w}$	stat. $C_{0r\,w}$	dyn. $F_{r\,per}$	stat. $F_{0r\,per}$	$C_{ur\,w}$	$n_{D\,G}$	m	➤*1398|1.12* ➤*1399|1.13* X-life ➤*1384*	m	➤*1398|1.12* ➤*1399|1.13* X-life ➤*1384*
	h7		N	N	N	N	N	min^{-1}	≈ g		≈ g	
35	16	52	15 300	18 700	8 500	16 800	2 430	6 500	164	**NUKR35**	–	–
	16	52	15 300	18 700	8 500	16 800	2 430	6 500	–	–	177	**NUKRE35**
	16	52	12 600	14 600	10 700	14 600	1 760	6 000	164	**PWKR35-2RS-XL**	–	–
	16	52	12 600	14 600	10 700	14 600	1 760	6 000	–	–	177	**PWKRE35-2RS-XL**
40	18	58	18 700	24 900	13 000	24 900	3 150	5 500	242	**NUKR40**	–	–
	18	58	18 700	24 900	13 000	24 900	3 150	5 500	–	–	258	**NUKRE40**
	18	58	14 300	17 900	16 500	17 900	2 160	5 000	242	**PWKR40-2RS-XL**	–	–
	18	58	14 300	17 900	16 500	17 900	2 160	5 000	–	–	258	**PWKRE40-2RS-XL**
47	20	66	28 500	37 500	16 200	32 500	4 850	4 200	380	**NUKR47**	400	**NUKRE47**
	20	66	24 500	30 500	20 700	30 500	3 750	3 800	380	**PWKR47-2RS-XL**	400	**PWKRE47-2RS-XL**
52	20	66	29 000	40 500	17 100	34 000	5 300	4 200	450	**NUKR52**	470	**NUKRE52**
	20	66	25 000	33 000	21 800	33 000	4 100	3 800	450	**PWKR52-2RS-XL**	470	**PWKRE52-2RS-XL**
62	24	80	40 000	55 000	23 400	46 000	7 300	2 600	795	**NUKR62**	824	**NUKRE62**
	24	80	35 000	45 500	29 000	45 500	5 800	2 200	795	**PWKR62-2RS-XL**	824	**PWKRE62-2RS-XL**
72	24	80	45 000	65 000	31 500	63 000	8 700	2 600	1 020	**NUKR72**	1 050	**NUKRE72**
	24	80	38 500	54 000	39 000	54 000	6 900	2 200	1 020	**PWKR72-2RS-XL**	1 050	**PWKRE72-2RS-XL**
80	30	100	69 000	104 000	47 500	95 000	14 100	1 800	1 600	**NUKR80**	1 670	**NUKRE80**
	30	100	56 000	79 000	60 000	79 000	10 600	1 800	1 600	**PWKR80-2RS-XL**	1 670	**PWKRE80-2RS-XL**
90	30	100	78 000	123 000	76 000	123 000	16 700	1 800	1 960	**NUKR90**	2 020	**NUKRE90**
	30	100	62 000	92 000	92 000	92 000	12 200	1 800	1 960	**PWKR90-2RS-XL**	2 020	**PWKRE90-2RS-XL**

medias ➤ *https://www.schaeffler.de/std/1E25*

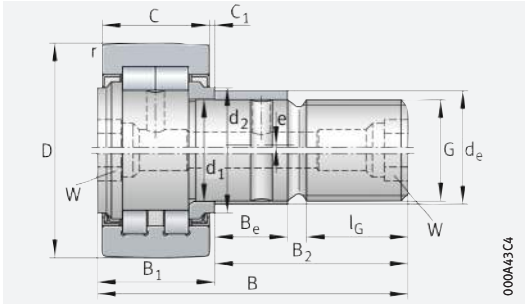
[1] Drive fit lubrication nipples are supplied loose. Only these lubrication nipples should be used.

[2] Nominal dimension for hexagonal socket.
Suitable central lubrication adapter for connection to a central lubrication system ➤*1393*.

https://www.schaeffler.de/std/1D65

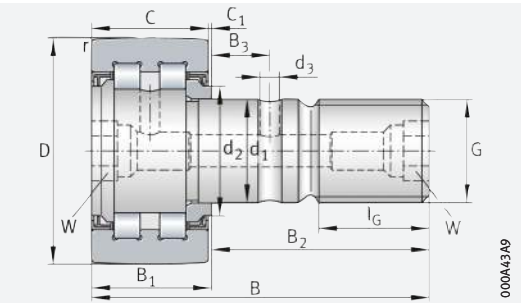


NUKRE35/NUKRE40 (top)
PWKRE35-2RS/PWKRE40-2RS (bottom)
with optimised INA profile



NUKRE (top)
PWKRE..-2RS (bottom)
with optimised INA profile

Dimensions															Drive fit lubrication nipple[1]	Nut tightening torque
D	B_1	B_2	B_3	C	C_1	r	d_2	d_3	G	l_G	W[2]	Eccentric collar				M_A
												d_e	B_e	e		
	max.					min.						h9				Nm
35	19,6	32,5	7,8	18	0,8	0,6	20	3	M16×1,5	17	8	–	–	–	NIPA2×7,5	58
	22,6	29,5	–	18	3,8	0,6	27,6	–	M16×1,5	17	8	20	12	1	NIPA2×7,5	58
	19,6	32,5	7,8	18	0,8	0,6	20	3	M16×1,5	17	8	–	–	–	NIPA2×7,5	58
	22,6	29,5	–	18	3,8	0,6	27,6	–	M16×1,5	17	8	20	12	1	NIPA2×7,5	58
40	21,6	36,5	8	20	0,8	1	22	3	M18×1,5	19	8	–	–	–	NIPA2×7,5	87
	24,6	33,5	–	20	3,8	1	30	–	M18×1,5	19	8	22	14	1	NIPA2×7,5	87
	21,6	36,5	8	20	0,8	1	22	3	M18×1,5	19	8	–	–	–	NIPA2×7,5	87
	24,6	33,5	–	20	3,8	1	30	–	M18×1,5	19	8	22	14	1	NIPA2×7,5	87
47	25,6	40,5	9	24	0,8	1	27	4	M20×1,5	21	10	24	18	1	NIPA2×7,5	120
	25,6	40,5	9	24	0,8	1	27	4	M20×1,5	21	10	24	18	1	NIPA2×7,5	120
52	25,6	40,5	9	24	0,8	1	31	4	M20×1,5	21	10	24	18	1	NIPA2×7,5	120
	25,6	40,5	9	24	0,8	1	31	4	M20×1,5	21	10	24	18	1	NIPA2×7,5	120
62	30,6	49,5	11	28	1,3	1	38	4	M24×1,5	25	14	28	22	1	NIPA3×9,5	220
	30,6	49,5	11	28	1,3	1	38	4	M24×1,5	25	14	28	22	1	NIPA3×9,5	220
72	30,6	49,5	11	28	1,3	1,1	44	4	M24×1,5	25	14	28	22	1	NIPA3×9,5	220
	30,6	49,5	11	28	1,3	1,1	44	4	M24×1,5	25	14	28	22	1	NIPA3×9,5	220
80	37	63	15	35	1	1,1	47	4	M30×1,5	32	14	35	29	1,5	NIPA3×9,5	450
	37	63	15	35	1	1,1	47	4	M30×1,5	32	14	35	29	1,5	NIPA3×9,5	450
90	37	63	15	35	1	1,1	47	4	M30×1,5	32	14	35	29	1,5	NIPA3×9,5	450
	37	63	15	35	1	1,1	47	4	M30×1,5	32	14	35	29	1,5	NIPA3×9,5	450



PWKR..-2RS, with optimised INA profile

https://www.schaeffler.de/std/1D65

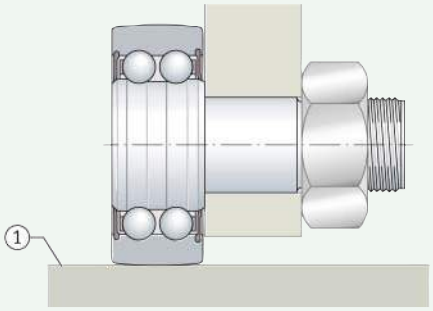
2 Yoke type ball bearing track rollers, stud type ball bearing track rollers

Ball bearing track rollers:

- are ready-to-fit, single or double row rolling bearings based on deep groove or angular contact ball bearings ➤*1429*|*2* to ➤*1431*|*6*
- are supplied with or without a stud (designs without a stud are mounted on shafts or studs)
- have particularly thick-walled outer rings with a crowned or cylindrical outside surface ➤*1428*|*2.1*
- can support high radial loads ➤*1431*|*2.2*
- tolerate axial loads which are due to small misalignment defects, skewed running or temporary contact running impacts
- are sealed on both sides ➤*1432*|*2.5*
- are also available with a plastic tyre on the outer ring for low-noise running ➤*1428*|*2.1*, ➤*1431*|*6*
- are not mounted in a housing bore, but are supported on a flat mating track ➤*1428*|*1* and ➤*1430*|*5*
- can be adjusted to the mating track in the design with the eccentric collar, thus permitting, for example, larger manufacturing tolerances in the adjacent construction.

1
Double row stud type track roller supported on a flat mating track

① *Mating track*



2.1 Bearing design

Design variants

The bearings are available as:

- yoke type track rollers (single or double row) ➤*1429*|*2*
- stud type track rollers (single or double row) ➤*1430*|*3* to ➤*1430*|*5*
- track rollers with plastic outer tyre ➤*1431*|*6*.

Characterised by a thick-walled outer ring

Ball bearing track rollers (general)

Ball bearing track rollers are self-retaining, single or double row ball bearings with particularly thick-walled outer rings. In addition to high radial forces, these bearings can also support axial forces in both directions. Ball bearing track rollers are available for various applications with an inner ring, with a stud and with a plastic tyre on the outer ring ➤*1429*|*2* to ➤*1431*|*6*.

https://www.schaeffler.de/std/1D65

✎ *Applications*

Typical areas of application of these products include cam gears, bed ways, conveying equipment and linear guidance systems.

Outside surface profile of the outer ring

✎ *Spherical or cylindrical outside surface*

Yoke type track rollers and stud type track rollers with a crowned outside surface have a radius of curvature of R = 500 mm. Yoke type track rollers with a cylindrical outside surface have the suffix X ➤*1435*|▦ *3*.

✎ *The crowned outside surface prevents edge stresses under skewing*

Yoke type track rollers with a crowned outside surface are used where skewing can occur relative to the mating track. The crowned design reduces the risk of edge stresses ➤*1391*.

Corrosion protection by Corrotect

✎ *Special coating Corrotect*

For applications requiring increased protection against corrosion, yoke type track rollers with the special Cr(VI)-free coating Corrotect are available by agreement as a special design; description of Corrotect ➤*1389*.

Yoke type track rollers

✎ *Comparable in design to deep groove or angular contact ball bearings*

Yoke type track rollers are similar in construction to deep groove or angular contact ball bearings and are mounted on shafts or studs ➤*1429*|🗀 *2*. They have outer rings with a crowned or cylindrical outside surface, inner rings and ball and cage assemblies with plastic cages. Yoke type track rollers LR6, LR60 and LR2 are single row, LR50, LR52 and LR53 are double row.

Double row design

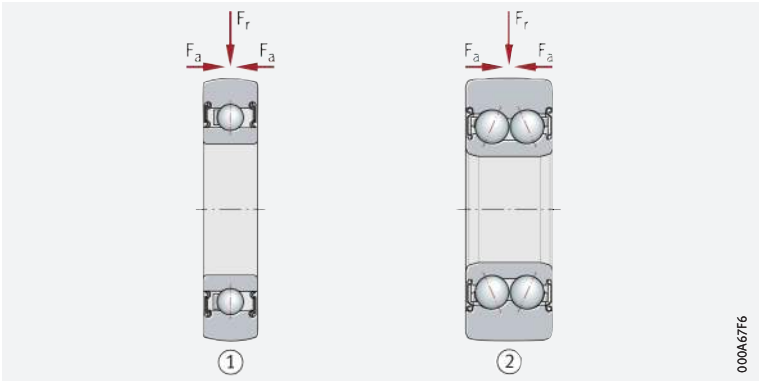
✎ *LR52, LR53*

While the outer dimensions remain unchanged, the internal construction of yoke type track rollers LR52 and LR53 has been optimised. This has brought about an increase in load carrying capacity and speed in continuous operation, and in grease lubrication $n_{D\,G}$. These yoke type track rollers are X-life bearings ➤*1431*.

🗀 *2*
Yoke type track rollers, sealed on both sides

F_r = *radial load*
F_a = *axial load*

① *Single row, lip seals, with radial sealing action (LR6..-2RSR)*
② *Double row, sealing shields (LR52..-2Z)*



Stud type track rollers

✎ *Heavy-section roller stud, with or without eccentric collar*

Stud type track rollers have outer rings with a crowned outside surface, heavy-section roller studs and ball and cage assemblies with plastic cages ➤*1430*|🗀 *3* and ➤*1430*|🗀 *4*. The yoke type track rollers are available with and without an eccentric collar.

For ease of mounting, the roller stud is produced in one of the following designs:

- with a threaded hole and mounting slot ➤*1430*|🗀 *3*
- with an external thread and hexagonal socket ➤*1430*|🗀 *4*
- with an external thread and flat areas on both sides ➤*1430*|🗀 *5*.

Track rollers ZL2 are single row, ZL52, ZLE52 and KR52 are double row.

✎ *Design without eccentric collar*

Stud type track rollers without an eccentric collar are suitable for applications where a defined requirement for adjustment of the outer ring outside surface in relation to the mating track on the adjacent construction is not present ➤*1430*|🗀 *3* and ➤*1430*|🗀 *4*.

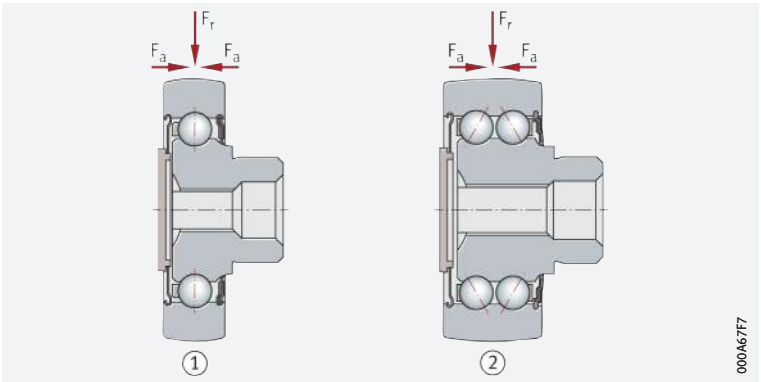
https://www.schaeffler.de/std/1D65

3
Stud type track rollers, without eccentric collar, short roller stud with threaded hole, sealed on both sides

F_r = *radial load*
F_a = *axial load*

① *Single row, lip seal on stud side plus sealing shield and cover (ZL..-DRS)*

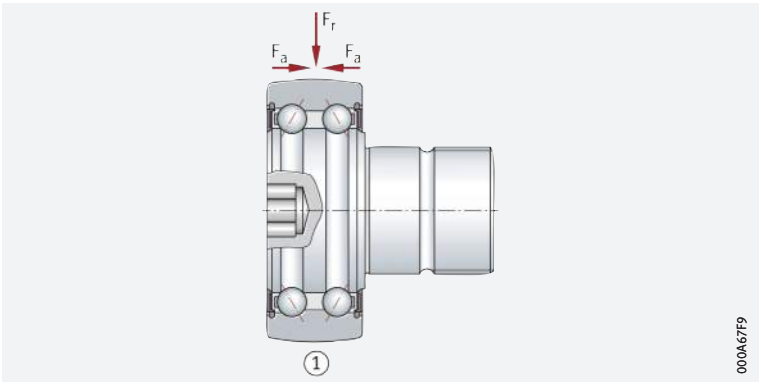
② *Double row, lip seal on stud side plus sealing shield and cover (ZL52..-DRS)*



4
Stud type track roller, without eccentric collar, long roller stud with external thread, sealed on both sides

F_r = *radial load*
F_a = *axial load*

① *Double row, lip seals, with axial sealing action (KR52..-2RS)*



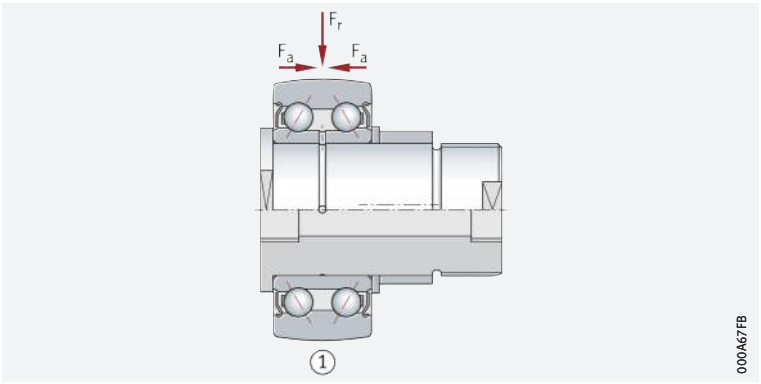
✎ *Design with eccentric collar*

Stud type track rollers ZLE52 have an eccentric collar ➤*1430*| 5. The eccentric collar can be used to adjust the outside surface of the outer ring clearance-free against the mating track. This gives optimum geometrical locking between the track roller and mating track. Furthermore, larger manufacturing tolerances can be tolerated in the adjacent construction. The load distribution when several stud type track rollers are used is also more uniform. For countertensioning during fitting, this series has flat areas on both sides of the roller stud. Threaded connections must be provided on the two end faces for relubrication, dimensions ➤*1446*|.

5
Stud type track roller, with eccentric collar, long roller stud with external thread, sealed on both sides

F_r = *radial load*
F_a = *axial load*

① *Double row, sealing shields (ZLE52..-2Z)*



Track rollers with plastic outer tyre

✎ *Suitable for low loads and high demands on low-noise running*

Track rollers KLRU and KLRZ comprise single row deep groove ball bearings with a shrink-fitted polyamide outer ring (PA) ➤*1431*| 6. Polyamide can tolerate higher specific contact pressures than elastomer and is relatively resistant to abrasion. These track rollers are mounted on shafts or studs and are used where low loads are present and the bearings are required to run particularly quietly.

https://www.schaeffler.de/std/1D65

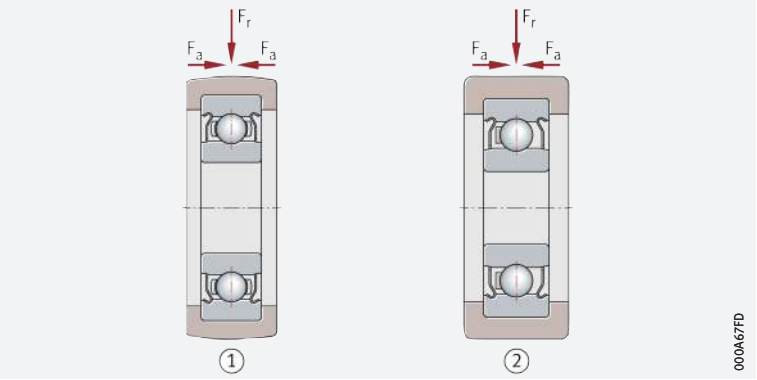
Outside surface profile of the outer ring

Spherical or cylindrical outside surface

Track rollers KLRU have an outer ring with a crowned outside surface. The radius of curvature is indicated in the product table. Series KLRZ has a cylindrical outside surface.

Maximum radial load

The maximum radial load is determined by the permissible contact pressure; the values $F_{r\,per}$ in the product tables must not be exceeded.



6 *Track rollers with plastic outer tyre, sealed on both sides*

F_r = *radial load*
F_a = *axial load*

① *Crowned outside surface, sealing shields (KLRU..-2Z)*
② *Cylindrical outside surface, sealing shields (KLRZ..-2Z)*

X-life premium quality

Track rollers LR52 and LR53, which have undergone comprehensive further development, are supplied in the X-life design. These track rollers are characterised by a longer rating life and operating life, due to higher basic dynamic load ratings compared with standard track rollers.

This higher performance results from the use of state of the art manufacturing techniques and improved internal constructions. They lead to better and more uniform surfaces and contact areas and thus optimised load distribution in the bearing.

Increased customer benefits due to X-life

This opens up expanded design possibilities:

- Under the same load and with an unchanged design envelope, X-life bearings have a longer rating life. Maintenance intervals can be extended
- Conversely, an X-life bearing in the same design envelope and with the same rating life can support higher loads
- Where the rating life and load remain unchanged, X-life bearings allow higher performance density, facilitating optimisation of the design envelope and reductions in mass.

Lower operating costs, higher machine availability

In conclusion, these advantages improve the overall cost-efficiency of the bearing position significantly and thus bring about a sustainable increase in the efficiency of the machine and equipment.

Suffix XL

X-life track rollers include the suffix XL in the designation.

2.2 Load carrying capacity

Suitable for high radial loads

The track rollers can support high radial loads as well as axial loads arising from slight misalignment and skewed running.

Installation as track roller

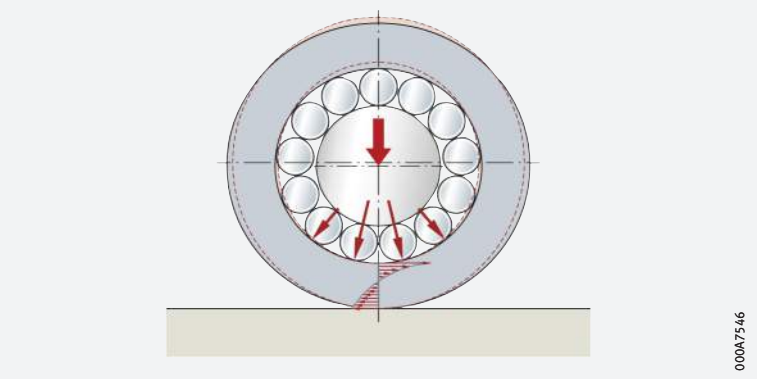
If used as a track roller, the outer ring undergoes elastic deformation

In the case of track rollers, the outer ring is supported on the mating track at certain points and undergoes elastic deformation (oval deformation) ➤ *1432* | *7*. Compared to rolling bearings supported in a housing bore, track rollers therefore have:

- a modified load distribution in the bearing (load is supported by fewer rolling elements in the loaded zone). This is taken into consideration by the reduced effective basic load ratings $C_{r\,w}$ and $C_{0r\,w}$ used in the calculation of the rating life.

https://www.schaeffler.de/std/1D65

- bending stresses and reverse bending strengths in the outer ring. These are taken into consideration by the permissible effective radial loads $F_{r\,per}$ and $F_{0r\,per}$. The bending stresses and reverse bending strengths must not exceed the permissible strength values of the material.



7 *Installation as track roller: deformation of the outer ring when used against a flat mating track*

2.3 Compensation of angular misalignments

Not suitable for the compensation of angular misalignments

Track rollers are not suitable for the compensation of angular misalignments, but can tolerate small misalignments and slight skewed running; for limits see chapter Yoke type roller bearing track rollers, stud type roller bearing track rollers ➤ *1380*

Skewed running

Skewed running leads to additional axial loading of the bearing and to elastic axial slippage in rolling contact between the outer ring and the mating track.

Tilted running

If tilting occurs during running, increased edge stresses occur, especially in track rollers with a cylindrical outside surface of the outer ring. Track rollers with a crowned outer ring are less sensitive to tilting and should therefore be used in preference if tilting is expected.

2.4 Lubrication

Greased using a grease to GA13

The track rollers are greased using a lithium soap grease to GA13. In the case of stud type track rollers, series ZLE52 can be lubricated via the roller stud. Track rollers with a plastic outer tyre cannot be relubricated. Suitable greases for relubrication ➤ *1392* | ▦ *1*.

LR52, LR53

Double row track rollers are also greased using a lithium soap grease to GA13. Due to the improved internal construction, less friction occurs and less strain is placed on the lubricant. This leads to lower bearing temperatures.

Two contact zones

Lubricate the rolling elements and mating track

Two contact zones must be lubricated and considered separately:

- the rolling elements and rolling element raceway
- the outside surface of the track roller and the mating track.

Track rollers are also available as a special design with a lubrication hole in the inner ring. These bearings have the suffix IS1 ➤ *1435* | ▦ *3*.

2.5 Sealing

Yoke type track rollers

Bearings with the suffix 2RSR

Yoke type track rollers with the suffix 2RSR have lip seals with radial sealing action on both sides. In some sizes, RS seals with axial sealing action are fitted for reasons of space.

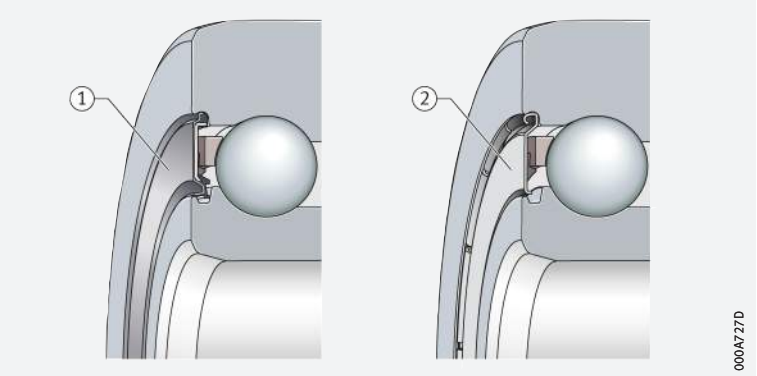
https://www.schaeffler.de/std/1D65

✎ *2HRS or 2Z seal*

Double row yoke type track rollers in X-life quality have a revised sealing concept with a significantly improved sealing action compared to the previous design ➤*1433*|*8*. Further information on HRS seals ➤*219*|*2*. As standard, the bearings (suffix 2HRS) have DEHP-free lip seals on both sides.

8
Lip seal 2HRS or sealing shield 2Z

① *Innovative geometry of lip seal 2HRS with axial contact between sealing ring and inner ring*
② *Sealing shield 2Z with labyrinth seal*



Stud type track rollers

✎ *Series ZL2 and ZL52*

Stud type track rollers ZL2 and ZL52 have lip seals on the stud side and the suffix DRS. The opposite side can be sealed using the plastic cover supplied.

✎ *Series ZLE52*

Stud type track rollers ZLE52 have sealing shields on both sides and the suffix 2Z.

Track rollers with plastic outer tyre

✎ *Sealing shields or lip seals*

These track rollers have sealing shields on both sides (suffix 2Z) or lip seals with radial sealing action (suffix 2RSR).

2.6 Speeds

✎ *Speeds $n_{D\,G}$*

The maximum permissible speed for track rollers is essentially determined by the permissible operating temperature of the track rollers. The speed thus depends on the type of bearing, the load, the lubrication conditions and the cooling conditions.

✎ *Speeds with lip seals*

The speed of track rollers with lip seals is additionally restricted by the permissible sliding speed at the seal lip.

✎ *Speeds during continuous operation*

The speeds $n_{D\,G}$ in the product tables are guide values and are valid for grease lubrication.

Additional information on the subject of speeds in the chapter Yoke type roller bearing track rollers, stud type roller bearing track rollers must be observed ➤*1396*|*1.6*.

2.7 Noise

Schaeffler Noise Index

The Schaeffler Noise Index (SGI) is not yet available for this bearing type ➤*69*. The data for these bearing series will be introduced and updated in stages.

Further information:

■ ***medias*** ➤*https://medias.schaeffler.com*.

https://www.schaeffler.de/std/1D65

2.8 Temperature range

Limiting values

The operating temperature of the track rollers is limited by:

- the dimensional stability of the bearing rings and rolling elements
- the cage
- the lubricant
- the seals
- the plastic outer tyre.

Possible operating temperatures of the track rollers ➤*1434*| *1*.

1 *Permissible temperature ranges*

Operating temperature	Yoke type track rollers	
	with plastic outer tyre KLRU and KLRZ	without plastic outer tyre
	–20 °C to +80 °C	–20 °C to +120 °C

In the event of anticipated temperatures which lie outside the stated values, please contact Schaeffler.

2.9 Cages

Solid cages made from polyamide PA66 are used as standard

The cages used in the track rollers are plastic cages made from glass fibre reinforced polyamide PA66. These cages have a low mass as well as good sliding and emergency running characteristics. Track rollers in the X-life design have an optimised polyamide cage as standard.

2.10 Internal clearance

Radial internal clearance

The standard is CN

Track rollers are manufactured as standard with radial internal clearance CN (normal) ➤*1434*| *2*. CN is not stated in the designation.

The values for radial internal clearance correspond to DIN 620-4:2004 (ISO 5753-1:2009). These are valid for bearings which are free from load and measurement forces (without elastic deformation).

2 *Radial internal clearance for yoke and stud type track rollers*

Nominal bore diameter d mm		Radial internal clearance									
		C2 (Group 2) µm		CN (Group N) µm		C3 (Group 3) µm		C4 (Group 4) µm		C5 (Group 5) µm	
over	incl.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.
2,5	10	0	7	2	13	8	23	14	29	20	37
10	18	0	9	3	18	11	25	18	33	25	45
18	24	0	10	5	20	13	28	20	36	28	48
24	30	1	11	5	20	13	28	23	41	30	53
30	40	1	11	6	20	15	33	28	46	40	64
40	50	1	11	6	23	18	36	30	51	45	73
50	65	1	15	8	28	23	43	38	61	55	90

https://www.schaeffler.de/std/1D65

2.11 Dimensions, tolerances

Tolerances

The tolerances for the dimensional and running accuracy of track rollers correspond to tolerance class Normal in accordance with ISO 492:2014. In a deviation from ISO 492, the diameter tolerance of the profiled outside surface is 0/–0,05 mm.

Stud tolerances

The stud diameter tolerances for stud type track rollers are:

- in tolerance class r6 for ZL2 and ZL52
- in tolerance class h7 for KR52
- in tolerance class h9 for ZLE52.

2.12 Suffixes

For a description of the suffixes used in this chapter ➤1435|▦3 and ***medias*** interchange ➤*https://www.schaeffler.de/std/1D52*.

▦3 *Suffixes and corresponding descriptions*

Suffix	Description of suffix	
DRS	Lip seal on stud side, axial sealing action Sealing shield with cover on the end face	Standard
IS1	Lubrication hole in inner ring	Special design, available by agreement
RR	Protected against corrosion by Corrotect special coating	
TVH	Cage made from glass fibre reinforced polyamide	Standard
X	Cylindrical outside surface	
XL	X-life design	
2HRS	Lip seal on both sides with optimised geometry, low friction	
2RS	Lip seal on both sides, with axial sealing action	
2RSR	Lip seal on both sides, with radial sealing action	
2Z	Sealing shield on both sides	

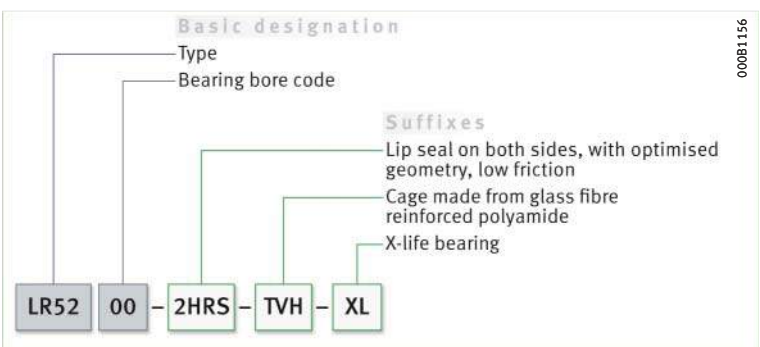
2.13 Structure of bearing designation

Examples of composition of bearing designation

The designation of bearings follows a set model. Examples ➤1435|9 to ➤1436|11.

9 *Single row yoke type track roller, lip seal on both sides: designation structure*

10 *Double row yoke type track roller, 2HRS seal on both sides, cage made from glass fibre reinforced polyamide, X-life design: designation structure*



https://www.schaeffler.de/std/1D65

11
Double row stud type track roller with eccentric collar, sealing shield on both sides: designation structure

2.14 Dimensioning

Calculation of the rating life

The methods for calculating the rating life are:
- the basic rating life to DIN ISO 281
- the adjusted basic rating life to DIN ISO 281
- the expanded calculation of the adjusted reference rating life to DIN ISO 281-4.

Use effective basic dynamic/ static load ratings

These methods are described in the chapter Load carrying capacity and life. For track rollers, the following values must be replaced:
- C_r, $C_{0r} = C_{r\,w}$, $C_{0r\,w}$
  Effective basic dynamic or static load rating
- $C_{ur} = C_{ur\,w}$
  Fatigue limit load as track roller.

Further equations for calculating the rating life are given in the chapter Yoke type roller bearing track rollers, stud type roller bearing track rollers. The instructions and information provided there must be observed.

Static load safety factor

$S_0 = C_{0r\,w}/F_{0r}$

In addition to the basic rating life L, it is also always necessary to check the static load safety factor S_0 ➤ *1436| f1.*

f1
Static load safety factor

$$S_0 = \frac{C_{0r\,w}}{F_{0r}}$$

Legend

S_0	–	Static load safety factor
$C_{0r\,w}$	N	Effective radial basic static load rating in accordance with product table
F_{0r}	N	Maximum static radial load on track roller.

Track rollers are regarded as heavily loaded at a static load safety factor of $S_0 < 8$. Static load safety factors of $S_0 < 1$ cause plastic deformation of the rolling elements and the raceways, which can impair smooth running. This is only permissible for bearings with small rotary motions or in secondary applications.

If an application has a static load safety factor $S_0 < 2$, please consult Schaeffler.

2.15 Minimum load

Minimum load $C_{0r\,w}/F_r < 60$

In order to ensure that the outer ring is driven, that no slippage occurs and that the track roller does not lift from the mating track, the track roller must be subjected to a minimum load in dynamic operation. In general, the minimum load is calculated using the ratio $C_{0r\,w}/F_r < 60$.

https://www.schaeffler.de/std/1D65

2.16 Design of bearing arrangements

Adjacent construction of yoke type track rollers

The value for dimension "d_2" must not be less than the value stated

The abutment surfaces for the bearings must be flat and perpendicular. Due to the contact pressure occurring, they must not be less than the dimension d_2; see product tables for values ➤ *1440*.

Yoke type track rollers LR

Yoke type track rollers LR can be axially clamped or located by means of conventional fasteners such as snap rings.

Shaft tolerances

Tolerance class h6 Ⓔ

In general, yoke type track rollers have point load on the inner ring. In order to ensure adequate support and to largely avoid fretting corrosion, the shaft tolerance should be in the tolerance class h6 Ⓔ.

Adjacent construction of stud type track rollers

The value for dimension "d_2" must not be less than the value stated

The abutment surfaces for the track rollers must be flat and perpendicular. Due to the contact pressure occurring, they must not be less than the dimension d_2; see product tables for values ➤ *1444*.

Lead chamfer

The lead chamfer on the locating bore must not be more than 0,5×45°.

Stud type track rollers ZL and KR must be axially clamped. The abutment surface for the nut must have sufficiently high strength and the tightening torque M_A for the fixing nut must be observed; see product table for values ➤ *1444*. The roller stud can only transmit the permissible radial load if the correct tightening torque is applied. If the tightening torque for the nut cannot be adhered to, an interference fit is required.

Locating bore tolerance

Tolerance class H7 Ⓔ

For series ZL2, ZL52, KR52 and ZLE52, Schaeffler recommends locating bores to tolerance class H7 Ⓔ.

2.17 Mounting and dismounting

The mounting and dismounting options for track rollers, by mechanical or hydraulic methods, must be taken into consideration in the design of the bearing position.

Schaeffler Mounting Handbook

Rolling bearings must be handled with great care

Rolling bearings are well-proven precision machine elements for the design of economical and reliable bearing arrangements, which offer high operational security. In order that these products can function correctly and achieve the envisaged operating life without detrimental effect, they must be handled with care.

The Schaeffler Mounting Handbook MH 1 gives comprehensive information about the correct storage, mounting, dismounting and maintenance of rotary rolling bearings ➤ *https://www.schaeffler.de/std/1D53*. It also provides information which should be observed by the designer, in relation to the mounting, dismounting and maintenance of bearings, in the original design of the bearing position. This book is available from Schaeffler on request.

https://www.schaeffler.de/std/1D65

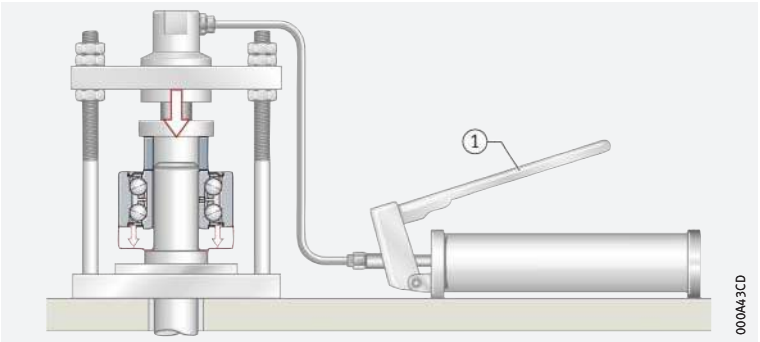
Mounting guidelines for yoke type track rollers

✎ *Guidelines*

If the tolerances are unfavourable, the yoke type track rollers should be pressed onto the shaft or stud using a mounting press ➤*1438*|🗀*12*. The inner ring must be fitted such that the pressing-in force is distributed uniformly on the end face of the inner ring. The press-in force must not be directed through the rolling elements. Ensure that the seals are not damaged while mounting the yoke type track rollers. Yoke type track rollers must be secured axially after mounting.

🗀*12*
Mounting of yoke type track roller using a mounting press

① *Mounting press*

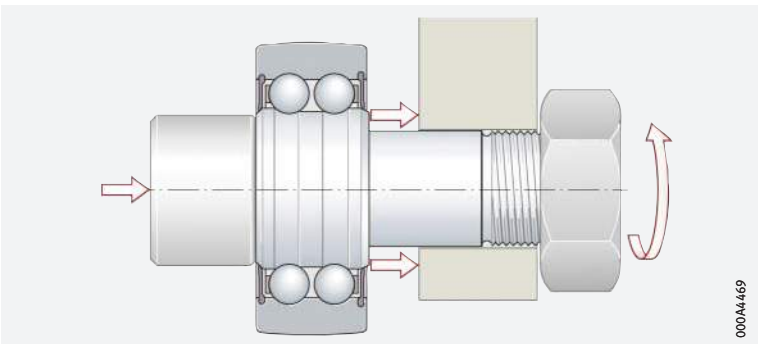


Stud type track rollers

✎ *Guidelines for mounting*

Stud type track rollers are mounted and dismounted using the methods applied to yoke type track rollers ➤*1438*|🗀*13*. The tightening torques M_A given in the product tables must be observed. It is only in this way that the permissible radial load can be ensured. Screws and nuts of grade 8.8 or better must be used.

🗀*13*
Mounting of stud type track roller



https://www.schaeffler.de/std/1D65

2.18 Legal notice regarding data freshness

The further development of products may also result in technical changes to catalogue products

Of central interest to Schaeffler is the further development and optimisation of its products and the satisfaction of its customers. In order that you, as the customer, can keep yourself optimally informed about the progress that is being made here and with regard to the current technical status of the products, we publish any product changes which differ from the printed version in our electronic product catalogue.

We therefore reserve the right to make changes to the data and illustrations in this catalogue. This catalogue reflects the status at the time of printing. More recent publications released by us (as printed or digital media) will automatically precede this catalogue if they involve the same subject. Therefore, please always use our electronic product catalogue to check whether more up-to-date information or modification notices exist for your desired product.

Link to electronic product catalogue

The following link will take you to the Schaeffler electronic product catalogue: ➤ *https://medias.schaeffler.com*.

2.19 Further information

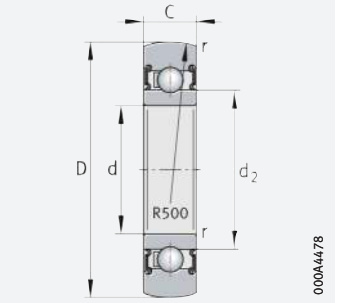
For reliable and problem-free operation of track rollers, it is essential that attention is paid to the following information in the chapter Yoke type roller bearing track rollers, stud type roller bearing track rollers:

- installation as yoke or stud type track roller ➤ *1390*
- permissible dynamic or static radial load ➤ *1391*
- load carrying capacity and life ➤ *1400*
- operating life ➤ *1400*
- minimum load ➤ *1402*
- angular misalignment and tilting ➤ *1391*
- speeds ➤ *1396*
- lubrication ➤ *1392*.

https://www.schaeffler.de/std/1D65

Yoke type ball bearing track rollers

Single row
Sealed



With seal 2RSR, 2RS

D = 13 – 90 mm

Main dimensions			Basic load ratings		Fatigue limit load	Speed	Mass	Designation	Dimensions	
D	d	C	dyn. C_{rw}	stat. C_{0rw}	C_{urw}	n_{DG}	m	➤*1435|2.12* ➤*1435|2.13*	d_2	r
			N	N	N	min^{-1}	≈ g			min.
13	4	4	920	350	18,1	24 000	10	**LR604-2RSR**	6,1	0,2
16	5	5	1 290	510	25,5	23 000	10	**LR605-2RSR**	7,5	0,2
19	6	6	1 940	790	39,5	22 000	10	**LR606-2RSR**	8,7	0,3
22	7	6	2 250	880	42,5	20 000	10	**LR607-2RSR**	9	0,3
24	8	7	2 950	1 240	63	19 000	20	**LR608-2RSR**	10	0,3
28	10	8	5 000	2 490	126	16 000	20	**LR6000-2RSR**	14,6	0,3
30	12	8	5 300	2 750	144	15 000	30	**LR6001-2RSR**	16,6	0,3
32	10	9	5 100	2 310	117	13 000	50	**LR200-2RSR**	16,6	0,6
	10	9	5 100	2 310	117	13 000	50	**LR200-X-2RSR**	16,6	0,6
35	12	10	6 000	2 750	137	12 000	50	**LR201-2RSR**	18,3	0,6
	12	10	6 000	2 750	137	12 000	50	**LR201-X-2RSR**[1)]	18,3	0,6
40	15	11	7 000	3 350	170	11 000	70	**LR202-2RSR**	21	0,6
	15	11	7 000	3 350	170	11 000	70	**LR202-X-2RSR**[1)]	21	0,6
47	17	12	8 900	4 450	223	9 000	110	**LR203-2RSR**	24	0,6
	17	12	8 900	4 450	223	9 000	110	**LR203-X-2RSR**[1)]	24	0,6
52	20	14	11 300	5 700	295	8 000	150	**LR204-2RSR**	29	1
	20	14	11 300	5 700	295	8 000	150	**LR204-X-2RSR**[1)]	29	1
62	25	15	13 300	7 100	360	7 000	230	**LR205-2RSR**	33,5	1
	25	15	13 300	7 100	360	7 000	230	**LR205-X-2RSR**[1)]	33,5	1
72	30	16	17 600	9 700	500	5 500	330	**LR206-2RS**	37,4	1
	30	16	17 600	9 700	500	5 500	330	**LR206-X-2RS**[1)]	37,4	1
80	35	17	21 900	12 100	640	4 500	400	**LR207-2RS**	42,4	1,1
	35	17	21 900	12 100	640	4 500	400	**LR207-X-2RS**[1)]	42,4	1,1
90	45	19	23 700	13 700	730	3 600	500	**LR209-2RS**	53,2	1,1
	45	19	23 700	13 700	730	3 600	500	**LR209-X-2RS**[1)]	53,2	1,1

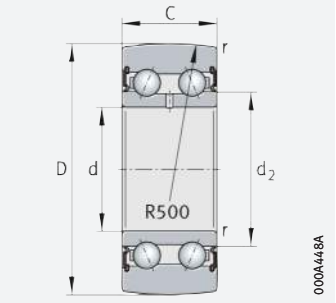
medias ➤ *https://www.schaeffler.de/std/1D95*

[1)] Track roller with cylindrical outside surface.

https://www.schaeffler.de/std/1D65

Yoke type ball bearing track rollers

Double row
Sealed



With seal 2RSR, 2RS

D = 17 – 68 mm

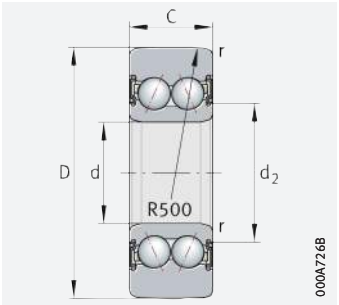
Main dimensions			Basic load ratings			Fatigue limit load	Speed	Mass	Designation	Dimensions	
D	d	C	dyn. $C_{r\,w}$	stat. $C_{0r\,w}$	$F_{r\,per}$	$C_{ur\,w}$	$n_{D\,G}$	m	➤*1435|2.12* ➤*1435|2.13*	d_2	r
			N	N	N	N	min^{-1}	≈ g			min.
17	5	7	1 690	940	940	48,5	12 000	10	**LR50/5-2RSR**	8,2	0,2
19	6	9	2 700	1 370	1 370	66	11 000	20	**LR50/6-2RSR**	9,3	0,3
22	7	10	3 300	1 700	1 700	81	10 000	20	**LR50/7-2RSR**	10,5	0,3
24	8	11	4 300	2 390	2 390	119	10 000	30	**LR50/8-2RSR**	10,5	0,3
28	10	12	4 750	2 850	2 850	145	9 000	30	**LR5000-2RS**	13,5	0,3
30	12	12	5 100	3 100	3 100	161	8 500	30	**LR5001-2RS**	15,5	0,3
35	15	13	6 500	4 150	4 150	217	7 000	50	**LR5002-2RS**	20,4	0,3
40	17	14	7 800	5 200	5 200	270	6 000	70	**LR5003-2RS**	21,6	0,3
47	20	16	11 700	7 700	7 700	400	5 500	120	**LR5004-2RS**	25,2	0,6
52	25	16	11 800	8 200	8 200	440	4 700	150	**LR5005-2RS**	29,8	0,6
62	30	19	16 100	11 900	11 900	630	4 000	250	**LR5006-2RS**	35,5	1
68	35	20	17 800	13 300	13 300	720	4 300	300	**LR5007-2RS**	41,7	1

medias ➤ *https://www.schaeffler.de/std/1D96*

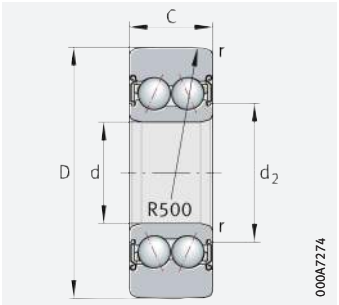
https://www.schaeffler.de/std/1D65

Yoke type ball bearing track rollers

Double row
Sealed
Without relubrication hole[1)]



With seal 2HRS



With seal 2Z

D = 32 – 100 mm

Main dimensions			Basic load ratings		Outer ring limit load	Fatigue limit load	Speed	Mass	Designation	Dimensions	
D	d	C	dyn. C_{rw}	stat. C_{0rw}	$F_{r\,per}$	C_{urw}	n_{DG}	m	➤*1435|2.12* ➤*1435|2.13* X-life ➤*1431*	d_2	r
			N	N	N	N	min^{-1}	≈ g			min.
32	10	14	7 200	4 800	4 800	243	9 200	70	**LR5200-2HRS-TVH-XL**	17	0,6
	10	14	7 200	4 800	4 800	243	13 000	70	**LR5200-2Z-TVH-XL**	17	0,6
	10	14	7 200	4 800	4 800	243	13 000	70	**LR5200-X-2Z-TVH-XL**[2)]	17	0,6
35	12	15,9	8 800	6 000	4 800	305	8 100	80	**LR5201-2HRS-TVH-XL**	19,1	0,6
	12	15,9	8 800	6 000	4 800	305	11 100	80	**LR5201-2Z-TVH-XL**	19,1	0,6
	12	15,9	8 800	6 000	4 800	305	11 100	80	**LR5201-X-2Z-TVH-XL**[2)]	19,1	0,6
40	15	15,9	10 800	7 500	7 500	385	7 400	110	**LR5202-2HRS-TVH-XL**	21	0,6
	15	15,9	10 800	7 500	7 500	385	10 200	110	**LR5202-2Z-TVH-XL**	21	0,6
	15	15,9	10 800	7 500	7 500	385	10 200	110	**LR5202-X-2Z-TVH-XL**[2)]	21	0,6
47	17	17,5	13 700	9 800	9 800	495	6 300	170	**LR5203-2HRS-TVH-XL**	24,4	0,6
	17	17,5	13 700	9 800	9 800	495	8 900	170	**LR5203-2Z-TVH-XL**	24,4	0,6
	17	17,5	13 700	9 800	9 800	495	8 900	170	**LR5203-X-2Z-TVH-XL**[2)]	24,4	0,6
52	20	20,6	16 900	12 300	10 200	640	5 300	230	**LR5204-2HRS-TVH-XL**	29,2	1
	20	20,6	16 900	12 300	10 200	640	7 300	230	**LR5204-2Z-TVH-XL**	29,2	1
	20	20,6	16 900	12 300	10 200	640	7 300	230	**LR5204-X-2Z-TVH-XL**[2)]	29,2	1
	17	22,2	19 100	13 400	11 400	670	5 700	210	**LR5303-2HRS-TVH-XL**	27,1	1
62	25	20,6	19 700	15 400	15 400	790	4 500	340	**LR5205-2HRS-TVH-XL**	34,2	1
	25	20,6	19 700	15 400	15 400	790	6 500	340	**LR5205-2Z-TVH-XL**	34,2	1
	25	20,6	19 700	15 400	15 400	790	6 500	340	**LR5205-X-2Z-TVH-XL**[2)]	34,2	1
	20	22,2	22 200	16 700	16 700	840	4 850	340	**LR5304-2HRS-TVH-XL**	31,9	1,1
	20	22,2	22 200	16 700	16 700	840	6 700	340	**LR5304-2Z-TVH-XL**	31,9	1,1

medias ➤ *https://www.schaeffler.de/std/1D97*

1) With relubrication hole by agreement.

2) Track roller with cylindrical outside surface.

https://www.schaeffler.de/std/1D65

Main dimensions			Basic load ratings		Outer ring limit load	Fatigue limit load	Speed	Mass	Designation	Dimensions	
D	d	C	dyn. $C_{r\,w}$	stat. $C_{0r\,w}$	$F_{r\,per}$	$C_{ur\,w}$	$n_{D\,G}$	m	➤*1435 | 2.12* ➤*1435 | 2.13* X-life ➤*1431*	d_2	r
			N	N	N	N	min^{-1}	≈ g			min.
72	30	23,8	26 500	21 400	21 400	1 110	3 800	510	**LR5206-2HRS-TVH-XL**	40,3	1
	30	23,8	26 500	21 400	21 400	1 110	5 500	510	**LR5206-2Z-TVH-XL**	40,3	1
	30	23,8	26 500	21 400	21 400	1 110	5 500	510	**LR5206-X-2Z-TVH-XL**[2]	40,3	1
	25	25,4	28 000	21 900	21 900	1 110	4 100	500	**LR5305-2HRS-TVH-XL**	37,6	1,1
	25	25,4	28 000	21 900	21 900	1 110	5 700	500	**LR5305-2Z-TVH-XL**	37,6	1,1
80	35	27	33 000	26 500	22 200	1 410	3 100	660	**LR5207-2HRS-TVH-XL**	47	1,1
	35	27	33 000	26 500	22 200	1 410	4 650	660	**LR5207-2Z-TVH-XL**	47	1,1
	35	27	33 000	26 500	22 200	1 410	4 650	660	**LR5207-X-2Z-TVH-XL**[2]	47	1,1
	30	30,2	36 000	28 500	27 000	1 480	3 450	670	**LR5306-2HRS-TVH-XL**	44,4	1,1
	30	30,2	36 000	28 500	27 000	1 480	4 750	670	**LR5306-2Z-TVH-XL**	44,4	1,1
85	40	30,2	36 500	30 000	16 300	1 600	2 900	750	**LR5208-2HRS-TVH-XL**	52,8	1,1
	40	30,2	36 500	30 000	16 300	1 600	4 100	750	**LR5208-2Z-TVH-XL**	52,8	1,1
	40	30,2	36 500	30 000	16 300	1 600	4 100	750	**LR5208-X-2Z-TVH-XL**[2]	52,8	1,1
90	35	34,9	45 500	36 000	27 000	1 820	3 100	970	**LR5307-2HRS-TVH-XL**	49,6	1,5
	35	34,9	45 500	36 000	27 000	1 820	4 100	970	**LR5307-2Z-TVH-XL**	49,6	1,5
100	40	36,5	54 000	44 500	35 500	2 310	2 700	1 200	**LR5308-2HRS-TVH-XL**	56,8	1,5
	40	36,5	54 000	44 500	35 500	2 310	3 650	1 200	**LR5308-2Z-TVH-XL**	56,8	1,5

medias ➤ *https://www.schaeffler.de/std/1D98*

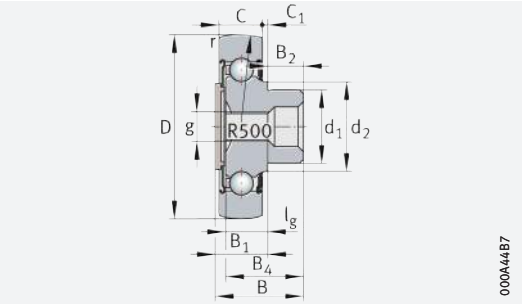
[1] Available with relubrication hole by agreement.

[2] Track roller with cylindrical outside surface.

https://www.schaeffler.de/std/1D65

Stud type ball bearing track rollers

Sealed



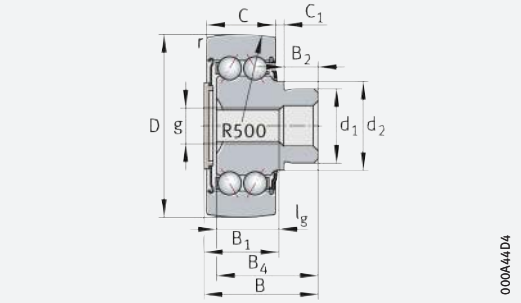
ZL2..-DRS

D = 35 – 80 mm

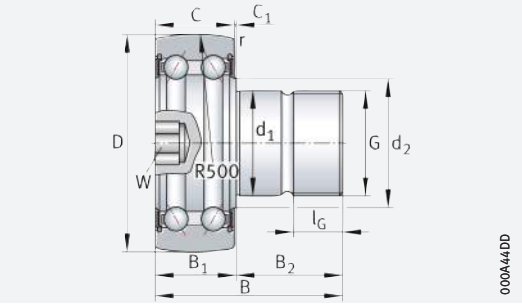
Main dimensions			Basic load ratings		Fatigue limit load	Speed	Mass	Designation
D	d_1	B	dyn. C_{rw}	stat. C_{0rw}	C_{urw}	n_{DG}	m	➤*1435|2.12* ➤*1435|2.13*
			N	N	N	min^{-1}	≈g	
35	14	33,2	8 700	5 200	260	7 500	90	**ZL5201-DRS**
	12	49,2	8 700	5 200	260	7 500	120	**KR5201-2RS**
40	16	23,8	7 000	3 350	170	8 500	80	**ZL202-DRS**
	16	36,2	10 000	6 300	320	7 000	120	**ZL5202-DRS**
	16	53,2	10 000	6 300	320	7 000	190	**KR5202-2RS**
47	18	26,5	8 900	4 450	223	6 500	120	**ZL203-DRS**
	18	39,5	12 800	8 400	420	5 500	190	**ZL5203-DRS**
	18	58,8	12 800	8 400	420	5 500	290	**KR5203-2RS**
52	20	30,7	11 300	5 700	295	6 000	170	**ZL204-DRS**
	20	45,3	16 100	10 700	550	5 000	250	**ZL5204-DRS**
	20	63,6	16 100	10 700	550	5 000	380	**KR5204-2RS**
62	25	33,8	13 300	7 100	360	5 500	250	**ZL205-DRS**
	25	50,4	18 800	13 200	670	4 500	380	**ZL5205-DRS**
	24	70,9	18 800	13 200	670	4 500	580	**KR5205-2RS**
72	30	59	25 000	18 000	930	3 500	550	**ZL5206-DRS**
	24	74,1	25 000	18 000	930	3 500	800	**KR5206-2RS**
80	35	69,2	31 000	22 800	1 200	2 800	710	**ZL5207-DRS**
	30	91	31 000	22 800	1 200	2 800	1 200	**KR5207-2RS**

medias ➤ *https://www.schaeffler.de/std/1D99*

https://www.schaeffler.de/std/1D65



ZL52..-DRS



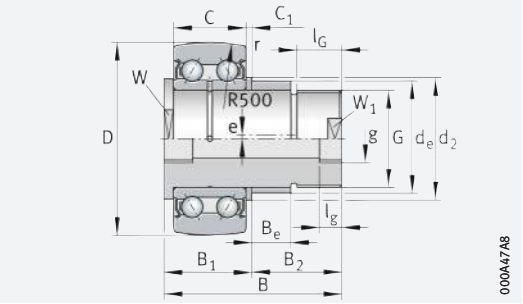
KR52..-2RS

Dimensions													Tightening torque
D	B_1 max.	B_2	B_4	C	C_1	d_2	r min.	G	l_G	g	l_g	W	M_A Nm
35	19,5	14	31	15,9	2,6	17,1	0,6	–	–	M8	14	–	–
	17	32,5	0	15,9	0,8	17,1	0,6	M12×1,5	17	–	–	6	45
40	14	10	21,5	11	2	20	0,6	–	–	M8	15	–	–
	20,5	16	34	15,9	3,5	20	0,6	–	–	M8	15	–	–
	17	36,5	0	15,9	0,8	20	0,6	M16×1,5	19	–	–	8	70
47	14,5	12	24,5	12	2	22,9	0,6	–	–	M8	16	–	–
	21,5	18	37,5	17,5	3,5	22,9	0,6	–	–	M8	15	–	–
	18,5	40,5	0	17,5	0,8	22,9	0,6	M18×1,5	21	–	–	8	115
52	17	14	28,5	14	2	26,8	1	–	–	M10	18	–	–
	25,5	20	43	20,6	4	26,8	1	–	–	M10	18	–	–
	22,5	41,5	0	20,6	1,5	26,8	1	M20×1,5	21	–	–	10	160
62	18	16	31	15	2	30,3	1	–	–	M10	19	–	–
	25,5	25	47,5	20,6	4	30,3	1	–	–	M10	18	–	–
	21,5	49,5	0	20,6	0,8	30,3	1	M24×1,5	25	–	–	10	290
72	29	30	56,5	23,8	4,5	37,3	1	–	–	M16	20	–	–
	25	49,5	0	23,8	0,8	37,3	1	M24×1,5	25	–	–	10	290
80	33,5	36	66,5	27	5,5	42,4	1,1	–	–	M16	20	–	–
	28	63	0	27	1	42,4	1,1	M30×1,5	32	–	–	12	600

https://www.schaeffler.de/std/1D65

Stud type ball bearing track rollers

With eccentric collar
Sealed



ZLE52..-2Z

D = 35 – 80 mm

Main dimensions			Basic load ratings		Fatigue limit load	Speed	Mass	Designation
D	d_e	B	dyn. C_{rw}	stat. C_{0rw}	C_{urw}	n_{DG}	m	➤*1435|2.12* ➤*1435|2.13*
			N	N	N	min^{-1}	≈g	
35	18	65,5	8 800	6 000	305	11 100	250	**ZLE5201-2Z**
40	22	66,5	10 800	7 500	385	10 200	350	**ZLE5202-2Z**
52	24	76	16 900	12 300	640	7 300	460	**ZLE5204-2Z**
62	24	88	19 700	15 400	790	6 500	640	**ZLE5205-2Z**
80	35	99	33 000	26 500	1 410	4 650	1 300	**ZLE5207-2Z**

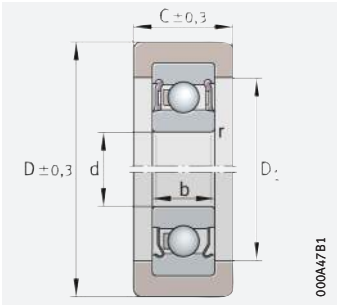
Dimensions															Tightening torque	Designation
D	B_1	B_2	C	C_1	d_2	r	W	W_1	e	B_e	g	l_g	G	l_G	M_A	➤*1435|2.12* ➤*1435|2.13*
	max.					min.								min.	Nm	
35	20,5	45	15,9	2	25	0,6	15	9	1	18	M6	6	M12×1,5	24	30	**ZLE5201-2Z**
40	21,5	45	15,9	2,5	27	0,6	17	10	1	16	M8×1	8	M14	25	40	**ZLE5202-2Z**
52	26	50	20,6	2,5	30	1	22	17	1	18	M8×1	8	M20×1,5	29	150	**ZLE5204-2Z**
62	32	56	20,6	8	30	1	22	17	1	25	M8×1	8	M20×1,5	28	150	**ZLE5205-2Z**
80	35	64	27	3	45	1,1	40	27	1,5	29	M8×1	8	M30×1,5	32	540	**ZLE5207-2Z**

medias ➤ *https://www.schaeffler.de/std/1D9A*

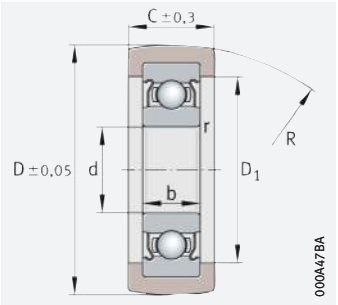
https://www.schaeffler.de/std/1D65

Track rollers

With plastic outer tyre
Sealed



KLRZ..-2RSR (top)
KLRZ..-2Z (bottom)



KLRU..-2Z

D = 27,5 – 46,8 mm

Main dimensions				Basic load ratings of track roller[1]	Deep groove ball bearing fitted	Basic load ratings of deep groove ball bearing		Mass	Designation	Dimensions			
D		d	C	$F_{r\,per}$		dyn. C_r	stat. C_{0r}	m	➤*1435|2.12* ➤*1435|2.13*	b	D_1	R	r
			+0,3 −0,3	N		N	N	≈ g					min.
27,5	+0,05 −0,05	8	11	250	608-2Z	3 500	1 370	16	**KLRU08×28×11-2Z**	7	20	500	0,3
30	+0,3 −0,3	10	10	250	6000-2Z	4 850	1 970	50	**KLRZ10×30×10-2Z**	8	24	–	0,3
34,8	+0,05 −0,05	12	12	340	6001-2Z	5 400	2 370	30	**KLRU12×35×12-2Z**	8	26	300	0,3
41	+0,3 −0,3	12	16	500	6201-2RSR	7 300	3 100	50	**KLRZ12×41×16-2RSR**	10	29,5	–	0,6
46,8	+0,05 −0,05	12	20	500	6201-2Z	7 300	3 100	45	**KLRU12×47×20-2Z**	10	28,5	300	0,6
46,8	+0,05 −0,05	15	20	500	6202-2Z	8 200	3 750	50	**KLRU15×47×20-2Z**	11	31,5	300	0,6

medias ➤ *https://www.schaeffler.de/std/1D9B*

[1] Valid for installation as track roller. The values apply for operating temperatures up to max. +40 °C.

https://www.schaeffler.de/std/1D65

Radial insert ball bearings

https://www.schaeffler.de/std/1D65

https://www.schaeffler.de/std/1D65

Matrix for bearing preselection

The matrix gives an overview of the types and design features of radial insert ball bearings.

It can be used to make a preliminary assessment of whether a bearing is fundamentally suitable for the envisaged application.

The additional information provided in the product chapter (see column "detailed information") and in the Technical principles must, however, be observed in addition to this overview in selection of the bearing.

Design features and suitability			Radial insert ball bearings (ISO range)			
+++ extremely suitable ++ highly suitable + suitable (+) suitable with restrictions – not suitable/not applicable ✓ available			with eccentric locking collar	with grub screws	with adapter sleeve	detailed information ➤ 1452
Load carrying capacity	radial		+++	+++	+++	➤ 1470 | 1.2
	axial, one direction		+	+	+	➤ 1470 | 1.2
	axial, both directions		+	+	+	➤ 1470 | 1.2
	bending and torsional moments		++	++	++	➤ 1470 | 1.2
Compensation of angular misalignments	static		+++	+++	+++	➤ 1471 | 1.3
	dynamic		–	–	–	➤ 1471 | 1.3
Bearing design	cylindrical bore		✓	✓	✓	➤ 1452 | 1.1
	tapered bore		–	–	–	
	separable		–	–	–	
Lubrication	greased		✓	✓	✓	➤ 1473 | 1.4
Sealing	open		–	–	–	
	non-contact		✓	✓	–	➤ 1474 | 1.5
	contact		✓	✓	✓	➤ 1474 | 1.5
Operating temperature in °C[1)2)3)]	from to		–20 +100	–20 +100	–20 +100	➤ 1478 | 1.8
Suitability for	high speeds		++	++	+++	➤ 1476 | 1.6
	high running accuracy		(+)	(+)	++	➤ 1483 | 1.11 ➤ 114
	low-noise running		+	+	++	➤ 1477 | 1.7 ➤ 1452 | 1.1
	high rigidity		+	+	+	➤ 54
	reduced friction		(+)	(+)	(+)	➤ 56
	length compensation within bearing		–	–	–	
	non-locating bearing arrangement		–	–	–	
	locating bearing arrangement		++	++	++	
X-life bearings			✓	✓	✓	➤ 1453
Bearing bore d in mm	from to		12 120	12 90	20 50	➤ 1508
Product tables	from page ➤		1508	1520	1532	

1) Temporary temperature peaks are possible up to +120 °C (not in the case of bearings with rubber interliner)

2) High and low temperature designs available from –40 °C to +180 °C

3) High temperature design available from +150 °C to +250 °C

https://www.schaeffler.de/std/1D65

	Radial insert ball bearings (ISO range)						Black Series (JIS range)			
	with drive slot	with fit	with square bore	with hexagonal bore	with rubber interliner	with steel aligning ring	with grub screws	with adapter sleeve	detailed information ➤ **1452**	
	+++	+++	+++	+++	+++	+++	+++	+++	➤ *1470 | 1.2*	
	+	+	–	–	+	+	+	+	➤ *1470 | 1.2*	
	+	+	–	–	+	+	+	+	➤ *1470 | 1.2*	
	++	+	+++	+++	++	++	++	++	➤ *1470 | 1.2*	
	+++	+++	+++	+++	+++	+++	+++	+++	➤ *1471 | 1.3*	
	–	–	–	–	–	–	–	–	➤ *1471 | 1.3*	
	✓	✓	–	–	✓	✓	✓	✓	➤ *1452 | 1.1*	
	–	–	–	–	–	–	–	–		
	–	–	–	–	–	–	–	–		
	✓	✓	✓	✓	✓	✓	✓	✓	➤ *1473 | 1.4*	
	–	–	–	–	–	–	–	–		
	✓	–	–	–	–	–	–	–	➤ *1474 | 1.5*	
	✓	✓	✓	✓	✓	✓	✓	✓	➤ *1474 | 1.5*	
	–20 +100	–20 +100	–20 +100	–20 +100	–20 +85	–20 +100	–20 +100	–20 +100	➤ *1478 | 1.8*	
	(+)	+++	–	–	+	++	++	+++	➤ *1476 | 1.6*	
	(+)	+++	–	–	(+)	(+)	(+)	++	➤ *1483 | 1.11* ➤ *114*	
	+	+	–	–	+++	+	+	++	➤ *1477 | 1.7* ➤ *1452 | 1.1*	
	+	+	+	+	(+)	+	+	+	➤ *54*	
	(+)	(+)	(+)	(+)	(+)	(+)	(+)	(+)	➤ *56*	
	–	–	–	–	–	–	–	–		
	+++	–	+++	+++	–	–	–	–	➤ *139*	
	–	++	–	–	++	++	++	++	➤ *139*	
	✓	✓	–	–	✓	✓	–	–	➤ *1453*	
	20 70	12 60	16,3 39,7	16,1 38,1	12 50	20 40	12 90	12 80	➤ *1508*	
	1534	***1536***	***1540***	***1542***	***1546***	***1548***	***1558***	***1564***		

https://www.schaeffler.de/std/1D65

1 Radial insert ball bearings

Radial insert ball bearings are ready-to-fit machine elements. In combination with drawn shafts, they are particularly easy to fit and suitable for the design of economical bearing arrangements. They are highly suitable where predominantly radial loads must be supported.

Radial insert ball bearings with an extended inner ring undergo less tilting and therefore run more smoothly.

Radial insert ball bearings with a spherical outer ring are highly suitable where:

- static angular misalignments of the shaft must be compensated, which are caused by mounting inaccuracies and tolerances in the adjacent construction ➤*1471|1.3*
- very good seals are required in environmental conditions such as dust, contamination, moisture, stone impacts and shocks ➤*1474|1.5*.

Radial insert ball bearings with a cylindrical outer ring are highly suitable where:

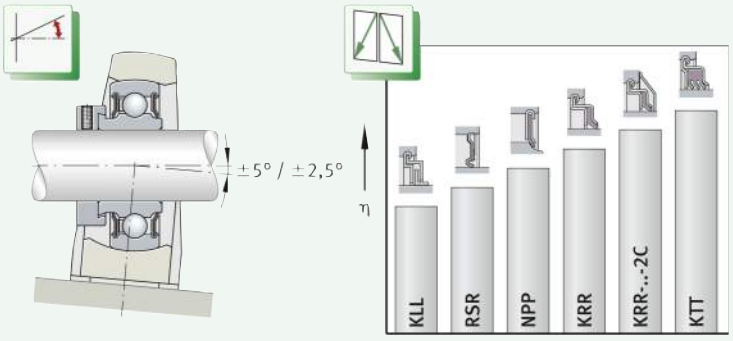
- a cylindrical housing bore is already present
- the outer ring of the bearings is to be located by means of easy-to-fit snap rings.

Radial insert ball bearings with a profiled bore are highly suitable where:

- shafts must transmit very high torques.

Radial insert ball bearings with a rubber interliner are highly suitable where:

- vibrations and shocks must be supported
- damping of running noise is required.



1
Compensation of static angular misalignments, available seals with sealing action of different magnitudes

η = *sealing action*

1.1 Bearing design

✎ *Design variants*

The radial insert ball bearings have a spherical or cylindrical outside surface. They are predominantly located on the shaft by means of an eccentric locking collar or grub screws.

The bearings are sealed using a range of available standard seals that are matched to the different application conditions.

https://www.schaeffler.de/std/1D65

Radial insert ball bearings are available in the following designs:

- standard bearings in accordance with ISO ➤*1453*
- corrosion-resistant bearings in a VA design or with a Corrotect coating in accordance with ISO ➤*1461*
- Black Series with Durotect BS coating in accordance with JIS B 1558 ➤*1464*.

Radial insert ball bearings are also available in many other designs and sizes, as well as for specific applications, by agreement.

X-life

Numerous sizes are supplied in X-life premium quality. These products are indicated in the product tables.

Radial insert ball bearings of X-life premium quality have, for example, a lower roughness Ra and higher geometrical accuracy of the raceways than comparable designs that are not X-life. As a result, these bearings have higher load carrying capacity and longer rating life although their dimensions are identical. In certain applications, this means that it may be possible to design a smaller bearing arrangement.

Radial insert ball bearings of X-life premium quality have an eccentric locking collar of an improved design and the quantity and distribution of the lubricant has been optimised. Housings ASE have additional cross-pieces on the underside. For extreme requirements, the cage and seal material in the high and low temperature designs (suffix FA101) has been significantly improved in comparison with earlier versions.

Metric and inch size designs

Radial insert ball bearings are available in metric sizes. Some series have a bore diameter with inch dimensions.

Standard bearings in accordance with ISO

The radial insert ball bearings are based on the deep groove ball bearing series 60, 62 and 63. The numerals identify the ball set and therefore the load carrying capacity of the bearing ➤*1470*|*1.2*. The inner ring is extended on one or both sides, while the bore has a plus tolerance in most of the designs.

Radial insert ball bearings are particularly easy to fit and are preferentially suitable for drawn shafts of tolerance classes h6 Ⓔ to h9 Ⓔ.
For non-locating bearings, shafts of tolerance classes h5 Ⓔ to h7 Ⓔ are recommended.

Spherical outside surface for the compensation of misalignments

Radial insert ball bearings with a spherical outside surface are single row, ready-to-fit units comprising a solid outer ring, cages made from plastic or sheet steel and seals P, R, L or T ➤*1474*|▦*6*. Bearings with an inner ring extended on both sides undergo less tilting of the inner ring and therefore run more smoothly.

In combination with a housing matched to the design, bearings with a spherical outside surface can compensate for misalignment of the shaft ➤*1471*|*1.3*.

With only a few exceptions, radial insert ball bearings can be relubricated. For this purpose, they have two lubrication holes in one plane of the outer ring offset by 180°.

Location on the shaft is by means of an eccentric locking collar, grub screws in the inner ring, an adapter sleeve, a drive slot, fit or profiled bore ➤*1454*|▱*2*.

Cylindrical outside surface for a cylindrical housing bore

Radial insert ball bearings with a cylindrical outside surface are single row, ready-to-fit units comprising a solid outer ring, an inner ring extended on one or both sides, cages made from plastic and seals P or R ➤*1474*|▦*6*. Bearings with an inner ring extended on both sides undergo less tilting of the inner ring and therefore run more smoothly.

The radial insert ball bearings are greased and cannot be relubricated.

Their location on the shaft is by means of an eccentric locking collar, fit or profiled bore ➤*1455* and ➤*1458*.

https://www.schaeffler.de/std/1D65

Location and design

Locating bearings

Location is by means of eccentric locking collars, grub screws or integrated adapter sleeves ➤*1454*|*2* and ➤*1454*|*3*. Certain series can be located by means of a fit on the shaft. The extended inner ring on one or both sides is used as a running surface for the seal and prevents significant tilting of the inner ring.

Bearings with vibration damping

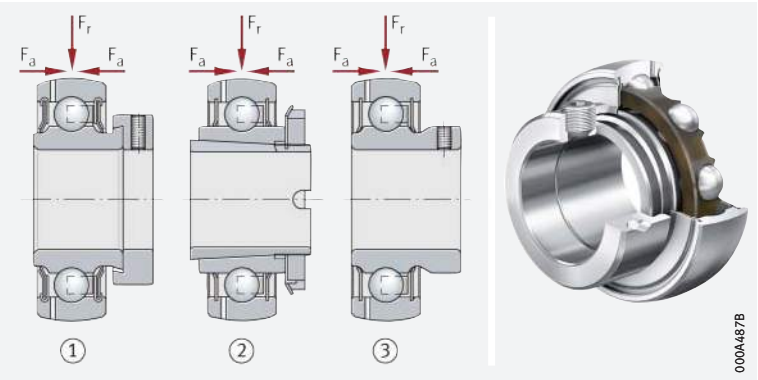
For applications where strong vibrations can occur, damping can be achieved using radial insert ball bearings with a thick-walled rubber interliner ➤*1454*|*3*.

Non-locating bearings

Radial insert ball bearings with a drive slot in the inner ring are non-locating bearings that are used for low speeds and loads in order to compensate for elongations of the shaft ➤*1454*|*3*. The slot allows simple radial location of the bearing on the shaft.

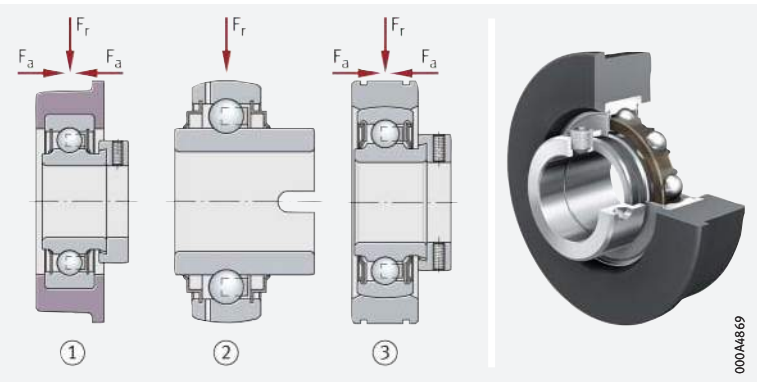
2
Location methods for radial insert ball bearings

① *Location using eccentric locking collar, bearing with relubrication facility*
② *Location using integrated adapter sleeve, bearing with relubrication facility*
③ *Location using grub screws in inner ring, bearing with relubrication facility*



3
Design examples of radial insert ball bearings

① *Radial insert ball bearing with rubber interliner*
② *Radial insert ball bearing with drive slot (non-locating bearing), with relubrication facility*
③ *Radial insert ball bearing with aligning ring (for cylindrical housing bore)*



https://www.schaeffler.de/std/1D65

Radial insert ball bearings with eccentric locking collar

These "classic" INA radial insert ball bearings are located on the shaft by means of a locking collar ➤1455|4. They are particularly suitable for bearing arrangements with a constant direction of rotation or, under low speed and load, for an alternating direction of rotation.

The locking collar is preferably tightened in the direction of rotation and secured by means of a grub screw. This location method prevents damage to the shaft and can be easily loosened again.

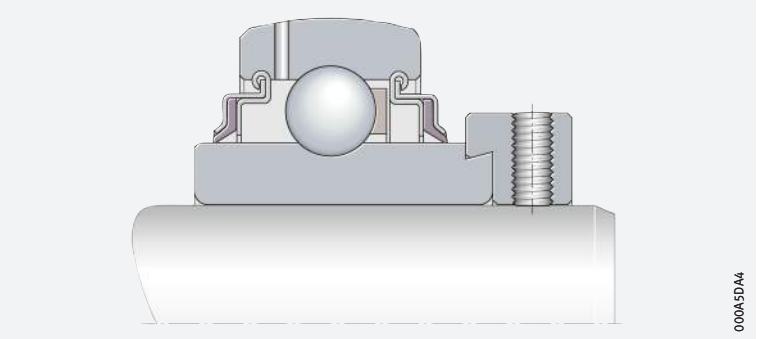
With the exception of a few series, sealed bearings can be relubricated.

✎ *Corrosion protection*

The inner rings up to d = 60 mm and the locking collars in general have a Corrotect coating and are thus protected against fretting corrosion. This is not valid for the series RALE..-XL-NPP(-B).

4
Location by means of eccentric locking collar

GE..-XL-KRR-B



Radial insert ball bearings with eccentric locking collar and slots in the outer ring

The basic design of series RAE..-XL-NPP-NR is a radial insert ball bearing with an eccentric locking collar and an inner ring extended on one side ➤1455|5.

The outer ring has a cylindrical outside surface and two slots to DIN 616 and ISO 464. The bearings are fitted in cylindrical bores and axially located by easy-to-fit snap rings. The bearing is supplied with one snap ring to DIN 5417 already fitted.

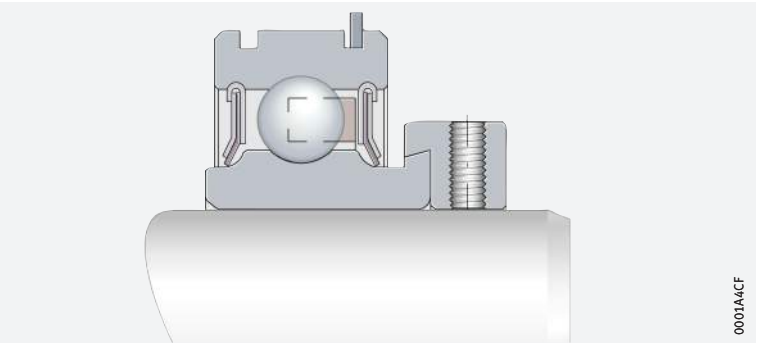
The radial insert ball bearings are greased and cannot be relubricated.

✎ *Corrosion protection*

Inner rings up to a bore diameter d = 60 mm have a Corrotect coating and are thus protected against fretting corrosion.

5
Radial insert ball bearing with cylindrical outside surface and two slots in outer ring

RAE..-XL-NPP-NR



https://www.schaeffler.de/std/1D65

Radial insert ball bearings with grub screws in the inner ring

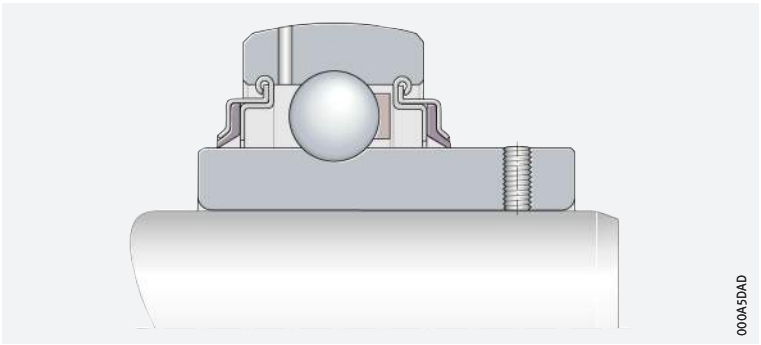
In the case of these radial insert ball bearings, the inner ring is located on the shaft by means of two grub screws offset by 120° ➤ *1456* | *6*. This location method is suitable for bearing arrangements with a constant direction of rotation or, under low speed and load, for an alternating direction of rotation.

The grub screws are self-retaining and have a fine pitch thread with cup point for secure location of the bearings.

With the exception of series AY..-XL-NPP-B, the bearings can be relubricated.

6
Location by means of grub screws in the inner ring

GYE..-XL-KRR-B



Radial insert ball bearings with adapter sleeve

In the case of this series, the inner ring is located on the shaft by means of an adapter sleeve with a locknut and a tab washer ➤ *1456* | *7*. These radial insert ball bearings are suitable for shafts up to tolerance class h11 Ⓔ.

The bearings can be relubricated.

Suitable for very high speeds

This location method is suitable for bearing arrangements with a constant or alternating direction of rotation and for high speeds.

The adapter sleeve and locknut give concentric, force locking location of the bearing inner ring on the shaft. As a result, the speeds that can be achieved are approximately the same as with deep groove ball bearings. These bearings also give quieter running than normal radial insert ball bearings. The adapter sleeve, locknut and tab washer are all zinc-coated.

Reversing operation

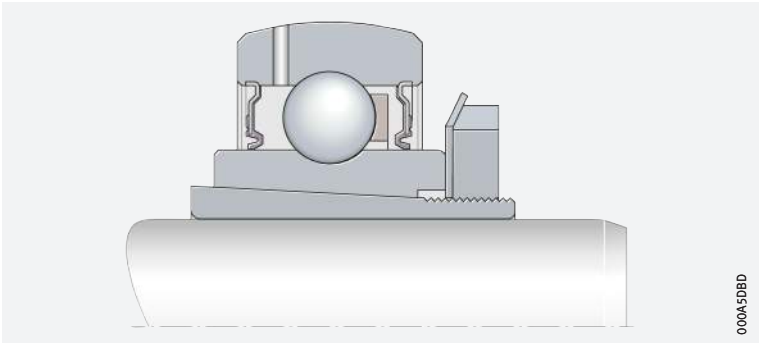
The bearings are highly suitable for reversing operation. As a result of the force locking connection, there is no occurrence of fretting corrosion between the shaft and the bore of the adapter sleeve.

Interchangeability

Due to the integral adapter sleeve, the bearings have the same radial dimensions as, and slightly lower basic load ratings than, radial insert ball bearings with an eccentric locking collar, or with grub screws in the inner ring, and are interchangeable with these bearings.

7
Location using adapter sleeve and locknut

GSH..-XL-2RSR-B



https://www.schaeffler.de/std/1D65

Radial insert ball bearings with drive slot

Suitable as non-locating bearings for low speeds

Radial insert ball bearings with a drive slot in the inner ring are non-locating bearings with good high temperature characteristics ➤*1457*|*8*. Non-locating bearings are used at low speeds and loads to compensate for elongations of the shaft.

Due to the slot, they are easy to locate in a radial direction. Rotation is prevented by means of a drive pin on the shaft or a set collar with a pin. The non-locating bearings are suitable for drawn shafts of tolerance classes h5 Ⓔ to h7 Ⓔ.

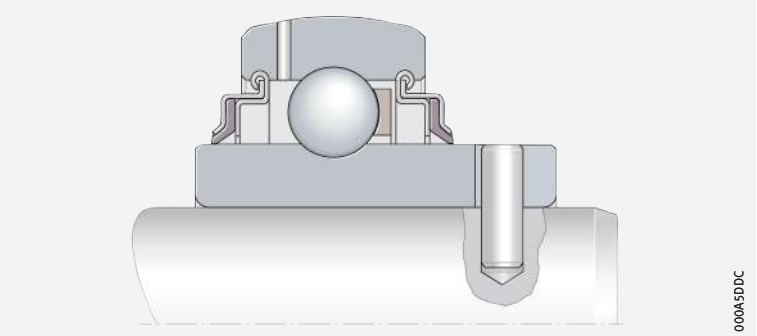
The bearings can be relubricated.

Corrosion protection

Inner rings up to a bore diameter d = 60 mm have a Corrotect coating and are thus protected against fretting corrosion.

8
Location by means of drive slot

GLE..-XL-KRR-B



Self-aligning deep groove ball bearings with bore for fit

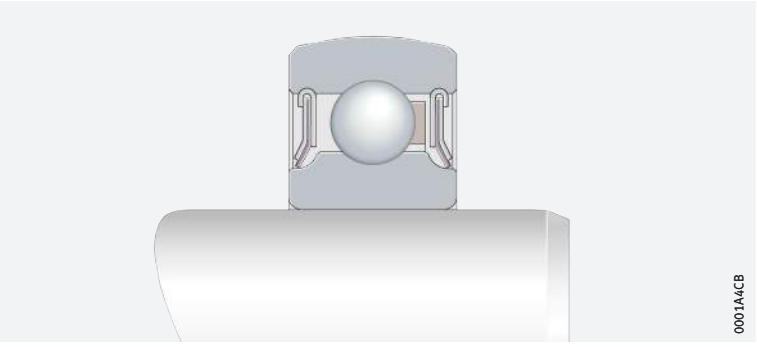
Self-aligning deep groove ball bearings are available with a cylindrical bore for a fit seat ➤*1457*|*9* and with a reamed square or hexagonal bore ➤*1458*|*11*.

The outer ring has a spherical outside surface.

Bearings with a fit seat on the shaft can achieve the same speeds as standard ball bearings. These are suitable for bearing arrangements with an alternating direction of rotation and offer smooth running.

9
Self-aligning deep groove ball bearing with fit seat

2..-XL-NPP-B



For self-aligning deep groove ball bearings with a fit seat, the fit data for ball bearings apply.

https://www.schaeffler.de/std/1D65

Deep groove ball bearings with bore for fit

These bearings have a cylindrical outer ring and are fitted in cylindrical bores ➤*1458*|*10*. The inner ring is extended on both sides and is located on the shaft using a fit. Due to the extended inner ring, additional axial spacer rings are not required.

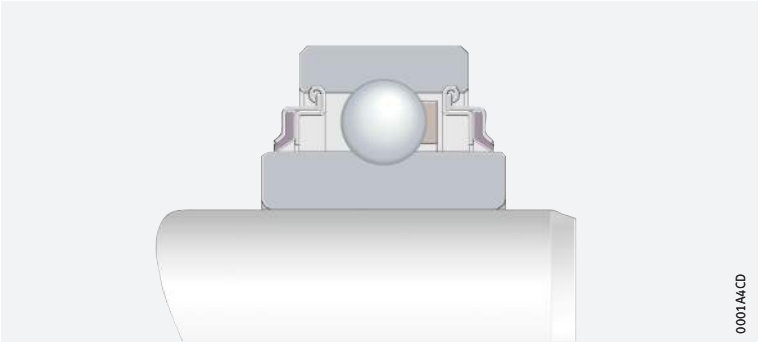
The concentric seat allows speeds equivalent to those of standard ball bearings, while the load can be either constant or alternating. Smooth running is also achieved.

The tolerance of the inner ring bore corresponds to tolerance class Normal in accordance with ISO 492.

The sheet steel washers extended outwards and angled downwards form a large grease reservoir.

10
Deep groove ball bearing with extended inner ring and bore for fit

2..-XL-KRR
2..-XL-KRR-AH



Self-aligning deep groove ball bearings with profiled bore

Transmission of high torques

Bearings with a profiled bore are used where shafts must transmit very high torques and this is only possible using square or hexagonal shafts ➤*1458*|*11*. Rotation is prevented by form fit.

These bearings have a spherical or cylindrical outer ring and an inner ring that is extended on both sides ➤*1458*|*11* and ➤*1459*|*12*. Shafts of tolerance class h11 Ⓔ are recommended.

The bearings are greased to their maximum, some designs with a spherical outside surface can also be relubricated.

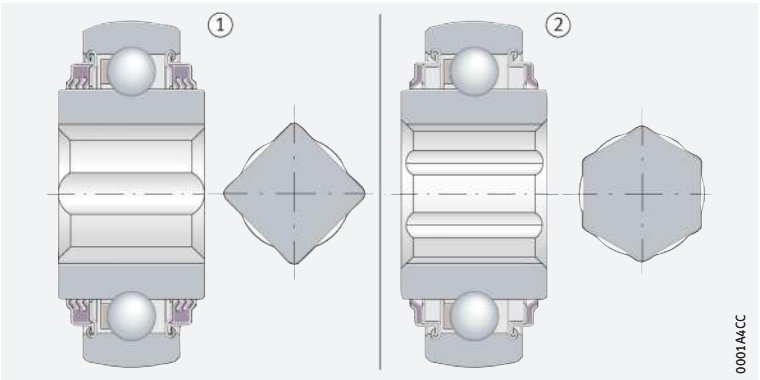
Corrosion protection

The bearings have a Corrotect coating.

11
Self-aligning deep groove ball bearings with profiled bore

① *Square bore*
② *Hexagonal bore*

VK..-KTT-B
SK..-KRR-B

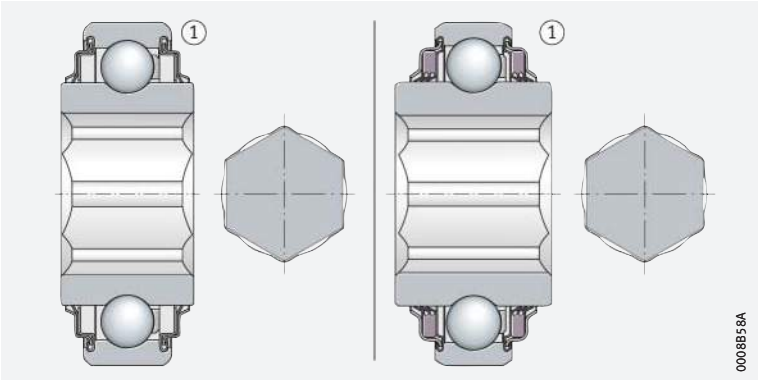


https://www.schaeffler.de/std/1D65

12
Deep groove ball bearings with extended inner ring and profiled bore

① *Hexagonal bore*

SK..-KRR
SK..-KTT

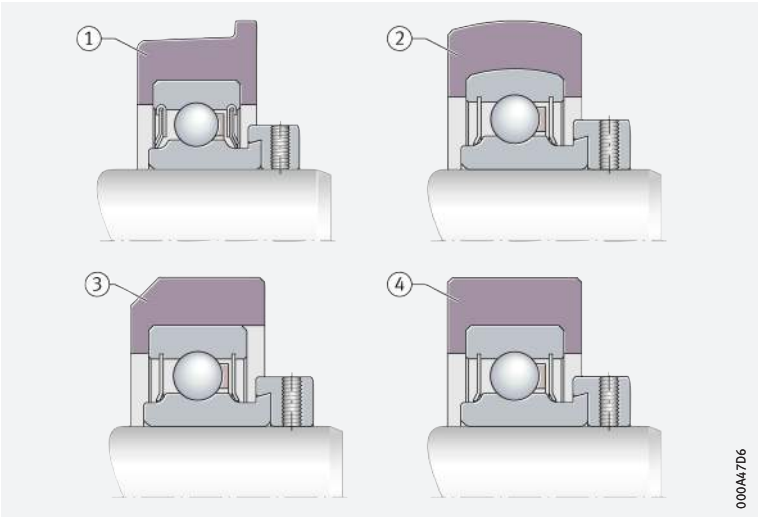


Radial insert ball bearings with rubber interliner

Radial insert ball bearings with a rubber interliner are located on the shaft using an eccentric locking collar. The outer ring is encased in a thick-walled NBR interliner ➤*1459*|*13*.

13
Radial insert ball bearings with rubber interliner

① *CRB..-XL with locating shoulder*
② *RABR(A,B)*
③ *RCR(A,B)*
④ *RCSM(A,B)*
Structure of bearing designation ➤*1487*|*19*



✎ *Damping of running noise*

The interliner absorbs vibrations and shocks and thus gives damping of running noises.

✎ *Various types*

The interliners have a spherical or cylindrical outside surface.

For roll bearing arrangements, one series has a locating shoulder on the rubber interliner.

Bearings with rubber interliners cannot be relubricated.

Note the tube and housing diameters for radial insert ball bearings with rubber interliner:

- CRB: tube inside diameter D –0,6 to –1,6
- RABR, RCR, RCSM: housing diameter D –0,25 to –0,35.

✎ *Corrosion protection*

The inner ring and locking collar have a Corrotect coating and are thus protected against fretting corrosion. This is not valid for series with the radial insert ball bearing RALE..-XL-NPP(-B).

https://www.schaeffler.de/std/1D65

Radial insert ball bearings with steel aligning ring

These bearings are based on radial insert ball bearings with an eccentric locking collar or on self-aligning deep groove ball bearings, but additionally have an axially split outer ring as an aligning ring ➤ *1460* | *14*. They are mounted in cylindrical bores and can compensate static misalignments of the shaft up to ±5°.

In series PE, the inner ring is located on the shaft by means of a locking collar while, in series BE, it is located by a fit.

Radial insert ball bearings with an aligning ring cannot be relubricated.

Suitable for sheet metal constructions

Due to the annular slots in the outer ring to DIN 616, they are highly suitable for sheet metal constructions. In this case, they are axially located using snap rings to DIN 5417.

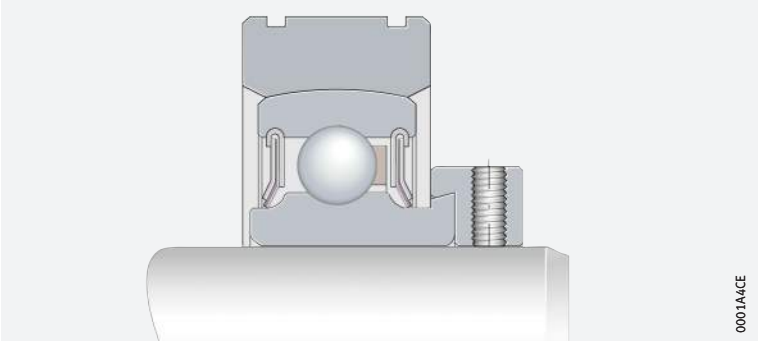
The fit tolerances of the aligning rings are those of the deep groove ball bearings. Select the fit for the shaft and housing such that the outer ring of the radial insert ball bearing can undergo self-alignment.

Corrosion protection

The aligning ring has a Corrotect coating and is thus protected against fretting corrosion. In the case of series PE..-XL, the inner ring and locking collar also have a coating.

14
Radial insert ball bearing with steel aligning ring

PE..-XL



https://www.schaeffler.de/std/1D65

Corrosion-resistant bearings in a VA design or with a Corrotect coating in accordance with ISO

The radial insert ball bearings SUB, SUC and SUG, as well as the radial insert ball bearings with the suffix FA125, are designed for corrosion-resistant bearing arrangements. They are therefore equally suitable for applications involving humidity, contaminated water, salt spray mist and for cleaning agents. Their classic areas of application include the agricultural, construction and mining sector, conveying equipment, textile, paper and woodworking machinery, as well as machinery for the food and drink industry.

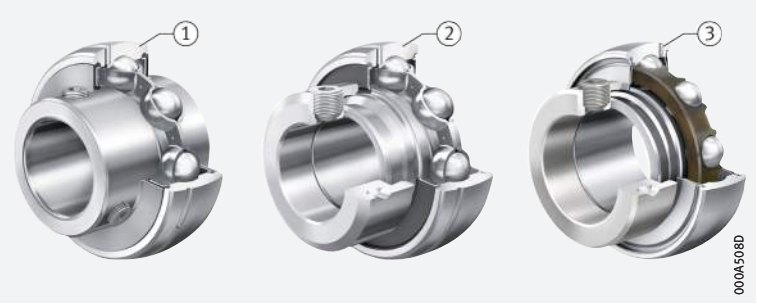
Corrosion-resistant VA design or with Corrotect coating

The bearings are available in a corrosion-resistant VA design or with a Corrotect thin film coating ➤*1461*|*15*. They correspond in their design to single row deep groove ball bearings 62, are ready to fit, particularly easy to fit and allow robust, economical bearing arrangements with a long operating life. They are located on the shaft by means of grub screws in the extended inner ring or by means of an eccentric locking collar.

Operation even under difficult conditions is ensured by seals and greases that are matched to the application.

15
Corrosion-resistant radial insert ball bearings, with Corrotect coating or in VA design

① *SUC (VA design)*
② *SUG (VA design)*
③ *GRAE..-NPP-B-FA125 (with Corrotect coating)*



Radial insert ball bearings in corrosion-resistant VA design

In the case of radial insert ball bearings SUB, SUC and SUG, the bearing rings, eccentric locking collar and rolling elements are made from high alloy, corrosion-resistant rolling bearing steel with an increased chromium and molybdenum content, material number 1.4125.

Sheet steel cages made from corrosion-resistant steel, material number 1.4301, retain and guide the rolling elements.

Location by means of corrosion-resistant VA grub screws

The inner ring is located axially on the shaft by means of two corrosion-resistant VA grub screws, material number 1.4301, offset by 120°. This location method is suitable for bearing arrangements with a constant direction of rotation or, under low speed and load, for an alternating direction of rotation.

The grub screws are self-retaining and have a fine pitch thread with cup point for secure location of the bearings when taking account of the stated tightening torques ➤*1504*|*30*.

Location using corrosion-resistant VA eccentric locking collar

The bearings are located on the shaft by means of a corrosion-resistant VA locking collar. They are thus particularly suitable for bearing arrangements with a constant direction of rotation or, under low speed and load, for an alternating direction of rotation.

The locking collar is preferably tightened in the direction of rotation and must be secured by means of a grub screw. This location method prevents damage to the shaft and can be easily loosened again.

https://www.schaeffler.de/std/1D65

✎ *Media resistance*

In the food industry in particular, the resistance of the material in relation to various cleaning agents is of increasing importance ➤ *1462* | ▦ *1*.

▦ ***1***
Resistance to media

Medium + resistant (+) moderately resistant (–) barely resistant – not resistant	Concentration %	X5CrNi18-10 (1.4301)		440C (1.4125)	
		+20 °C	+80 °C	+20 °C	+80 °C
Hydrochloric acid HCl	0,1	+	+	–	–
	1	(+)	–	–	–
	18	–	–	–	–
Hydrofluoric acid HF	1	–	–	–	–
	5	–[1]	–	–[1]	–
Sulphuric acid H_2SO_4	1	+	–	–	–
	10	(+)	–	–	–
	96	+	(+)	–	–
Sulphurous acid H_2SO_3	1	+	+	–	–
Nitric acid HNO_3	5	+	+	–	–
	25	+	+	+	(+)
	65	+	+	+	(+)
Phosphoric acid H_3PO_4	1	+	+	+	+
	10	+	+	(+)	+
	85	+	+	+	–
Formic acid HCOOH	5	+	+	–	–
	25	+	+	–	–
Acetic acid CH_3COOH	5	+	+	+	–
	25	+	+	+	–
Citric acid	5	+	+	+	+
	25	+	+	–	–
Chloroacetic acid	5	+	+	(+)	–
Sodium chloride NaCl	10	+	+	(–)	(–)
Sea water	4	+	+	(–)	(–)
Distilled water	–	+	+	+	+
Ammonium hydroxide NH_4OH	1	+	+	+	+
	10	+	+	+	+
Potassium hydroxide solution KOH	0,1	+	+	+	+
	1	+	+	+	+
	10	+	+	+	+
Sodium hypochlorite solution	1	+[1]	+	[2]	(–)
Hydrogen peroxide H_2O_2	5	+	+	+	+

[1] *Not tested.*
Estimate generated from remaining test series.

[2] *Not tested.*
No estimate possible.

https://www.schaeffler.de/std/1D65

Radial insert ball bearings with Corrotect coating

The radial insert ball bearings GRAE..-XL-NPP-B-FA125 and GE..-XL-KRR-B-FA125 have a Corrotect thin film coating on all surfaces.

Plastic cages made from polyamide PA66 retain and guide the rolling elements.

✎ *Anti-corrosion coating system Corrotect*

The Corrotect thin film coating technology is an economical alternative to radial insert ball bearings with conventional corrosion protection. The thickness of the coating film is between 2 µm and 5 µm.

The advantages of the Corrotect thin film coating are:

- All surfaces are protected against corrosion, including the turned surfaces of chamfers and radii
- Rust beneath seals is prevented in the long term
- Smaller spots that are damaged by the application and are bright as a result remain protected against corrosion by the cathodic protection effect
- Operating life is significantly longer compared to uncoated parts due to the corrosion protection
- Uncoated bearings and housings are fully interchangeable with the coated versions of the same design
- Bearings and housings made from corrosion-resistant rolling bearing steel are often no longer required.

The use of the Corrotect thin film coating is not permitted for direct contact with foodstuffs.

✎ *Media resistance*

The resistance of the Corrotect thin film coating to various media must be taken into consideration ➤ *1463* | ▦ *2*.

▦ **2**
Resistance to media

Chemicals	Corrotect coating[1)]
Neutral, organic fluids (oil, brake fluid, petrol)	Resistant
Aqueous salt solutions in the neutral range 6 ≦ pH ≧ 8 (table salt NaCl, seawater applications)	Conditionally resistant
Acidic liquids (pH ≦ 6)	Not resistant
Alkaline liquids (pH ≧ 8)	Not resistant
Oxidising substances (ozone, chlorine, peroxides, hypochlorides)	Not resistant

1) *Valid for Corrotect coatings based on zinc and zinc alloy.*

✎ *Location by means of locking collar*

The bearings are located on the shaft by a locking collar. They are thus particularly suitable for bearing arrangements with a constant direction of rotation or, under low speed and load, for an alternating direction of rotation.

The locking collar is preferably tightened in the direction of rotation and must be secured by means of a grub screw. This location method prevents damage to the shaft and can be easily loosened again.

https://www.schaeffler.de/std/1D65

Black Series in accordance with JIS B 1558

FAG radial insert ball bearings with a spherical outer ring are based on single row deep groove ball bearings 62 and are designed in accordance with JIS B 1558. The Black Series radial insert ball bearings are available with two location methods and one type of seal. They can be relubricated and are particularly easy to install.

The radial insert ball bearings are pregreased and can be relubricated by means of two lubrication holes in the outer ring.

Cages made from plastic

The bearings have plastic cages ➤*1479* and are sealed on both sides by single piece seals RSR with a vulcanised seal lip and an outer flinger shield.

Quiet running, low frictional torque

The honed raceways of the bearing rings, in conjunction with the high ball grade, ensure quiet running and a reduced frictional torque.

Basic corrosion protection Durotect BS

The inner and outer rings as well as the flinger shields are provided with the black Durotect BS coating in order to offer basic protection against corrosion.

Adapter sleeves have a Durotect BS or phosphate coating.

Location on shaft

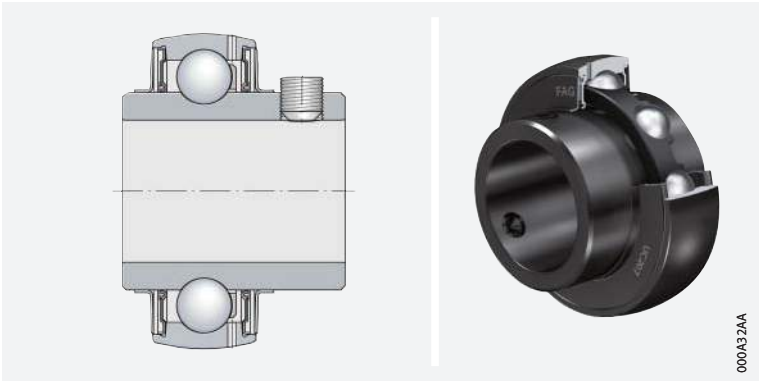
Location by means of grub screws

In the radial insert ball bearings UC, the inner ring is located on the shaft by means of two grub screws offset by 120° ➤*1464*|*16*. They are suitable for bearing arrangements with a constant direction of rotation or, under low speed and load, for an alternating direction of rotation.

The grub screws are self-retaining and have a fine pitch thread with cup point for secure location of the bearings. In order to allow better differentiation, the metric grub screws have a Durotect BS coating while the inch size grub screws are zinc-coated.

16
Location by means of grub screws in the inner ring

UC

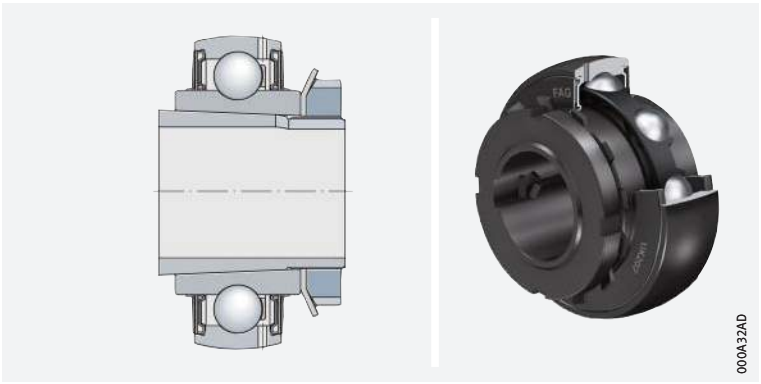


Location by means of adapter sleeve

In the radial insert ball bearings UK, the inner ring is located on the shaft by means of a concentric adapter sleeve in accordance with JIS B 1552 ➤*1464*|*17*. The inner and outer roughness of the adapter sleeve is Ra 2,5. They are suitable for bearing arrangements with an alternating direction of rotation, even under high speed and load.

17
Location by adapter sleeve

UK



https://www.schaeffler.de/std/1D65

Comparison of radial insert ball bearing series

The possible dimensions and features of the standard bearings are presented in the following table ➤*1466*|▦*3*. The corrosion-resistant radial insert ball bearing range and the radial insert ball bearings in accordance with JIS (Black Series) are summarised separately ➤*1468*|▦*4*.

https://www.schaeffler.de/std/1D65

3
Features of radial insert ball bearings, comparison of standard bearing series

Series	Shaft diameter				Location
	mm		inch		
	from	to	from	to	
GE..-XL-KLL-B	20	50	–	–	Eccentric locking collar
E..-XL-KLL	20	50	–	–	Eccentric locking collar
GRAE..-XL-NPP-B	12	60	–	–	Eccentric locking collar
GRA..-NPP-B-AS2/V	–	–	5/8	1 15/16	
RABRB..-XL-FA106	12	50	–	–	Eccentric locking collar
RABRA..-XL-FA106	30	–	–	–	
RAE..-XL-NPP-B	12	50	–	–	Eccentric locking collar
RA..-NPP-B	–	–	3/4	1 1/2	
RALE..-XL-NPP-B	20	30	–	–	
PE..-XL	20	40	–	–	
RCSMB..-XL-FA106	15	25	–	–	Eccentric locking collar
RCSMA..-XL-FA106	30	–	–	–	
RCRA..-XL-FA106	20	–	–	–	
RCRB..-XL-FA106	20	–	–	–	
CRB..-XL	20	35	–	–	
RAE..-XL-NPP	12	60	–	–	Eccentric locking collar
RALE..-XL-NPP	20	30	–	–	
RAE..-XL-NPP-NR	20	40	–	–	
RA..-NPP	–	–	5/8	1 1/2	
RAL..-NPP	–	–	3/4	–	
GE..-XL-KRR-B	17	120	–	–	Eccentric locking collar
G..-KRR-B-AS2/V	–	–	15/16	2 15/16	Eccentric locking collar
GE..-XL-KRR-B-2C	25	40	–	–	
GNE..-XL-KRR-B	30	100	–	–	
E..-XL-KRR-B	25	40	–	–	Eccentric locking collar
NE..-XL-KRR-B	50	–	–	–	
GE..-XL-KRR-B-FA101	20	75	–	–	Eccentric locking collar
GE..-XL-KRR-B-FA164	20	90	–	–	
E..-XL-KRR	20	70	–	–	Eccentric locking collar
GE..-XL-KTT-B	20	80	–	–	Eccentric locking collar
GAY..-XL-NPP-B	12	60	–	–	Grub screws
GAY..-NPP-B-AS2/V	–	–	5/8	1 7/16	
GYE..-XL-KRR-B	12	90	–	–	
GY..-KRR-B-AS2/V	–	–	1/2	2 15/16	
AY..-XL-NPP-B	12	30	–	–	Grub screws
GAY..-XL-NPP-B-FA164	12	15	–	–	Grub screws
GLE..-XL-KRR-B	20	70	–	–	Drive slot
BE..-XL	20	40	–	–	Fit
2..-XL-NPP-B	12	50	–	–	Fit
2..-XL-KRR(-AH)	13	60	–	–	
SK(E)..-KRR-B	16,1	38,1	–	–	Hexagonal bore
SK..-KRR	–	–	7/8	1 1/4	
SK..-KTT-B	–	–	7/8	1 1/4	Hexagonal bore
SK..-KTT	–	–	1 1/4	1 3/4	
GSH..-XL-2RSR-B[3)]	20	50	–	–	Adapter sleeve
GVK(E)..-KRR-B-AS2/V	16,3	–	–	–	Square bore
VK(E)..-KTT-B	25,4	38	1	–	
GVK(E)..-KTT-B(-AS2/V)	25,4	39,7	1	1 9/16	

1) *Recommended application temperature. If temperatures exceed +100 °C, relubrication must be carried out regularly.*

2) *Temporary temperature peaks are possible up to 120 °C.*

3) *Pay attention to the interchangeability of the bearing* ➤ *1456*

https://www.schaeffler.de/std/1D65

Accessories	Seal	Compensation of misalignment	Internal clearance Group	Cage	Grease	Relubrication facility	Temperature[1] °C from	Temperature[1] °C to	Comments	Product table Page
–	L	yes	5	Steel	L069	yes	−40	+180	–	➤1508
–	L	no	3	PA66	GA13	no	−20	+100[2]	–	➤1516
–	P	yes	3	PA66	GA13	yes	−20	+100[2]	–	➤1508
										➤1524
Rubber interliner	P	yes	3	PA66	GA13	no	−20	+85	–	➤1546
									Light series	➤1546
–	P	yes	3	PA66	GA13	no	−20	+100[2]	–	➤1508
									–	➤1524
									Light series	➤1508
Aligning ring									Annular slots in aligning ring	➤1548
Rubber interliner	P	no	3	PA66	GA13	no	−20	+85	–	➤1546
									Light series	➤1546
									Light series, mounting chamfer	➤1546
									Mounting chamfer	➤1546
									Abutment shoulder	➤1546
–	P	no	3	PA66	GA13	no	−20	+100[2]	–	➤1516
									–	➤1516
									Two slots, one snap ring	➤1516
									–	➤1530
									–	➤1530
–	R	yes	3	PA66	GA13	yes	−20	+100[2]	–	➤1508
–	R	yes	3	PA66	GA13	yes	−20	+100[2]	–	➤1524
									Flinger shields	➤1508
									Heavy series	➤1510
–	R	yes	3	PA66	GA13	no	−20	+100[2]	–	➤1508
									Heavy series	➤1512
–	R	yes	5	Steel	L069	yes	−40	+180	PTFE seal lip	➤1508
					GA11		+150	+250		➤1508
–	R	no	3	PA66	GA13	no	−20	+100[2]	–	➤1516
–	T	yes	3	PA66	GA13	yes	−20	+100[2]	–	➤1508
–	P	yes	3	PA66	GA13	yes	−20	+100[2]	–	➤1520
										➤1524
										➤1520
										➤1524
–	P	yes	3	PA66	GA13	no	−20	+100[2]	–	➤1520
–	P	yes	5	Steel	GA11	yes	+150	+250	PTFE seal lip	➤1520
–	R	yes	5	Steel	L069	yes	−40	+180	PTFE seal lip	➤1534
Aligning ring	P	yes	N	PA66	GA13	no	−20	+100[2]	Annular slots in aligning ring	➤1548
–	R	yes	N	PA66	GA13	no	−20	+100[2]	–	➤1536
		no								➤1538
–	R	yes	3	PA66	GA13	no	−20	+100[2]	Corrosion-resistant, maximum greasing	➤1542
		no								➤1544
–	T	yes	3	PA66	L402	no	−20	+100[2]	Corrosion-resistant, maximum greasing	➤1542
		no			GA13					➤1544
–	RSR	yes	4	PA66	GA13	yes	−20	+100[2]	–	➤1532
–	R	yes	3	PA66	GA13	yes	−20	+100[2]	Corrosion-resistant, maximum greasing	➤1540
	T					no				➤1540
	T					yes				➤1540

https://www.schaeffler.de/std/1D65

4
Features of radial insert ball bearings, comparison of series, corrosion-resistant and Black Series

Series	Shaft diameter				Location
	mm		inch		
	from	to	from	to	
Corrosion-resistant product range					
GRAE..-XL-NPP-B-FA125	20	60	–	–	Eccentric locking collar
GE..-XL-KRR-B-FA125	20	50	–	–	Eccentric locking collar
SUB	20	50	–	–	Grub screws
SUC	12	50	–	–	Grub screws
SUG	20	50	–	–	Eccentric locking collar
Black Series (radial insert ball bearings in accordance with JIS)					
UC	12	90	$^1/_2$	$3^1/_2$	Grub screws
UK	20	80	–	–	Adapter sleeve to JIS B 1552

1) Recommended application temperature. If temperatures exceed +100 °C, relubrication must be carried out regularly.

2) Temporary temperature peaks are possible up to 120 °C.

https://www.schaeffler.de/std/1D65

Seal	Compensation of misalignment	Internal clearance	Cage	Grease	Relubrication facility	Temperature[1] °C		Comments	Product table
						from	to		Page
P	yes	Group 3	PA66	GA47	yes	–20	+100[2]	Corrosion-resistant, Corrotect coating	➤*1556*
R	yes	Group 3	PA66	GA47	yes	–20	+100[2]	Corrosion-resistant, Corrotect coating	➤*1556*
RSR	yes	Group 3	Corrosion-resistant VA steel	FM222	yes	–35	+100	Corrosion-resistant, VA design	➤*1550*
RSR	yes	Group 3	Corrosion-resistant VA steel	FM222	yes	–35	+100	Corrosion-resistant, VA design, with flinger shield	➤*1552*
RSR	yes	Group 3	Corrosion-resistant VA steel	FM222	yes	–35	+100	Corrosion-resistant, VA design	➤*1554*
RSR	yes	C3	PA66	GA13	yes	–20	+100[2]	Black Series, Durotect BS coating, basic corrosion protection	➤*1558*
RSR	yes	C4	PA66	GA13	yes	–20	+100[2]	Black Series, Durotect BS coating, basic corrosion protection	➤*1564*

https://www.schaeffler.de/std/1D65

1.2 Load carrying capacity

Radial load carrying capacity

Suitable for very high radial loads

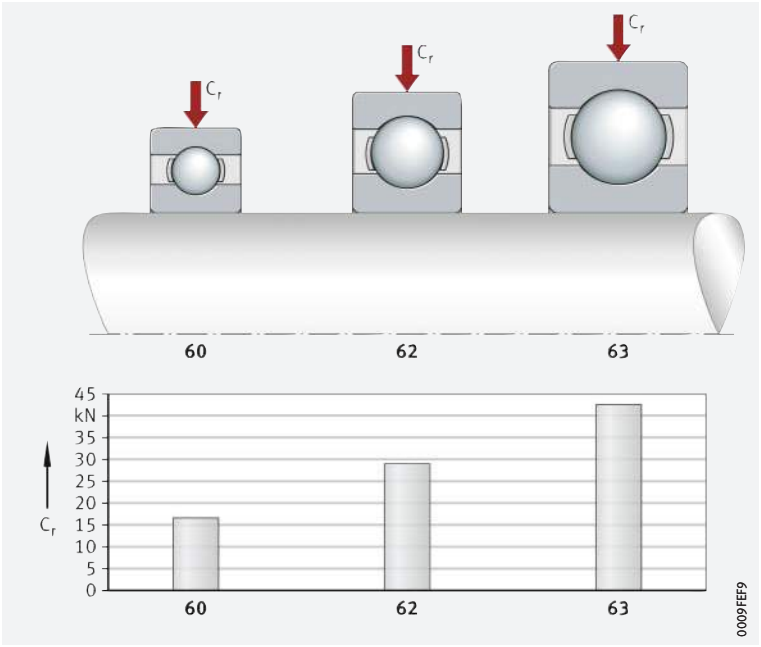
The balls are in contact with the raceways at one point only. Under purely radial load, the contact points between the rolling elements and raceways lie at the centre of the raceway. As a result, the connection between the contact points passes through the radial plane, i.e. the optimum load direction is a purely radial load ➤1454|2 and ➤1454|3. Radial insert ball bearings can therefore support very high radial loads.

Larger ball sets permit higher loads

The load carrying capacity is dependent on the bearing series and the size of the ball set in the reference bearings. As a result, the deep groove ball bearing series 60 with a smaller bearing cross-section cannot support loads as high as those with the standard series 62 of the same dimensions (relative to the bore diameter d) with a larger ball set. The heavy bearing series 63 with the largest ball set is suitable for even higher loads when used for the same bore diameter ➤1470|18.

18
Reference bearings, comparison of cross-section and load carrying capacity for bearings with d = 40 mm

C_r = *basic dynamic load rating*



Axial load carrying capacity

Capable of supporting axial loads in both directions

Due to the deep raceway grooves in the bearing rings and the narrow osculation between the raceway grooves and balls, radial insert ball bearings can support axial loads in both directions ➤1454|2 and ➤1454|3. The axial load carrying capacity is dependent, for example, on the bearing size, the internal construction and the operating clearance.
If the axial load is too high, however, this can increase the running noise and considerably reduce the operating life of the bearings.

If there is any uncertainty regarding the axial load carrying capacity of the bearings, please consult Schaeffler.

https://www.schaeffler.de/std/1D65

1.3 Compensation of angular misalignments

The units must not be used to support swivelling or tumbling motion ➤*1472*.

Compensation of static misalignments

Bearings with a spherical outer ring outside surface, fitted in housings with a concave bore, can compensate for static misalignment of the shaft ➤*1471*|*19*, ➤*1471*|*20* and ➤*1471*|*21*.

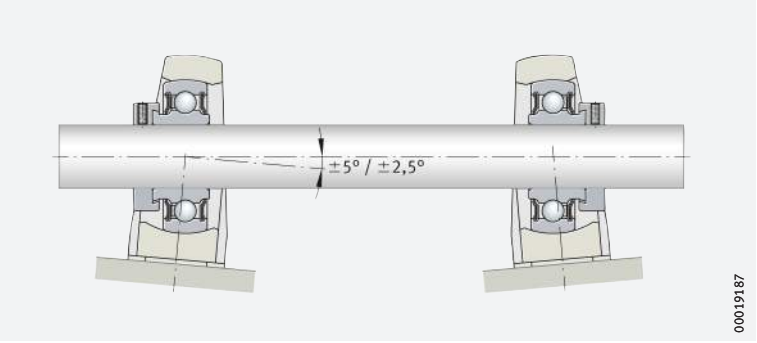
The compensation of misalignments must be within the permissible angle of ±5° for maintenance-free housing units or ±2,5° for housing units with a relubrication facility. The precondition is that the centre axes of the inner rings must lie on a common straight line.

For units with a lubrication groove in the housing and lubrication hole in the radial insert ball bearing, the following applies:

- Up to ±2,5°, the units can be relubricated.
- Between ±2,5° and ±5°, the possibility of relubrication is dependent on the specific unit. Please contact us in this case.
- Over ±5°, relubrication is no longer possible.

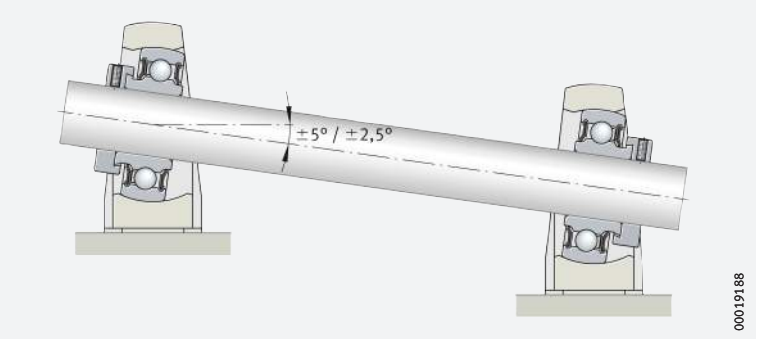
19
Compensation of static housing misalignment

±5° for maintenance-free bearings
±2,5° for bearings with relubrication facility



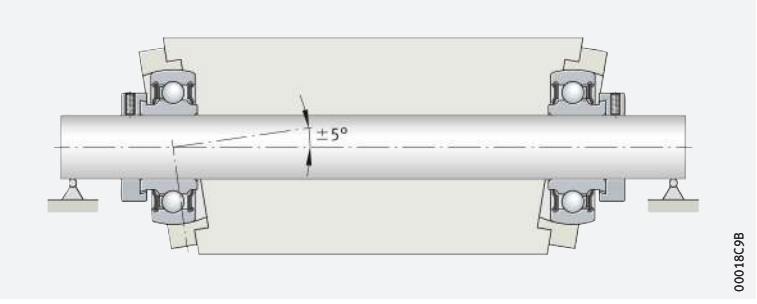
20
Compensation of static shaft misalignment

±5° for maintenance-free bearings
±2,5° for bearings with relubrication facility



21
Compensation of static shaft misalignment

±5° for maintenance-free bearings

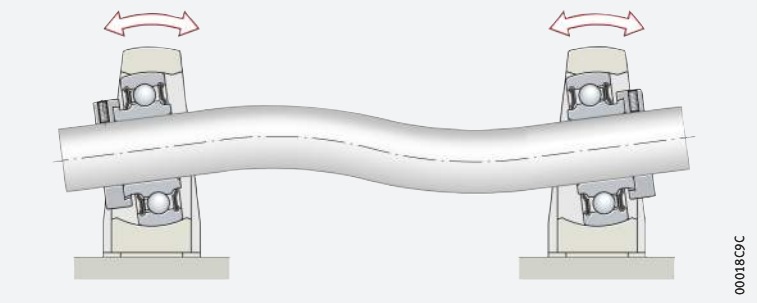


https://www.schaeffler.de/std/1D65

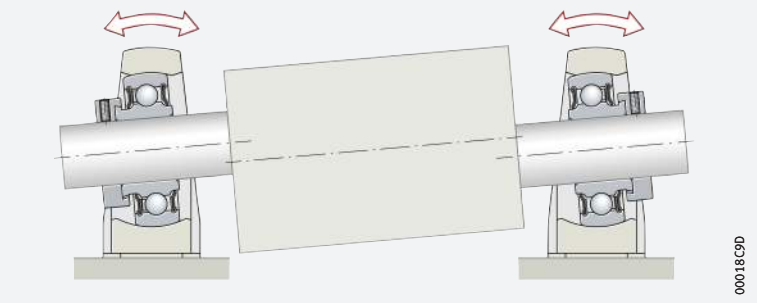
Radial insert ball bearings are not suitable for continuous oscillating motion of the outer ring in the housing bore

Radial insert ball bearings cannot be used if the outer ring undergoes continuous oscillating motions in the housing bore. This is the case if the shaft has an excessively large undersize or the centre axes of the inner rings deviate so much from a common straight line that the tilting clearance present in the bearing is exceeded. In this case, the outer ring is included in the oscillating motion of the bearing occurring with each revolution by the ball set of the inner ring. This situation is shown in the figures for a bent shaft and a roller with journals that are parallel but not in alignment ➤1472|22 and ➤1472|23. This geometrical defect of the machine parts causes tilting of the bearing during mounting and continuous oscillating motion of the outer ring during rotation.

22
Oscillating motion of outer rings with a bent shaft



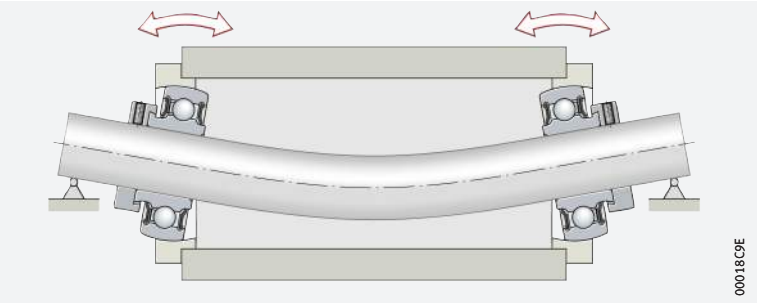
23
Oscillating motion of outer rings with non-aligned journal



An underdimensioned shaft will cause continuous tumbling motions

A critical situation also arises with a bearing arrangement of an underdimensioned shaft ➤1472|24. While it is still aligned when free from load, it bends under load as shown by the example of a return roller. As a result, the bearings undergo continuous tumbling motion. If circumferential load is still present on the outer ring in this case, the deflection of the housing bore is accelerated (leading to wear).

24
Oscillating motion of outer rings with a deflected shaft



https://www.schaeffler.de/std/1D65

1.4 Lubrication

Radial insert ball bearings sealed on both sides are lubricated with a high quality lithium soap grease with a mineral oil base, which has good anti-corrosion characteristics ➤1473|▦5. Bearings with a spherical outside surface can be relubricated, with the exception of a few series (such as AY..-XL-NPP-B).

Radial insert ball bearings with a cylindrical outside surface have the maximum grease filling. The grease filling is measured so that it is sufficient for the entire life of the bearing. As a result, these bearings are generally maintenance-free. Radial insert ball bearings can have sheet steel washers extended outwards and angled downwards, forming a larger grease chamber. Only a few designs with a cylindrical outside surface can be additionally relubricated.

Radial insert ball bearings with a rubber interliner or aligning ring cannot be relubricated.

▦5 *Recommended greases for radial insert ball bearings*

Designation	Classification	Type of grease	Recommended Arcanol grease for relubrication
GA13	Standard ball bearing and insert bearing grease for D > 62 mm	Lithium soap Mineral oil	**MULTI3**
GA22	Free-running grease with low frictional torque	Lithium soap Ester oil	–
L069	Radial insert ball bearing grease for wide temperature range	Polycarbamide Ester oil	–
GA11	Rolling bearing grease resistant to media for temperatures up to +250 °C	PTFE Alkoxyfluoroether	**TEMP200**
GA47	Rolling bearing grease resistant to media for temperatures up to +140 °C	Barium complex soap Mineral oil	–
L178	Rolling bearing grease for high speeds	Barium complex soap PAO oil	–

continued ▼

1) *GA stands for **G**rease **A**pplication Group, based on Grease Spec 00.*

▦5 *Recommended greases for radial insert ball bearings*

Designation	Operating temperature range °C		Upper continuous limit temperature $\vartheta_{upper\ limit}$ [2] °C	NLGI class		Speed parameter $n \cdot d_M$ $min^{-1} \cdot mm$	ISO VG class (base oil)	
	from	to		from	to		from	to
GA13	–30	+120	+75	3	–	500 000	68	150
GA22	–50	+120	+70	2	–	1 500 000	10	22
L069	–40	+180	+120	2	–	700 000	68	220
GA11	–30	+260	+200	2	–	300 000	460	680
GA47	–20	+130	+70	1	2	350 000	150	320
L178	–20	+142	+75	2	–	800 000	22	46

continued ▲

2) *The upper continuous limit temperature $\vartheta_{upperlimit}$ must not be exceeded if a temperature-induced reduction in grease operating life is to be avoided.*

✎ Compatibility with plastic cages

When using bearings with plastic cages, compatibility between the lubricant and the cage material must be ensured if synthetic oils, lubricating greases with a synthetic oil base or lubricants containing a high proportion of EP additives are used.

Radial insert ball bearings in corrosion-resistant VA design

Initial greasing is carried out with an aluminium complex soap grease with food applications approval to NSF-H1, which is sufficient in many cases for the operating life of the bearings. For relubrication, the outer rings have lubrication holes on their circumference.

Black Series

The Black Series radial insert ball bearings in accordance with JIS are greased using a grease in Grease Group GA13 ➤1473|▦5.

https://www.schaeffler.de/std/1D65

1.5 Sealing

✎ *Non-contact or contact seals*

A basic distinction is made between contact and non-contact seals in the adjacent construction and the bearing.

The sealing arrangement has a considerable influence on the operating life of a bearing arrangement. Its function is to retain the lubricant in the bearing and prevent the ingress of contaminants into the bearing.

Contaminants may have various effects:

- A large quantity of very small, abrasive particles causes wear in the bearing. The increase in clearance or noise brings the operating life of the bearing to an end
- Large, overrolled hard particles reduce the fatigue life since pittings occur at the indentation points under high bearing loads.

✎ *Type-specific seals*

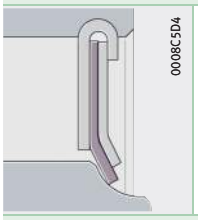
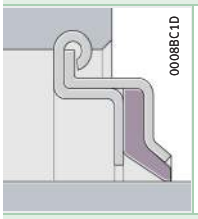
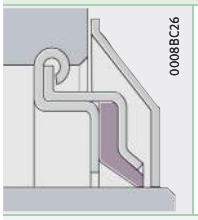
The different designs of seals are explained below. The type-specific seals used in the individual radial insert ball bearings are summarised in the table of features ➤ *1466* | ▦ *3* and ➤ *1468* | ▦ *4*.

Overview of seal types

Seals for radial insert ball bearings are of a three-piece design. This concept offers, due to the rigidly rolled-in inner sheet steel washer, optimum seating in the bearing as well as concentric alignment of the seal lip to the inner ring. The contact seals on both sides of the bearing give protection against contamination and the loss of lubricant.

Seals for radial insert ball bearings are available in various designs ➤ *1474* | ▦ *6*. The stated suffix is included in the ordering designation and explained in the table of suffixes ➤ *1485* | *1.12*.

▦ *6*
Seal types

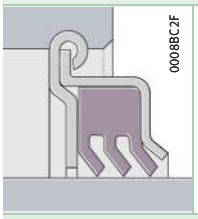
P seal (NPP)	
 0008C5D4	Two zinc-coated sheet steel washers (or in a corrosion-resistant VA design) with intermediate NBR part, seal lip axially preloaded. In order to protect the seal lip from mechanical damage, the outer sheet steel washer extends a considerable distance down towards the bearing inner ring. For use in narrow radial insert ball bearings with inner ring extended on one side.
R seal (KRR)	
 0008BC1D	Two zinc-coated sheet steel washers extended outwards and angled downwards with intermediate NBR or PTFE part and radially preloaded seal lip. Improved protection against mechanical damage. Substantial grease reservoir due to the sheet steel washers which are extended outwards and angled downwards. Used in radial insert ball bearings with inner ring extended on both sides.
R seal with flinger shield (KRR-..-2C)	
 0008BC26	As R seal, but with outer flinger shield with corrosion protection. Additional sealing action without restriction on speed and with additional protection against mechanical damage.

continued ▼

https://www.schaeffler.de/std/1D65

6 *Seal types*

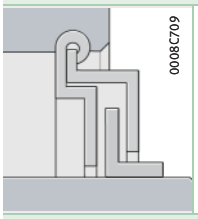
T seal (KTT)



Two zinc-coated sheet steel washers with intermediate NBR part and three radially preloaded seal lips for protection against heavy contamination. For better protection of the seal lip against mechanical damage, the outer sheet steel washer is extended outwards and angled downwards and outwards.

Lower speeds due to higher friction.

L seal (labyrinth seal) (KLL)

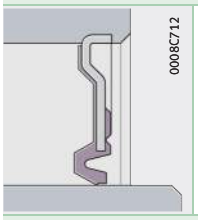


Two zinc-coated sheet steel washers extended outwards in the outer ring with a zinc-coated intermediate sheet steel L-section ring pressed onto the inner ring.

Substantial grease reservoir due to the sheet steel washers which are extended outwards and angled downwards.

For use in bearings with inner ring extended on both sides. For increased temperatures and lower friction.

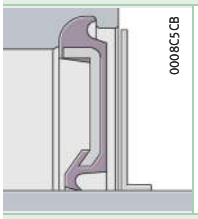
RSR seal (2RSR)



Single piece, zinc-coated sheet steel washer with vulcanised and radially preloaded seal lip made from NBR.

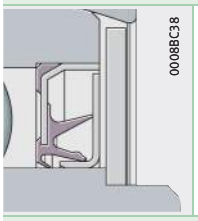
Used in radial insert ball bearings with integral adapter sleeve.

RSR seal with flinger shield



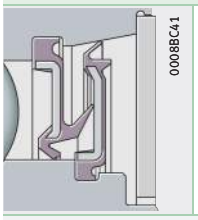
Single piece, sheet steel washer in corrosion-resistant VA design with vulcanised and radially preloaded seal lip made from NBR and additional flinger shield.
In the Black Series, the flinger shield has a Durotect BS coating.

Sealing cartridge with flinger shield



Design identical to normal cartridge seal but supplemented by a flinger shield to protect the bearing against high pressure cleaning equipment and mechanical damage.

Combined sealing washer and flinger shield with protective shield



Design identical to normal sealing washer and flinger shield but supplemented by a protective shield to protect the bearing against high pressure cleaning equipment and mechanical damage.

continued ▲

https://www.schaeffler.de/std/1D65

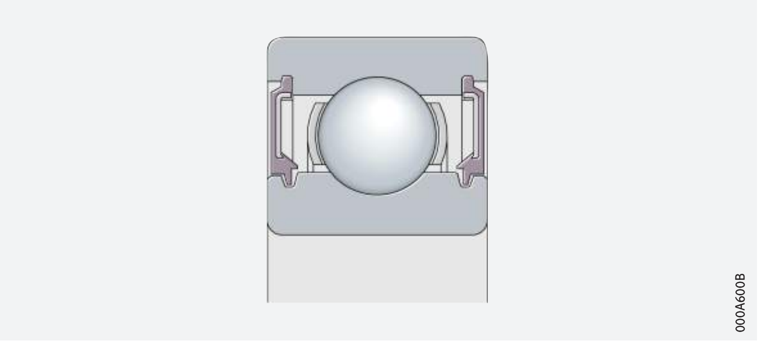
BRS seals

Bearings with BRS seals can be supplied by agreement ➤1476|25.

✎ Suitable for very high speeds

The friction in this case is as low as that in bearings with sealing shields. They have the advantage over these, however, that the outer rubber-elastic rim gives good sealing when fitted in the slot in the outer ring. This is important in the case of a rotating outer ring, since the base oil in the grease is separated from the soap suspension by centrifugal force and would escape through the unsealed metallic seat in the outer ring if sealing shields were fitted.

25
BRS seals



Non-contact seals in the adjacent construction

With non-contact seals, only lubricant friction occurs in the lubrication gap. The seals do not undergo wear and remain capable of operation for a long period. Since they generate no heat, non-contact seals are also suitable for very high speeds.

1.6 Speeds

Speed limits for radial insert ball bearings

The speed limits are dependent on the load, the clearance between the bearing bore and shaft and the friction of the seals in the case of bearings with contact seals.

✎ Speed limits are guide values

Guide values for the permissible speeds can be derived from the diagram ➤1477|26.

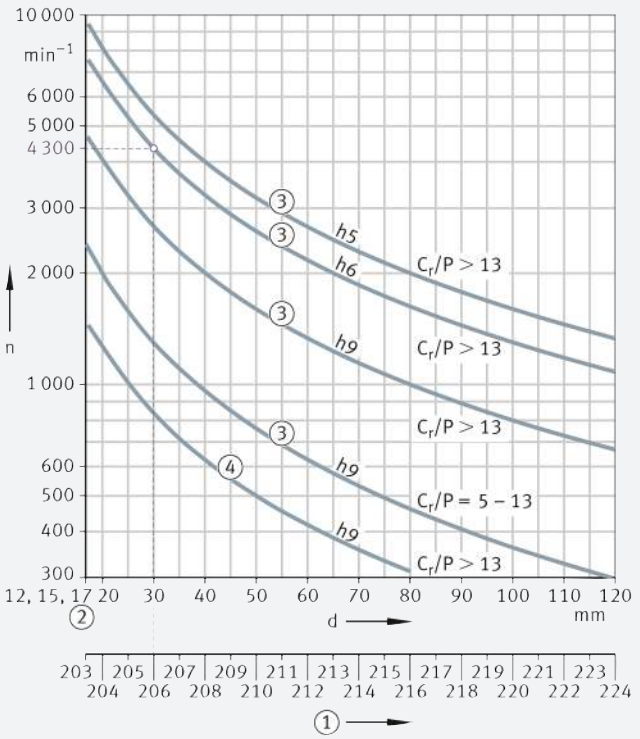
In the case of load ratios $C_r/P > 13$, the speeds can be increased. At $C_r/P < 5$, location by means of a fit is recommended for a shaft roughness of Ra 0,3 ➤*145*. In order to ensure slippage-free operation, the minimum radial load must be observed ➤*1491|1.15*.

https://www.schaeffler.de/std/1D65

26
Permissible speeds for radial insert ball bearings

n = *permissible speed*
d = *bore diameter*
C_r/P = *load ratio*
h5, h6, h9 = *shaft tolerance (subject to envelope requirement Ⓔ)*

① *Ball set*
② *With d = 12 mm, 15 mm and 17 mm, identical ball set 203*
③ *For radial insert ball bearings with seals L, P or R*
④ *For radial insert ball bearings with seals T*



In the stated applications with load ratios $C_r/P < 5$, please contact us.

Example of permissible speed calculation

Given:

Shaft tolerance	h6 Ⓔ
Radial insert ball bearing	GRAE30-XL-NPP-B
Ball set	206
Basic dynamic load rating C_r	20 700 N
Load P	1 300 N
Sealing	seals P.

Required:

Load ratio C_r/P = 20 700 N/1 300 N	$C_r/P > 13$
Permissible speed	n ≈ 4 300 min^{-1} ➤*1477*|**26**.

1.7 Noise

Schaeffler Noise Index

The Schaeffler Noise Index (SGI) is not yet available for this bearing type ➤*69*. The data for these bearing series will be introduced and updated in stages.

Further information:

■ ***medias*** ➤*https://medias.schaeffler.com*.

https://www.schaeffler.de/std/1D65

1.8 Temperature range

The possible operating temperatures of radial insert ball bearings may differ according to the cage design and the material of the seal lips ➤*1478*|▦*7*.

Radial insert ball bearings for a high or expanded temperature range have the suffixes FA164 or FA101 in the designation ➤*1466*|▦*3*.

▦*7*
Permissible temperature ranges

Operating temperature	Radial insert ball bearing							
	with polyamide cage PA66 with NBR seal lip °C		with sheet steel cage with PTFE seal lip and labyrinth seal °C				with high grade steel cage with NBR seal lip °C	
			FA101[3]		FA164[4]			
	from	to	from	to	from	to	from	to
	−20	+100[1)2)]	−40	+180	+150	+250	−35	+100

1) Temporary temperature peaks are possible up to +120 °C.
2) In the case of radial insert ball bearings with a rubber interliner, the maximum operating temperature is reduced to +85 °C.
3) High and low temperature design (suffix FA101) ➤*1485*|*1.12*.
4) High temperature design (suffix FA164) ➤*1485*|*1.12*.

✎ *Limiting values*

The operating temperature of the bearings is limited by:

- the dimensional stability of the bearing rings and rolling elements
- the cage
- the lubricant
- the seals.

In the event of anticipated temperatures which lie outside the stated values, please contact Schaeffler.

1.9 Cages

Rolling bearing cages are subdivided into sheet metal and solid cages.

Both sheet metal and solid cages for radial insert ball bearings are exclusively ball-guided.

The most important functions of the cage are:

- to separate the rolling elements from each other, in order to minimise friction and heat generation
- to maintain the rolling elements at the same distance from each other, in order to ensure uniform load distribution
- to guide the rolling elements in the unloaded zone of the bearing.

Sheet metal cages

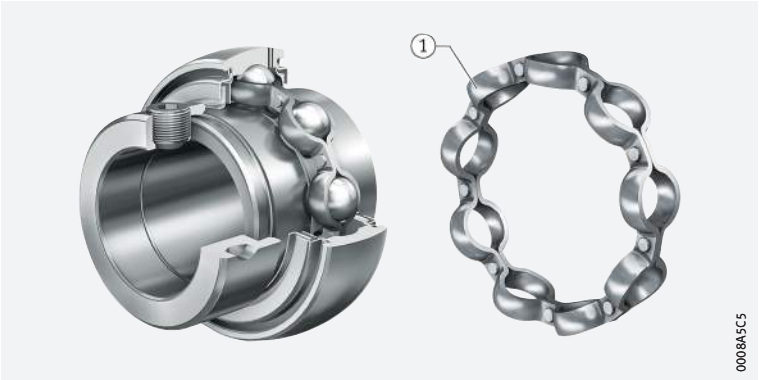
These cages are predominantly made from steel ➤*1479*|⧉*27*.
In comparison with solid cages made from metal, they are of lower mass.

Since a sheet metal cage only fills a small proportion of the gap between the inner and outer ring, lubricant can easily reach the interior of the bearing and is held on the cage.

https://www.schaeffler.de/std/1D65

27
Radial insert ball bearing with sheet metal cages

① *Riveted cage*



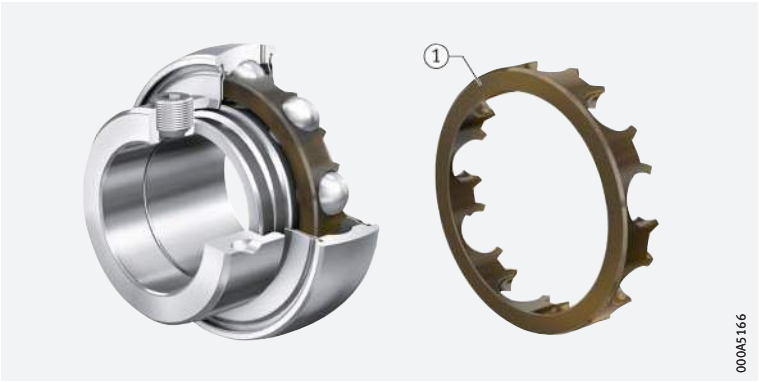
Solid cages made from polyamide PA66

Solid cages made from polyamide PA66 are produced using the injection moulding process ➤*1479*|*28* and ➤*1479*|*29*. As a result, cage types can generally be realised that allow designs with particularly high load carrying capacity. The elasticity and low mass of polyamide are favourable under shock type bearing loads, high accelerations and decelerations and tilting of the bearing rings in relation to each other. Polyamide cages have very good sliding and emergency running characteristics.

Cages made from glass fibre reinforced polyamide PA66 are suitable for continuous temperatures up to +120 °C. Due to the NBR seal used, the continuous temperature for the radial insert ball bearing is reduced ➤*1478*|*1.8*.

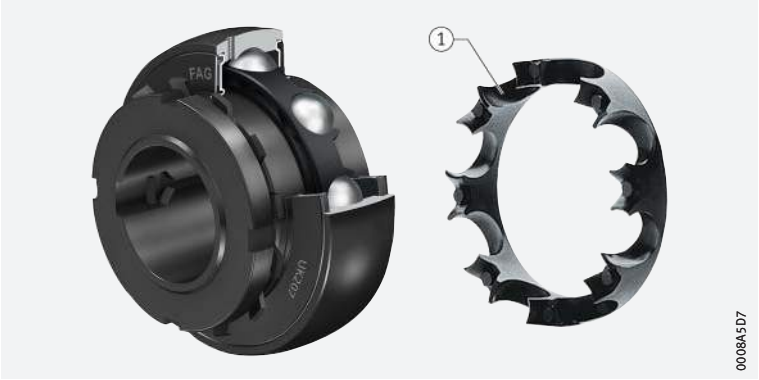
28
Solid polyamide cage for standard bearings

① *Polyamide cage*



29
Solid polyamide cage for Black Series

① *Polyamide cage*



https://www.schaeffler.de/std/1D65

1.10 Internal clearance

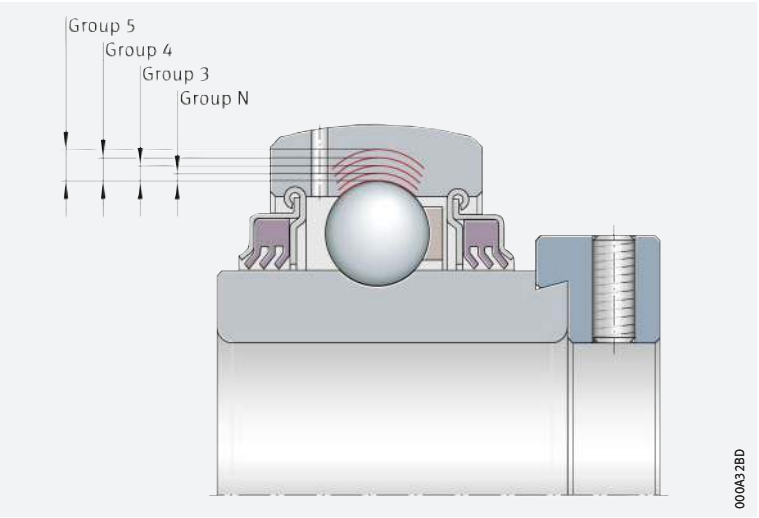
The differentiation of radial insert ball bearings between the ISO range and JIS range (Black Series) must be taken into consideration for the radial internal clearance.

Radial internal clearance of radial insert ball bearings

The radial internal clearance of most series is Group 3 in accordance with ISO 5753-1 ➤*1466*|▦*3* and is thus larger than for normal deep groove ball bearings ➤*1480*|▦*8*. The radial internal clearance is subdivided into groups in accordance with ISO 5753-1 ➤*1480*|🗀*30*.

The larger internal clearance allows better support of misalignments and shaft deflections.

🗀*30*
Radial internal clearance



▦*8*
Radial internal clearance of radial insert ball bearings (excluding Black Series)

Bore d mm		Radial internal clearance							
		Group N µm		Group 3 µm		Group 4 µm		Group 5 µm	
over	incl.	min.	max.	min.	max.	min.	max.	min.	max.
2,5	6	2	13	8	23	–	–	–	–
6	10	2	13	8	23	14	29	20	37
10	18	3	18	11	25	18	33	25	45
18	24	5	20	13	28	20	36	28	48
24	30	5	20	13	28	23	41	30	53
30	40	6	20	15	33	28	46	40	64
40	50	6	23	18	36	30	51	45	73
50	65	8	28	23	43	38	61	55	90
65	80	10	30	25	51	46	71	65	105
80	100	12	36	30	58	53	84	75	120
100	120	15	41	36	66	61	97	90	140
120	140	18	48	41	81	71	114	105	160
140	160	18	53	46	91	81	130	120	180

https://www.schaeffler.de/std/1D65

Radial internal clearance of Black Series (radial insert ball bearings in accordance with JIS)

The radial internal clearance in accordance with JIS B 1520 is C3 for radial insert ball bearings UC and C4 for radial insert ball bearings UK. It is thus larger than in the case of normal deep groove ball bearings ➤ *1481* | ▦ *9*.

The larger internal clearance allows better support of misalignments and shaft deflections.

▦ *9*
Radial internal clearance of Black Series

Bore d		Ball set	Outside diameter D	Radial internal clearance			
				C3		C4	
mm	inch		mm	µm		µm	
				min.	max.	min.	max.
12	–	204	47	13	28	20	36
12,7	1/2						
14,288	9/16						
15	–						
15,875	5/8						
17	–						
17,462	11/16						
19,05	3/4						
20	–						
20,638	13/16	205	52	13	28	23	41
22,225	7/8						
23,812	15/16						
25	–						
25,4	1						
26,988	1 1/16	206	62				
28,575	1 1/8						
30	–						
30,162	1 3/16						
31,75	1 1/4						
31,75	1 1/4	207	72	15	33	28	46
33,338	1 5/16						
34,925	1 3/8						
35	–						
36,512	1 7/16						
38,1	1 1/2	208	80				
39,688	1 9/16						
40	–						
41,275	1 5/8	209	85	18	36	30	51
42,862	1 11/16						
44,45	1 3/4						
45	–						
46,038	1 13/16	210	90				
47,625	1 7/8						
49,212	1 15/16						
50	–						
50,8	2						

continued ▼

https://www.schaeffler.de/std/1D65

9
Radial internal clearance of Black Series

Bore d		Ball set	Outside diameter D	Radial internal clearance			
				C3		C4	
mm	inch		mm	µm		µm	
				min.	max.	min.	max.
50,8	2	211	100	23	43	38	61
52,388	$2^{1}/_{16}$						
53,975	$2^{1}/_{8}$						
55	–						
55,562	$2^{3}/_{16}$						
57,15	$2^{1}/_{4}$	212	110				
58,738	$2^{5}/_{16}$						
60	–						
60,325	$2^{3}/_{8}$						
61,912	$2^{7}/_{16}$						
63,5	$2^{1}/_{2}$	213	120				
65	–						
65,09	$2^{9}/_{16}$						
66,675	$2^{5}/_{8}$	214	125	25	51	46	71
68,262	$2^{11}/_{16}$						
69,85	$2^{3}/_{4}$						
70	–						
71,438	$2^{13}/_{16}$	215	130				
73,025	$2^{7}/_{8}$						
74,612	$2^{15}/_{16}$						
75	–						
76,2	3						
77,787	$3^{1}/_{16}$	216	140				
79,375	$3^{1}/_{8}$						
80	–						
80,962	$3^{3}/_{16}$						
82,55	$3^{1}/_{4}$	217	150	30	58	53	84
84,137	$3^{5}/_{16}$						
85	–						
87,312	$3^{7}/_{16}$						
88,9	$3^{1}/_{2}$	218	160				
90	–						
93,662	$3^{11}/_{16}$	219	170				
95	–						
100	–	220	180				
100,012	$3^{15}/_{16}$						
101,6	4						

continued ▲

https://www.schaeffler.de/std/1D65

1.11 Dimensions, tolerances

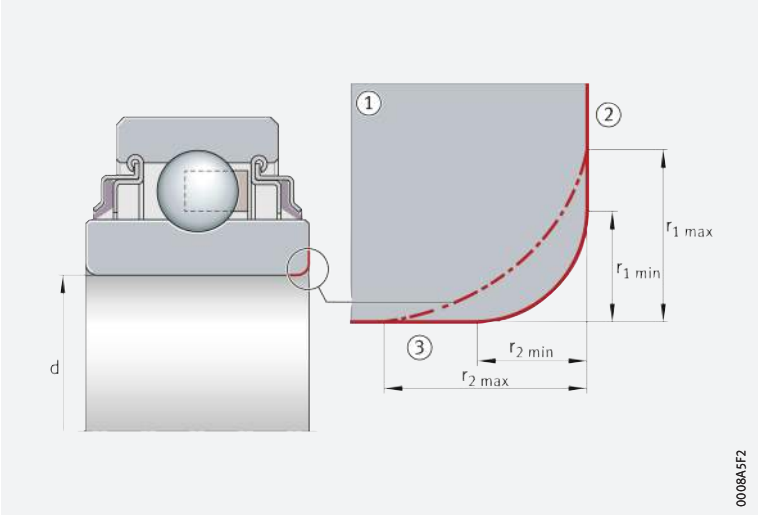
The main dimensions of the standard bearings and corrosion-resistant radial insert ball bearings correspond to ISO 9628 and DIN 626-1 ➤*1508*.

The main dimensions of the Black Series correspond to JIS B 1558 ➤*1558*.

The limiting dimensions for chamfer dimensions correspond to DIN 620-6. Overview and limit values ➤*135*.

31
Symmetrical ring cross-section with identical chamfer dimensions on both rings

d = *inside diameter*
r_1, r_2 = *chamfer dimensions*
① *Arc (radius with nominal chamfer dimension) beyond which material must not protrude*
② *Radial*
③ *Axial*



Normal tolerances of standard bearings

The outside diameter of the bearings corresponds to tolerance class Normal in accordance with ISO 492 ➤*1483* *10*. The inner ring bore has a plus tolerance to facilitate mounting of the bearing.

10
Tolerances of radial insert ball bearings

Tolerance symbols ➤*115* *6*
U = *upper limit deviation*
L = *lower limit deviation*

Inner ring				Outer ring			
Nominal dimension Bore d mm		Deviation $t_{\Delta dmp}$ µm		Nominal dimension Outside diameter D mm		Deviation[1)2)] $t_{\Delta Dmp}$ µm	
over	incl.	L	U	over	incl.	U	L
12	18	0	+18	30	50	0	−11
18	24	0	+18	50	80	0	−13
24	30	0	+18	80	120	0	−15
30	40	0	+18	120	150	0	−18
40	50	0	+18	150	180	0	−25
50	60	0	+18	180	250	0	−30
60	90	0	+25	–	–	–	–
90	120	0	+30	–	–	–	–

1) In the case of sealed bearings, the largest and smallest values of the outside diameter can deviate from the mean value by approximately 0,03 mm.

2) Outside diameter tolerances also valid for 2..-KRR and 2..-NPP-B.

https://www.schaeffler.de/std/1D65

Standard tolerances of corrosion-resistant radial insert ball bearings

The outside diameter of the bearings corresponds to tolerance class Normal in accordance with ISO 492 ➤ *1484* | *11* and ➤ *1484* | *12*. The inner ring bore has a plus tolerance to facilitate mounting of the bearing.

11
Tolerances of radial insert ball bearings, with Corrotect coating

Tolerance symbols ➤ *115* | *6*
U = *upper limit deviation*
L = *lower limit deviation*

Inner ring				Outer ring			
Nominal dimension Bore d mm		Deviation $t_{\Delta dmp}$ µm		Nominal dimension Outside diameter D mm		Deviation[1] $t_{\Delta Dmp}$ µm	
over	incl.	L	U	over	incl.	U	L
12	18	0	+18	30	50	0	–11
18	24	0	+18	50	80	0	–13
24	30	0	+18	80	120	0	–15
30	40	0	+18	120	150	0	–18
40	50	0	+18	150	180	0	–25
50	60	0	+18	180	250	0	–30
60	90	0	+25	–	–	–	–
90	120	0	+30	–	–	–	–

1) In the case of sealed bearings, the largest and smallest values of the outside diameter can deviate from the mean value by approx. 0,03 mm.

12
Tolerances of radial insert ball bearings, corrosion-resistant VA design

Tolerance symbols ➤ *115* | *6*
U = *upper limit deviation*
L = *lower limit deviation*

Inner ring				Outer ring			
Nominal dimension Bore d mm		Deviation $t_{\Delta dmp}$ µm		Nominal dimension Outside diameter D mm		Deviation[1] $t_{\Delta Dmp}$ µm	
over	incl.	L	U	over	incl.	U	L
18	24	0	+25	50	80	0	–13
24	30	0	+25	80	120	0	–13
30	40	0	+25	120	150	0	–13
40	50	0	+25	150	180	0	–13
50	60	0	+25	180	250	0	–13

1) In the case of sealed bearings, the largest and smallest values of the outside diameter can deviate from the mean value by approx. 0,03 mm.

Normal tolerances of Black Series (radial insert ball bearings in accordance with JIS)

The outside diameter tolerances of the bearings correspond to the tolerances in accordance with JIS B 1558 ➤ *1484* | *13*. The inner ring bore has a plus tolerance to facilitate mounting of the bearing.

13
Tolerances of inner ring, Black Series

Nominal bearing bore diameter d mm		Deviation[1] Δ_{dmp} µm		Width deviation Δ_{Bs} µm	
over	incl.	min.	max.	min.	max.
10	18	0	+15	–120	0
18	31,75	0	+18	–120	0
31,75	50,8	0	+21	–120	0
50,8	80,962	0	+24	–150	0
80,962	120	0	+28	–200	0

1) This corresponds to the arithmetic mean value derived from the largest and smallest diameters (measured using a two-point measuring device).

https://www.schaeffler.de/std/1D65

14 *Tolerances of outer ring, Black Series*

Nominal outside diameter D_{sp} mm		Deviation[1] Δ_{Dm} µm	
over	incl.	min.	max.
30	50	–11	0
50	80	–13	0
80	120	–15	0
120	150	–18	0
150	180	–25	0
180	250	–30	0

1) In the case of sealed bearings, the largest and smallest values of the outside diameter can deviate from the mean value by approx. 0,03 mm.

1.12 Suffixes

The suffix defines special designs and features and follows the basic designation in the ordering designation ➤*1485*|▦*15* and ➤*1485*|▦*16*.

15 *Suffixes and corresponding descriptions*

Suffix	Description	
AS2/V	Bearing outer ring with two lubrication holes in two offset planes (instead of one plane)	Standard
B	Bearing with spherical outside surface of outer ring	
2C	Flinger shield on both sides	
FA	Manufacturing variant	Standard
FA101	High and low temperature design –40 °C to +180 °C	
FA106	Bearing subjected to special noise testing	
FA107	Bearing with lubrication holes on the locating side	
FA125	With Corrotect coating, corrosion-resistant	
FA164	High temperature design from +150 °C to +250 °C	
KRR	Lip seal on both sides (seal R)	Standard
KLL	Labyrinth seal on both sides (seal L)	
KTT	Triple lip seal on both sides (seal T)	
NPP	Lip seal on both sides (seal P)	
2RSR	Lip seal on both sides (vulcanised)	
AH	Features differing from the original	Standard
NR	Slot and snap ring for radial insert ball bearing with cylindrical outer ring	
OSE	Bearing without locking element (eccentric locking collar)	
XL	Bearing design in X-life quality	

16 *Suffixes and corresponding descriptions, additional notations for (self-aligning) deep groove ball bearings*

Suffix	Description	
L402/70	Grease code according to Schaeffler standard, 70% grease quantity	Available by agreement
GA47/70	Grease Group, 70% grease quantity	

https://www.schaeffler.de/std/1D65

1.13 Structure of bearing designation

The designations of radial insert ball bearings with an extended inner ring and (self-aligning) deep groove ball bearings follow an almost identical model ➤*1486*|▦ *17*, ➤*1486*|⧉ *32* and ➤*1487*|⧉ *33*.
Radial insert ball bearings with a steel aligning ring or rubber interliner differ from this model ➤*1487*, which is also the case for Black Series and corrosion-resistant radial insert ball bearings ➤*1488*.

▦ 17
Basic designations and corresponding descriptions for radial insert ball bearings with extended inner ring or (self-aligning) deep groove ball bearings

➤⧉ *32* ➤⧉ *33*	Basic designation	Description of basic designation	
		Stated in designation	Not stated
①	G	Relubrication facility	Without relubrication facility
②	N	Heavy bearing series (bearing series 63)	Standard bearing series (bearing series 62)
	RA	Location of inner ring by means of eccentric locking collar, with inner ring extended on one side	
	AY	Location of inner ring by means of two grub screws, with inner ring extended on one side	
	SH	Location of inner ring by means of adapter sleeve (special ball set)	
② + ③	RAL	Location of inner ring by means of eccentric locking collar, light bearing series (bearing series 60)	
	VK	Inner ring with square bore	Inner ring with a cylindrical bore
	SK	Inner ring with hexagonal bore	
③	Y	Location of inner ring by means of two grub screws, with inner ring extended on both sides	Location of inner ring by means of eccentric locking collar, with inner ring extended on both sides
	L	Inner ring with drive slot (non-locating bearing)	
④	E	Metric bore	Inch size bore
	1	Inch size bore (only for inner ring extended on both sides)	
⑤	50	Bore code; bore diameter in mm (example: 50 = 50 mm)	–
	012[1)]	Bore code; bore diameter in inches (example: 012 = $^3/_4$ inch)	–
⑤ + ⑥	204[2)]	Ball set code (sole notation for (self-aligning) deep groove ball bearings; inner ring with fit)	–
⑥	214	Ball set 214 (additional notation)	Standard (ball set 213)

1) *Three-digit notation for bore diameter. The first digit is complete inches, while the last two digits are stated in sixteenths, for example $^{12}/_{16}$.*

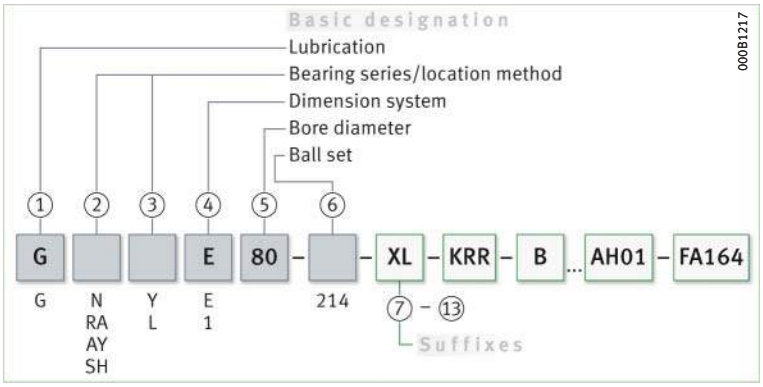
2) *The first digit of the ball set code corresponds to the standardised series designation for radial deep groove ball bearings without the leading 6, for example bearing series 62. The other digits represent the bore code, for example 04. For all rolling bearings in the range from d = 20 mm to d = 480 mm, the bore code is created by dividing the dimension of the bearing bore by 5.*

⧉ 32
Radial insert ball bearing with extended inner ring: designation structure

① – ⑥ *Basic designation* ➤*1486*|▦ *17*

⑦ – ⑬ *Suffixes* ➤*1485*|▦ *15*

Example:
GE80-XL-KRR-B-AH01-FA164

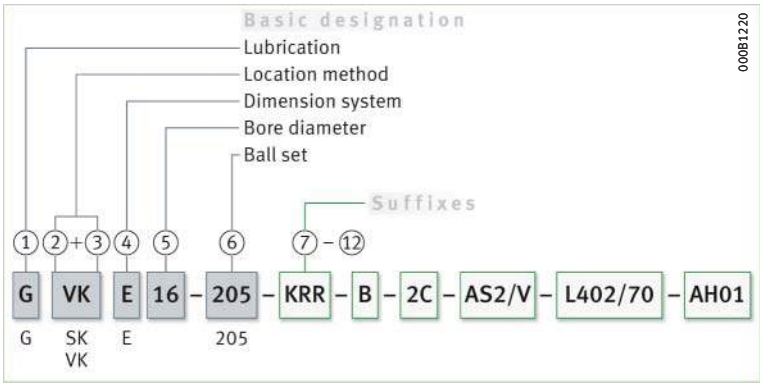


https://www.schaeffler.de/std/1D65

33
(Self-aligning) deep groove ball bearing: designation structure

① – ⑥ *Basic designation* ➤*1486*|▦*17*
⑦ – ⑫ *Suffixes* ➤*1485*|▦*15 and* ➤*1485*|▦*16*

Example:
GVKE16-205-KRR-B-2C-AS2/V-L402/70-AH01



Radial insert ball bearings with steel aligning ring or rubber interliner

Radial insert ball bearings with a steel aligning ring or rubber interliner follow a separate designation model ➤*1487*|▦*18* and ➤*1487*|▦*19*.

18
Basic designations and corresponding descriptions for radial insert ball bearings with steel aligning ring

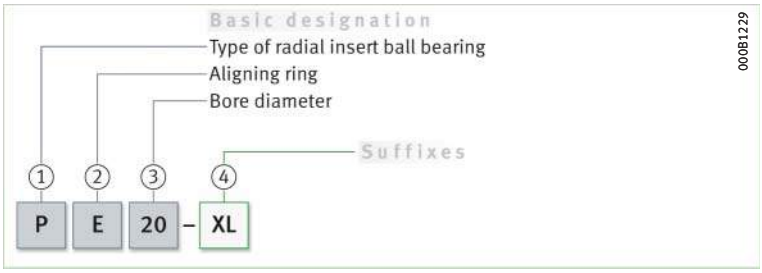
➤*34*	Basic designation	Description of basic designation
①	B	Self-aligning deep groove ball bearing
	P	Radial insert ball bearing with eccentric locking collar
②	E	Aligning ring

19
Basic designations and corresponding descriptions for radial insert ball bearings with rubber interliner

➤*35*	Basic designation	Description of basic designation
①	CR	Rubber interliner with locating shoulder
	RABR	Rubber interliner with spherical outside surface
	RCR	Rubber interliner with cylindrical outside surface and mounting chamfer
	RCSM	Rubber interliner with cylindrical outside surface
②	B	Radial insert ball bearing RAE..-NPP-B ➤*1486*|▦*17*
	A	Radial insert ball bearing RALE..-NPP-B ➤*1486*|▦*17*

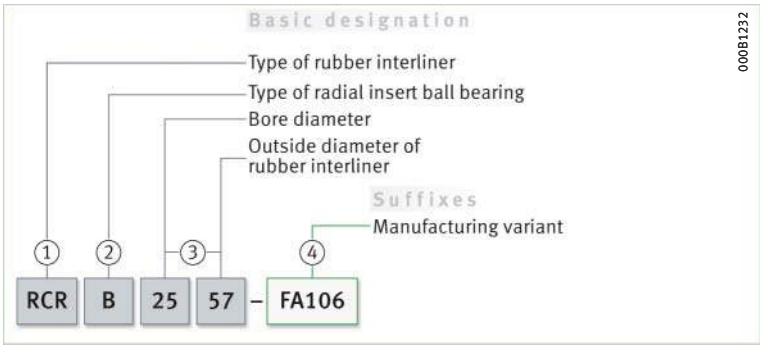
34
Radial insert ball bearing with steel aligning ring: designation structure

① – ② *Basic designation* ➤*1487*|▦*18*
③ *Diameter in mm*
④ *Suffixes* ➤*1485*|▦*15*



35
Radial insert ball bearing with rubber interliner: designation structure

① – ② *Basic designation* ➤*1487*|▦*19*
③ *Diameter in mm*
④ *Suffixes* ➤*1485*|▦*15*



https://www.schaeffler.de/std/1D65

Black Series and corrosion-resistant radial insert ball bearings

Radial insert ball bearings in accordance with JIS (Black Series) and corrosion-resistant radial insert ball bearings follow a separate designation model ➤ *1488*| *20*.

20
Basic designations and corresponding descriptions for Black Series and corrosion-resistant radial insert ball bearings

Basic designation	Description of basic designation	
	Stated in designation	Not stated
S	High grade steel design of radial insert ball bearing	Normal design (for Black Series)
UB	Inner ring extended on one side, with grub screws	–
UC	Inner ring extended on both sides, with grub screws and flinger shields on both sides	
UG	Inner ring extended on one side, with eccentric locking collar	
UK	With adapter sleeve in accordance with JIS B 1552 and flinger shields on both sides	
208[1)]	Ball set code, metric dimensions	
208-24[2)]	Ball set code, bore diameter in inch dimensions	

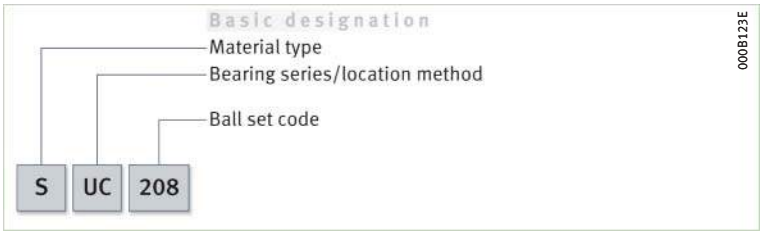
1) The first digit of the ball set code corresponds to the standardised series designation for radial deep groove ball bearings without the leading 6, for example bearing series 62.

The other digits represent the bore code, for example 08. For all rolling bearings in the range from d = 20 mm to d = 480 mm, the bore code is created by dividing the dimension of the bearing bore by 5.

2) Notation for bore diameter in sixteenths, for example $^{24}/_{16} = 1^{1}/_{2}$ inch.

36
Black Series and corrosion-resistant radial insert ball bearings: designation structure

Basic designation ➤ *1488*| *20*



1.14 Dimensioning

Equivalent dynamic bearing load

✎ P = F_r under purely radial load of constant magnitude and direction

✎ P is a substitute force for combined load and various load cases

The basic rating life equation $L = (C_r/P)^p$ used in the dimensioning of bearings under dynamic load assumes a load of constant magnitude and direction. In radial bearings, this is a purely radial load F_r. If this condition is met, the bearing load F_r is used in the rating life equation for P ($P = F_r$).

If this condition is not met, a constant radial force must first be determined for the rating life calculation that (in relation to the rating life) represents an equivalent load. This force is known as the equivalent dynamic bearing load P.

https://www.schaeffler.de/std/1D65

✎ $F_a/F_r \leqq e$ or $F_a/F_r > e$

The calculation of P is dependent on the load ratio F_a/F_r and the calculation factor e ➤*1489*| *1* and ➤*1489*| *2*.

1
Equivalent dynamic load

$$\frac{F_a}{F_r} \leqq e \quad \Rightarrow \quad P = F_r$$

2
Equivalent dynamic load

$$\frac{F_a}{F_r} > e \quad \Rightarrow \quad P = X \cdot F_r + Y \cdot F_a$$

Legend

P	N	Equivalent dynamic bearing load
F_r	N	Radial load
F_a	N	Axial load
e, X, Y	–	Factors ➤*1489*| *21*.

✎ *Factors e, X, Y and f_0*

The values for the factors e, X and Y are valid for normal fits (shaft produced to j5 Ⓔ or k5 Ⓔ, housing bore produced to J6 Ⓔ). If the calculation values lie between the stated values (for example 0,4), read off the table values for 0,3 and 0,5 and determine the intermediate values using linear interpolation.

21
Factors e, X and Y

$\frac{f_0 \cdot F_a}{C_{0r}}$	Factor for radial internal clearance								
	Group N			Group 3			Group 4		
	e	X	Y	e	X	Y	e	X	Y
0,3	0,22	0,56	2	0,32	0,46	1,7	0,4	0,44	1,4
0,5	0,24	0,56	1,8	0,35	0,46	1,56	0,43	0,44	1,31
0,9	0,28	0,56	1,58	0,39	0,46	1,41	0,45	0,44	1,23
1,6	0,32	0,56	1,4	0,43	0,46	1,27	0,48	0,44	1,16
3	0,36	0,56	1,2	0,48	0,46	1,14	0,52	0,44	1,08
6	0,43	0,56	1	0,54	0,46	1	0,56	0,44	1

Legend

f_0	–	Factor ➤*1489*| *22*
F_a	N	Axial dynamic bearing load
C_{0r}	N	Basic static load rating ➤*1508*|.

22
Factor f_0

Bore code	Factor f_0		
	60	62	63
3	–	12,9	–
4	–	12,2	12,4
5	–	13,2	12,2
6	–	13	–
7	13	12,4	–
8	12,4	13	–
9	13	12,4	–
00	12,4	12,1	11,3
01	13	12,3	11,1
02	13,9	13,1	12,1
03	14,3	13,1	12,3
04	13,9	13,1	12,4
05	14,5	13,8	12,4
06	14,8	13,8	13
07	14,8	13,8	13,1

continued ▼

https://www.schaeffler.de/std/1D65

22
Factor f_0

Bore code	Factor f_0		
	60	62	63
08	15,3	14	13
09	15,4	14,3	13
10	15,6	14,3	13
11	15,4	14,3	12,9
12	15,5	14,3	13,1
13	15,7	14,3	13,2
14	15,5	14,4	13,2
15	15,7	14,7	13,2
16	15,6	14,6	13,2
17	15,7	14,7	13,1
18	15,6	14,5	13,9
19	15,7	14,4	13,9
20	15,9	14,4	13,8
21	15,8	14,3	13,8
22	15,6	14,3	13,8
24	15,9	14,8	13,5
26	15,8	14,5	13,6
28	16	14,8	13,6
30	16	15,2	13,7

continued ▲▼

22
Factor f_0

Bore code	Factor f_0		
	60	62	63
32	16	15,2	13,9
34	15,7	15,3	13,9
36	15,6	15,3	13,9
38	15,8	15	14
40	15,6	15,3	14,1
44	15,6	15,2	14,1
48	15,8	15,2	14,2
52	15,7	15,2	–
56	15,9	15,3	–
60	15,7	–	–
64	15,9	–	–
68	15,8	–	–
72	15,9	–	–
76	–	–	–
80	–	–	–
84	–	–	–
88	–	–	–
92	–	–	–
96	–	–	–

continued ▲

Equivalent static bearing load

Radial insert ball bearings are based on single row deep groove ball bearings 60, 62 or 63.

✎ $F_{0a}/F_{0r} \leqq 0,8$ or $F_{0a}/F_{0r} > 0,8$

For deep groove ball bearings under static loading ➤*1491*| *3* and ➤*1491*| *4*. The calculation of P_0 is dependent on the load ratio F_{0a}/F_{0r} and the factor 0,8.

https://www.schaeffler.de/std/1D65

ƒ3 *Equivalent static load*

$$\frac{F_{0a}}{F_{0r}} \leqq 0{,}8 \quad \Rightarrow \quad P_0 = F_{0r}$$

ƒ4 *Equivalent static load*

$$\frac{F_{0a}}{F_{0r}} > 0{,}8 \quad \Rightarrow \quad P_0 = 0{,}6 \cdot F_{0r} + 0{,}5 \cdot F_{0a}$$

Legend

P_0	N	Equivalent static bearing load
F_{0r}, F_{0a}	N	Largest radial or axial load present (maximum load).

Static load safety factor

✎ $S_0 = C_0/P_0$

In addition to the basic rating life L (L_{10h}), it is also always necessary to check the static load safety factor S_0 ➤*227*| ƒ*5*.

ƒ5 *Static load safety factor*

$$S_0 = \frac{C_0}{P_0}$$

Legend

S_0	–	Static load safety factor
C_0	N	Basic static load rating
P_0	N	Equivalent static bearing load.

1.15 Minimum load

✎ *Rolling bearings under low loads are particularly prone to slippage*

If the lubricant film between the rolling elements and raceways is broken as a result of slippage, the contact partners will be in contact at a very high relative velocity and there will be an erratic increase in wear in the bearing. The risk of slippage is particularly high in the case of bearings under low loads.

✎ *Minimum radial load*

In order to ensure slippage-free operation, the bearings must be subjected to a minimum radial load. This applies particularly in the case of high speeds and high accelerations. In continuous operation, ball bearings with cage must therefore be subjected to a minimum radial load of the order of $P \geqq 0{,}01 \cdot C_r$.

1.16 Design of bearing arrangements

Shaft tolerances for radial insert ball bearings

The permissible shaft tolerance is dependent on the speed and load. Shafts up to tolerance class h9 Ⓔ can be used.

Drawn shafts will suffice for most applications.

Roughness of cylindrical bearing seating surfaces

✎ *Ra must not be too high*

The roughness of the bearing seats must be matched to the tolerance class of the bearings. The mean roughness value Ra must not be too high, in order to maintain the interference loss within limits. The shafts must be ground, while the bores must be precision turned. The roughness values stated as a function of the IT grade of the bearing seating surfaces are guide values ➤*1491*| ▦ *23*.

▦23 *Roughness values for cylindrical bearing seating surfaces – guide values*

Nominal diameter of bearing seat d (D) mm		Recommended mean roughness value for ground bearing seats Ramax µm Diameter tolerance (IT grade)			
over	incl.	IT7	IT6	IT5	IT4
–	80	1,6	0,8	0,4	0,2
80	500	1,6	1,6	0,8	0,4

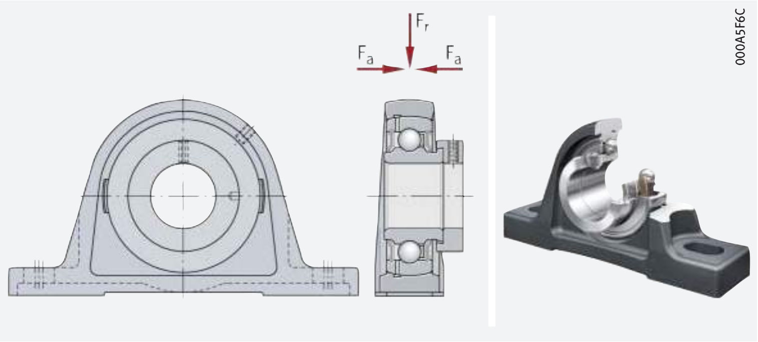
https://www.schaeffler.de/std/1D65

Suitable housing units for radial insert ball bearings

For radial insert ball bearings, Schaeffler offers the appropriate plummer block, flanged and take-up housings made from cast iron, sheet steel and plastic. The housings can, like the radial insert ball bearings themselves, also be provided in a corrosion-resistant design ➤ *1498* | ▦ *26*.
Cast iron housings are always one-piece units and can support high loads. Sheet steel housings are two-piece units and are used where the priority is not the load carrying capacity of the housing but the low mass of the unit.

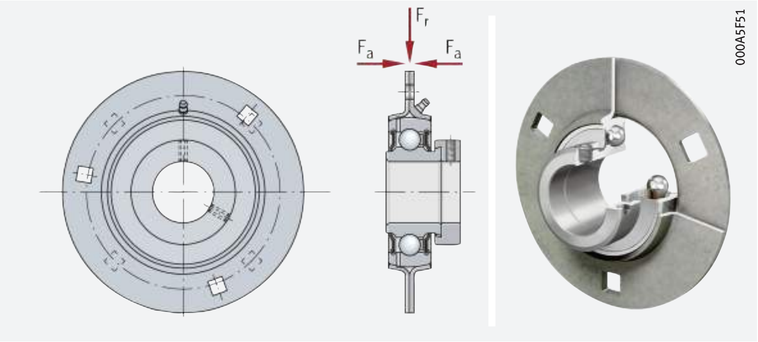
37
Plummer block housing unit

Cast iron housing with integrated radial insert ball bearing



38
Flanged housing unit

Sheet steel housing with integrated radial insert ball bearing

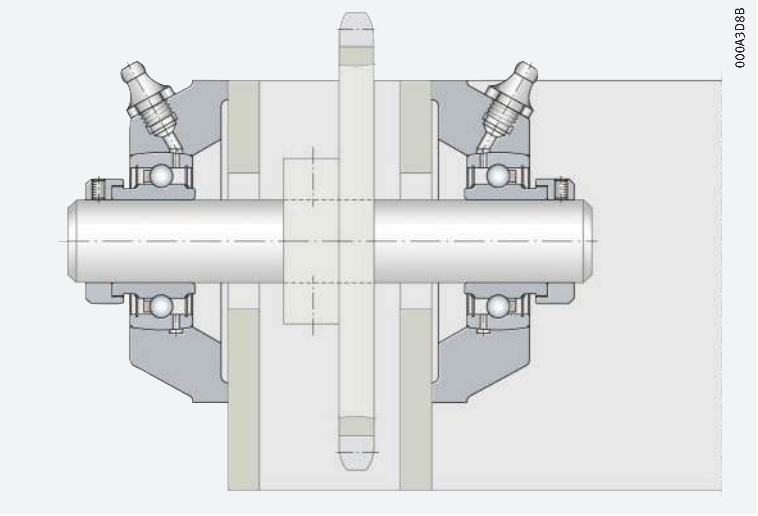


Ready-to-fit units eliminate the need for in-house production of the mounting environment for the bearings

The housing units comprise radial insert ball bearings with a spherical outer ring and a housing with a spherical bore to form ready-to-fit units. The user is thus spared the need for costly production of the mounting environment required for these bearings. The areas of application correspond to those of the radial insert ball bearings.

39
Example of the location of radial insert ball bearings with four-bolt flanged housing units PCJ in a pallet transport system

Design of shaft to tolerance class h9 Ⓔ



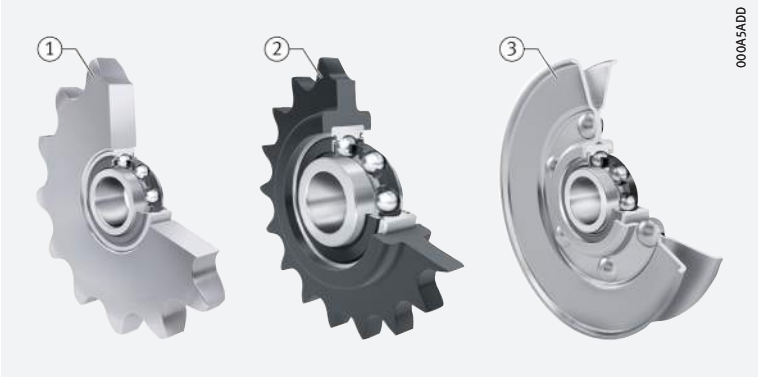
https://www.schaeffler.de/std/1D65

✎ *Roller chain idler sprocket units and idler pulley units*

Roller chain idler sprocket units and idler pulley units are tensioning elements for return units or belt drives ➤*1493*|*40*. Roller chain idler sprocket units can compensate for chain stretch resulting from operation and give smoother system running under high loads and velocities. Idler pulley units increase the wrap angle in belt drives and can therefore transmit higher power levels.

40
Roller chain idler sprocket units and idler pulley units from Schaeffler

① *Roller chain idler sprocket unit KSR..-L0 made from steel*
② *Roller chain idler sprocket unit KSR..-L0-22 made from plastic*
③ *Idler pulley unit RSRA..-L0 for vee belts in accordance with DIN 2215 and ISO 1081*



Overview of possible combinations

The following overviews represent the possible combinations of radial insert ball bearings with housings from Schaeffler:

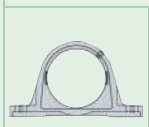
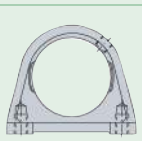
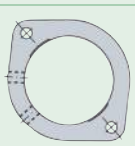
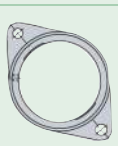
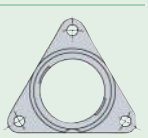
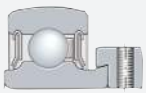
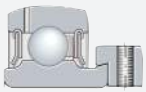
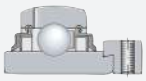
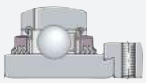
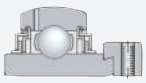
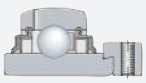
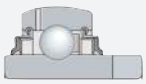
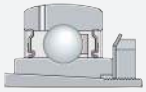
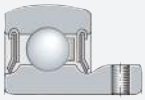
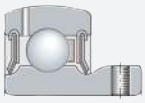
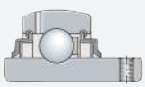
- standard cast iron housings, ISO range ➤*1494*|*24*
- standard sheet steel housings, ISO range ➤*1496*|*25*
- corrosion-resistant cast iron and sheet steel housings ➤*1498*|*26*
- corrosion-resistant plastic housings ➤*1500*|*27*
- Black Series, cast iron housings, JIS range ➤*1502*|*28*.

Product tables and descriptions of the catalogue range of housing units as well as roller chain idler sprocket units and idler pulley units:

- Catalogue Radial Insert Ball Bearings and Housing Units ➤ 🕮 *SG 1*
- Download and ordering ➤ *https://www.schaeffler.de/std/1D60*.

https://www.schaeffler.de/std/1D65

24 *Possible combinations of radial insert ball bearings with cast iron housings*

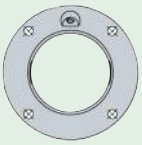
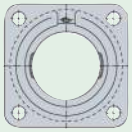
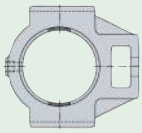
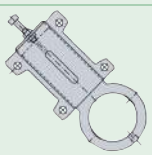
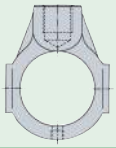
Radial insert ball bearing	Standard cast iron housing				
	Plummer block housing		Two-bolt flanged housing		Three-bolt flanged housing
					
Designation	**ASE**	**SHE**	**LCTE**[1]	**CJT**	**CFTR**
Shaft diameter d	**SAO**[2]		**GLCTE**	**CFT**	
				CJTZ	
RAE..-XL-NPP-B 12 mm –50 mm 			**FLCTE..-XL**[1]		
GRAE..-XL-NPP-B 12 mm – 60 mm 	**PASE..-XL**	**PSHE..-XL**	**GLCTE..-XL**	**PC(J, F)T..-XL**	**PCFTR..-XL**
GRA..-NPP-B-AS2/V $^5/_8$″ – $1^{15}/_{16}$″	Available by agreement	Available by agreement	Available by agreement	Available by agreement	Available by agreement
GE..-XL-KRR-B 17 mm – 120 mm 	**RASE..-XL**	**RSHE..-XL**		**RCJT(Z)..-XL**	Available by agreement
G..-KRR-B-AS2/V $^5/_8$″ – $2^{15}/_{16}$″	Available by agreement	Available by agreement		Available by agreement	
GE..-XL-KTT-B 20 mm – 80 mm 	**TASE..-XL**	**TSHE..-XL**		**TCJT..-XL**	Available by agreement
GE..-XL-KLL-B 20 mm – 50 mm 	**LASE..-XL**	Available by agreement		**LCJT..-XL**	Available by agreement
GNE..-XL-KRR-B[2] 30 mm – 100 mm 	**RSAO..-XL**				
GLE..-XL-KRR-B 20 mm – 70 mm 	**RASEL..-XL**	Available by agreement		Available by agreement	Available by agreement
GSH..-XL-2RSR-B 20 mm – 50 mm 	**RASEA..-XL**	Available by agreement		**RCJTA..-XL**	Available by agreement
AY..-XL-NPP-B 12 mm – 30 mm 			**FLCTEY..-XL**[1]		
GAY..-XL-NPP-B 12 mm – 60 mm 	**PASEY..-XL**	**PSHEY..-XL**	**FLCTEY..-XL**[1]	**PCJTY..-XL**	Available by agreement
GAY..-NPP-B(-AS2/V) $^1/_2$″ – $1^7/_{16}$″	Available by agreement	Available by agreement	Available by agreement	Available by agreement	
GYE..-XL-KRR-B 12 mm – 90 mm 	**RASEY..-XL**	**RSHEY..-XL**		**RCJTY..-XL**	Available by agreement
GY..-KRR-B-AS2/V $^1/_2$″ – $2^{15}/_{16}$″	Available by agreement	Available by agreement		Available by agreement	

Catalogue range; other dimensions and combinations available by agreement.
Combinations not possible or not advisable.

Further information: SG 1
➤ *https://www.schaeffler.de/std/1D60*
Housing selection wizard:
➤ *https://www.schaeffler.de/std/1D61*

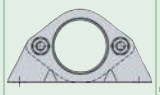
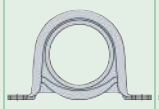
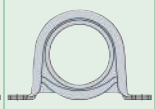
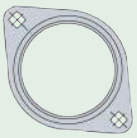
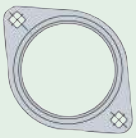
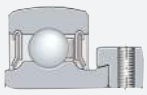
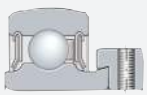
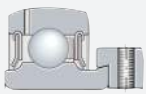
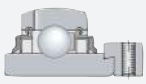
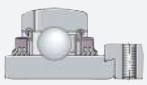
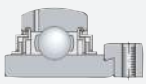
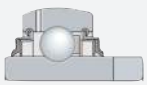
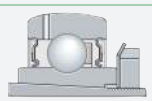
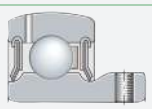
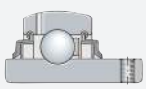
1) *Without lubrication hole.*
2) *Heavy series.*

https://www.schaeffler.de/std/1D65

Four-bolt flanged housing		Take-up housing			
					
ME	**CJ**	**TUE**	**HUE** **GEH..-HUSE**	**HE**	**SFT**
MEO[2]	**CJO**[2]	**TUEO**[2]			
FE	**CF**				
PME..-XL	**PCJ..-XL**, **PCF..-XL**	**PTUE..-XL**	**PHUSE..-XL**	**PHE..-XL**	**PSFT..-XL**
Available by agreement	Available by agreement	Available by agreement	Available by agreement	Available by agreement	Available by agreement
RME..-XL, **RFE..-XL**	**RCJ..-XL**	**RTUE..-XL**	Available by agreement	**RHE..-XL**	Available by agreement
Available by agreement	Available by agreement	Available by agreement	Available by agreement	Available by agreement	Available by agreement
TME..-XL	**TCJ..-XL**	**TTUE..-XL**	Available by agreement	**THE..-XL**	Available by agreement
TFE..-XL					
Available by agreement	Available by agreement	Available by agreement	Available by agreement	Available by agreement	Available by agreement
RMEO..-XL	**RCJO..-XL**	**RTUEO..-XL**			
Available by agreement	**RCJL..-XL**	Available by agreement	Available by agreement	Available by agreement	Available by agreement
Available by agreement	Available by agreement	Available by agreement	Available by agreement	Available by agreement	Available by agreement
PMEY..-XL	**PCJY..-XL**	**PTUEY..-XL**	Available by agreement	**PHEY..-XL**	Available by agreement
Available by agreement	Available by agreement	Available by agreement		Available by agreement	
RMEY..-XL	**RCJY..-XL**	**RTUEY..-XL**	Available by agreement	Available by agreement	Available by agreement
Available by agreement	Available by agreement	Available by agreement			

https://www.schaeffler.de/std/1D65

25 *Possible combinations of radial insert ball bearings with sheet steel housings*

Radial insert ball bearing	Standard sheet steel housing[1]				
	Plummer block housing			Two-bolt flanged housing	
					
Designation Shaft diameter d	**GEH..-PBS**	**GEH..-BT**	**GEH..-BT** **GRG..-RABR**	**FLAN..-LST** (2 pieces)	**FLAN..-MST** (2 pieces)
RALE..-XL-NPP(-B) 20 mm – 30 mm 			**RPB..-XL** d = 30 mm	**RALT..-XL**	
RAE..-XL-NPP(-B) 12 mm – 40 mm 	**PBS..-XL**	**PB..-XL**	**RPB..-XL**		**RAT..-XL**
GRAE..-XL-NPP-B 20 mm – 60 mm 					
(G)E..-XL-KRR-B 17 mm – 60 mm 	To be ordered separately	To be ordered separately	To be ordered separately		To be ordered separately
GE..-XL-KTT-B 20 mm – 60 mm 	To be ordered separately	To be ordered separately			To be ordered separately
GE..-XL-KLL-B 20 mm – 50 mm 	To be ordered separately	To be ordered separately			To be ordered separately
GLE..-XL-KRR-B 20 mm – 60 mm 	To be ordered separately	To be ordered separately			To be ordered separately
GSH..-XL-2RSR-B 20 mm – 50 mm 	To be ordered separately	To be ordered separately			To be ordered separately
(G)AY..-XL-NPP-B 12 mm – 60 mm 	To be ordered separately	**PBY..-XL**			**RATY..-XL**
GYE..-XL-KRR-B 12 mm – 60 mm 	To be ordered separately	To be ordered separately			To be ordered separately

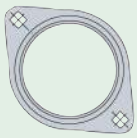
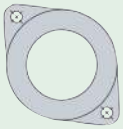
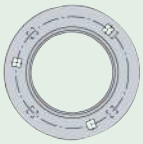
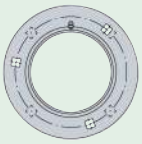
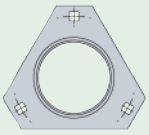
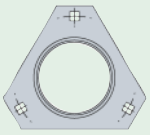
Catalogue range; other dimensions and combinations available by agreement.

Combinations not possible or not advisable.

Further information: SG 1
➤ https://www.schaeffler.de/std/1D60
Housing selection wizard:
➤ https://www.schaeffler.de/std/1D61

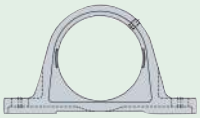
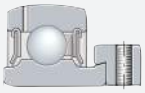
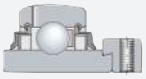
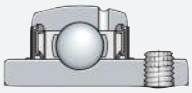
[1] *Housings have a Corrotect coating, suffix FA125.*

https://www.schaeffler.de/std/1D65

			Three-bolt flanged housing				Take-up housing
							
	FLAN..-CSLT **FLAN..-CST**	**FLAN..-RCSMF** **GRG..-RCSM**	**FLAN..-MSB** (2 pieces)	**FLAN..-MSA** **FLAN..-MSB**	**FLAN..-LSTR** (2 pieces)	**FLAN..-MSTR** (2 pieces)	**GEH..-MSTU**
	PCSLT..-XL	**RCSMF..-XL** d = 30 mm			**RALTR..-XL**		
		RCSMF..-XL	**RA..-XL**			**RATR..-XL**	**MSTU..-XL**
			RA..-XL	**GRA..-XL**			
			To be ordered separately	To be ordered separately		**RRTR..-XL**	To be ordered separately
			To be ordered separately	To be ordered separately		To be ordered separately	To be ordered separately
			To be ordered separately	To be ordered separately		To be ordered separately	To be ordered separately
			To be ordered separately	To be ordered separately		To be ordered separately	To be ordered separately
			To be ordered separately	To be ordered separately		To be ordered separately	To be ordered separately
			RAY..-XL			**RATRY..-XL**	To be ordered separately
						To be ordered separately	To be ordered separately

https://www.schaeffler.de/std/1D65

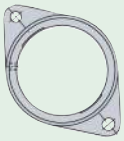
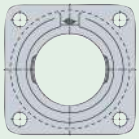
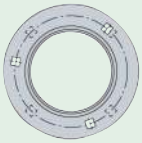
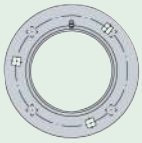
26
Possible combinations of radial insert ball bearings with cast iron or sheet steel housings, corrosion-resistant

Radial insert ball bearing[1]	Cast iron housing[1]
	Plummer block housing
	
Designation Shaft diameter d	**ASE**
GRAE..-XL-NPP-B-FA125 20 mm – 60 mm 	**PASE..-XL-N-FA125**
GE..-XL-KRR-B-FA125 20 mm – 50 mm 	**RASE..-XL-N-FA125**
SUC 12 mm – 30 mm 	Available by agreement

Catalogue range; other dimensions and combinations available by agreement.
Further information: SG 1 ➤ *https://www.schaeffler.de/std/1D60*
Housing selection wizard: ➤ *https://www.schaeffler.de/std/1D61*

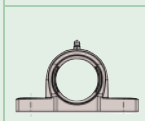
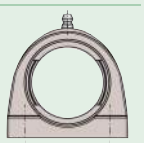
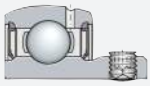
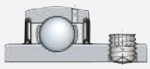
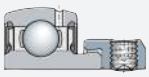
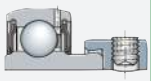
[1] With Corrotect coating.

https://www.schaeffler.de/std/1D65

		Sheet steel housing[1)]	
Two-bolt flanged housing	Four-bolt flanged housing	Three-bolt flanged housing	
			
CJT	**CJ**	**FLAN..-MSB-VA** (2 pieces)	**FLAN..-MSA-VA** **FLAN..-MSB-VA**
PCJT..-XL-N-FA125	**PCJ..-XL-N-FA125**	Available by agreement	Available by agreement
RCJT..-XL-N-FA125	**RCJ..-XL-N-FA125**	Available by agreement	Available by agreement
Available by agreement	Available by agreement	**RRY..-VA**	**GRRY..-VA**

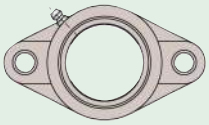
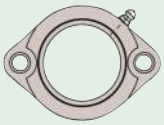
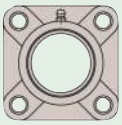
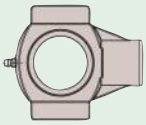
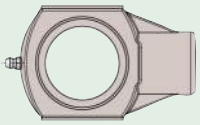
https://www.schaeffler.de/std/1D65

27
Possible combinations of radial insert ball bearings with plastic housings

Radial insert ball bearing	Plastic housing	
	Plummer block housing	
		
Designation Shaft diameter d	**GEHPP**	**GEHPPA**
SUB 20 mm – 50 mm 	**SUBPP**	**SUBPPA**
SUC 20 mm – 50 mm 	**SUCPP**	**SUCPPA**
SUG 20 mm – 50 mm 	**SUGPP**	**SUGPPA**
GRAE..-XL-NPP-B-FA107/125 20 mm – 50 mm 	**CUGPP**	**CUGPPA**

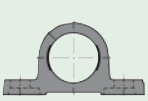
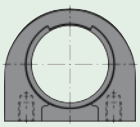
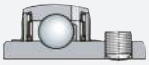
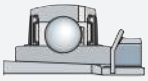
Catalogue range; other dimensions and combinations available by agreement.
Further information: SG 1 ➤ *https://www.schaeffler.de/std/1D60*
Combinations not possible or not advisable.

https://www.schaeffler.de/std/1D65

	Two-bolt flanged housing		Four-bolt flanged housing	Take-up housing	
					
	GEHPFL	**GEHPCTL**	**GEHPF**	**GEHPT**	**GEHPHE**
	SUBPFL	**SUBPCTL**	**SUBPF**	**SUBPT**	**SUBPHE**
	SUCPFL		**SUCPF**	**SUCPT**	**SUCPHE**
	SUGPFL	**SUGPCTL**	**SUGPF**	**SUGPT**	**SUGPHE**
	CUGPFL	**CUGPCTL**	**CUGPF**	**CUGPT**	**CUGPHE**

https://www.schaeffler.de/std/1D65

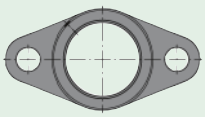
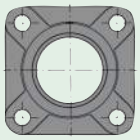
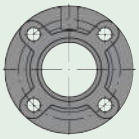
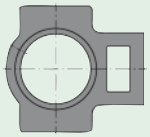
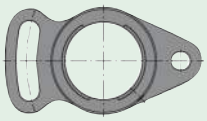
28
Possible combinations of JIS radial insert ball bearings with JIS housings (Black Series)

Radial insert ball bearing[1]	Cast iron housing[1]	
	Plummer block housing	
		
Designation Shaft diameter d	**P**	**PA**
UC 12 mm – 90 mm *1/2″ – 3 1/2″* 	**UCP**	**UCPA**
UK 20 mm – 80 mm 	**UKP**	Available by agreement

Catalogue range; other dimensions and combinations available by agreement.
Further information: SG 1 ➤ *https://www.schaeffler.de/std/1D60*

[1] With Durotect BS coating

https://www.schaeffler.de/std/1D65

	Two-bolt flanged housing	Four-bolt flanged housing		Take-up housing	
					
	FL	**F**	**FC**	**T**	**FA**
	UCFL	**UCF**	**UCFC**	**UCT**	**UCFA**
	UKFL	**UKF**	**UKFC**	**UKT**	Available by agreement

https://www.schaeffler.de/std/1D65

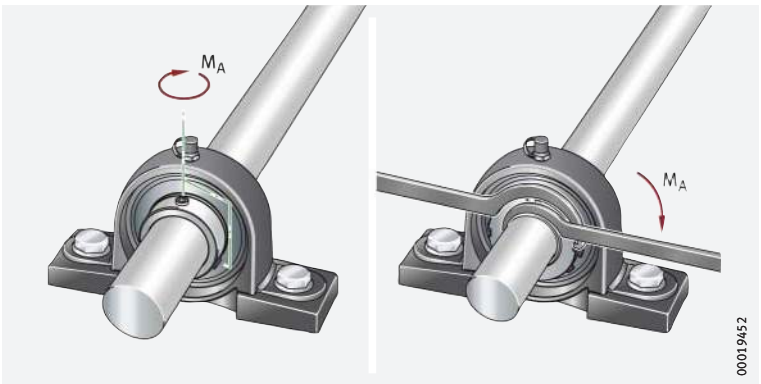
1.17 Mounting and dismounting

The detailed guidelines on the mounting and dismounting of radial insert ball bearings must be observed. These can be found in Catalogue
➤ 🕮 *SG 1*, Radial Insert Ball Bearings and Housing Units
➤ *https://www.schaeffler.de/std/1D60*.

Tightening torques for grub screws

The tightening torques for metric and inch size grub screws from Schaeffler are dependent on the material of the screws ➤ *1504* | ▦ *29* and ➤ *1504* | ▦ *30*. The tightening torques are valid only for original grub screws from Schaeffler (INA or FAG brand).

41
Fully tightening the grub screws or locknut in the inner ring



29
Tightening torques for standard grub screws

Width across flats W		Thread		Tightening torque[1] M_A
mm	inch	ISO	UNF	Nm
2,5	3/32	M5	N10-32	3,6
3	1/8	M6×0,75	1/4"-28	6
4	5/32	M8×1	5/16"-24	14
5	3/16	M10×1,25	3/8"-24	26
6	1/4	M12×1,5 M12×1,25[2]	1/2"-20	42

1) *Grub screws from Schaeffler.*
2) *GYE90-KRR-B.*

30
Tightening torques for metric grub screws, corrosion-resistant VA design

Width across flats W mm	Thread	Tightening torque[1] M_A Nm
2,5	M5	2,4
3	M6×0,75	3,9
4	M8×1	8,3
5	M10×1,25	16

1) *High grade steel grub screws from Schaeffler.*

https://www.schaeffler.de/std/1D65

Tightening torques for locknuts

The tightening torques for the locknuts differ between the two brands INA and FAG ➤*1505*|▦*31* and ➤*1505*|▦*32*.

▦*31*
Hook wrenches and tightening torques for radial insert ball bearings of the INA brand

Shaft diameter d mm	Hook wrench, type A to DIN 1810		Tightening torque Locknut M_A	
	for tightening of locknut	for countertensioning of adapter sleeve	min. Nm	max. Nm
20	A 30–32 (HN 4)	A 25–28 (HN 2)	13	17
25	A 40–42 (HN 5)	A 30–32 (HN 3)	22	28
30	A 45–50 (HN 6)	A 34–36 (HN 4)	33	40
35	A 52–55 (HN 7)	A 40–42 (HN 5)	47	56
40	A 58–62 (HN 8)	A 45–50 (HN 6)	70	80
50	A 68–75 (HN 10)	A 52–55 (HN 7)	90	105

▦*32*
Tightening torques for locknuts, Black Series, FAG brand

Shaft d mm	Locknut	Tightening torque M_A ±5% Nm
20	AN05	25
25	AN06	30
30	AN07	40
35	AN08	50
40	AN09	60
45	AN10	75
50	AN11	100
55	AN12	130
60	AN13	150
65	AN15	170
70	AN16	200
75	AN17	230
80	AN18	270

1.18 Legal notice regarding data freshness

✎ *The further development of products may also result in technical changes to catalogue products*

Of central interest to Schaeffler is the further development and optimisation of its products and the satisfaction of its customers. In order that you, as the customer, can keep yourself optimally informed about the progress that is being made here and with regard to the current technical status of the products, we publish any product changes which differ from the printed version in our electronic product catalogue.

§ We therefore reserve the right to make changes to the data and illustrations in this catalogue. This catalogue reflects the status at the time of printing. More recent publications released by us (as printed or digital media) will automatically precede this catalogue if they involve the same subject. Therefore, please always use our electronic product catalogue to check whether more up-to-date information or modification notices exist for your desired product.

Link to electronic product catalogue

The following link will take you to the Schaeffler electronic product catalogue: ➤*https://medias.schaeffler.com*.

https://www.schaeffler.de/std/1D65

1.19 Further information

In addition to the data in this chapter, the following chapters in Technical principles must also be observed in the design of bearing arrangements:

- Determining the bearing size ➤*34*
- Rigidity ➤*54*
- Friction and increases in temperature ➤*56*
- Speeds ➤*64*
- Bearing data ➤*97*
- Lubrication ➤*70*
- Sealing ➤*182*
- Design of bearing arrangements ➤*139*
- Mounting and dismounting ➤*191*.

The complete catalogue range of the available radial insert ball bearings and housing units, together with all the technical principles, descriptions and product tables, is presented in Catalogue SG 1, Radial Insert Ball Bearings and Housing Units.

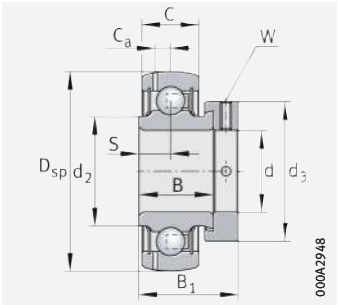
- Download and ordering
  ➤*https://www.schaeffler.de/std/1D60*
- Electronic information system
  ➤*https://www.schaeffler.de/std/1D62*
- Housing selection wizard
  ➤*https://www.schaeffler.de/std/1D61*

https://www.schaeffler.de/std/1D65

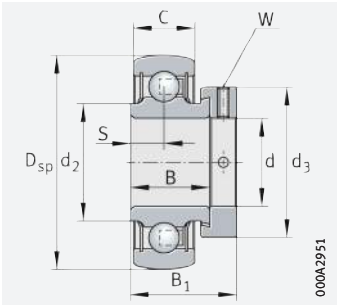
https://www.schaeffler.de/std/1D65

Radial insert ball bearings with eccentric locking collar

Spherical outside surface of outer ring



GRAE..-XL-NPP-B



RAE..-XL-NPP-B, RALE..-XL-NPP-B

d = 12 – 25 mm

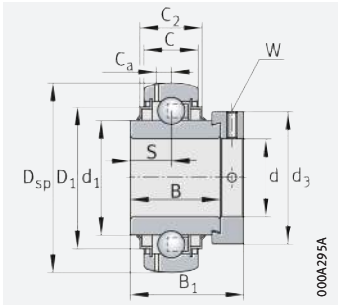
Main dimensions				Basic load ratings		Fatigue limit load	Factor[1]	Mass	Designation[2]
d	D_{sp}	B_1	d_3 max.	dyn. C_r N	stat. C_{0r} N	C_{ur} N	f_0	m ≈ kg	➤*1485*|*1.12* ➤*1486*|*1.13* X-life➤*1453*
12	40	28,6	28,4	10 100	4 750	241	13,1	0,13	**GRAE12-XL-NPP-B**
	40	28,6	28,4	10 100	4 750	241	13,1	0,13	**RAE12-XL-NPP-B**
15	40	28,6	28,4	10 100	4 750	241	13,1	0,11	**GRAE15-XL-NPP-B**
	40	28,6	28,4	10 100	4 750	241	13,1	0,12	**RAE15-XL-NPP-B**
17	40	37,4	28,4	10 100	4 750	241	13,1	0,12	**GE17-XL-KRR-B**
	40	28,6	28,4	10 100	4 750	241	13,1	0,12	**GRAE17-XL-NPP-B**
	40	28,6	28,4	10 100	4 750	241	13,1	0,1	**RAE17-XL-NPP-B**
20	47	43,7	33	13 600	6 600	335	13,1	0,2	**GE20-XL-KLL-B**
	47	43,7	33	13 600	6 600	335	13,1	0,19	**GE20-XL-KRR-B**
	47	43,7	33	13 600	6 600	335	13,1	0,2	**GE20-XL-KRR-B-FA164**
	47	43,7	33	13 600	6 600	335	13,1	0,19	**GE20-XL-KTT-B**
	47	31	33	13 600	6 600	335	13,1	0,16	**GRAE20-XL-NPP-B**
	47	31	33	13 600	6 600	335	13,1	0,16	**RAE20-XL-NPP-B**
	42	24,5	30	10 000	5 000	255	13,9	0,1	**RALE20-XL-NPP-B**
25	52	44,5	37,5	14 900	7 800	395	13,8	0,24	**E25-XL-KRR-B**
	52	44,5	37,5	14 900	7 800	395	13,8	0,25	**GE25-XL-KRR-B**
	52	44,5	37,5	14 900	7 800	395	13,8	0,24	**GE25-XL-KRR-B-FA101**
	52	44,5	37,5	14 900	7 800	395	13,8	0,25	**GE25-XL-KRR-B-FA164**
	52	44,5	37,5	14 900	7 800	395	13,8	0,25	**GE25-XL-KLL-B**
	52	44,5	37,5	14 900	7 800	395	13,8	0,24	**GE25-XL-KTT-B**
	52	44,5	37,5	14 900	7 800	395	13,8	0,26	**GE25-XL-KRR-B-2C**
	52	31	37,5	14 900	7 800	395	13,8	0,19	**GRAE25-XL-NPP-B**
	52	31	37,5	14 900	7 800	395	13,8	0,19	**RAE25-XL-NPP-B**
	47	25,5	36	10 700	5 900	295	13,8	0,12	**RALE25-XL-NPP-B**

medias ➤ *https://www.schaeffler.de/std/1DD0*

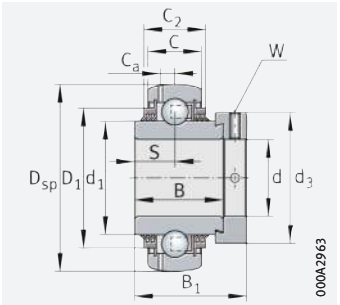
[1] Factor f_0 for determining equivalent bearing load ➤*1489*|▦*22*.

[2] Permissible speeds of radial insert ball bearings ➤*1476*.

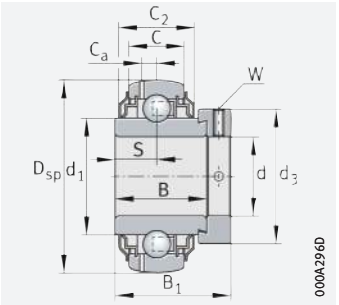
https://www.schaeffler.de/std/1D65



GE..-XL-KRR-B

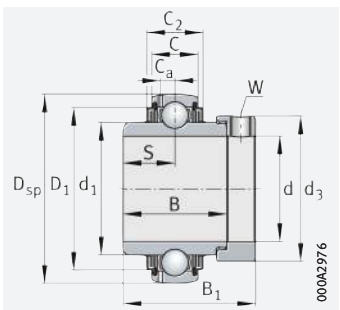


GE..-XL-KTT-B

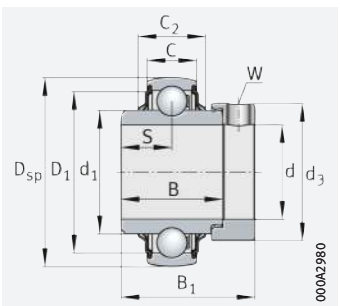


GE..-XL-KRR-B-2C

Dimensions									Width across flats
d	C	C_2	B	S	d_1	d_2	D_1	C_a	W
12	12	–	19	6,5	–	23	–	3,4	3
	12	–	19	6,5	–	23	–	–	3
15	12	–	19	6,5	–	23	–	3,4	3
	12	–	19	6,5	–	23	–	–	3
17	12	16,6	27,8	13,9	23,9	–	31,6	3,4	3
	12	–	19	6,5	–	23	–	3,4	3
	12	–	19	6,5	–	23	–	–	3
20	14	16,6	34,1	17,1	27,6	–	37,4	4	3
	14	16,6	34,1	17,1	27,6	–	37,4	4	3
	14	16,6	34,1	17,1	27,6	–	37,4	4	3
	14	16,6	34,1	17,1	27,6	–	37,4	4	3
	14	–	21,4	7,5	–	26,9	–	4	3
	14	–	21,4	7,5	–	26,9	–	–	3
	12	–	16,7	6	–	25,4	–	–	2,5
25	15	16,7	34,9	17,5	33,8	–	42,5	–	3
	15	16,7	34,9	17,5	33,8	–	42,5	4,1	3
	15	16,7	34,9	17,5	33,8	–	42,5	4,1	3
	15	16,7	34,9	17,5	33,8	–	42,5	4,1	3
	15	20,2	34,9	17,5	33,8	–	42,5	4,1	3
	15	20,2	34,9	17,5	33,8	–	42,5	4,1	3
	15	24,6	34,9	17,5	33,8	–	–	4,1	3
	15	–	21,4	7,5	–	30,5	–	4,1	3
	15	–	21,4	7,5	–	30,5	–	–	3
	12	–	17,5	6	–	30	–	–	2,5



GE..-XL-KLL-B

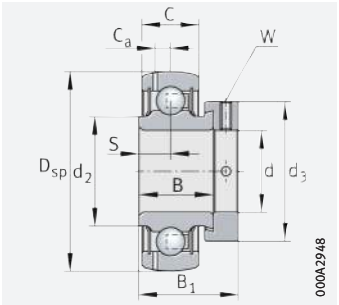


E..-XL-KRR-B

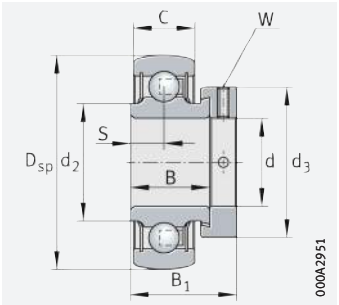
https://www.schaeffler.de/std/1D65

Radial insert ball bearings with eccentric locking collar

Spherical outside surface of outer ring



GRAE..-XL-NPP-B



RAE..-XL-NPP-B, RALE..-XL-NPP-B

d = 30 – 35 mm

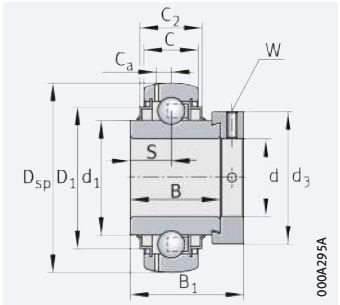
Main dimensions				Basic load ratings		Fatigue limit load	Factor[1]	Mass	Designation[2]
d	D_{sp}	B_1	d_3	dyn. C_r	stat. C_{0r}	C_{ur}	f_0	m	➤*1485*|*1.12* ➤*1486*|*1.13* X-life ➤*1453*
			max.	N	N	N		≈ kg	
30	62	48,5	44	20 700	11 300	570	13,8	0,39	**GE30-XL-KLL-B**
	62	48,5	44	20 700	11 300	570	13,8	0,39	**E30-XL-KRR-B**
	62	48,5	44	20 700	11 300	570	13,8	0,39	**GE30-XL-KRR-B**
	62	48,5	44	20 700	11 300	570	13,8	0,38	**GE30-XL-KRR-B-FA101**
	62	48,5	44	20 700	11 300	570	13,8	0,39	**GE30-XL-KRR-B-FA164**
	62	48,5	44	20 700	11 300	570	13,8	0,38	**GE30-XL-KTT-B**
	72	50,2	51	31 500	16 700	840	13	0,63	**GNE30-XL-KRR-B**
	62	48,5	44	20 700	11 300	570	13,8	0,41	**GE30-XL-KRR-B-2C**
	62	35,8	44	20 700	11 300	570	13,8	0,32	**GRAE30-XL-NPP-B**
	62	35,8	44	20 700	11 300	570	13,8	0,32	**RAE30-XL-NPP-B**
	55	26,5	42,5	14 100	8 300	420	13,8	0,18	**RALE30-XL-NPP-B**
35	72	51,3	55	27 500	15 300	770	13,8	0,59	**E35-XL-KRR-B**
	72	51,3	55	27 500	15 300	770	13,8	0,59	**GE35-XL-KRR-B**
	72	51,3	55	27 500	15 300	770	13,8	0,61	**GE35-XL-KRR-B-FA164**
	72	51,3	55	27 500	15 300	770	13,8	0,59	**GE35-XL-KTT-B**
	80	51,6	55	39 000	20 900	1 060	13,1	0,74	**GNE35-XL-KRR-B**
	72	51,3	55	27 500	15 300	770	13,8	0,6	**GE35-XL-KLL-B**
	72	51,3	55	27 500	15 300	770	13,8	0,63	**GE35-XL-KRR-B-2C**
	72	39	55	27 500	15 300	770	13,8	0,52	**GRAE35-XL-NPP-B**
	72	39	55	27 500	15 300	770	13,8	0,52	**RAE35-XL-NPP-B**

medias ➤*https://www.schaeffler.de/std/1DD1*

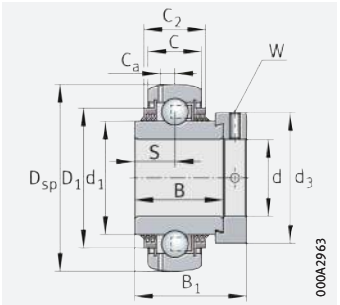
[1] Factor f_0 for determining equivalent bearing load ➤*1489*|▦*22*.

[2] Permissible speeds of radial insert ball bearings ➤*1476*.

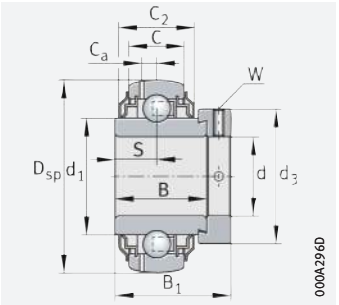
https://www.schaeffler.de/std/1D65



GE..-XL-KRR-B, GNE..-XL-KRR-B

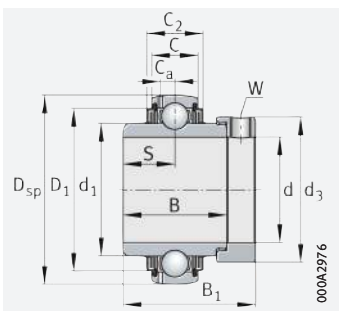


GE..-XL-KTT-B

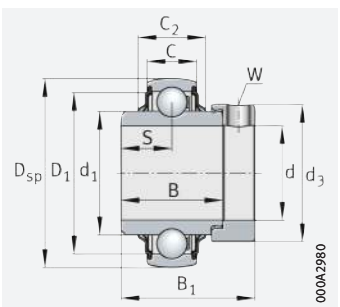


GE..-XL-KRR-B-2C

Dimensions									Width across flats
d	C	C_2	B	S	d_1	d_2	D_1	C_a	W
30	18	20,6	36,5	18,3	40,2	–	52	4,7	4
	18	20,7	36,5	18,3	40,2	–	52	–	4
	18	20,7	36,5	18,3	40,2	–	52	4,7	4
	18	20,7	36,5	18,3	40,2	–	52	4,7	4
	18	20,7	36,5	18,3	40,2	–	52	4,7	4
	18	20,7	36,5	18,3	40,2	–	52	4,7	4
	20	24	36,6	17,5	44	–	60,2	6,2	5
	18	27,2	36,5	18,3	40,2	–	–	4,7	4
	18	–	23,8	9	–	37,4	–	4,7	4
	18	–	23,8	9	–	37,4	–	–	4
	13	–	18,5	6,5	–	35,7	–	–	2,5
35	19	22,5	37,7	18,8	46,8	–	60,3	–	5
	19	22,5	37,7	18,8	46,8	–	60,3	5,6	5
	19	22,5	37,7	18,8	46,8	–	60,3	5,6	5
	19	22,5	37,7	18,8	46,8	–	60,3	5,6	5
	22	25	38,1	18,3	48	–	66,6	6,9	5
	19	25,4	37,7	18,8	46,8	–	60,3	5,6	5
	19	29,2	37,7	18,8	46,8	–	–	5,6	5
	19	–	25,4	9,5	–	44,6	–	5,6	5
	19	–	25,4	9,5	–	44,6	–	–	5



GE..-XL-KLL-B

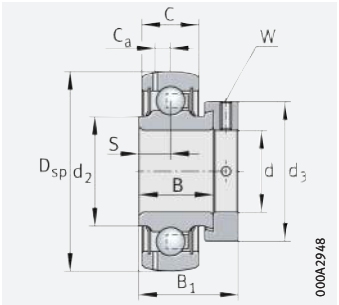


E..-XL-KRR-B

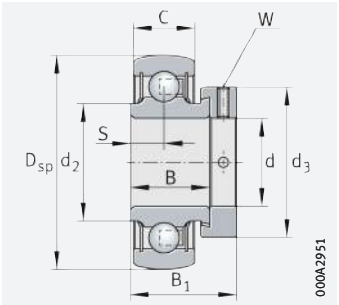
https://www.schaeffler.de/std/1D65

Radial insert ball bearings with eccentric locking collar

Spherical outside surface of outer ring



GRAE..-XL-NPP-B



RAE..-XL-NPP-B

d = 40 – 50 mm

Main dimensions				Basic load ratings		Fatigue limit load	Factor[1]	Mass	Designation[2]
d	D_{sp}	B_1	d_3 max.	dyn. C_r N	stat. C_{0r} N	C_{ur} N	f_0	m ≈ kg	➤*1485*|*1.12* ➤*1486*|*1.13* X-life➤*1453*
40	80	56,5	58	34 500	19 800	1 010	14	0,73	**E40-XL-KRR-B**
	80	56,5	58	34 500	19 800	1 010	14	0,73	**GE40-XL-KRR-B**
	80	56,5	58	34 500	19 800	1 010	14	0,74	**GE40-XL-KRR-B-FA101**
	80	56,5	58	34 500	19 800	1 010	14	0,75	**GE40-XL-KRR-B-FA164**
	90	54,6	63	47 000	26 000	1 320	13	1,02	**GNE40-XL-KRR-B**
	80	56,5	58	34 500	19 800	1 010	14	0,75	**GE40-XL-KLL-B**
	80	56,5	58	34 500	19 800	1 010	14	0,75	**GE40-XL-KTT-B**
	80	56,5	58	34 500	19 800	1 010	14	0,78	**GE40-XL-KRR-B-2C**
	80	43,8	58	34 500	19 800	1 010	14	0,62	**GRAE40-XL-NPP-B**
	80	43,8	58	34 500	19 800	1 010	14	0,63	**RAE40-XL-NPP-B**
45	85	56,5	63	34 500	20 400	1 030	14,3	0,84	**GE45-XL-KLL-B**
	85	56,5	63	34 500	20 400	1 030	14,3	0,83	**GE45-XL-KRR-B**
	85	56,5	63	34 500	20 400	1 030	14,3	0,83	**GE45-XL-KTT-B**
	85	43,8	63	34 500	20 400	1 030	14,3	0,7	**GRAE45-XL-NPP-B**
50	90	62,8	69	37 500	23 200	1 180	14,3	1	**GE50-XL-KLL-B**
	90	62,8	69	37 500	23 200	1 180	14,3	0,99	**GE50-XL-KRR-B**
	90	62,8	69	37 500	23 200	1 180	14,3	0,99	**GE50-XL-KRR-B-FA101**
	90	62,8	69	37 500	23 200	1 180	14,3	0,99	**GE50-XL-KRR-B-FA164**
	90	62,8	69	37 500	23 200	1 180	14,3	0,98	**GE50-XL-KTT-B**
	110	66,75	75,8	66 000	38 000	1 920	13	1,82	**GNE50-XL-KRR-B**
	90	43,8	69	37 500	23 200	1 180	14,3	0,77	**GRAE50-XL-NPP-B**
	110	66,75	75,8	66 000	38 000	1 920	13	1,82	**NE50-XL-KRR-B**[3]
	90	43,8	69	37 500	23 200	1 180	14,3	0,77	**RAE50-XL-NPP-B**

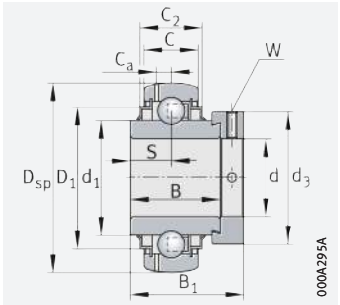
medias ➤ *https://www.schaeffler.de/std/1DD2*

1) Factor f_0 for determining equivalent bearing load ➤*1489*|⊞*22*.

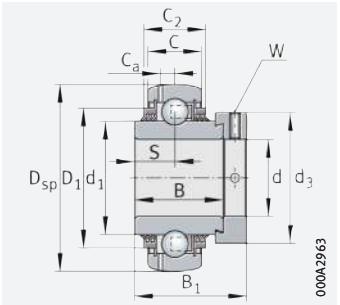
2) Permissible speeds of radial insert ball bearings ➤*1476*.

3) No relubrication facility.

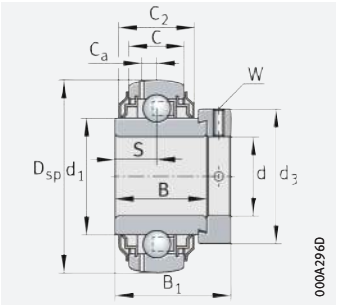
https://www.schaeffler.de/std/1D65



GE..-XL-KRR-B, GNE..-XL-KRR-B

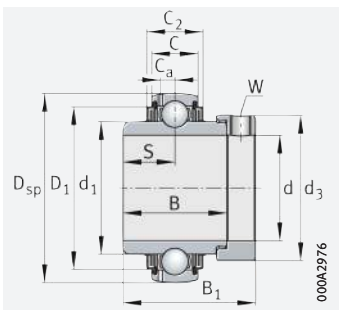


GE..-XL-KTT-B

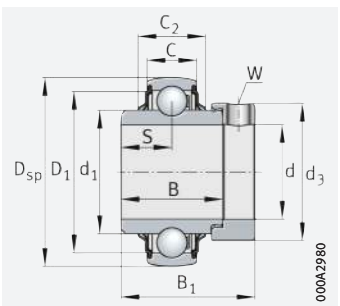


GE..-XL-KRR-B-2C

Dimensions									Width across flats
d	C	C_2	B	S	d_1	d_2	D_1	C_a	W
40	21	23,5	42,9	21,4	52,3	–	68,3	–	5
	21	23,5	42,9	21,4	52,3	–	68,3	6,4	5
	21	23,5	42,9	21,4	52,3	–	68,3	6,4	5
	21	23,5	42,9	21,4	52,3	–	68,3	6,4	5
	23	26	41	18	53,8	–	74,5	7,5	5
	21	28,1	42,9	21,4	52,3	–	68,3	6,4	5
	21	28,1	42,9	21,4	52,3	–	68,3	6,4	5
	21	31,9	42,9	21,4	52,3	–	–	6,4	5
	21	–	30,2	11	–	49,4	–	6,4	5
	21	–	30,2	11	–	49,4	–	–	5
45	22	26,4	42,9	21,4	57,9	–	72,3	6,4	5
	22	26,4	42,9	21,4	57,9	–	72,3	6,4	5
	22	26,4	42,9	21,4	57,9	–	72,3	6,4	5
	22	–	30,2	11	–	54,3	–	6,4	5
50	22	26,4	49,2	24,6	62,8	–	77,3	6,9	5
	22	26,4	49,2	24,6	62,8	–	77,3	6,9	5
	22	26,4	49,2	24,6	62,8	–	77,3	6,9	5
	22	26,4	49,2	24,6	62,8	–	77,3	6,9	5
	22	26,4	49,2	24,6	62,8	–	77,3	6,9	5
	29	–	49,2	24,6	68,8	–	92,7	8,7	5
	22	–	30,2	11	–	59,4	–	6,9	5
	29	–	49,2	24,6	68,8	–	–	–	5
	22	–	30,2	11	–	59,4	–	–	5



GE..-XL-KLL-B

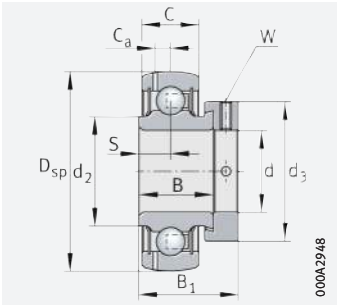


E..-XL-KRR-B, NE..-XL-KRR-B

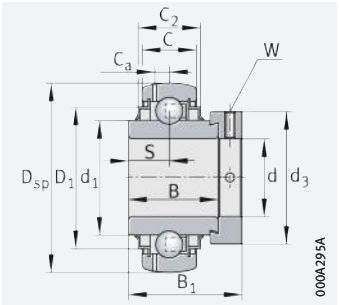
https://www.schaeffler.de/std/1D65

Radial insert ball bearings with eccentric locking collar

Spherical outside surface of outer ring



GRAE..-XL-NPP-B



GE..-XL-KRR-B, GNE..-XL-KRR-B

d = 55 – 120 mm

Main dimensions				Basic load ratings		Fatigue limit load	Factor[1]	Mass	Designation[2]
d	D_{sp}	B_1	d_3	dyn. C_r	stat. C_{0r}	C_{ur}	f_0	m	➤*1485*|*1.12* ➤*1486*|*1.13* X-life➤*1453*
			max.	N	N	N		≈ kg	
55	100	71,4	76	46 000	29 000	1 480	14,3	1,37	**GE55-XL-KRR-B**
	100	71,4	76	46 000	29 000	1 480	14,3	1,37	**GE55-XL-KTT-B**
	100	48,4	76	46 000	29 000	1 480	14,3	1,06	**GRAE55-XL-NPP-B**
60	110	77,9	84	56 000	36 000	1 820	14,3	1,8	**GE60-XL-KRR-B**
	110	77,9	84	56 000	36 000	1 820	14,3	1,8	**GE60-XL-KRR-B-FA101**
	110	77,9	84	56 000	36 000	1 820	14,3	1,8	**GE60-XL-KRR-B-FA164**
	110	77,9	84	56 000	36 000	1 820	14,3	1,8	**GE60-XL-KTT-B**
	130	68	89	87 000	52 000	2 650	13,1	2,97	**GNE60-XL-KRR-B**
	110	53,1	84	56 000	36 000	1 820	14,3	1,4	**GRAE60-XL-NPP-B**
65	125	66	96	66 000	44 000	2 230	14,4	2,71	**GE65-214-XL-KRR-B**[3]
	125	66	96	66 000	44 000	2 230	14,4	2,71	**GE65-214-XL-KRR-B-FA164**[3]
	125	66	96	66 000	44 000	2 230	14,4	2,71	**GE65-214-XL-KTT-B**[3]
70	125	66	96	66 000	44 000	2 230	14,4	2,15	**GE70-XL-KRR-B**
	125	66	96	66 000	44 000	2 230	14,4	2,15	**GE70-XL-KRR-B-FA101**
	125	66	96	66 000	44 000	2 230	14,4	2,15	**GE70-XL-KRR-B-FA164**
	125	66	96	66 000	44 000	2 230	14,4	2,15	**GE70-XL-KTT-B**
	150	75,5	102	111 000	68 000	3 300	13,2	3,81	**GNE70-XL-KRR-B**
75	130	67	100	66 000	44 500	2 240	14,4	2,14	**GE75-XL-KRR-B**
	130	67	100	66 000	44 500	2 240	14,4	2,14	**GE75-XL-KRR-B-FA101**
	130	67	100	66 000	44 500	2 240	14,4	2,14	**GE75-XL-KTT-B**
80	140	70,7	108	76 000	54 000	2 600	14,6	2,79	**GE80-XL-KRR-B**
	140	70,7	108	76 000	54 000	2 600	14,6	2,95	**GE80-XL-KRR-B-AH01-FA164**
	140	70,7	108	76 000	54 000	2 600	14,6	2,79	**GE80-XL-KTT-B**
	170	93,6	118	131 000	87 000	3 950	13,2	7,1	**GNE80-XL-KRR-B**[4]
90	160	69,5	118	109 000	79 000	3 550	14,5	3,56	**GE90-XL-KRR-B**[4]
	160	69,5	118	109 000	79 000	3 550	14,5	3,68	**GE90-XL-KRR-B-FA164**[4]
	190	101	132	151 000	107 000	4 600	13,9	8,07	**GNE90-XL-KRR-B**[4]
100	180	75	132	130 000	93 000	4 000	14,4	5	**GE100-XL-KRR-B**[4]
	215	109,4	145	184 000	141 000	5 700	13,8	11,41	**GNE100-XL-KRR-B**[4]
120	215	81	152	165 000	131 000	5 100	14,8	7,49	**GE120-XL-KRR-B**[4]

medias ➤ *https://www.schaeffler.de/std/1DD3*

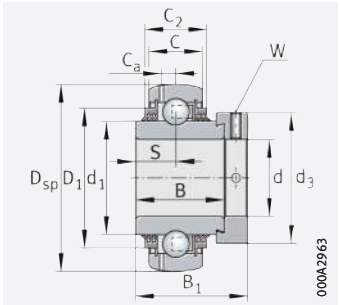
1) Factor f_0 for determining equivalent bearing load ➤*1489*|▦*22*.

2) Permissible speeds of radial insert ball bearings ➤*1476*.

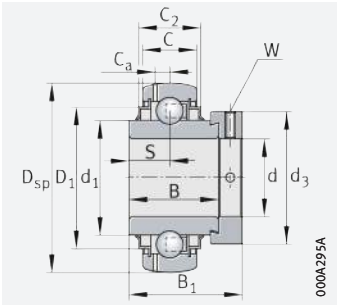
3) Alternative ball set 6214.

4) Lubrication groove in outer ring.

https://www.schaeffler.de/std/1D65



GE..-XL-KTT-B



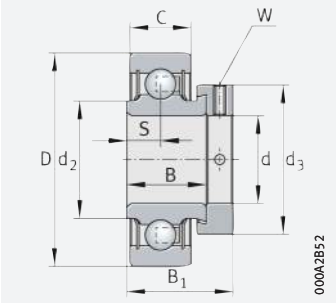
GNE..-XL-KRR-B

Dimensions									Width across flats
d	C	C_2	B	S	d_1	d_2	D_1	C_a	W
55	25	29	55,5	27,8	69,8	–	85,9	7	5
	25	29	55,5	27,8	69,8	–	85,9	7	5
	25	–	32,5	12	–	66	–	7	5
60	24	29	61,9	31	76,5	–	94,5	7,2	5
	24	29	61,9	31	76,5	–	94,5	7,2	5
	24	29	61,9	31	76,5	–	94,5	7,2	5
	24	29	61,9	31	76,5	–	94,5	7,2	5
	33	37,2	52	23	79,4	–	109	11,2	5
	24	–	37,1	13,5	–	72	–	7,2	5
65	28	32	48,5	21,5	85,2	–	109	8,9	6
	28	32	48,5	21,5	85,2	–	109	8,9	6
	28	32	48,5	21,5	85,2	–	109	8,9	6
70	28	32	48,5	21,5	85,2	–	109	8,9	6
	28	32	48,5	21,5	85,2	–	109	8,9	6
	28	32	48,5	21,5	85,2	–	109	8,9	6
	28	32	48,5	21,5	85,2	–	109	8,9	6
	37	41	58	26	92,2	–	127	12	6
75	28	30,5	49,5	21,5	90	–	113	8,5	6
	28	30,5	49,5	21,5	90	–	113	8,5	6
	28	30,5	49,5	21,5	90	–	113	8,5	6
80	30	38	53,2	23,4	97	–	120	8,8	6
	30	38	53,2	23,4	97	–	120	8,8	6
	30	38	53,2	23,4	97	–	120	8,8	6
	41	51	73	34	109	–	142,8	13,2	6
90	32	35	52	23	109,4	–	138	10	6
	32	35	52	23	109,4	–	138	10	6
	45	52,6	77,5	35,5	122,2	–	161,3	14,3	6
100	36	39	57,5	25,5	122,2	–	155,5	11,2	6
	49	59,4	86	39,5	137,1	–	182,8	16,7	6
120	40	45	63,5	28,5	146,4	–	186,5	12,8	6

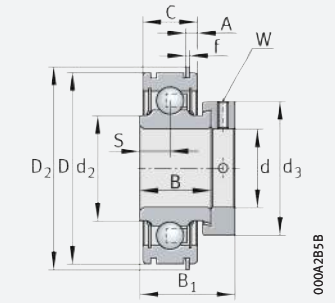
https://www.schaeffler.de/std/1D65

Radial insert ball bearings with eccentric locking collar

Cylindrical outside surface of outer ring



RAE..-XL-NPP-FA106, RALE..-XL-NPP



RAE..-XL-NPP-NR

d = 12 – 30 mm

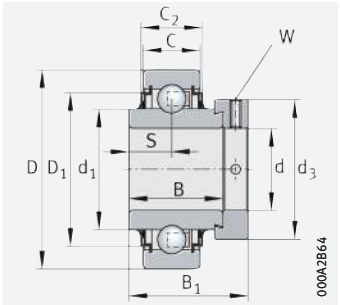
Main dimensions				Basic load ratings		Fatigue limit load	Factor[1]	Mass	Designation[2]
d	D	B_1	d_3	dyn. C_r	stat. C_{0r}	C_{ur}	f_0	m	➤*1485*|*1.12* ➤*1486*|*1.13* X-life➤*1453*
			max.	N	N	N		≈ kg	
12	40	28,6	28,4	10 100	4 750	241	13,1	0,13	**RAE12-XL-NPP-FA106**
15	40	28,6	28,4	10 100	4 750	241	13,1	0,12	**RAE15-XL-NPP-FA106**
17	40	28,6	28,4	10 100	4 750	241	13,1	0,11	**RAE17-XL-NPP-FA106**
20	42	24,5	30	10 000	5 000	255	13,9	0,1	**RALE20-XL-NPP-FA106**
	47	31	33	13 600	6 600	335	13,1	0,17	**RAE20-XL-NPP-FA106**
	47	31	33	13 600	6 600	335	13,1	0,17	**RAE20-XL-NPP-NR**
	47	43,7	33	13 600	6 600	335	13,1	0,2	**E20-XL-KLL**
	47	43,7	33	13 600	6 600	335	13,1	0,2	**E20-XL-KRR**
25	47	25,5	36	10 700	5 900	295	14,5	0,13	**RALE25-XL-NPP**
	52	31	37,5	14 900	7 800	395	13,8	0,2	**RAE25-XL-NPP-FA106**
	52	31	37,5	14 900	7 800	395	13,8	0,2	**RAE25-XL-NPP-NR**
	52	44,5	37,5	14 900	7 800	395	13,8	0,25	**E25-XL-KLL**
	52	44,5	37,5	14 900	7 800	395	13,8	0,25	**E25-XL-KRR**
30	55	26,5	42,5	14 100	8 300	420	14,8	0,18	**RALE30-XL-NPP-FA106**
	62	35,8	44	20 700	11 300	570	13,8	0,33	**RAE30-XL-NPP-FA106**
	62	35,8	44	20 700	11 300	570	13,8	0,33	**RAE30-XL-NPP-NR**
	62	48,5	44	20 700	11 300	570	13,8	0,39	**E30-XL-KLL**
	62	48,5	44	20 700	11 300	570	13,8	0,4	**E30-XL-KRR**

medias ➤ *https://www.schaeffler.de/std/1DD4*

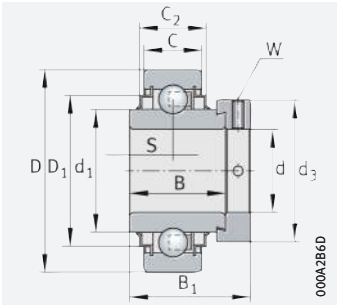
[1] Factor f_0 for determining equivalent bearing load ➤*1489*|▦*22*.

[2] Permissible speeds of radial insert ball bearings ➤*1476*.

https://www.schaeffler.de/std/1D65



E..-XL-KLL



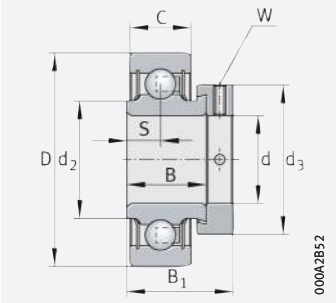
E..-XL-KRR

Dimensions											Width across flats
d	D_2	C	C_2	A	f	B	S	d_1	d_2	D_1	W
12	–	12	–	–	–	19	6,5	–	23	–	3
15	–	12	–	–	–	19	6,5	–	23	–	3
17	–	12	–	–	–	19	6,5	–	23	–	3
20	–	12	–	–	–	16,7	6	–	25,4	–	2,5
	–	14	–	–	–	21,4	7,5	–	26,9	–	3
	52,7	14	–	3,58 $^{0}_{-0,25}$	1,12 $^{0}_{-0,1}$	21,4	7,5	–	26,9	–	3
	–	14	16,6	–	–	34,1	17,1	27,6	–	37,4	3
	–	14	16,6	–	–	34,1	17,1	27,6	–	37,4	3
25	–	12	–	–	–	17,5	6	–	30	–	2,5
	–	15	–	–	–	21,4	7,5	–	30,5	–	3
	57,9	15	–	3,58 $^{0}_{-0,25}$	1,12 $^{0}_{-0,1}$	21,4	7,5	–	30,5	–	3
	–	15	20,2	–	–	34,9	17,5	33,8	–	42,5	3
	–	15	16,7	–	–	34,9	17,5	33,8	–	42,5	3
30	–	13	–	–	–	18,5	6,5	–	35,7	–	2,5
	–	18	–	–	–	23,8	9	–	37,4	–	4
	67,7	18	–	4,98 $^{0}_{-0,3}$	1,7 $^{0}_{-0,1}$	23,8	9	–	37,4	–	4
	–	18	20,6	–	–	36,5	18,3	40,2	–	52	4
	–	18	20,7	–	–	36,5	18,3	40,2	–	52	4

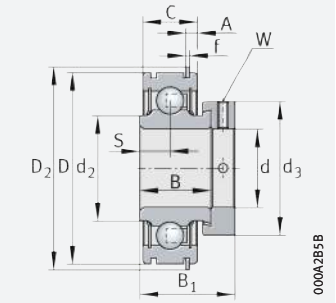
https://www.schaeffler.de/std/1D65

Radial insert ball bearings with eccentric locking collar

Cylindrical outside surface of outer ring



RAE..-XL-NPP(-FA106), RALE..-XL-NPP



RAE..-XL-NPP-NR

d = 35 – 70 mm

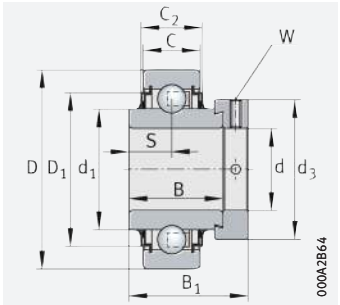
Main dimensions				Basic load ratings		Fatigue limit load	Factor[1]	Mass	Designation[2]
d	D	B_1	d_3 max.	dyn. C_r N	stat. C_{0r} N	C_{ur} N	f_0	m ≈ kg	➤*1485*|*1.12* ➤*1486*|*1.13* X-life➤*1453*
35	72	39	55	27 500	15 300	770	13,8	0,54	**RAE35-XL-NPP-FA106**
	72	39	55	27 500	15 300	770	13,8	0,53	**RAE35-XL-NPP-NR**
	72	51,3	55	27 500	15 300	770	13,8	0,6	**E35-XL-KLL**
	72	51,3	55	27 500	15 300	770	13,8	0,61	**E35-XL-KRR**
40	80	43,8	58	34 500	19 800	1 010	14	0,64	**RAE40-XL-NPP-FA106**
	80	43,8	58	34 500	19 800	1 010	14	0,64	**RAE40-XL-NPP-NR**
	80	56,5	58	34 500	19 800	1 010	14	0,76	**E40-XL-KLL**
	80	56,5	58	34 500	19 800	1 010	14	0,75	**E40-XL-KRR**
45	85	43,8	63	34 500	20 400	1 030	14,3	0,72	**RAE45-XL-NPP-FA106**
	85	56,5	63	34 500	20 400	1 030	14,3	0,85	**E45-XL-KLL**
	85	56,5	63	34 500	20 400	1 030	14,3	0,85	**E45-XL-KRR**
50	90	43,8	69	37 500	23 200	1 180	14,3	0,79	**RAE50-XL-NPP-FA106**
	90	62,8	69	37 500	23 200	1 180	14,3	1	**E50-XL-KLL**
	90	62,8	69	37 500	23 200	1 180	14,3	1	**E50-XL-KRR**
60	110	53,1	84	56 000	36 000	1 820	14,3	1,43	**RAE60-XL-NPP**
	110	77,9	84	56 000	36 000	1 820	14,3	1,82	**E60-XL-KRR**
70	125	66	96	66 000	44 000	2 230	14,4	2,45	**E70-XL-KRR**

medias ➤ *https://www.schaeffler.de/std/1DD5*

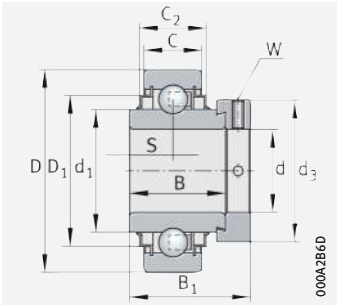
[1] Factor f_0 for determining equivalent bearing load ➤*1489*|▦*22*.

[2] Permissible speeds of radial insert ball bearings ➤*1476*.

https://www.schaeffler.de/std/1D65



E..-XL-KLL



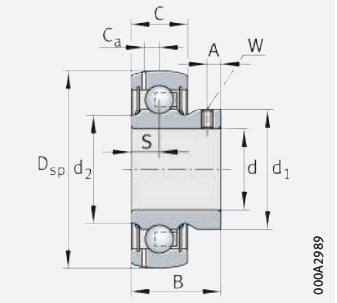
E..-XL-KRR

Dimensions											Width across flats
d	D_2	C	C_2	A	f	B	S	d_1	d_2	D_1	W
35	–	19	–	–	–	25,4	9,5	–	44,6	–	5
	78,6	19	–	4,98 $^{0}_{-0,3}$	1,7 $^{0}_{-0,1}$	25,4	9,5	–	44,6	–	5
	–	19	25,4	–	–	37,7	18,8	46,8	–	60,3	5
	–	19	21,7	–	–	37,7	18,8	46,8	–	60,3	5
40	–	21	–	–	–	30,2	11	–	49,4	–	5
	86,6	21	–	4,98 $^{0}_{-0,3}$	1,7 $^{0}_{-0,1}$	30,2	11	–	49,4	–	5
	–	21	28,1	–	–	42,9	21,4	52,3	–	68,3	5
	–	21	23,5	–	–	42,9	21,4	52,3	–	68,3	5
45	–	22	–	–	–	30,2	11	–	54,5	–	5
	–	22	26,4	–	–	42,9	21,4	57,9	–	72,3	5
	–	22	26,4	–	–	42,9	21,4	57,9	–	72,3	5
50	–	22	–	–	–	30,2	11	–	59,4	–	5
	–	22	26,4	–	–	49,2	24,6	62,8	–	77,3	5
	–	22	26,4	–	–	49,2	24,6	62,8	–	77,3	5
60	–	24	–	–	–	37,1	13,5	–	72	–	5
	–	24	29	–	–	61,9	31	76,5	–	94,5	5
70	–	28	32	–	–	48,5	21,5	85,2	–	109	6

https://www.schaeffler.de/std/1D65

Radial insert ball bearings with grub screws in inner ring

Spherical outside surface of outer ring



GAY..-XL-NPP-B, AY..-XL-NPP-B

d = 12 – 35 mm

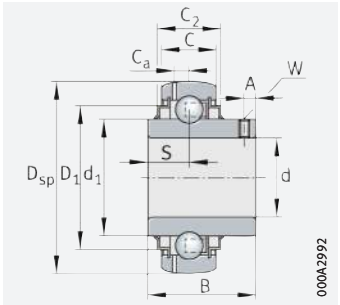
Main dimensions			Basic load ratings		Fatigue limit load	Factor[1]	Mass	Designation[2]
d	D_{sp}	B	dyn. C_r	stat. C_{0r}	C_{ur}	f_0	m	➤*1485*|*1.12* ➤*1486*|*1.13* X-life➤*1453*
			N	N	N		≈ kg	
12	40	27,4	10 100	4 750	241	13,1	0,11	**GYE12-XL-KRR-B**
	40	22	10 100	4 750	241	13,1	0,1	**AY12-XL-NPP-B**
	40	22	10 100	4 750	241	13,1	0,1	**GAY12-XL-NPP-B**
	40	22	10 100	4 750	241	13,1	0,1	**GAY12-XL-NPP-B-FA164**
15	40	27,4	10 100	4 750	241	13,1	0,1	**GYE15-XL-KRR-B**
	40	22	10 100	4 750	241	13,1	0,09	**AY15-XL-NPP-B**
	40	22	10 100	4 750	241	13,1	0,09	**GAY15-XL-NPP-B**
	40	22	10 100	4 750	241	13,1	0,09	**GAY15-XL-NPP-B-FA164**
16	40	27,4	10 100	4 750	241	13,1	0,09	**GYE16-XL-KRR-B**
17	40	27,4	10 100	4 750	241	13,1	0,09	**GYE17-XL-KRR-B**
	40	22	10 100	4 750	241	13,1	0,08	**AY17-XL-NPP-B**
	40	22	10 100	4 750	241	13,1	0,08	**GAY17-XL-NPP-B**
20	47	31	13 600	6 600	335	13,1	0,14	**GYE20-XL-KRR-B**
	47	25	13 600	6 600	335	13,1	0,13	**AY20-XL-NPP-B**
	47	25	13 600	6 600	335	13,1	0,13	**GAY20-XL-NPP-B**
25	52	34,1	14 900	7 800	395	13,8	0,19	**GYE25-XL-KRR-B**
	52	27	14 900	7 800	395	13,8	0,16	**AY25-XL-NPP-B**
	52	27	14 900	7 800	395	13,8	0,16	**GAY25-XL-NPP-B**
30	62	38,1	20 700	11 300	570	13,8	0,31	**GYE30-XL-KRR-B**
	62	30	20 700	11 300	570	13,8	0,25	**AY30-XL-NPP-B**
	62	30	20 700	11 300	570	13,8	0,26	**GAY30-XL-NPP-B**
35	72	42,9	27 500	15 300	770	13,8	0,46	**GYE35-XL-KRR-B**
	72	35	27 500	15 300	770	13,8	0,41	**GAY35-XL-NPP-B**

medias ➤ *https://www.schaeffler.de/std/1DD6*

[1] Factor f_0 for determining equivalent bearing load ➤*1489*|▦*22*.

[2] Permissible speeds of radial insert ball bearings ➤*1476*.

https://www.schaeffler.de/std/1D65



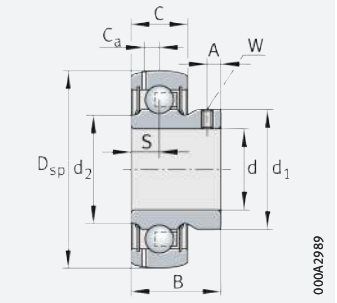
GYE..-XL-KRR-B

Dimensions									Width across flats
d	C	C_2	S	d_1	d_2	D_1	C_a	A	W
12	12	16,6	11,5	23,9	–	31,6	3,4	4	2,5
	12	–	6	23,9	22,9	–	–	4	2,5
	12	–	6	23,9	22,9	–	3,4	4	2,5
	12	–	6	23,9	22,9	–	3,4	4	2,5
15	12	16,6	11,5	23,9	–	31,6	3,4	4	2,5
	12	–	6	23,9	22,9	–	–	4	2,5
	12	–	6	23,9	22,9	–	3,4	4	2,5
	12	–	6	23,9	22,9	–	3,4	4	2,5
16	12	16,6	11,5	23,9	–	31,6	3,4	4	2,5
17	12	16,6	11,5	23,9	–	31,6	3,4	4	2,5
	12	–	6	23,9	22,9	–	–	4	2,5
	12	–	6	23,9	22,9	–	3,4	4	2,5
20	14	16,6	12,7	27,6	–	37,4	4	4,5	2,5
	14	–	7	28,3	26,7	–	–	4,5	2,5
	14	–	7	28,3	26,7	–	4	4,5	2,5
25	15	16,7	14,3	33,8	–	42,5	3,9	5	2,5
	15	–	7,5	33,5	30,4	–	–	5	2,5
	15	–	7,5	33,5	30,4	–	3,9	5	2,5
30	18	20,7	15,9	40,2	–	52	4,7	5,8	3
	18	–	9	39,4	37,3	–	–	5,8	3
	18	–	9	39,4	37,3	–	4,7	5,8	3
35	19	22,5	17,5	46,8	–	60,3	5,6	6	3
	19	–	9,5	46,9	44,5	–	5,6	6	3

https://www.schaeffler.de/std/1D65

Radial insert ball bearings with grub screws in inner ring

Spherical outside surface of outer ring



GAY..-XL-NPP-B

d = 40 – 90 mm

Main dimensions			Basic load ratings		Fatigue limit load	Factor[1]	Mass	Designation[2]
d	D_{sp}	B	dyn. C_r	stat. C_{0r}	C_{ur}	f_0	m	➤*1485*|*1.12* ➤*1486*|*1.13* X-life➤*1453*
			N	N	N		≈ kg	
40	80	49,2	34 500	19 800	1 010	14	0,62	**GYE40-XL-KRR-B**
	80	39,5	34 500	19 800	1 010	14	0,53	**GAY40-XL-NPP-B**
45	90	51,6	37 500	23 200	1 180	14,3	0,8	**GYE45-210-XL-KRR-B**[3]
	85	49,2	34 500	20 400	1 030	14,3	0,71	**GYE45-XL-KRR-B**
	85	41,5	34 500	20 400	1 030	14,3	0,6	**GAY45-XL-NPP-B**
50	90	51,6	37 500	23 200	1 180	14,3	0,79	**GYE50-XL-KRR-B**
	90	43	37 500	23 200	1 180	14,3	0,67	**GAY50-XL-NPP-B**
55	100	55,6	46 000	29 000	1 480	14,3	1,08	**GYE55-XL-KRR-B**
60	110	65,1	56 000	36 000	1 820	14,3	1,46	**GYE60-XL-KRR-B**
	110	47	56 000	36 000	1 820	14,3	1,17	**GAY60-XL-NPP-B**
65	125	74,6	66 000	44 000	2 230	14,4	2,25	**GYE65-214-XL-KRR-B**[4]
70	125	74,6	66 000	44 000	2 230	14,4	1,95	**GYE70-XL-KRR-B**
75	130	77,8	66 000	44 500	2 240	14,7	2,07	**GYE75-XL-KRR-B**
80	140	82,6	76 000	54 000	2 600	14,6	2,7	**GYE80-XL-KRR-B**
90	160	96	109 000	79 000	3 550	14,6	3,93	**GYE90-XL-KRR-B**[5]

medias ➤ *https://www.schaeffler.de/std/1DD7*

[1] Factor f_0 for determining equivalent bearing load ➤*1489*|▦*22*.

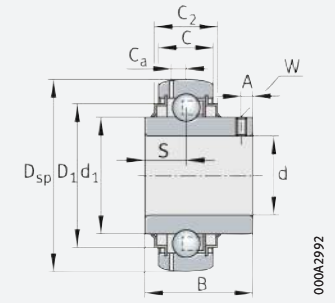
[2] Permissible speeds of radial insert ball bearings ➤*1476*.

[3] Alternative ball set 6210.

[4] Alternative ball set 6214.

[5] Lubrication groove in outer ring.

https://www.schaeffler.de/std/1D65



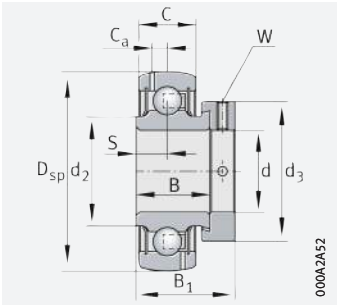
GYE..-XL-KRR-B

Dimensions									Width across flats
d	C	C_2	S	d_1	d_2	D_1	C_a	A	W
40	21	23,5	19	52,3	–	68,3	6,4	8	4
	21	–	10,5	52,4	49,3	–	6,4	8	4
45	22	26,4	19	62,9	–	77,3	6,9	8,5	4
	22	26,4	19	57	–	72,3	6,4	8	4
	22	–	11	57	54,3	–	6,4	8	4
50	22	26,4	19	62,8	–	77,3	6,9	8,5	4
	22	–	11	62	59,3	–	6,9	9	4
55	25	29	22,2	69,8	–	85,9	7	9	4
60	24	29	25,4	76,5	–	94,5	7,2	10,1	5
	24	–	13	76	73,6	–	7,2	10	5
65	28	32	30,2	85,2	–	109	8,9	12,1	5
70	28	32	30,2	85,2	–	109	8,9	12	5
75	28	30,5	33,3	90	–	113	8,5	12,7	5
80	30	38	33,3	97	–	120	8,8	12	5
90	32	35	39,7	109,4	–	138	10	12	6

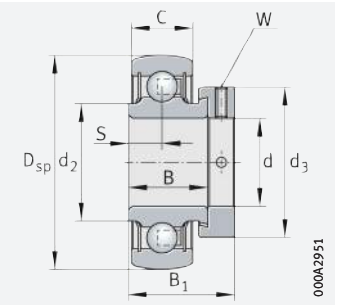
https://www.schaeffler.de/std/1D65

Inch size radial insert ball bearings

Spherical outside surface of outer ring



GRA..-NPP-B-AS2/V



RA..-NPP-B

d = 1/2 – 1 inch

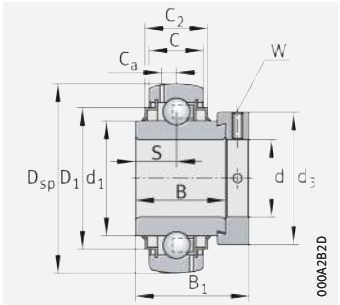
Main dimensions						Basic load ratings		Fatigue limit load	Factor[1]	Mass	Designation[2]
d		D_{sp}	B	B_1	d_3	dyn. C_r	stat. C_{0r}	C_{ur}	f_0	m	➤*1485*|*1.12* ➤*1486*|*1.13*
inch	mm					N	N	N		≈ kg	
1/2	12,7	40	27,3	–	–	10 100	4 750	241	13,1	0,11	**GY1008-KRR-B-AS2/V**
5/8	15,875	40	19	28,6	28	10 100	4 750	241	13,1	0,11	**GRA010-NPP-B-AS2/V**
		40	22	–	–	10 100	4 750	241	13,1	0,09	**GAY010-NPP-B-AS2/V**
		40	27,3	–	–	10 100	4 750	241	13,1	0,1	**GY1010-KRR-B-AS2/V**
		40	27,7	37,3	28	10 100	4 750	241	13,1	0,13	**G1010-KRR-B-AS2/V**
3/4	19,05	47	21,4	31	33	13 600	6 600	335	13,1	0,16	**GRA012-NPP-B-AS2/V**
		47	25	–	–	13 600	6 600	335	13,1	0,13	**GAY012-NPP-B-AS2/V**
		47	31	–	–	13 200	6 100	310	13,1	0,15	**GY1012-KRR-B-AS2/V**
		47	34,1	43,7	33	13 600	6 600	335	13,1	0,21	**G1012-KRR-B-AS2/V**
7/8	22,225	52	21,4	31	37,5	14 900	7 800	395	13,8	0,21	**GRA014-NPP-B-AS2/V**
		52	34,1	–	–	14 900	7 800	395	13,8	0,21	**GY1014-KRR-B-AS2/V**
		52	34,9	44,5	37,5	14 900	7 800	395	13,8	0,27	**G1014-KRR-B-AS2/V**
15/16	23,8125	52	34,1	–	–	14 900	7 800	395	13,8	0,2	**GY1015-KRR-B-AS2/V**
		52	34,9	44,5	37,5	14 900	7 800	395	13,8	0,25	**G1015-KRR-B-AS2/V**
1	25,4	52	21,4	31	37,5	14 900	7 800	395	13,8	0,19	**RA100-NPP-B**
		52	21,4	31	37,5	14 900	7 800	395	13,8	0,18	**GRA100-NPP-B-AS2/V**
		52	27	–	–	14 900	7 800	395	13,8	0,15	**GAY100-NPP-B-AS2/V**
		52	34,1	–	–	14 900	7 800	395	13,8	0,18	**GY1100-KRR-B-AS2/V**
		52	34,9	44,5	37,5	14 900	7 800	395	13,8	0,23	**G1100-KRR-B-AS2/V**

medias ➤ *https://www.schaeffler.de/std/1DD8*

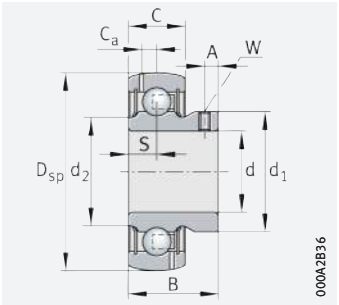
1) Factor f_0 for determining equivalent bearing load ➤*1489*|▦*22*.

2) Permissible speeds of radial insert ball bearings ➤*1476*.

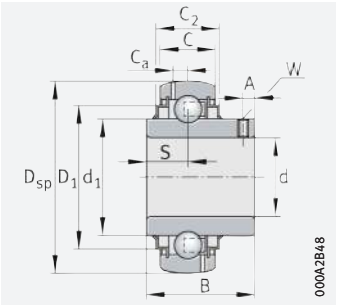
https://www.schaeffler.de/std/1D65



G..-KRR-B-AS2/V



GAY..-NPP-B(-AS2/V)



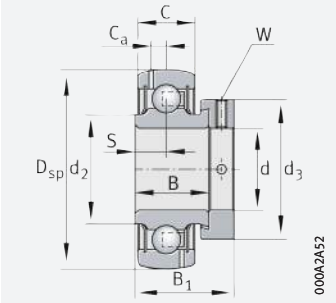
GY..-KRR-B-AS2/V

Dimensions										Width across flats
d		C	C_2	S	d_1	d_2	D_1	C_a	A	W
inch	mm									inch
1/2	12,7	12	–	11,5	23,9	–	–	3,4	4	3/32
5/8	15,875	12	–	6,5	–	23	–	3,4	–	1/8
		12	–	6	23	23	–	3,4	4	3/32
		12	–	11,5	23,9	–	–	3,4	4	3/32
		12	–	13,9	23,9	–	–	3,4	–	1/8
3/4	19,05	14	–	7,5	–	26,9	–	3,9	–	1/8
		14	–	7	27,8	26,9	–	3,9	4,5	3/32
		14	16,2	12,7	27,6	–	37,4	3,9	4,5	3/32
		14	16,2	17,1	27,6	–	37,4	3,9	–	1/8
7/8	22,225	15	–	7,5	–	30,3	–	3,9	–	1/8
		15	16,5	14,3	33,8	–	42,5	3,9	4,9	3/32
		15	16,5	17,5	33,8	–	42,5	3,9	–	1/8
15/16	23,8125	15	16,5	14,3	33,8	–	42,5	3,9	4,9	3/32
		15	16,5	17,5	33,8	–	42,5	3,9	–	1/8
1	25,4	15	–	7,5	–	30,5	–	–	–	1/8
		15	–	7,5	–	30,3	–	3,9	–	1/8
		15	–	7,5	33,6	30,4	–	3,9	5	3/32
		15	16,5	14,3	33,8	–	42,5	3,9	5	3/32
		15	16,5	17,5	33,8	–	42,5	3,9	–	1/8

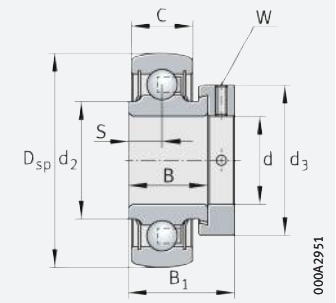
https://www.schaeffler.de/std/1D65

Inch size radial insert ball bearings

Spherical outside surface of outer ring



GRA..-NPP-B-AS2/V



RA..-NPP-B

d = $1\,^1/_8$ – $1\,^7/_{16}$ inch

Main dimensions						Basic load ratings		Fatigue limit load	Factor[1]	Mass	Designation[2]
d		D_{sp}	B	B_1	d_3	dyn. C_r	stat. C_{0r}	C_{ur}	f_0	m	➤*1485*|*1.12* ➤*1486*|*1.13*
inch	mm					N	N	N		≈ kg	
$1\,^1/_8$	28,575	62	23,8	35,8	44	20 700	11 300	570	13,8	0,32	**GRA102-NPP-B-AS2/V**
		62	36,5	48,5	44	20 700	11 300	570	13,8	0,4	**G1102-KRR-B-AS2/V**
		62	38,1	–	–	20 700	11 300	570	13,8	0,32	**GY1102-KRR-B-AS2/V**
$1\,^3/_{16}$	30,1625	62	23,8	35,8	44	20 700	11 300	570	13,8	0,3	**GRA103-NPP-B-AS2/V**
		62	36,5	48,35	44	20 700	11 300	570	13,8	0,37	**G1103-KRR-B-AS2/V**
		62	38,1	–	–	20 700	11 300	570	13,8	0,3	**GY1103-KRR-B-AS2/V**
$1\,^1/_4$	31,75	62	23,8	35,8	44	20 700	11 300	570	13,8	0,31	**RA104-206-NPP-B**
		62	23,8	35,8	44	20 700	11 300	570	13,8	0,28	**GRA104-206-NPP-B-AS2/V**
		62	36,5	48,5	44	20 700	11 300	570	13,8	0,34	**G1104-206-KRR-B-AS2/V**
		62	38,1	–	–	20 700	11 300	570	13,8	0,27	**GY1104-206-KRR-B-AS2/V**
		72	25,4	39	51	27 500	15 300	770	13,8	0,48	**RA104-NPP-B**
		72	25,4	39	51	27 500	15 300	770	13,8	0,5	**GRA104-NPP-B-AS2/V**
		72	35	–	–	27 500	15 300	770	13,8	0,44	**GAY104-NPP-B-AS2/V**[3]
		72	37,7	51,3	51	27 500	15 300	770	13,8	0,65	**G1104-KRR-B-AS2/V**
		72	42,9	–	–	27 500	15 300	770	13,8	0,5	**GY1104-KRR-B-AS2/V**
$1\,^3/_8$	34,925	72	25,4	39	51	27 500	15 300	770	13,8	0,45	**GRA106-NPP-B-AS2/V**
		72	37,7	51,3	51	27 500	15 300	770	13,8	0,54	**G1106-KRR-B-AS2/V**
		72	42,9	–	–	27 500	15 300	770	13,8	0,45	**GY1106-KRR-B-AS2/V**
$1\,^7/_{16}$	36,5125	72	25,4	39	51	27 500	15 300	770	13,8	0,43	**GRA107-NPP-B-AS2/V**
		72	35	–	–	27 500	15 300	770	13,8	0,37	**GAY107-NPP-B-AS2/V**
		72	37,7	51,3	51	27 500	15 300	770	13,8	0,5	**G1107-KRR-B-AS2/V**
		72	42,9	–	–	27 500	15 300	770	13,8	0,42	**GY1107-KRR-B-AS2/V**

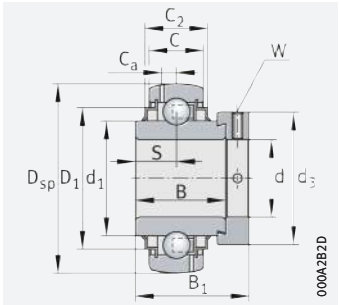
medias ➤ *https://www.schaeffler.de/std/1DD9*

[1] Factor f_0 for determining equivalent bearing load ➤*1489*|⊞*22*.

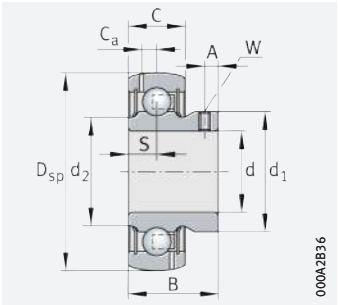
[2] Permissible speeds of radial insert ball bearings ➤*1476*.

[3] Available by agreement.

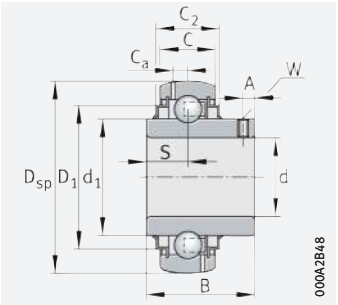
https://www.schaeffler.de/std/1D65



G..-KRR-B-AS2/V



GAY..-NPP-B-AS2/V



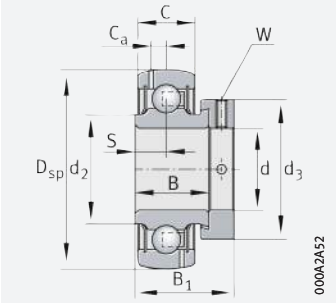
GY..-KRR-B-AS2/V

Dimensions										Width across flats
d		C	C_2	S	d_1	d_2	D_1	C_a	A	W
inch	mm									inch
1 1/8	28,575	18	–	9	–	37,3	–	5	–	5/32
		18	20,7	18,3	40,2	–	52	5	–	5/32
		18	20	15,9	40,2	–	51,8	5	5,6	1/8
1 3/16	30,1625	18	–	9	–	37,3	–	4,9	–	5/32
		18	20,7	18,3	40,2	–	52	5	–	5/32
		18	20	15,9	40,2	–	51,8	5	5,6	1/8
1 1/4	31,75	18	–	9	–	37,4	–	–	–	5/32
		18	–	9	–	37,3	–	5	–	5/32
		18	20,7	18,3	40,2	–	52	5	–	5/32
		18	20	15,9	40,2	–	51,8	5	5,6	1/8
		19	–	9,5	–	44,6	–	–	–	3/16
		19	–	9,5	–	44,5	–	5,7	–	3/16
		19	–	9,5	47,1	44,5	–	5,7	8	1/8
		19	22,5	18,8	46,8	–	60,3	5,7	–	5/32
		19	20,7	17,5	46,8	–	60,2	5,7	5,9	1/8
1 3/8	34,925	19	–	9,5	–	44,5	–	5,7	–	3/16
		19	22,5	18,8	46,8	–	60,3	5,7	–	3/16
		19	20,7	17,5	46,8	–	60	5,7	7,9	1/8
1 7/16	36,5125	19	–	9,5	–	44,5	–	5,7	–	3/16
		19	–	9,5	47,1	44,5	–	5,7	8	1/8
		19	20,7	18,8	46,8	–	60,3	5,7	–	3/16
		19	20,7	17,5	46,8	–	60	5,7	6	1/8

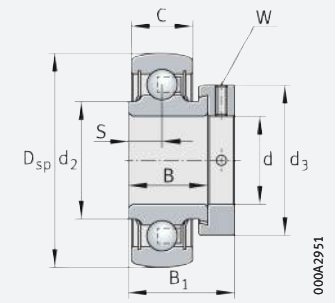
https://www.schaeffler.de/std/1D65

Inch size radial insert ball bearings

Spherical outside surface of outer ring



GRA..-NPP-B-AS2/V



RA..-NPP-B

d = $1^{1}/_{2}$ – $2^{15}/_{16}$ inch

Main dimensions						Basic load ratings		Fatigue limit load	Factor[1]	Mass	Designation[2]
d		D_{sp}	B	B_1	d_3	dyn. C_r	stat. C_{0r}	C_{ur}	f_0	m	➤*1485*|*1.12* ➤*1486*|*1.13*
inch	mm					N	N	N		≈ kg	
$1^{1}/_{2}$	38,1	80	30,2	43,8	58	34 500	19 800	1 010	14	0,62	**RA108-NPP-B**
		80	30,2	43,8	58	34 500	19 800	1 010	14	0,64	**GRA108-NPP-B-AS2/V**
		80	42,9	56,5	58	34 500	19 800	1 010	14	0,76	**G1108-KRR-B-AS2/V**
$1^{5}/_{8}$	41,275	85	42,9	56,5	63	34 500	20 400	1 030	14,3	0,9	**G1110-KRR-B-AS2/V**
$1^{11}/_{16}$	42,8625	85	42,9	56,5	63	34 500	20 400	1 030	14,3	0,85	**G1111-KRR-B-AS2/V**
$1^{3}/_{4}$	44,45	85	42,9	56,5	63	34 500	20 400	1 030	14,3	0,81	**G1112-KRR-B-AS2/V**
		85	49,2	–	–	34 500	20 400	1 030	14,3	0,68	**GY1112-KRR-B-AS2/V**
$1^{15}/_{16}$	49,2125	90	30,2	43,8	69	37 500	23 200	1 180	14,3	0,75	**GRA115-NPP-B-AS2/V**[3]
		90	49,2	62,75	69	37 500	23 200	1 180	14,3	1,01	**G1115-KRR-B-AS2/V**
		90	51,6	–	–	37 500	23 200	1 180	14,3	0,82	**GY1115-KRR-B-AS2/V**
2	50,8	100	55,5	71,4	76	46 000	29 000	1 480	14,3	1,51	**G1200-KRR-B-AS2/V**
		100	55,6	–	–	46 000	29 000	1 480	14,3	1,18	**GY1200-KRR-B-AS2/V**
$2^{3}/_{16}$	55,5625	100	55,5	71,4	76	46 000	29 000	1 480	14,3	1,28	**G1203-KRR-B-AS2/V**
		100	55,5	–	–	46 000	29 000	1 480	14,3	1,01	**GY1203-KRR-B-AS2/V**
$2^{7}/_{16}$	61,912	110	61,9	77,9	84	56 000	36 000	1 820	14,3	1,59	**G1207-KRR-B-AS2/V**
$2^{15}/_{16}$	74,6125	130	49,5	67	100,5	66 000	44 500	2 240	14,7	2,09	**G1215-KRR-B-AS2/V**
		130	77,8	–	–	66 000	44 500	2 240	14,7	2,01	**GY1215-KRR-B-AS2/V**

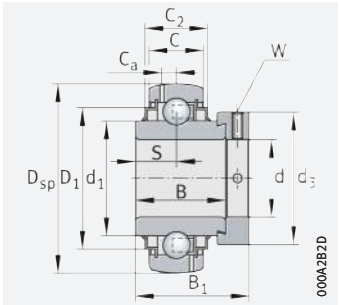
medias ➤ *https://www.schaeffler.de/std/1DDA*

[1] Factor f_0 for determining equivalent bearing load ➤*1489*|▦*22*.

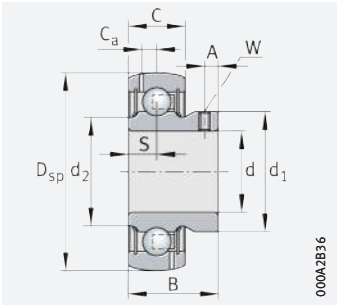
[2] Permissible speeds of radial insert ball bearings ➤*1476*.

[3] Available by agreement.

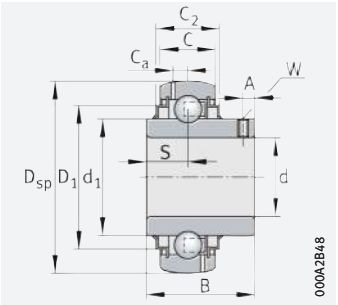
https://www.schaeffler.de/std/1D65



G..-KRR-B-AS2/V



GAY..-NPP-B-AS2/V



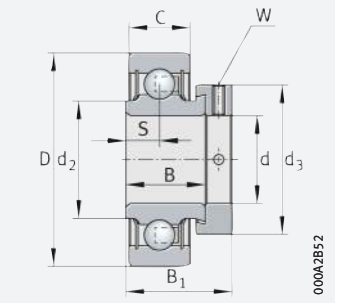
GY..-KRR-B-AS2/V

Dimensions										Width across flats
d		C	C_2	S	d_1	d_2	D_1	C_a	A	W
inch	mm									inch
$1^{1}/_{2}$	38,1	21	–	11	–	49,4	–	–	–	$^{3}/_{16}$
		21	–	11	–	49,3	–	6,5	–	$^{3}/_{16}$
		21	22,5	21,4	52,3	–	68,3	6,5	–	$^{3}/_{16}$
$1^{5}/_{8}$	41,275	22	25,7	21,4	57,9	–	72,3	6,4	–	$^{3}/_{16}$
$1^{11}/_{16}$	42,8625	22	25,7	21,4	57,9	–	72,3	6,4	–	$^{3}/_{16}$
$1^{3}/_{4}$	44,45	22	25,7	21,4	57,9	–	72,3	6,4	–	$^{3}/_{16}$
		22	25,7	19	57,9	–	71,7	6,4	8	$^{5}/_{32}$
$1^{15}/_{16}$	49,2125	22	–	11	–	59,3	–	6,8	–	$^{3}/_{16}$
		22	26,1	24,6	62,8	–	77,3	6,8	–	$^{3}/_{16}$
		22	26	19	62,8	–	76,7	6,8	10	$^{5}/_{32}$
2	50,8	25	28,4	27,8	69,8	–	85,9	7,1	–	$^{3}/_{16}$
		25	28,4	22,2	69,8	–	85,3	7,1	9,1	$^{5}/_{32}$
$2^{3}/_{16}$	55,5625	25	28,4	27,8	69,8	–	85,3	7,08	–	$^{3}/_{16}$
		25	28,4	22,2	69,8	–	85,3	7,1	10	$^{5}/_{32}$
$2^{7}/_{16}$	61,912	24	29,3	31	76,5	–	95,3	7,8	–	$^{3}/_{16}$
$2^{15}/_{16}$	74,6125	28	30,5	21,5	99	–	112,9	8,56	–	$^{1}/_{4}$
		28	31,5	33,4	90	–	113	8,5	12,6	$^{3}/_{16}$

https://www.schaeffler.de/std/1D65

Inch size radial insert ball bearings

Cylindrical outside surface of outer ring



RA..-NPP, RAL..-NPP

d = $^3/_4$ – $1^1/_2$ inch

Main dimensions					Basic load ratings		Fatigue limit load	Factor[1]	Mass	Designation[2]
d		D	B_1	d_3	dyn. C_r	stat. C_{0r}	C_{ur}	f_0	m	➤*1485*|*1.12* ➤*1486*|*1.13*
inch	mm			max.	N	N	N		≈ kg	
$^3/_4$	19,05	42	24,6	30	10 000	5 000	255	13,9	0,09	**RAL012-NPP**
$^7/_8$	22,225	52	31	37,5	14 900	7 800	395	13,8	0,19	**RA014-NPP**
1	25,4	52	31	37,5	14 900	7 800	395	13,8	0,19	**RA100-NPP**
$1^1/_8$	28,575	62	35,8	44	20 700	11 300	570	13,8	0,31	**RA102-NPP**
$1^3/_{16}$	30,1625	62	35,8	44B	20 700	11 300	570	13,8	0,31	**RA103-NPP**
$1^1/_4$	31,75	62	35,8	44	20 700	11 300	570	13,8	0,31	**RA104-206-NPP**
		72	39	51	27 500	15 300	770	13,8	0,48	**RA104-NPP**
$1^7/_{16}$	36,5125	72	39	51	27 500	15 300	770	13,8	0,48	**RA107-NPP**
$1^1/_2$	38,1	80	43,8	58	34 500	19 800	1 010	14	0,62	**RA108-NPP**

medias ➤ *https://www.schaeffler.de/std/1DDB*

[1] Factor f_0 for determining equivalent bearing load ➤*1489*|▦*22*.

[2] Permissible speeds of radial insert ball bearings ➤*1476*.

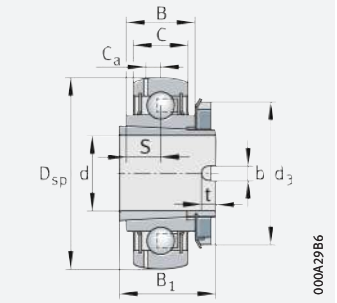
https://www.schaeffler.de/std/1D65

Dimensions						Width across flats
d		C	B	S	d_2	W
inch	mm					inch
3/4	19,05	12	16,7	6	25,4	1/8
7/8	22,225	15	21,4	7,5	30,5	1/8
1	25,4	15	21,4	7,5	30,5	1/8
1 1/8	28,575	18	23,8	9	37,4	5/32
1 3/16	30,1625	18	23,8	9	37,4	5/32
1 1/4	31,75	18	23,8	9	37,4	5/32
		19	25,4	9,5	44,6	3/16
1 7/16	36,5125	19	25,4	9,5	44,6	3/16
1 1/2	38,1	21	30,2	11	49,4	3/16

https://www.schaeffler.de/std/1D65

Radial insert ball bearings with adapter sleeve

Spherical outside surface of outer ring



GSH..-XL-2RSR-B

d = 20 – 50 mm

Main dimensions				Basic load ratings		Fatigue limit load	Limiting speed[1]	Factor[2]	Mass	Designation
d	D_{sp}	B_1	d_3	dyn. C_r	stat. C_{0r}	C_{ur}	n_G grease	f_0	m	➤*1485*|*1.12* ➤*1486*|*1.13* X-life➤*1453*
H8			max.	N	N	N	min^{-1}		≈ kg	
20	47	28	32	13 400	7 000	355	8 700	13,1	0,14	**GSH20-XL-2RSR-B**
25	52	28	38	14 400	8 100	410	7 500	13,8	0,17	**GSH25-XL-2RSR-B**
30	62	32	45	20 100	11 600	590	6 200	13,8	0,27	**GSH30-XL-2RSR-B**
35	72	34	52	26 500	15 700	800	5 500	13,8	0,43	**GSH35-XL-2RSR-B**
40	80	38	58	31 000	19 700	1 000	4 850	14	0,54	**GSH40-XL-2RSR-B**
45	85	46	62	31 000	20 100	1 020	4 500	14,3	0,69	**GSH45-XL-2RSR-B**
50	90	40	70	35 000	23 100	1 170	4 150	14,3	0,64	**GSH50-XL-2RSR-B**

medias ➤ *https://www.schaeffler.de/std/1DDC*

[1] Preferably for shafts of tolerance classes h6 Ⓔ to h11 Ⓔ.

[2] Factor f_0 for determining equivalent bearing load ➤*1489*\|▦*22*.

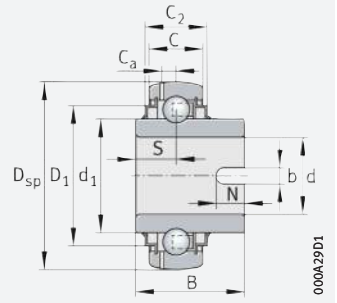
https://www.schaeffler.de/std/1D65

Dimensions						
d H8	C	B	S	C_a	b	t
20	14	15	7,5	4	5	5
25	15	15	7,5	3,9	5	5
30	18	18	9	4,7	5	5
35	19	19	9,5	5,8	5	5
40	21	22	11	6,4	5	5
45	22	36	18	6,4	5	5
50	22	22	11	6,5	5	5

https://www.schaeffler.de/std/1D65

Radial insert ball bearings with drive slot

Non-locating bearings
Spherical outside surface of outer ring



GLE..-XL-KRR-B

d = 20 – 70 mm

Main dimensions			Basic load ratings		Fatigue limit load	Factor[1]	Mass	Designation[2]
d	D_{sp}	B	dyn. C_r	stat. C_{0r}	C_{ur}	f_0	m	➤*1485*|*1.12* ➤*1486*|*1.13* X-life➤*1453*
			N	N	N		≈ kg	
20	47	34,1	13 600	6 600	335	13,1	0,15	**GLE20-XL-KRR-B**
25	52	34,9	14 900	7 800	395	13,8	0,19	**GLE25-XL-KRR-B**
30	62	36,5	20 700	11 300	570	13,8	0,3	**GLE30-XL-KRR-B**
35	72	37,7	27 500	15 300	770	13,8	0,43	**GLE35-XL-KRR-B**
40	80	42,9	34 500	19 800	1 010	14	0,57	**GLE40-XL-KRR-B**
45	85	42,9	34 500	20 400	1 030	14,3	0,66	**GLE45-XL-KRR-B**
50	90	49,2	37 500	23 200	1 180	14,3	0,76	**GLE50-XL-KRR-B**
60	110	61,9	56 000	36 000	1 820	14,3	1,46	**GLE60-XL-KRR-B**
70	125	68,2	66 000	44 000	2 230	14,4	1,9	**GLE70-XL-KRR-B**

medias ➤*https://www.schaeffler.de/std/1DDD*

[1] Factor f_0 for determining equivalent bearing load ➤*1489*| ▦ *22*.

[2] Permissible speeds of radial insert ball bearings ➤*1476*.

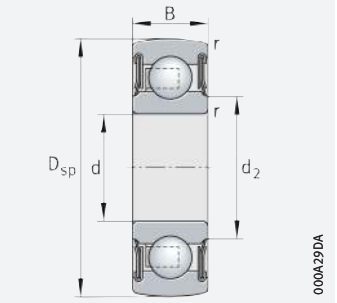
https://www.schaeffler.de/std/1D65

	Dimensions							
d	C	C_2	S	d_1	D_1	C_a	N	b H11
20	14	16,6	15,6	27,6	37,4	4	7	7
25	15	16,7	14,7	33,8	42,5	3,9	8	7
30	18	20,7	14,5	40,2	52	4,7	8	7
35	19	22,5	15,7	46,8	60,3	5,6	8	7
40	21	23,5	15,9	52,3	68,3	6,4	9	7
45	22	26,4	17,4	57,9	72,3	6,4	9	7
50	22	26,4	19	62,8	77,3	6,9	10	7
60	24	29	24,6	76,5	95,9	7,2	12	9
70	28	32	27	85,2	109	8,9	12	9

https://www.schaeffler.de/std/1D65

Self-aligning deep groove ball bearings

Spherical outside surface of outer ring
Bore for fit



2..-XL-NPP-B

d = 12 – 50 mm

Main dimensions			Basic load ratings		Fatigue limit load	Limiting speed	Factor[1]	Mass	Designation	Dimensions	
d	D_{sp}	B	dyn. C_r	stat. C_{0r}	C_{ur}	n_G grease	f_0	m	➤*1485*|*1.12* ➤*1486*|*1.13* X-life➤*1453*	d_2	r_{min}
			N	N	N	min^{-1}		≈ kg			
12	32	10	7 200	3 050	154	14 600	12,3	0,04	**201-XL-NPP-B**[2]	17,1	0,6
17	40	12	10 100	4 750	241	11 100	13,1	0,06	**203-XL-NPP-B**[3]	22,5	0,6
20	47	14	13 600	6 600	335	9 300	13,1	0,11	**204-XL-NPP-B**[3]	26,5	1
25	52	15	14 900	7 800	395	8 000	13,8	0,13	**205-XL-NPP-B**[3]	30,3	1
30	62	16	20 700	11 300	570	6 700	13,8	0,2	**206-XL-NPP-B**[2]	37,4	1
35	72	17	27 500	15 300	770	5 700	13,8	0,29	**207-XL-NPP-B**[2]	42,4	1
40	80	18	34 500	19 800	1 010	5 000	14	0,37	**208-XL-NPP-B**[2]	48,4	1,1
45	85	19	34 500	20 400	1 030	4 650	14,3	0,41	**209-XL-NPP-B**[2]	53,2	1,1
50	90	20	37 500	23 200	1 180	4 300	14,3	0,46	**210-XL-NPP-B**[3]	58,2	1,1

medias ➤ *https://www.schaeffler.de/std/1DDE*

[1] Factor f_0 for determining equivalent bearing load ➤*1489*| ▦ *22*.

[2] One-piece seal with vulcanised seal lip.

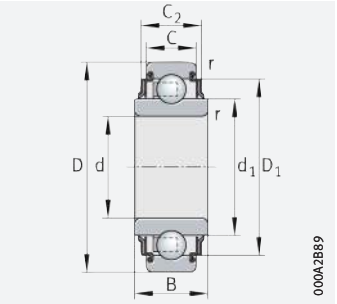
[3] Three-piece P seal.

https://www.schaeffler.de/std/1D65

https://www.schaeffler.de/std/1D65

Deep groove ball bearings with extended inner ring

Cylindrical outside surface of outer ring
Bore for fit



2..-XL-KRR, 2..-XL-KRR-AH..

d = 13 – 60 mm

Main dimensions				Basic load ratings		Fatigue limit load	Limiting speed	Factor[1]	Mass	Designation[2]
d		D	B	dyn. C_r	stat. C_{0r}	C_{ur}	n_G grease	f_0	m	➤*1485*|*1.12* ➤*1486*|*1.13* X-life➤*1453*
				N	N	N	min^{-1}		≈ kg	
13	+0,08 –0,05	40	18,3	10 100	4 750	241	11 100	13,1	0,09	**203-XL-KRR-AH05**[3]
15		35	14,4	8 100	3 700	187	12 700	13,1	0,05	**202-XL-KRR**
16,2	+0,1 0	40	18,3	10 100	4 750	241	11 100	13,1	0,07	**203-XL-KRR-AH02**
17		40	18,3	10 100	4 750	241	11 100	13,1	0,07	**203-XL-KRR**
20		47	17,7	13 600	6 600	335	9 300	13,1	0,12	**204-XL-KRR**
25		52	21	14 900	7 800	395	8 000	13,8	0,16	**205-XL-KRR**
30		62	24	20 700	11 300	570	6 700	13,8	0,24	**206-XL-KRR**
35		72	25	27 500	15 300	770	5 700	13,8	0,35	**207-XL-KRR-AH03**[4]
38,892		80	27,5	34 500	19 800	1 010	5 000	14	0,48	**208-XL-KRR-AH04**[4]
40		80	27	34 500	19 800	1 010	5 000	14	0,44	**208-XL-KRR**
45		85	30	34 500	20 400	1 030	4 650	14,3	0,53	**209-XL-KRR**
50		90	30	37 500	23 200	1 180	4 300	14,3	0,58	**210-XL-KRR**
55		100	36	46 000	29 000	1 480	3 900	14,3	0,85	**211-XL-KRR**
60		110	36	56 000	36 000	1 820	3 550	14,3	1,1	**212-XL-KRR**

medias ➤ *https://www.schaeffler.de/std/1DDF*

[1] Factor f_0 for determining equivalent bearing load ➤*1489*|⊞*22*.

[2] Internal clearance Group N.

[3] Greased with L114 (GA47).

[4] With steel cage.

https://www.schaeffler.de/std/1D65

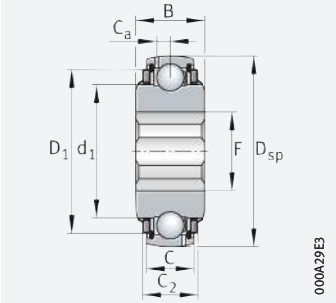
Dimensions

d		C	C_2	d_1	D_1	r_{min}
13	+0,08 –0,05	12	12	24,2	40	0,6
15		11	11	21,5	28,8	0,6
16,2	+0,1 0	12	12	24,2	32,6	0,6
17		12	12	24,2	32,9	0,6
20		14	14	28,7	38,7	1
25		15	16,7	33,8	42,6	1
30		16	19,6	40,2	52	1
35		17	19,7	46,8	60,3	2
38,892		21	21,2	52,3	68,2	1
40		18	20,5	52,3	68,2	1,1
45		19	26,4	57,9	72,3	1,1
50		20	24	62,8	77,6	1,1
55		21	27,5	69,8	85,9	1,5
60		22	30	76,5	94,7	1,5

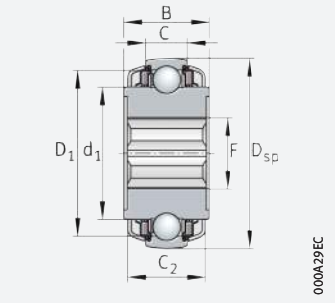
https://www.schaeffler.de/std/1D65

Self-aligning deep groove ball bearings

Spherical outside surface of outer ring
Square bore



GVK(E)..-KTT-B(-AS2/V)(-AH)



VKE..-KTT-B-2C

d = 16,3 – 39,6875 mm

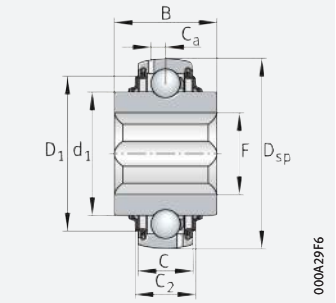
Main dimensions					Basic load ratings		Fatigue limit load	Factor[1]	Mass	Designation
d			D_{sp}	B	dyn. C_r	stat. C_{0r}	C_{ur}	f_0	m	➤*1485*|*1.12* ➤*1486*|*1.13*
mm		inch			N	N	N		≈ kg	
16,3	+0,2 0	–	52	28	14 900	7 800	395	13,8	0,22	**GVKE16-205-KRR-B-AS2/V-AH01**
	+0,2 0		52	28	14 900	7 800	395	13,8	0,24	**GVKE16-205-KRR-B-2C-AS2/V-AH01**
25,4	+0,9 +0,6	*1*	80	36,5	34 500	19 800	1 010	14	0,67	**VK100-208-KTT-B-AH10**
	+0,9 +0,6		80	36,5	34 500	19 800	1 010	14	0,74	**GVK100-208-KTT-B-AS2/V**
28	+0,9 +0,6	–	85	42,9	34 500	20 400	1 030	14,3	0,89	**VKE28-209-KTT-B-GA47/70**
28,575	+0,9 +0,6	*1 1/8*	80	36,5	34 500	19 800	1 010	14	0,62	**GVK102-208-KTT-B-AH10**
30	+0,13 0	–	110	49,2	56 000	36 000	1 820	14,3	2,02	**VKE30-212-KTT-B-2C**
	+0,9 +0,6		100	36	46 000	29 000	1 480	14,3	1,23	**GVKE30-211-KTT-B-AS2/V**
31,75	+0,9 +0,6	*1 1/4*	85	36,5	34 500	20 400	1 030	14,3	0,72	**GVK104-209-KTT-B**
38	+0,9 +0,6	–	100	55,2	46 000	29 000	1 480	14,3	1,42	**VKE38-211-KTT-B-GA47/70-AH01**
38,1	+0,9 +0,6	*1 1/2*	100	36	46 000	29 000	1 480	14,3	1,08	**GVK108-211-KTT-B-AS2/V**
39,6875	+0,3 0	*1 9/16*	100	36	46 000	29 000	1 480	14,3	1,07	**GVK109-211-KTT-B**

medias ➤ *https://www.schaeffler.de/std/1DE0*

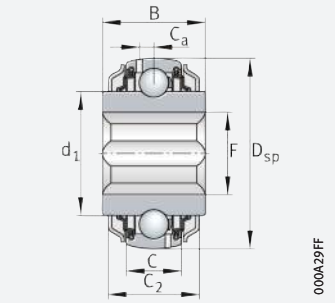
[1] Factor f_0 for determining equivalent bearing load ➤*1489*\|▦*22*.

[2] Dimension for flinger shield.

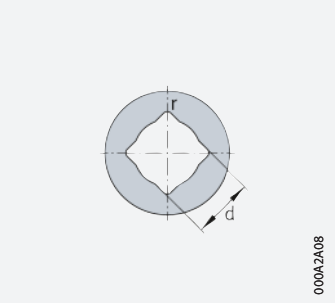
https://www.schaeffler.de/std/1D65



GVKE..-KRR-B-AS2/V-AH

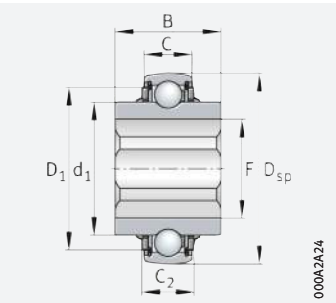


GVKE..-KRR-B-2C-AS2/V-AH



Design of bore

Width across flats of shaft d			Dimensions						
			C	C_2	d_1	F	D_1	C_a	r
mm		inch							
16,3	+0,2 0	–	15	16,5	33,8	22,4	42,5	3,9	0,7
	+0,2 0		15	24,8[2)]	33,8	22,4	–	3,9	0,7
25,4	+0,9 +0,6	*1*	18	25,2	52,3	33,8	68,4	–	2,5
	+0,9 +0,6		21	28,1	52,3	35,4	68,3	6,4	2,5
28	+0,9 +0,6	–	22	25,4	57,9	37,5	71,7	–	2,5
28,575	+0,9 +0,6	*1 1/8*	18	25	52,3	38,3	67,8	5,8	2,5
30	+0,13 0	–	24	45,4[2)]	74,8	41,2	–	–	2,5
	+0,9 +0,6		25	27,4	69,7	40,3	85,3	7,1	2,5
31,75	+0,9 +0,6	*1 1/4*	22	26,3	57,9	36,4	72,2	6,4	2,5
38	+0,9 +0,6	–	25	27,4	69,7	51,8	85,3	–	2,5
38,1	+0,9 +0,6	*1 1/2*	25	27,4	69,7	43,9	85,3	7,1	2,5
39,6875	+0,3 0	*1 9/16*	25	28,9	69,8	55,1	85,8	7	2,5

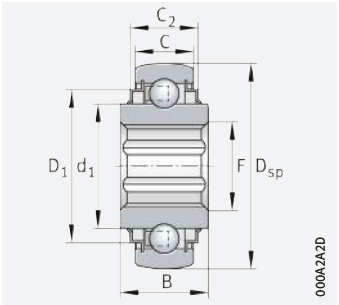


VK..-KTT-B(-AH),
VKE..-KTT-B-G47/70(-AH)

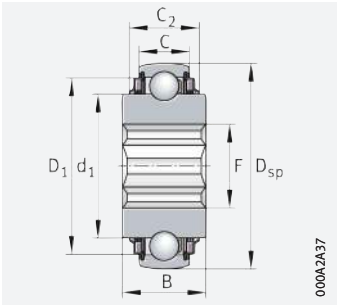
https://www.schaeffler.de/std/1D65

Self-aligning deep groove ball bearings

Spherical outside surface of outer ring
Hexagonal bore



SK..-KRR-B(-L402/70)(-AH), SKE..-KRR-B



SK..-KTT-B(-L402/70)(-AH)

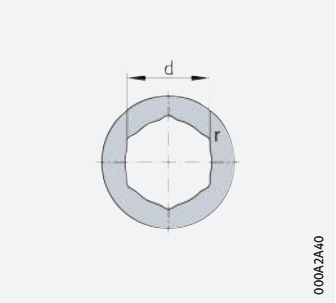
d = 16,1 – 38,1 mm

Main dimensions					Basic load ratings		Fatigue limit load	Factor[1]	Mass	Designation
d			D_{sp}	B	dyn. C_r	stat. C_{0r}	C_{ur}	f_0	m	➤*1485|1.12* ➤*1486|1.13*
mm		inch			N	N	N		≈ kg	
16,1	+0,15 +0,05	–	47	17,7	13 600	6 600	335	13,1	0,12	**SK010-204-KRR-B**
17	+0,15 +0,05	–	47	17,7	13 600	6 600	335	13,1	0,12	**SKE17-204-KRR-B**
22,225	+0,15 +0,05	7/8	52	25,4	14 900	7 800	395	13,8	0,2	**SK014-205-KRR-B**
	+0,15 +0,05		52	25,4	14 900	7 800	395	13,8	0,18	**SK014-205-KTT-B-L402/70**
25,4	+0,15 +0,03	1	62	24	20 700	11 300	570	13,8	0,32	**SK100-206-KRR-B-AH11**
28,575	+0,13 0	1 1/8	72	25	27 500	15 300	770	13,8	0,38	**SK102-207-KRR-B-L402/70-AH11**
	+0,175 +0,03		72	37,7	27 500	15 300	770	13,8	0,45	**SK102-207-KRR-B-AH10**
31,75	+0,15 +0,05	1 1/4	72	25	27 500	15 300	770	13,8	0,35	**SK104-207-KRR-B-L402/70-AH12**
	+0,15 +0,05		80	36,5	34 500	19 800	1 010	14	0,65	**SK104-208-KTT-B-AH10**
	+0,15 +0,05		80	36,5	34 500	19 800	1 010	14	0,6	**SK104-208-KTT-B-L402/70-AH10**
	+0,15 +0,05		72	37,9	27 500	15 300	770	13,8	0,45	**SK104-207-KTT-B-L402/70**
	+0,15 +0,05		72	37,9	27 500	15 300	770	13,8	0,48	**SK104-207-KTT-B**
	+0,15 +0,05		90	36,5	37 500	23 200	1 180	14,3	0,98	**SK104-210-KTT-B-L402/70**
34,925	+0,15 0	1 3/8	80	36,5	34 500	19 800	1 010	14	0,59	**SK106-208-KRR-B-L402/70**
38,1	+0,12 0	1 1/2	85	30	34 500	20 400	1 030	14,3	0,59	**SK108-209-KRR-B-L402/70-AH11**
	+0,12 0		90	30	37 500	23 200	1 180	14,3	0,78	**SK108-210-KRR-B**
	+0,1 0		90	32	37 500	23 200	1 180	14,3	0,75	**SK108-210-KRR-B-AH01**

medias ➤*https://www.schaeffler.de/std/1DE1*

[1] Factor f_0 for determining equivalent bearing load ➤*1489*| ▦ *22*.

https://www.schaeffler.de/std/1D65



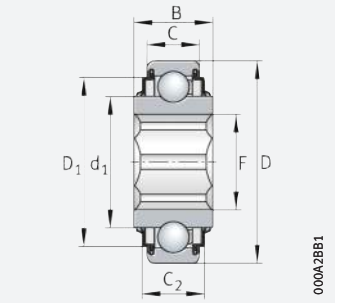
Design of bore

Width across flats of shaft d			Dimensions					
			C	C_2	d_1	F	D_1	r
mm		inch						
16,1	+0,15 +0,05	–	14	–	27,6	19,7	–	0,13
17	+0,15 +0,05	–	14	–	28,7	20,2	–	0,13
22,225	+0,15 +0,05	$^7/_8$	15	16,7	33,8	26,2	42,6	0,13
	+0,15 +0,05		15	19	33,8	26,6	42,5	0,12
25,4	+0,15 +0,03	1	16	18,7	40,2	30,5	52	0,13
28,575	+0,13 0	$1^1/_8$	17	18,7	46,8	34,2	60	0,25
	+0,175 +0,03		17	20,5	46,8	38	60,3	0,25
31,75	+0,15 +0,05	$1^1/_4$	17	18,7	46,8	38	60	0,12
	+0,15 +0,05		18	25	52,3	38	68,4	0,12
	+0,15 +0,05		18	25	52,3	38	68,4	0,12
	+0,15 +0,05		19	22,7	46,8	37,2	60	0,13
	+0,15 +0,05		19	23,7	46,8	38	60	0,12
	+0,15 +0,05		22	25,5	62,8	36,8	77,2	0,12
34,925	+0,15 0	$1^3/_8$	20,9	22,4	52,3	41,5	67,7	0,12
38,1	+0,12 0	$1^1/_2$	19	23,9	57,9	45,1	71,7	0,13
	+0,12 0		22	26	62,8	43,6	76,7	0,13
	+0,1 0		22	27,1	62,8	43,7	77,2	0,13

https://www.schaeffler.de/std/1D65

Deep groove ball bearings with extended inner ring

Cylindrical outside surface of outer ring
Hexagonal bore



SK..-KRR(-L402/70)(-AH)

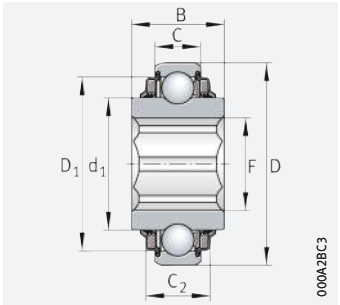
d = 22,225 – 44,45 mm

Main dimensions					Basic load ratings		Fatigue limit load	Factor[1]	Mass	Designation
d			D	B	dyn. C_r	stat. C_{0r}	C_{ur}	f_0	m	➤*1485*|*1.12* ➤*1486*|*1.13*
mm		inch			N	N	N		≈ kg	
22,225	+0,15 +0,05	*7/8*	52	25,4	14 900	7 800	395	13,8	0,18	**SK014-205-KRR**
25,4	+0,15 +0,05	*1*	62	24	20 700	11 300	570	13,8	0,27	**SK100-206-KRR-AH11**
31,75	+0,15 +0,05	*1 1/4*	72	25	27 500	15 300	770	13,8	0,35	**SK104-207-KRR-L402/70-AH12**
	+0,15 +0,05		80	36,5	34 500	19 800	1 010	14	0,62	**SK104-208-KTT-L402/70-AH10**
44,45	+0,127 0	*1 3/4*	130	48	87 000	52 000	2 650	13,1	2,62	**SK112-312-KTT-L402/70**

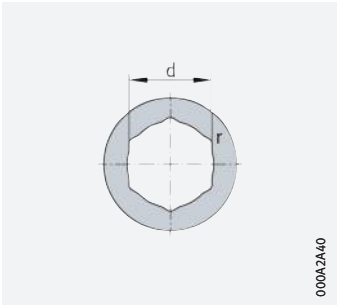
medias ➤ *https://www.schaeffler.de/std/1DE2*

[1] Factor f_0 for determining equivalent bearing load ➤*1489*|▦*22*.

https://www.schaeffler.de/std/1D65



SK..-KTT-L402/70(-AH)



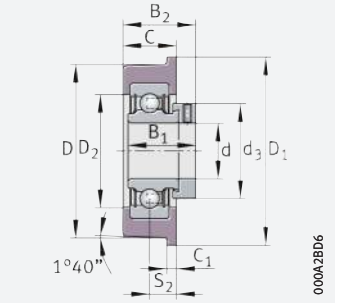
Design of bore

Width across flats of shaft d			Dimensions					
			C	C_2	d_1	F	D_1	r
mm		inch						
22,225	+0,15 +0,05	7/8	15	16,5	33,8	26,5	42,5	0,12
25,4	+0,15 +0,05	1	16	19	40,2	30	52	0,12
31,75	+0,15 +0,05	1 1/4	17	18,7	46,8	38	60	0,12
	+0,15 +0,05		18	25	52,3	38	68,4	0,12
44,45	+0,127 0	1 3/4	33	41,3	79,4	51,6	108,9	0,13

https://www.schaeffler.de/std/1D65

Radial insert ball bearings with rubber interliner

Spherical or cylindrical outside surface of interliner



CRB..-XL

d = 12 – 50 mm

Main dimensions				Basic load ratings		Fatigue limit load	Factor[1]	Mass	Designation ➤1485|1.12 ➤1486|1.13 X-life➤1453	
d	D	B_1	d_3 max.	dyn. C_r N	stat. C_{0r} N	C_{ur} N	f_0	m ≈ kg	Unit[2]	Radial insert ball bearing[3]
12	47,3	28,6	28,4	10 100	4 750	241	13,1	0,15	**RABRB12/47-XL-FA106**	RAE12-XL-NPP-B-FA106
15	47,3	28,6	28,4	10 100	4 750	241	13,1	0,15	**RABRB15/47-XL-FA106**	RAE15-XL-NPP-B-FA106
	65,1	28,6	28,4	10 100	4 750	241	13,1	0,18	**RCSMB15/65-XL-FA106**	RAE15-XL-NPP-FA106
17	65,1	28,6	28,4	10 100	4 750	241	13,1	0,18	**RCSMB17/65-XL-FA106**	RAE17-XL-NPP-FA106
20	46	24,5	30	10 000	5 000	255	13,9	0,14	**RCRA20/46-XL-FA106**	RALE20-XL-NPP-FA106
	52,3	31	33	13 600	6 600	335	13,1	0,2	**RABRB20/52-XL-FA106**	RAE20-XL-NPP-B-FA106
	65,1	31	33	13 600	6 600	335	13,1	0,22	**RCSMB20/65-XL-FA106**	RAE20-XL-NPP-FA106
	77,5	31	33	13 600	6 600	335	13,1	0,3	**CRB20/76-XL**	RAE20-XL-NPP
	83,6	31	33	13 600	6 600	335	13,1	0,3	**CRB20/83-XL**	RAE20-XL-NPP
25	57,3	31	37,5	14 900	7 800	395	13,8	0,21	**RCRB25/57-XL-FA106**	RAE25-XL-NPP-FA106
	62,2	31	37,5	14 900	7 800	395	13,8	0,24	**RABRB25/62-XL-FA106**	RAE25-XL-NPP-B-FA106
	65,1	31	37,5	14 900	7 800	395	13,8	0,24	**RCSMB25/65-XL-FA106**	RAE25-XL-NPP-FA106
	71,5	31	37,5	14 900	7 800	395	13,8	0,32	**CRB25/70-XL**	RAE25-XL-NPP
	73	31	37,5	14 900	7 800	395	13,8	0,32	**CRB25/72-XL**	RAE25-XL-NPP
	83,6	31	37,5	14 900	7 800	395	13,8	0,32	**CRB25/83-XL**	RAE25-XL-NPP
30	62,2	26,5	42,5	14 100	8 300	420	14,8	0,3	**RABRA30/62-XL-FA106**	RALE30-XL-NPP-B-FA106
	65,1	26,5	42,5	14 100	8 300	420	14,8	0,32	**RCSMA30/65-XL-FA106**	RALE30-XL-NPP-FA106
	72,2	35,8	44	20 700	11 300	570	13,8	0,38	**RABRB30/72-XL-FA106**	RAE30-XL-NPP-B-FA106
	83,6	35,8	44	20 700	11 300	570	13,8	0,41	**CRB30/83-XL**	RAE30-XL-NPP
	93	35,8	44	20 700	11 300	570	13,8	0,41	**CRB30/92-XL**	RAE30-XL-NPP
35	80,2	39	55	27 500	15 300	770	13,8	0,62	**RABRB35/80-XL-FA106**	RAE35-XL-NPP-B-FA106
	112,3	39	55	27 500	15 300	770	13,8	0,61	**CRB35/110-XL**	RAE35-XL-NPP
40	85	43,8	58	34 500	19 800	1 010	14	0,73	**RABRB40/85-XL-FA106**	RAE40-XL-NPP-B-FA106
50	100,2	43,8	69	37 500	23 200	1 180	14,3	0,92	**RABRB50/100-XL-FA106**	RAE50-XL-NPP-B-FA106

medias ➤ *https://www.schaeffler.de/std/1DE3*

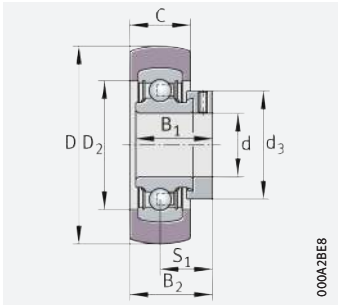
[1] Factor f_0 for determining equivalent bearing load ➤*1489*| ▦ *22*.

[2] Operating temperature from –20 °C to +85 °C.

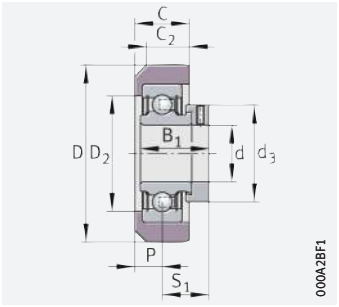
[3] Permissible speeds of radial insert ball bearings ➤*1476*.

[4] Also available by agreement in NBR80.

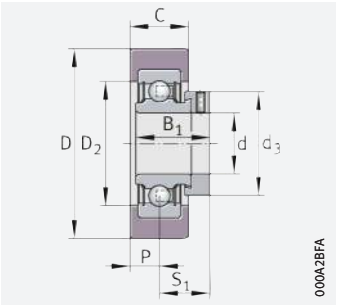
https://www.schaeffler.de/std/1D65



RABRA..-XL-FA106, RABRB..-XL-FA106



RARA..-XL-FA106, RARB..-XL-FA106



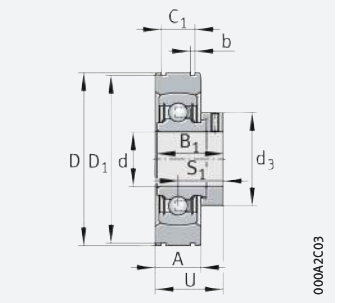
RCSMA..-XL-FA106, RCSMB..-XL-FA106

Dimensions										Rubber interliner	
										Hardness	Load carrying capacity
d	D_1	C	C_2	C_1	S_1	D_2	P	S_2	B_2	Shore A	C_G
										°	N
12	–	17,6	–	–	22,1	33,5	–	–	30,9	70	840
15	–	18	–	–	22,1	33,5	–	–	31,1	70	840
	–	25,4	–	–	22,1	35	12,7	–	–	70	900
17	–	25,4	–	–	22,1	35	12,7	–	–	70	900
20	–	18,3	16	–	18,6	35	10	–	–	70	900
	–	17,6	–	–	23,5	39	–	–	32,3	70	1 160
	–	25,4	–	–	23,5	40	12,7	–	–	70	1 200
	80	25,4	–	5	–	40	–	12,5	36	80	750
	87,4	25,4	–	4,8	–	40	–	12,7	36,2	80	750
25	–	19,8	17,5	–	23,5	44,5	9,8	–	–	70	1 400
	–	20,8	–	–	23,5	44,5	–	–	33,9	70[4)]	1 390
	–	25,4	–	–	23,5	46	12,7	–	–	70	1 400
	76	25	–	5	–	46	–	12,5	36	80	1 000
	80	25	–	5	–	46	–	12,5	36	80	1 000
	87,4	25,4	–	4,8	–	46	–	12,7	36,2	80	1 000
30	–	20,8	–	–	20	47	–	–	30,4	70	1 390
	–	25,4	–	–	20	47,6	15	–	–	70	1 400
	–	23	–	–	26,7	54	–	–	38,2	70[4)]	1 980
	87,4	28	–	4,8	–	56	–	14	40,7	80	1 400
	98	28	–	5	–	56	–	14	40,7	80	1 400
35	–	24	–	–	29,4	62	–	–	41,4	70	2 700
	120	30	–	5	–	64	–	15	44,4	80	1 500
40	–	27	–	–	32,7	70	–	–	46,3	70[4)]	3 500
50	–	30	–	–	32,7	80	–	–	47,7	70[4)]	4 100

https://www.schaeffler.de/std/1D65

Radial insert ball bearings with steel aligning ring

With eccentric locking collar or with bore for fit



PE..-XL

d = 20 – 40 mm

Main dimensions				Basic load ratings		Fatigue limit load	Factor[1]	Mass	Designation ➤1485|1.12 ➤1486|1.13 X-life➤1453	
d	D[2]	B_1	d_3 max.	dyn. C_r N	stat. C_{0r} N	C_{ur} N	f_0	m ≈ kg	Unit[3]	Radial insert ball bearing
20	55	31	33	13 600	6 600	335	13,1	0,24	**PE20-XL**	**RAE20-XL-NPP-B**
25	62	31	37,5	14 900	7 800	395	13,8	0,31	**PE25-XL**	**RAE25-XL-NPP-B**
30	72	35,8	44	20 700	11 300	570	13,8	0,48	**PE30-XL**	**RAE30-XL-NPP-B**
35	80	39	55	27 500	15 300	770	13,8	0,69	**PE35-XL**	**RAE35-XL-NPP-B**
40	90	43,8	58	34 500	19 800	1 010	14	0,88	**PE40-XL**	**RAE40-XL-NPP-B**

Main dimensions			Basic load ratings		Fatigue limit load	Factor[1]	Mass	Designation ➤1485|1.12 ➤1486|1.13 X-life➤1453	
d	D[2]	B	dyn. C_r N	stat. C_{0r} N	C_{ur} N	f_0	m ≈ kg	Unit[5]	Radial insert ball bearing
20	55	14	13 600	6 600	335	13,1	0,19	**BE20-XL**	**204-XL-NPP-B**
25	62	15	14 900	7 800	395	13,8	0,25	**BE25-XL**	**205-XL-NPP-B**
30	72	16	20 700	11 300	570	13,8	0,37	**BE30-XL**	**206-XL-NPP-B**
35	80	17	27 500	15 300	770	13,8	0,45	**BE35-XL**	**207-XL-NPP-B**
40	90	18	34 500	19 800	1 010	14	0,63	**BE40-XL**	**208-XL-NPP-B**

medias ➤ *https://www.schaeffler.de/std/1DE4*

1) Factor f_0 for determining equivalent bearing load ➤*1489*|▦*22*.

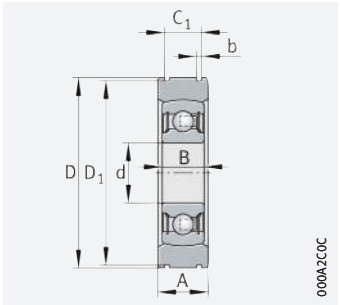
2) Before splitting, dimension D corresponds to tolerance class Normal in accordance with ISO 492.

3) Permissible speeds of radial insert ball bearings RAE..NPP-B ➤*1476*.

4) Annular slot tolerances to DIN 616 (for snap rings to DIN 5417).

5) Permissible speeds of self-aligning deep groove ball bearings 2..NPP-B ➤*1536*.

https://www.schaeffler.de/std/1D65



BE..-XL

Dimensions

d	A	C_1 4) +0,2	b 4) +0,3	D_1 4) −0,5	S_1	U
20	16	11,2	1,35	52,6	23,5	31,5
25	17	11,2	1,9	59,6	23,5	32
30	21	14,4	1,9	68,8	26,8	37,2
35	21	14,4	1,9	76,8	29,5	40
40	25	15,4	2,7	86,8	32,8	45,2

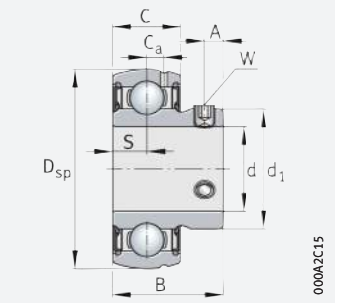
Dimensions

d	A	C_1 4) +0,2	b 4) +0,3	D_1 4) −0,5	U
20	16	11,2	1,35	52,6	–
25	17	11,2	1,9	59,6	–
30	21	14,4	1,9	68,8	–
35	21	14,4	1,9	76,8	–
40	25	15,4	2,7	86,8	–

https://www.schaeffler.de/std/1D65

Corrosion-resistant radial insert ball bearings, VA design

With grub screws in inner ring
Spherical outside surface of outer ring



SUB

d = 20 – 50 mm

Main dimensions			Basic load ratings		Fatigue limit load	Factor[1]	Mass	Designation[2][3]
d	D_{sp}	B	dyn. C_r	stat. C_{0r}	C_{ur}	f_0	m	➤*1485*|*1.12* ➤*1486*|*1.13*
			N	N	N		≈ kg	
20	47	26	12 300	6 300	300	13,1	0,14	**SUB204**
25	52	28	13 400	7 500	360	13,8	0,17	**SUB205**
30	62	30,5	18 700	10 700	510	13,8	0,26	**SUB206**
35	72	35,45	24 600	14 600	700	13,8	0,41	**SUB207**
40	80	39,45	31 500	18 900	910	14	0,52	**SUB208**
45	85	41,5	31 500	19 400	930	14,3	0,6	**SUB209**
50	90	43,5	33 500	22 100	1 060	14,3	0,67	**SUB210**

medias ➤ *https://www.schaeffler.de/std/1DE5*

[1] Factor f_0 for determining equivalent bearing load ➤*1489*|▦*22*.

[2] Speed limits for radial insert ball bearings ➤*1476*.

[3] Lubrication groove and two lubrication holes in the outer ring.

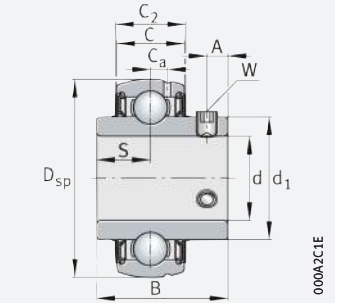
https://www.schaeffler.de/std/1D65

Dimensions						Width across flats
d	C	S	d_1	C_a	A	W
20	16	8	29,05	4	4,5	2,5
25	17	8,5	34,03	4,15	5	2,5
30	19	9,5	40,31	5	5,8	3
35	20	10	47,4	5,7	6,1	3
40	21	10,5	52,83	5,9	8	4
45	22	11	57,3	6,5	8	4
50	23	11,5	62,92	6,5	9	5

https://www.schaeffler.de/std/1D65

Corrosion-resistant radial insert ball bearings, VA design

With grub screws in inner ring
Spherical outside surface of outer ring
With extended inner ring



SUC

d = 12 – 50 mm

Main dimensions			Basic load ratings		Fatigue limit load	Factor[1]	Mass	Designation[2]
d	D_{sp}	B	dyn. C_r	stat. C_{0r}	C_{ur}	f_0	m	➤*1485*|*1.12* ➤*1486*|*1.13*
			N	N	N		≈ kg	
12	40	25	9 200	4 550	218	13,1	0,11	**SUC201**[3]
15	40	25	9 200	4 550	218	13,1	0,1	**SUC202**[3]
17	40	25	9 200	4 550	218	13,1	0,08	**SUC203**[3]
20	47	31	12 300	6 300	300	13,1	0,16	**SUC204**[4]
25	52	34,1	13 400	7 500	360	13,8	0,2	**SUC205**[4]
30	62	38,1	18 700	10 700	510	13,8	0,31	**SUC206**[4]
35	72	42,9	24 600	14 600	700	13,8	0,47	**SUC207**[4]
40	80	49,2	31 500	18 900	910	14	0,62	**SUC208**[4]
45	85	49,2	31 500	19 400	930	14,3	0,67	**SUC209**[4]
50	90	51,6	33 500	22 100	1 060	14,3	0,78	**SUC210**[4]

medias ➤ *https://www.schaeffler.de/std/1DE6*

[1] Factor f_0 for determining equivalent bearing load ➤*1489*|▦*22*.
[2] Speed limits for radial insert ball bearings ➤*1476*.
[3] Two lubrication holes in the outer ring.
[4] Lubrication groove and two lubrication holes in the outer ring.

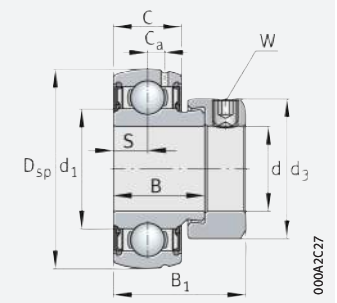
https://www.schaeffler.de/std/1D65

	Dimensions							Width across flats
	d	C	C_2 max.	S	d_1	C_a	A	W
	12	12	12,6	9,6	23,9	3,4	4	2,5
	15	12	12,6	9,6	23,9	3,4	4	2,5
	17	12	12,6	9,6	23,9	3,4	4	2,5
	20	16	16,6	12,7	29,05	4	5	2,5
	25	17	17,6	14,3	34,03	4,15	5	2,5
	30	19	19,6	15,9	40,31	5	6	3
	35	20	20,6	17,5	47,4	5,7	6,5	3
	40	21	21,6	19	52,83	5,9	8	4
	45	22	22,6	19	57,3	6,5	8	4
	50	23	23,6	19	62,92	6,5	9	5

https://www.schaeffler.de/std/1D65

Corrosion-resistant radial insert ball bearings, VA design

With eccentric locking collar
Spherical outside surface of outer ring



SUG

d = 20 – 50 mm

Main dimensions				Basic load ratings		Fatigue limit load	Factor[1]	Mass	Designation[2][3]
d	D_{sp}	B_1	d_3 max.	dyn. C_r N	stat. C_{0r} N	C_{ur} N	f_0	m ≈ kg	➤*1485*|*1.12* ➤*1486*|*1.13*
20	47	31,5	33	12 300	6 300	300	13,1	0,17	**SUG204**
25	52	32	37,5	13 400	7 500	360	13,8	0,2	**SUG205**
30	62	36,3	44	18 700	10 700	510	13,8	0,31	**SUG206**
35	72	39,5	55	24 600	14 600	700	13,8	0,51	**SUG207**
40	80	43,8	58	31 500	18 900	910	14	0,6	**SUG208**
45	85	43,8	63	31 500	19 400	930	14,3	0,7	**SUG209**
50	90	44,3	69	33 500	22 100	1 060	14,3	0,77	**SUG210**

medias ➤ *https://www.schaeffler.de/std/1DE7*

1) Factor f_0 for determining equivalent bearing load ➤*1489*|▦*22*.
2) Speed limits for radial insert ball bearings ➤*1476*.
3) Lubrication groove and two lubrication holes in the outer ring.

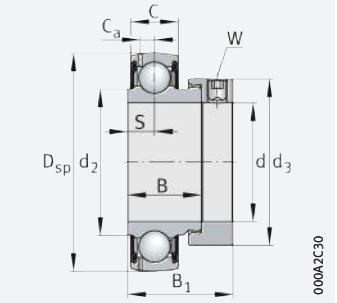
https://www.schaeffler.de/std/1D65

Dimensions							Width across flats
d	D_{sp}	C	B	S	d_1	C_a	W
20	47	16	21,9	8	29,05	4	3
25	52	17	22,4	8,5	34,03	4,15	3
30	62	19	24,3	9,5	40,31	5	4
35	72	20	25,9	10	47,4	5,7	5
40	80	21	30,2	11	52,83	5,9	5
45	85	22	30,2	11	57,3	6,5	5
50	90	23	30,7	11	62,92	6,5	5

https://www.schaeffler.de/std/1D65

Corrosion-resistant radial insert ball bearings, with Corrotect coating

With eccentric locking collar
Spherical outside surface of outer ring



GRAE..-XL-NPP-B-FA125

d = 20 – 60 mm

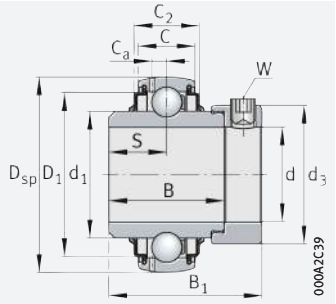
Main dimensions				Basic load ratings		Fatigue limit load	Factor[1]	Mass	Designation[2]
d	D_{sp}	B_1	d_3	dyn. C_r	stat. C_{0r}	C_{ur}	f_0	m	➤*1485*|*1.12* ➤*1486*|*1.13* X-life➤*1453*
			max.	N	N	N		≈ kg	
20	47	31	33	13 600	6 600	335	13,1	0,16	**GRAE20-XL-NPP-B-FA125**
	47	43,7	33	13 600	6 600	335	13,1	0,19	**GE20-XL-KRR-B-FA125**
25	52	31	37,5	14 900	7 800	395	13,8	0,19	**GRAE25-XL-NPP-B-FA125**
	52	44,5	37,5	14 900	7 800	395	13,8	0,25	**GE25-XL-KRR-B-FA125**
30	62	35,8	44	20 700	11 300	570	13,8	0,32	**GRAE30-XL-NPP-B-FA125**
	62	48,5	44	20 700	11 300	570	13,8	0,39	**GE30-XL-KRR-B-FA125**
35	72	39	55	27 500	15 300	770	13,8	0,48	**GRAE35-XL-NPP-B-FA125**
	72	51,3	55	27 500	15 300	770	13,8	0,55	**GE35-XL-KRR-B-FA125**
40	80	43,8	58	34 500	19 800	1 010	14	0,62	**GRAE40-XL-NPP-B-FA125**
	80	56,5	58	34 500	19 800	1 010	14	0,73	**GE40-XL-KRR-B-FA125**
45	85	43,8	63	34 500	20 400	1 030	14,3	0,69	**GRAE45-XL-NPP-B-FA125**
	85	56,5	63	34 500	20 400	1 030	14,3	0,83	**GE45-XL-KRR-B-FA125**
50	90	43,8	69	37 500	23 200	1 180	14,3	0,77	**GRAE50-XL-NPP-B-FA125**
	90	62,8	69	37 500	23 200	1 180	14,3	0,99	**GE50-XL-KRR-B-FA125**
60	110	53,1	84	56 000	36 000	1 820	14,3	1,4	**GRAE60-XL-NPP-B-FA125**

medias ➤ *https://www.schaeffler.de/std/1DE8*

[1] Factor f_0 for determining equivalent bearing load ➤*1489*|▦*22*.

[2] Speed limits for radial insert ball bearings ➤*1476*.

https://www.schaeffler.de/std/1D65



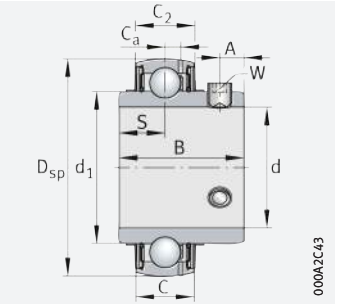
GE..-XL-KRR-B-FA125

Dimensions									Width across flats
d	C	C_2	B	S	d_1	d_2	D_1	C_a	W
20	14	–	21,4	7,5	–	26,9	–	4	3
	14	16,6	34,1	17,1	27,6	–	37,4	4	3
25	15	–	21,4	7,5	–	30,5	–	3,9	3
	15	16,7	34,9	17,5	33,8	–	42,5	4,1	3
30	18	–	23,8	9	–	37,4	–	4,7	4
	18	20,7	36,5	18,3	40,2	–	52	4,7	4
35	19	–	25,4	9,5	–	44,6	–	5,6	5
	19	22,5	37,7	18,8	46,8	–	60,3	5,6	5
40	21	–	30,2	11	–	49,4	–	6,4	5
	21	23,5	42,9	21,4	52,3	–	68,3	6,4	5
45	22	–	30,2	11	–	54,3	–	6,4	5
	22	26,4	42,9	21,4	57,9	–	72,3	6,4	5
50	22	–	30,2	11	–	59,4	–	6,9	5
	22	26,4	49,2	24,6	62,8	–	77,3	6,9	5
60	24	–	37,1	13,5	–	72	–	7,2	5

https://www.schaeffler.de/std/1D65

Black Series, radial insert ball bearings in accordance with JIS

With grub screws in inner ring
Spherical outside surface of outer ring



UC

d = 12 – 35 mm

Main dimensions				Basic load ratings		Fatigue limit load	Factor[1]	Mass	Designation[2]
d		D_{sp}	B	dyn. C_r	stat. C_{0r}	C_{ur}	f_0	m	➤*1485*|*1.12* ➤*1486*|*1.13*
mm	inch			N	N	N		≈ kg	
12	–	47	31	13 600	6 600	335	13,1	0,2	**UC201**
12,7	1/2	47	31	13 600	6 600	335	13,1	0,2	**UC201-08**
14,288	9/16	47	31	13 600	6 600	335	13,1	0,19	**UC202-09**
15	–	47	31	13 600	6 600	335	13,1	0,18	**UC202**
15,875	5/8	47	31	13 600	6 600	335	13,1	0,18	**UC202-10**
17	–	47	31	13 600	6 600	335	13,1	0,17	**UC203**
17,463	11/16	47	31	13 600	6 600	335	13,1	0,17	**UC203-11**
19,05	3/4	47	31	13 600	6 600	335	13,1	0,16	**UC204-12**
20	–	47	31	13 600	6 600	335	13,1	0,15	**UC204**
20,638	13/16	52	34,1	14 900	7 800	395	13,8	0,24	**UC205-13**
22,225	7/8	52	34,1	14 900	7 800	395	13,8	0,22	**UC205-14**
23,813	15/16	52	34,1	14 900	7 800	395	13,8	0,21	**UC205-15**
25	–	52	34,1	14 900	7 800	395	13,8	0,2	**UC205**
25,4	1	52	34,1	14 900	7 800	395	13,8	0,19	**UC205-16**
26,988	1 1/16	62	38,1	20 700	11 300	570	13,8	0,35	**UC206-17**
28,575	1 1/8	62	38,1	20 700	11 300	570	13,8	0,33	**UC206-18**
30	–	62	38,1	20 700	11 300	570	13,8	0,31	**UC206**
30,163	1 3/16	62	38,1	20 700	11 300	570	13,8	0,31	**UC206-19**
31,75	1 1/4	62	38,1	20 700	11 300	570	13,8	0,29	**UC206-20**
31,75	1 1/4	72	42,9	27 500	15 300	770	13,8	0,52	**UC207-20**
33,338	1 5/16	72	42,9	27 500	15 300	770	13,8	0,5	**UC207-21**
34,925	1 3/8	72	42,9	27 500	15 300	770	13,8	0,47	**UC207-22**
35	–	72	42,9	27 500	15 300	770	13,8	0,47	**UC207**

medias ➤ *https://www.schaeffler.de/std/1DE9*

[1] Factor f_0 for determining equivalent bearing load ➤*1489*|▦*22*.

[2] Speed limits for radial insert ball bearings ➤*1476*.

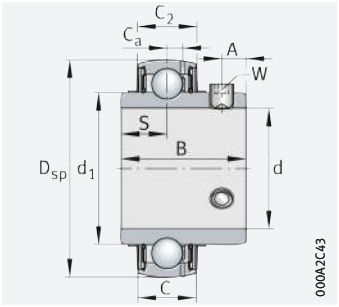
https://www.schaeffler.de/std/1D65

Dimensions								Width across flats	
d		C	C_2	S	d_1	C_a	A	W	
mm	inch							mm	inch
12	–	17	16,8	12,7	27,56	4,2	5	3	–
12,7	1/2	17	16,8	12,7	27,56	4,2	5	–	1/8
14,288	9/16	17	16,8	12,7	27,56	4,2	5	–	1/8
15	–	17	16,8	12,7	27,56	4,2	5	3	–
15,875	5/8	17	16,8	12,7	27,56	4,2	5	–	1/8
17	–	17	16,8	12,7	27,56	4,2	5	3	–
17,463	11/16	17	16,8	12,7	27,56	4,2	5	–	1/8
19,05	3/4	17	16,8	12,7	27,56	4,2	5	–	1/8
20	–	17	16,8	12,7	27,56	4,2	5	3	–
20,638	13/16	17	17,6	14,3	33,83	4,2	5	–	1/8
22,225	7/8	17	17,6	14,3	33,83	4,2	5	–	1/8
23,813	15/16	17	17,6	14,3	33,83	4,2	5	–	1/8
25	–	17	17,6	14,3	33,83	4,2	5	3	–
25,4	1	17	17,6	14,3	33,83	4,2	5	–	1/8
26,988	1 1/16	19	19,6	15,9	40,2	5	5	–	1/8
28,575	1 1/8	19	19,6	15,9	40,2	5	5	–	1/8
30	–	19	19,6	15,9	40,2	5	5	3	–
30,163	1 3/16	19	19,6	15,9	40,2	5	5	–	1/8
31,75	1 1/4	19	19,6	15,9	40,2	5	5	–	1/8
31,75	1 1/4	20	20,6	17,5	46,84	5,7	7	–	5/32
33,338	1 5/16	20	20,6	17,5	46,84	5,7	7	–	5/32
34,925	1 3/8	20	20,6	17,5	46,84	5,7	7	–	5/32
35	–	20	20,6	17,5	46,84	5,7	7	4	–

https://www.schaeffler.de/std/1D65

Black Series, radial insert ball bearings in accordance with JIS

With grub screws in inner ring
Spherical outside surface of outer ring



UC

d = 36,513 – 61,913 mm

Main dimensions				Basic load ratings		Fatigue limit load	Factor[1]	Mass	Designation[2]
d		D_{sp}	B	dyn. C_r	stat. C_{0r}	C_{ur}	f_0	m	➤*1485*|*1.12* ➤*1486*|*1.13*
mm	inch			N	N	N		≈ kg	
36,513	*1 7/16*	72	42,9	27 500	15 300	770	13,8	0,44	**UC207-23**
38,1	*1 1/2*	80	49,2	34 500	19 800	1 010	14	0,66	**UC208-24**
39,688	*1 9/16*	80	49,2	34 500	19 800	1 010	14	0,63	**UC208-25**
40	–	80	49,2	34 500	19 800	1 010	14	0,62	**UC208**
41,275	*1 5/8*	85	49,2	34 500	20 400	1 030	14,3	0,79	**UC209-26**
42,863	*1 11/16*	85	49,2	34 500	20 400	1 030	14,3	0,75	**UC209-27**
44,45	*1 3/4*	85	49,2	34 500	20 400	1 030	14,3	0,71	**UC209-28**
45	–	85	49,2	34 500	20 400	1 030	14,3	0,69	**UC209**
46,038	*1 13/16*	90	51,6	37 500	23 200	1 180	14,3	0,92	**UC210-29**
47,625	*1 7/8*	90	51,6	37 500	23 200	1 180	14,3	0,87	**UC210-30**
49,213	*1 15/16*	90	51,6	37 500	23 200	1 180	14,3	0,82	**UC210-31**
50	–	90	51,6	37 500	23 200	1 180	14,3	0,8	**UC210**
50,8	*2*	90	51,6	37 500	23 200	1 180	14,3	0,77	**UC210-32**
50,8	*2*	100	55,6	46 000	29 000	1 480	14,3	1,22	**UC211-32**
52,388	*2 1/16*	100	55,6	46 000	29 000	1 480	14,3	1,17	**UC211-33**
53,975	*2 1/8*	100	55,6	46 000	29 000	1 480	14,3	1,11	**UC211-34**
55	–	100	55,6	46 000	29 000	1 480	14,3	1,07	**UC211**
55,563	*2 3/16*	100	55,6	46 000	29 000	1 480	14,3	1,05	**UC211-35**
57,15	*2 1/4*	110	65,1	56 000	36 000	1 820	14,3	1,62	**UC212-36**
58,738	*2 5/16*	110	65,1	56 000	36 000	1 820	14,3	1,55	**UC212-37**
60	–	110	65,1	56 000	36 000	1 820	14,3	1,49	**UC212**
60,325	*2 3/8*	110	65,1	56 000	36 000	1 820	14,3	1,48	**UC212-38**
61,913	*2 7/16*	110	65,1	56 000	36 000	1 820	14,3	1,4	**UC212-39**

medias ➤ *https://www.schaeffler.de/std/1DEA*

[1] Factor f_0 for determining equivalent bearing load ➤*1489*|▦*22*.

[2] Speed limits for radial insert ball bearings ➤*1476*.

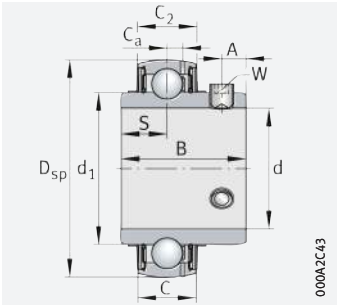
https://www.schaeffler.de/std/1D65

Dimensions								Width across flats	
d		C	C_2	S	d_1	C_a	A	W	
mm	inch							mm	inch
36,513	$1\,^{7}/_{16}$	20	20,6	17,5	46,84	5,7	7	–	$^{5}/_{32}$
38,1	$1\,^{1}/_{2}$	21	21,6	19	52,27	6,2	8	–	$^{5}/_{32}$
39,688	$1\,^{9}/_{16}$	21	21,6	19	52,27	6,2	8	–	$^{5}/_{32}$
40	–	21	21,6	19	52,27	6,2	8	4	–
41,275	$1\,^{5}/_{8}$	22	22,6	19	57,91	6,3	8	–	$^{5}/_{32}$
42,863	$1\,^{11}/_{16}$	22	22,6	19	57,91	6,3	8	–	$^{5}/_{32}$
44,45	$1\,^{3}/_{4}$	22	22,6	19	57,91	6,3	8	–	$^{5}/_{32}$
45	–	22	22,6	19	57,91	6,3	8	4	–
46,038	$1\,^{13}/_{16}$	24	24,6	19	62,84	6,5	10	–	$^{3}/_{16}$
47,625	$1\,^{7}/_{8}$	24	24,6	19	62,84	6,5	10	–	$^{3}/_{16}$
49,213	$1\,^{15}/_{16}$	24	24,6	19	62,84	6,5	10	–	$^{3}/_{16}$
50	–	24	24,6	19	62,84	6,5	10	5	–
50,8	2	24	24,6	19	62,84	6,5	10	–	$^{3}/_{16}$
50,8	2	25	25,6	22,2	69,77	7	10	–	$^{3}/_{16}$
52,388	$2\,^{1}/_{16}$	25	25,6	22,2	69,77	7	10	–	$^{3}/_{16}$
53,975	$2\,^{1}/_{8}$	25	25,6	22,2	69,77	7	10	–	$^{3}/_{16}$
55	–	25	25,6	22,2	69,77	7	10	5	–
55,563	$2\,^{3}/_{16}$	25	25,6	22,2	69,77	7	10	–	$^{3}/_{16}$
57,15	$2\,^{1}/_{4}$	27	27,6	25,4	76,48	7,4	10	–	$^{3}/_{16}$
58,738	$2\,^{5}/_{16}$	27	27,6	25,4	76,48	7,4	10	–	$^{3}/_{16}$
60	–	27	27,6	25,4	76,48	7,4	10	5	–
60,325	$2\,^{3}/_{8}$	27	27,6	25,4	76,48	7,4	10	–	$^{3}/_{16}$
61,913	$2\,^{7}/_{16}$	27	27,6	25,4	76,48	7,4	10	–	$^{3}/_{16}$

https://www.schaeffler.de/std/1D65

Black Series, radial insert ball bearings in accordance with JIS

With grub screws in inner ring
Spherical outside surface of outer ring



UC

d = 63,5 – 90 mm

Main dimensions				Basic load ratings		Fatigue limit load	Factor[1]	Mass	Designation[2]
d		D_{sp}	B	dyn. C_r	stat. C_{0r}	C_{ur}	f_0	m	➤*1485*|*1.12* ➤*1486*|*1.13*
mm	inch			N	N	N		≈ kg	
63,5	$2^1/_2$	120	65,1	61 000	40 000	2 030	14,3	1,79	**UC213-40**
65	–	120	65,1	61 000	40 000	2 030	14,3	1,72	**UC213**
65,088	$2^9/_{16}$	120	65,1	61 000	40 000	2 030	14,3	1,71	**UC213-41**
66,675	$2^5/_8$	125	74,6	66 000	44 000	2 230	14,4	2,17	**UC214-42**
68,263	$2^{11}/_{16}$	125	74,6	66 000	44 000	2 230	14,4	2,07	**UC214-43**
69,85	$2^3/_4$	125	74,6	66 000	44 000	2 230	14,4	1,97	**UC214-44**
70	–	125	74,6	66 000	44 000	2 230	14,4	1,96	**UC214**
71,438	$2^{13}/_{16}$	130	77,8	66 000	44 500	2 240	14,7	2,39	**UC215-45**
73,025	$2^7/_8$	130	77,8	66 000	44 500	2 240	14,7	2,28	**UC215-46**
74,613	$2^{15}/_{16}$	130	77,8	66 000	44 500	2 240	14,7	2,17	**UC215-47**
75	–	130	77,8	66 000	44 500	2 240	14,7	2,14	**UC215**
76,2	3	130	77,8	66 000	44 500	2 240	14,7	2,06	**UC215-48**
77,788	$3^1/_{16}$	140	82,6	76 000	54 000	2 600	14,6	2,88	**UC216-49**
79,375	$3^1/_8$	140	82,6	76 000	54 000	2 600	14,6	2,76	**UC216-50**
80	–	140	82,6	76 000	54 000	2 600	14,6	2,71	**UC216**
80,963	$3^3/_{16}$	140	82,6	76 000	54 000	2 600	14,6	2,63	**UC216-51**
82,55	$3^1/_4$	150	85,7	88 000	64 000	2 950	14,7	3,62	**UC217-52**
84,138	$3^5/_{16}$	150	85,7	88 000	64 000	2 950	14,7	3,48	**UC217-53**
85	–	150	85,7	88 000	64 000	2 950	14,7	3,41	**UC217**
87,313	$3^7/_{16}$	150	85,7	88 000	64 000	2 950	14,7	3,2	**UC217-55**
88,9	$3^1/_2$	160	96	102 000	72 000	3 250	14,5	4,2	**UC218-56**
90	–	160	96	102 000	72 000	3 250	14,5	4,08	**UC218**

medias ➤ *https://www.schaeffler.de/std/1DEB*

[1] Factor f_0 for determining equivalent bearing load ➤*1489*|▦*22*.

[2] Speed limits for radial insert ball bearings ➤*1476*.

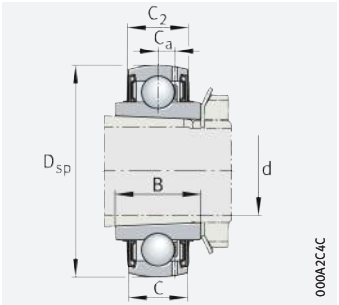
https://www.schaeffler.de/std/1D65

Dimensions								Width across flats	
d		C	C_2	S	d_1	C_a	A	W	
mm	inch							mm	inch
63,5	$2^1/_2$	28	29,4	25,4	80,85	8,2	12	–	$^1/_4$
65	–	28	29,4	25,4	80,85	8,2	12	6	–
65,088	$2^9/_{16}$	28	29,4	25,4	80,85	8,2	12	–	$^1/_4$
66,675	$2^5/_8$	30	31,4	30,2	85,2	8,5	12	–	$^1/_4$
68,263	$2^{11}/_{16}$	30	31,4	30,2	85,2	8,5	12	–	$^1/_4$
69,85	$2^3/_4$	30	31,4	30,2	85,2	8,5	12	–	$^1/_4$
70	–	30	31,4	30,2	85,2	8,5	12	6	–
71,438	$2^{13}/_{16}$	32	33,4	33,3	90	8,5	12	–	$^1/_4$
73,025	$2^7/_8$	32	33,4	33,3	90	8,5	12	–	$^1/_4$
74,613	$2^{15}/_{16}$	32	33,4	33,3	90	8,5	12	–	$^1/_4$
75	–	32	33,4	33,3	90	8,5	12	6	–
76,2	3	32	33,4	33,3	90	8,5	12	–	$^1/_4$
77,788	$3^1/_{16}$	33	34,4	33,3	97	9,3	14	–	$^1/_4$
79,375	$3^1/_8$	33	34,4	33,3	97	9,3	14	–	$^1/_4$
80	–	33	34,4	33,3	97	9,3	14	6	–
80,963	$3^3/_{16}$	33	34,4	33,3	97	9,3	14	–	$^1/_4$
82,55	$3^1/_4$	35	36,4	34,1	104,09	10	14	–	$^1/_4$
84,138	$3^5/_{16}$	35	36,4	34,1	104,09	10	14	–	$^1/_4$
85	–	35	36,4	34,1	104,09	10	14	6	–
87,313	$3^7/_{16}$	35	36,4	34,1	104,09	10	14	–	$^1/_4$
88,9	$3^1/_2$	38	39,4	39,7	109,4	11	15	–	$^1/_4$
90	–	38	39,4	39,7	109,4	11	15	6	–

https://www.schaeffler.de/std/1D65

Black Series, radial insert ball bearings in accordance with JIS

With adapter sleeve
Spherical outside surface of outer ring



UK

d = 20 – 80 mm

Main dimensions			Basic load ratings		Fatigue limit load	Factor[1]	Mass	Designation[2]
d	D_{sp}	B	dyn. C_r N	stat. C_{0r} N	C_{ur} N	f_0	m ≈ kg	➤*1485*|*1.12* ➤*1486*|*1.13*
20	52	23	14 900	7 800	395	13,8	0,25	**UK205**
25	62	26	20 700	11 300	570	13,8	0,37	**UK206**
30	72	29	27 500	15 300	770	13,8	0,54	**UK207**
35	80	31	34 500	19 800	1 010	14	0,7	**UK208**
40	85	32	34 500	20 400	1 030	14,3	0,83	**UK209**
45	90	34	37 500	23 200	1 180	14,3	0,98	**UK210**
50	100	36	46 000	29 000	1 480	14,3	1,24	**UK211**
55	110	40	56 000	36 000	1 820	14,3	1,58	**UK212**
60	120	41	61 000	40 000	2 030	14,3	1,88	**UK213**
65	130	44,5	66 000	44 500	2 240	14,7	2,62	**UK215**
70	140	46	76 000	54 000	2 600	14,6	3,23	**UK216**
75	150	48	88 000	64 000	2 950	14,7	3,9	**UK217**
80	160	51	102 000	72 000	3 250	14,5	4,62	**UK218**

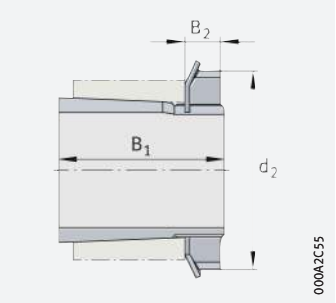
medias ➤ *https://www.schaeffler.de/std/1DEC*

[1] Factor f_0 for determining equivalent bearing load ➤*1489*\|▦*22*.

[2] Speed limits for radial insert ball bearings ➤*1476*.

[3] Radial insert ball bearings UK are supplied with an adapter sleeve H..X.

https://www.schaeffler.de/std/1D65

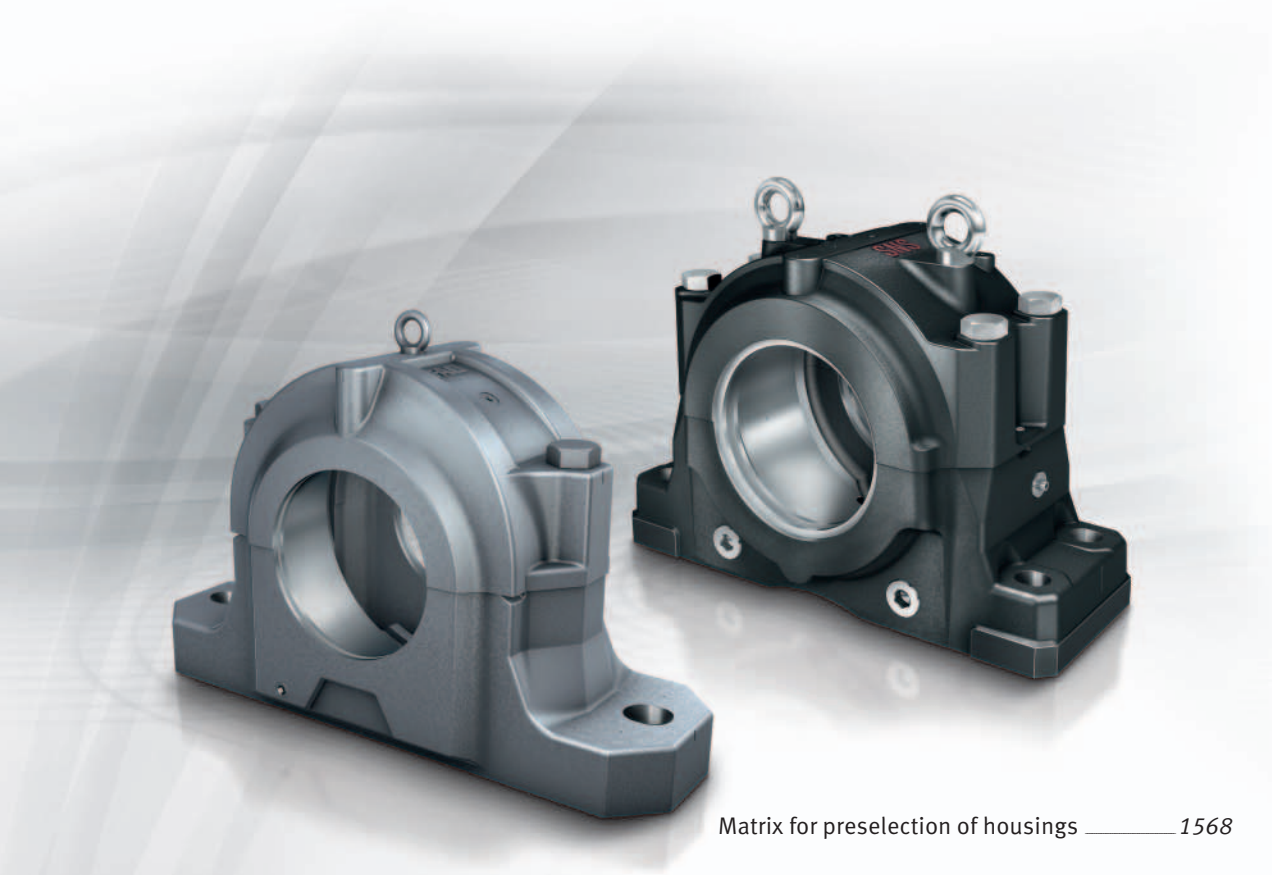


Complete adapter sleeve[3)]

Dimensions				Adapter sleeve Complete							
				Designation				Mass	Dimensions		
d	C	C_2	C_a	Adapter sleeve Complete	Sleeve	Locknut	Tab washer	m ≈ kg	B_1	B_2	d_2 max.
20	17	17,6	4,2	**H2305X**	A2305X	AN05	AW05X	0,1	35	8	38
25	19	19,6	5	**H2306X**	A2306X	AN06	AW06X	0,13	38	8	45
30	20	20,6	5,7	**H2307X**	A2307X	AN07	AW07X	0,18	43	9	52
35	21	21,6	6,2	**H2308X**	A2308X	AN08	AW08X	0,23	46	10	58
40	22	22,6	6,3	**H2309X**	A2309X	AN09	AW09X	0,31	50	11	65
45	24	24,6	6,5	**H2310X**	A2310X	AN10	AW10X	0,38	55	12	70
50	25	25,6	7	**H2311X**	A2311X	AN11	AW11X	0,45	59	12	75
55	27	27,6	7,4	**H2312X**	A2312X	AN12	AW12X	0,5	62	13	80
60	28	29,4	8,2	**H2313X**	A2313X	AN13	AW13X	0,58	65	14	85
65	32	33,4	8,5	**H2315X**	A2315X	AN15	AW15X	1,1	73	15	98
70	33	34,4	9,3	**H2316X**	A2316X	AN16	AW16X	1,33	78	17	105
75	35	36,4	10	**H2317X**	A2317X	AN17	AW17X	1,51	82	18	110
80	38	39,4	11	**H2318X**	A2318X	AN18	AW18X	1,77	86	18	120

https://www.schaeffler.de/std/1D65

Bearing housings



https://www.schaeffler.de/std/1D65

FAG

https://www.schaeffler.de/std/1D65

Matrix for preselection of housings

The matrix gives an overview of the design features of bearing housings and the bearing types suitable for the housings.

It can be used to make a preliminary assessment of whether a housing is fundamentally suitable for the envisaged application.

The additional information provided in the product chapter (see column "detailed information") must, however, be observed in addition to this overview in selection of the housing.

Standard housings		Split plummer block housings		
● suitable ■ available design – not suitable/not applicable		SNV 	SNS 	S30 
detailed information ➤		**1575**	**1624**	**1668**
Bearing type				
Self-aligning ball bearings		●	–	–
Spherical roller bearings		●	●	●
Toroidal roller bearings		●	●	●
Barrel roller bearings		●	–	–
Cylindrical roller bearings		–	–	–
Deep groove ball bearings		●	–	–
Angular contact ball bearings		–	–	–
Spherical roller bearings, split		●	●	●
Mounting method				
On adapter sleeve		●	●	●
On withdrawal sleeve		–	–	–
On adjustment sleeve		–	–	–
On cylindrical seat		●	●	●
Lubrication				
Grease		●	●	●
Oil		●	●	–
Sealing				
Labyrinth seal, unsplit		■	■	–
Taconite seal, unsplit		■	■	–
Double lip seal, split		■	–	–
V ring seal, unsplit		■	–	–
Felt seal, split		■	–	■
Bolt-on seal, unsplit		–	■	–
Labyrinth seal, split		–	■	–
Taconite seal, split		–	■	–
High-pressure packing, split		–	–	–
Shaft diameter				
from	mm	20	115	110
	inch	$^{3}/_{4}$	$4^{7}/_{16}$	–
to	mm	160	530	150
	inch	$5^{1}/_{2}$	$19^{1}/_{2}$	–
Product tables	from page ➤	**1598**[1]	**1650**[1]	–[2]

1) Housings for inch size shaft diameters ➤ 🕮 *GK 1*

2) ➤ 🕮 *GK 1*

3) ➤ 🕮 *TPI 229*

https://www.schaeffler.de/std/1D65

						Unsplit plummer block housings		Take-up housings	Flanged housings	
	SAF	RLE	KPG	KPGZ	LOE	VRE3	BND	SPA	F112	F5
										
	1670	**1673**	**1675**	**1675**	**1677**	**1679**	**1681**	**1684**	**1686**	**1687**
	–	–	–	–	–	–	–	–	●	●
	●	●	●	●	●	–	●	●	–	●
	–	●	–	–	–	–	●	–	–	–
	–	–	–	–	–	–	–	–	–	●
	–	–	–	–	–	●	–	–	–	–
	–	–	–	–	–	●	–	–	–	–
	–	–	–	–	–	●	–	–	–	–
	●	–	●	●	–	–	–	–	–	–
	●	–	–	–	●	–	●	●	–	●
	–	●	–	–	–	–	–	–	–	–
	–	–	●	–	–	–	–	–	–	–
	–	●	–	●	●	●	●	–	●	–
	●	●	●	●	–	●	●	●	●	●
	●	–	–	–	●	–	–	–	–	–
	■	■	–	–	■	–	■	■	–	–
	■	–	–	–	–	–	■	■	–	–
	–	–	–	–	–	–	–	–	–	–
	–	–	–	–	–	■	–	–	–	–
	–	–	–	–	–	■	–	–	■	■
	–	–	–	–	–	–	–	–	–	–
	■	–	–	–	–	–	–	–	–	–
	■	–	–	–	–	–	–	–	–	–
	–	–	■	■	–	–	–	–	–	–
	–	180	470	500	50	25	60	50	20	20
	$1^3/_8$	–	–	–	–	–	–	–	–	–
	–	500	1250	1320	240	120	420	400	60	100
	8	–	–	–	–	–	–	–	–	–
	–[3]	–[2]	–[2]	–[2]	–[2]	–[2]	–[2]	–[2]	–[2]	–[2]

https://www.schaeffler.de/std/1D65

1 Principles

1.1 Housing concepts

Standard housings

FAG standard housings are subdivided, in accordance with their fundamental design, into:

- split plummer block housings
- unsplit plummer block housings
- take-up housings
- flanged housings.

Split plummer block housings

In the case of split plummer block housings, the housing body is split into an upper section and a lower section. This gives significantly simpler mounting and maintenance. The two halves of a housing form a matched pair and must not be interchanged with parts from other housings.

Unsplit plummer block housings

In the case of unsplit plummer block housings, the housing body is a single piece, so the bearing seat is free from parting lines. The housings are used where the bearings are subjected to very high loads.

The unsplit plummer block housings also include plummer block housing units VRE3. These are made available as completely assembled and greased bearing arrangement units comprising a housing, seals, bearings and shaft.

Take-up housings

Take-up housings SPA were developed specifically for tensioner drum bearing arrangements in belt conveyor plant. The housings are unsplit. There is a yoke-shaped drawbar eye for attachment to the tensioning device.

Flanged housings

Flanged housings have a flange perpendicular to the shaft axis and thus offer the ideal adjacent construction for numerous machines and pieces of equipment where the use of plummer block housings would be too demanding.

Special housings

Special requirements

Special housings are used in particularly challenging applications where not all the requirements can be fulfilled by the use of standard housings. These are not only specific industrial applications but also applications from the railway sector.

Customer-specific development

Special housings are developed in close cooperation and consultation with the customer. Schaeffler uses its comprehensive know-how of rolling bearing technology in order to ensure that every housing is optimally matched to the specific application.
Further information on special housings is given in the Catalogue GK 1
➤ *https://www.schaeffler.de/std/1D54*.

https://www.schaeffler.de/std/1D65

1.2 Locating and non-locating bearing concepts

Different concepts depending on housing series

In order to achieve locating bearing arrangements as well as non-locating bearing arrangements, one of the following concepts is applied in each housing series:

- housings in locating bearing design and non-locating bearing design
- housings with locating rings.

The unsplit plummer block housings VR3, where two bearing positions are integrated in one housing, constitute a special case here. Complete plummer block housing units VRE3 can be ordered that, depending on their design, contain a locating/non-locating bearing arrangement, an adjusted bearing arrangement or a floating bearing arrangement.

Housings in locating bearing design and non-locating bearing design

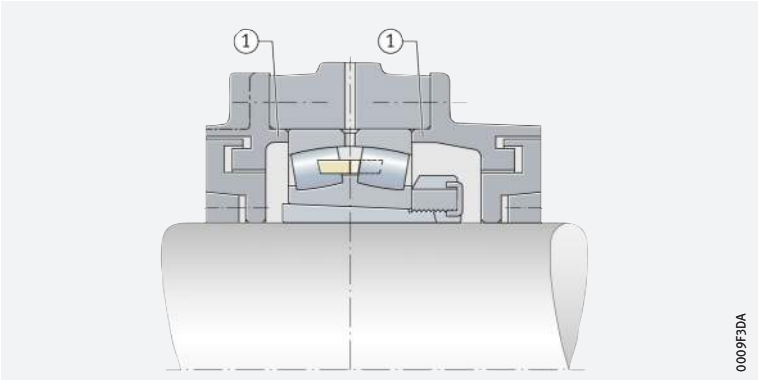
In this housing concept for the implementation of a locating or non-locating bearing arrangement, the housing must be ordered as necessary in a locating bearing design or a non-locating bearing design. This applies to the housings RLE, KPG, KPGZ, LOE, BND and SPA.

Variation of covers

In the case of the locating bearing design, the bearings are axially clamped between the covers on the housings ➤1571|1. In the case of the non-locating bearing design, the covers have shorter centring collars. As a result, the bearing can be axially displaced ➤1571|2.

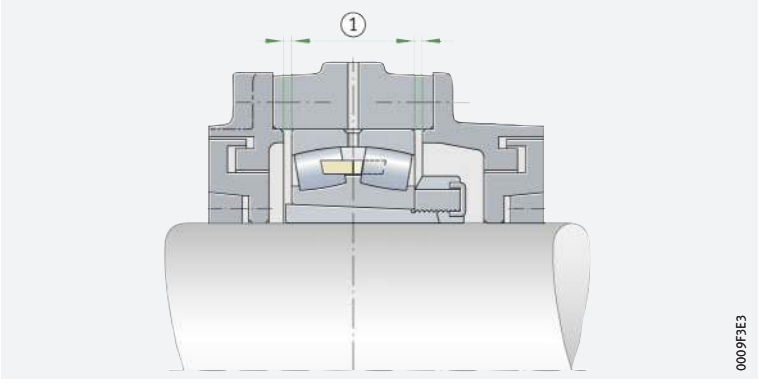
The housing design is part of the designation

When ordering, the designation indicates whether the housing should be supplied in a locating or non-locating bearing design.



1 *Housing in locating bearing design*

① *Centring collars on covers for axial location of the bearing*



2 *Housing in non-locating bearing design*

① *Bearing can be axially displaced*

https://www.schaeffler.de/std/1D65

Housings with locating rings

In this housing concept for the implementation of a locating or non-locating bearing arrangement, locating rings are available as accessories that can be used to set the locating bearing function ➤*1572*|*3*. This applies to the housings SNV, SNS, S30, SAF and F5.

✎ *Variation of the number of locating rings*

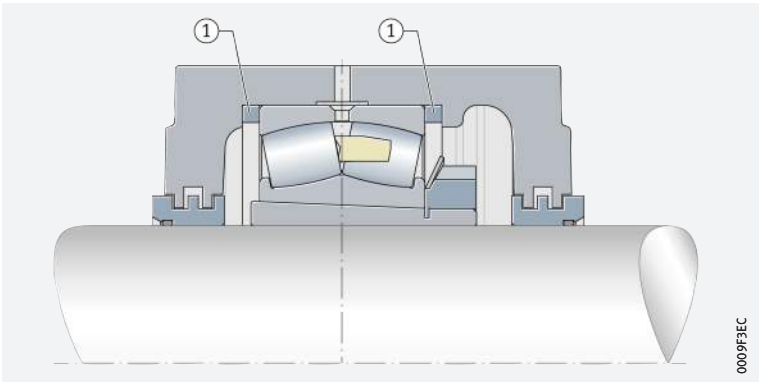
In the case of these housings, the bearing seats are designed such that the bearing is capable of axial displacement and therefore acts as a non-locating bearing if locating rings are not inserted ➤*1572*|*4*. Once locating rings are inserted, the bearings are axially located. The locating rings are generally inserted in the housing on both sides of the bearing. Normally, an even number of locating rings is specified in order to achieve concentric seating of the bearing in the housing. In some cases, a single locating ring is sufficient.

✎ *Locating rings must be ordered separately*

The number of locating rings required is given in the product tables. Locating rings must be ordered separately.

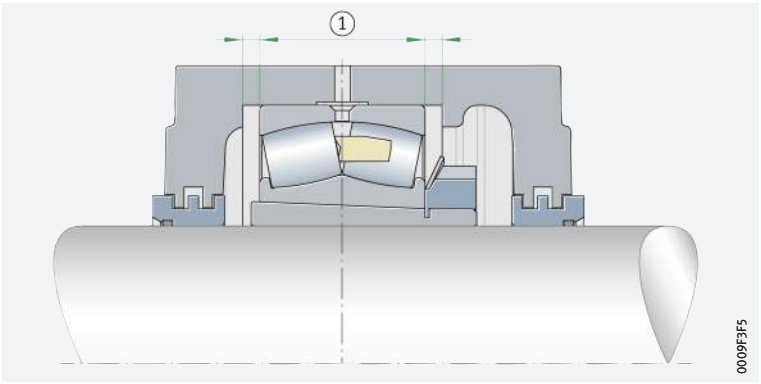
3
Locating bearing arrangement, as a result of inserted locating rings

① *Locating rings give axial location of the bearing*



4
Non-locating bearing arrangement, no locating rings inserted

① *Bearing can be axially displaced*



https://www.schaeffler.de/std/1D65

1.3 Materials

Standard materials

Depending on the housing series, the standard material used for FAG standard housings is flake graphite cast iron, spheroidal graphite cast iron or cast steel. The material is generally indicated by a suffix in the housing designation. This indication is omitted in the case of some housings where these are only available in one material variant.

Suffixes:

- L for flake graphite cast iron
- D for spheroidal graphite cast iron
- S for cast steel.

Other materials available by agreement

By agreement, housings made from other materials are also available. The material should be selected on the basis of a careful analysis of the application and the associated requirements.

Flake graphite cast iron

Restricted tensile strength and ductility, good compressive strength

For standard housings made from flake graphite cast iron, cast iron in accordance with DIN EN 1561 is generally used. In these cast materials with an iron/carbon/silicon base, the graphite inclusions are present in lamellar form. Under tensile load, these act as internal notches. The tensile strength of flake graphite cast iron is therefore limited and its ductility is comparatively low. The compressive strength of this alloy is, however, higher than the tensile strength by a factor of 4. These alloys also have good inherent stability.

Economical material for simple requirements

Flake graphite cast iron is therefore used in the case of housings with simple requirements. Furthermore, flake graphite cast iron represents the most economical variant of the cast materials available for use in housings.

In the case of split plummer block housings SAF, flake graphite cast iron to ASTM A48 Class35 is used.

Spheroidal graphite cast iron

Higher tensile strength and ductility than flake graphite cast iron

For standard housings made from spheroidal graphite cast iron, cast iron in accordance with DIN EN 1563 is generally used. Due to an addition of magnesium or, more rarely cerium or calcium, the graphite inclusions adopt a spheroidal form during casting. As a result, the tensile strength and ductility are higher than those of the grades with a lamellar graphite form.

Material for increased requirements

Spheroidal graphite cast iron is therefore used in the case of housings with an increased profile of requirements. The costs of spheroidal graphite cast iron are between those for flake graphite cast iron and cast steel.

In the case of split plummer block housings SAF, spheroidal graphite cast iron to ASTM A536 Grade 65-45-12 is used.

Cast steel

Moderate to high strength with high elongation at fracture

For standard housings made from cast steel, steel in accordance with DIN EN 10293 is generally used. Both unalloyed and alloyed steels are suitable for casting. The unalloyed cast steel used for housings combines moderate to high strength values with high elongation at fracture.

Material for high requirements

Cast steel is therefore used in the case of housings with high requirements for mechanical properties as well as a requirement for high ductility. The costs of cast steel are higher than the costs for flake graphite cast iron or spheroidal graphite cast iron. It is therefore recommended that checks be carried out to establish whether the material is really necessary in relation to the requirements of the specific application.

https://www.schaeffler.de/std/1D65

1.4 Corrosion protection

✎ *Universal paint coating*

All outer surfaces of standard housings not machined by chip-forming methods and the locating surfaces on the lower housing section have a universal paint coating. The coating can be finished using all synthetic resin, polyurethane, acrylic, epoxy resin, chlorinated rubber, nitrocellulose and acid-hardening hammer tone finishes.

✎ *Corrosion protection*

Inner and outer surfaces machined by chip-forming methods are provided with corrosion protection that can be easily removed. It is recommended that only volatile solvents and lint-free cloths should be used.

✎ *Special solutions available by agreement*

If there are particular requirements relating to paint coating and corrosion protection, special solutions are possible. If particular specifications are presented by the customer, we check their feasibility and these can be implemented if the result is positive.

1.5 Selection wizard for bearing housings

medias *professional*, the electronic product selection and advisory system from Schaeffler, includes a selection wizard for bearing housings ➤ *https://www.schaeffler.de/std/1D61*. This gives comprehensive assistance in the selection of housings and housing units. It takes account of the environmental conditions and the requirements placed on the bearing arrangement as well as the characteristics of the housings and the bearings suitable for the housings. Once the specified data have been inputted, the software generates detailed lists of results that also contain information on further accessories.

https://www.schaeffler.de/std/1D65

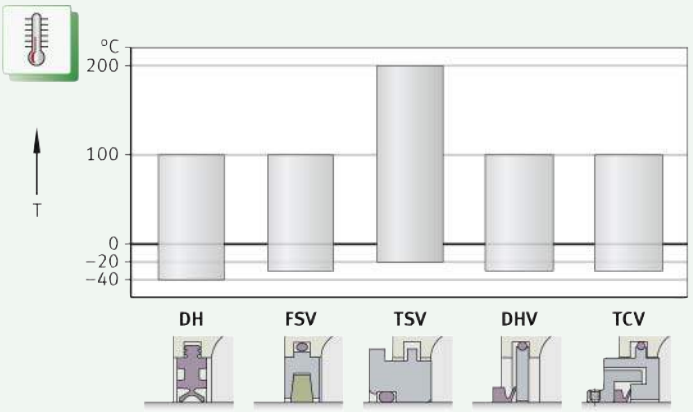
2 Split plummer block housings SNV

Split plummer block housings SNV:

- are designed in accordance with a modular concept and are highly versatile in application ➤*1575|2.1*
- are suitable for different bearing types and sizes with bore diameters from 20 mm to 160 mm ➤*1576|2.2*
- can be combined with an extensive range of seals covering a wide range of requirements and temperatures ➤*1575|1* and ➤*1586|2.7*.

1
Seals for split plummer block housings SNV

T = *permissible long term temperature of seal*



2.1 Housing design

Housings for wide range of applications

Split plummer block housings SNV and the associated bearings form bearing arrangement units that can be matched, through the appropriate selection of accessories, to a wide range of applications ➤*1576|2*. Applications include agricultural machinery, the paper processing industry, mining, materials processing, the steel industry and power stations.

https://www.schaeffler.de/std/1D65

2
Split plummer block housing SNV

Housings SNV052 to SNV200 are supplied without an eye bolt, housings SNV215 to SNV340 are supplied with an eye bolt.

Modular concept

The decisive factor is the outside diameter of the bearing

Seals are matched to the shaft diameter

The housings are designed in accordance with a modular concept. Each housing can be fitted with rolling bearings of various diameter and width series if they have the correct outside diameter for the housing.

Depending on their design, the bearings can be located either directly on the shaft or by means of an adapter sleeve. This gives different shaft diameters for the same bearing size. The spacings between the shaft and housing body are compensated by means of appropriately matched seals.

2.2 Suitable bearings

Shaft diameters from 20 mm to 160 mm and from $^{3}/_{4}$ inch to $5^{1}/_{2}$ inch

Split plummer block housings SNV are intended for fitting with spherical roller bearings, toroidal roller bearings, self-aligning ball bearings and barrel roller bearings with a tapered or cylindrical bore as well as deep groove ball bearings ➤ *1576* | *1*. The range of shaft diameters is 20 mm to 160 mm and $^{3}/_{4}$ inch to $5^{1}/_{2}$ inch.

1
Bearing types and sizes

Bearing type	Size
Spherical roller bearings ■ with tapered bore and adapter sleeve	21307..-K to 21322..-K
	22205..-K to 22232..-K
	22308..-K to 22332..-K
	23218..-K to 23232..-K
■ with cylindrical bore	21304 to 21322
	22205 to 22232
	22308 to 22332
	23218 to 23232
Toroidal roller bearings ■ with tapered bore and adapter sleeve	C2212..-K to C2232..-K
	C2312..-K to C2332..-K
	C3218..-K to C3232..-K
■ with cylindrical bore	C2212 to C2232
	C2312 to C2332
	C3218 to C3232

continued ▼

https://www.schaeffler.de/std/1D65

1 *Bearing types and sizes*

Bearing type	Size
Self-aligning ball bearings ■ with tapered bore and adapter sleeve	1205-K to 1222-K
	1305-K to 1320-K
	2205-K to 2220-K
	2305-K to 2320-K
■ with cylindrical bore	1205 to 1222
	1305 to 1320
	2205 to 2220
	2304 to 2320
Barrel roller bearings ■ with tapered bore and adapter sleeve	20205-K to 20232-K
	20305-K to 20332-K
■ with cylindrical bore	20205 to 20232
	20305 to 20330
Deep groove ball bearings ■ with cylindrical bore	6205 to 6232
	6304 to 6332

continued ▲

Split spherical roller bearings

Unsplit spherical roller bearings with an adapter sleeve can be replaced by split spherical roller bearings. This gives a considerable reduction in the work associated with bearing replacement in numerous applications. In order to ensure selection of the correct combination of housing and bearing when using split bearings, please contact Schaeffler.

The range of split spherical roller bearings is described in detail in a separate publication ➤ 🕮 *TPI 250*.

2.3 Materials, corrosion protection

Materials

The standard material for the housing bodies is flake graphite cast iron EN-GJL-HB215 in accordance with DIN EN 1561 (suffix L). By agreement, housing bodies made from spheroidal graphite cast iron EN-GJS-400-15 in accordance with DIN EN 1563 (suffix D) are available.

Corrosion protection

All outer surfaces not machined by chip-forming methods have a universal paint coating (colour RAL 7031, blue grey). The coating can be finished using all synthetic resin, polyurethane, acrylic, epoxy resin, chlorinated rubber, nitrocellulose and acid-hardening hammer tone finishes.

Inner and outer surfaces machined by chip-forming methods are provided with anti-corrosion protection that can be easily removed.
It is recommended that only volatile solvents and lint-free cloths should be used.

2.4 Locating and non-locating bearings

Locating bearing arrangement by means of locating rings

The bearing seats in the housing are machined such that the bearings are movable in the housing and can thus function as non-locating bearings. Locating bearing arrangements can be achieved by the insertion of one locating ring FRM on each side of the bearing outer ring. The bearing is thus seated in the centre of the housing. Locating rings must be ordered separately.

https://www.schaeffler.de/std/1D65

2.5 Load carrying capacity

Guide values

Guide values are given for the rupture load of plummer block housings SNV and the maximum load carrying capacity of connecting screws for the upper and lower housing sections ➤ 1578 | 3 and ➤ 1579 | 2. The guide values are valid for purely static loading.

The guide values for housing rupture load are valid for the standard housing material flake graphite cast iron (suffix L). For spheroidal graphite cast iron (suffix D) a factor of 1,6 should be applied.

The guide values only apply if the flatness of the mounting surface in accordance with DIN EN ISO 1101 corresponds to the tolerance grade IT8 in accordance with DIN EN ISO 286-1 (measured across the diagonal). A precondition for supporting loads is that the housing base surface is completely and rigidly supported.

Safety factors

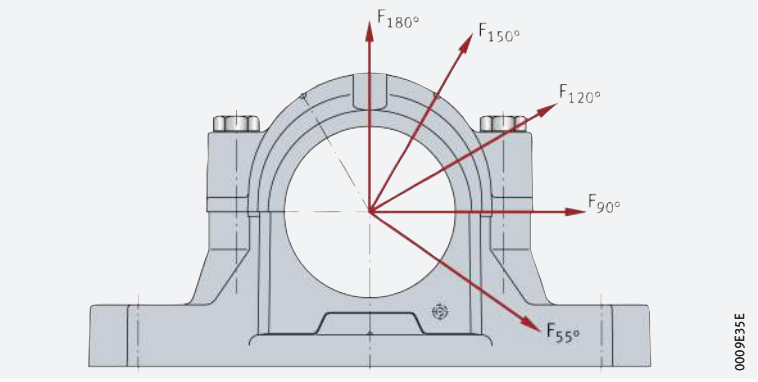
When determining the permissible static load, safety factors must be applied:

- safety factor of 6 relative to the housing rupture load
- safety factor of 3 relative to the maximum load carrying capacity of the connecting screws.

The housing must not be subjected to an axial load of more than $^{2}/_{3}$ of the housing rupture load $F_{180°}$.

If the housing is subjected to axial load, the permissible axial load of the bearing fitted must be taken into consideration. If the bearing is located on the shaft using an adapter sleeve, the axial retaining force of the bearing and adapter sleeve must also be taken into consideration.

If the load direction is between 55° and 120° or axial load is present, we recommend that the housings should be secured in the load direction by means of stops or dowels.



3 *Load directions F for the guide values for the housing rupture load and the maximum load carrying capacity of the connecting screws*

https://www.schaeffler.de/std/1D65

2 *Guide values for housing rupture load and maximum load carrying capacity of connecting screws. Tightening torques*

Housing	Housing rupture load in load direction F Housing made from flake graphite cast iron					Connecting screws				
						Thread to DIN 13	Tightening torque[1]	Maximum load carrying capacity in load direction F[2]		
	55°	90°	120°	150°	180°	Grade 8.8		120°	150°	180°
	kN	kN	kN	kN	kN		Nm	kN	kN	kN
SNV052-F-L	160	95	70	60	80	M10	51	60	35	30
SNV062-F-L	170	100	80	65	85	M10	51	60	35	30
SNV072-F-L	190	110	85	80	95	M10	51	60	35	30
SNV080-F-L	210	130	95	85	105	M10	51	60	35	30
SNV085-F-L	225	140	100	90	120	M10	51	60	35	30
SNV090-F-L	265	160	120	105	130	M10	51	60	35	30
SNV100-F-L	280	170	125	120	140	M12	87	80	45	40
SNV110-F-L	300	180	130	125	150	M12	87	80	45	40
SNV120-F-L	335	200	150	130	170	M12	87	80	45	40
SNV125-F-L	335	200	150	130	170	M12	87	80	45	40
SNV130-F-L	400	250	180	150	200	M12	87	80	45	40
SNV140-F-L	425	265	190	170	210	M12	87	80	45	40
SNV150-F-L	475	280	200	180	235	M12	87	80	45	40
SNV160-F-L	530	335	250	210	265	M16	215	180	100	90
SNV170-F-L	560	355	265	225	280	M16	215	180	100	90
SNV180-F-L	630	375	280	250	300	M20	430	260	150	130
SNV190-F-L	630	375	280	250	300	M20	430	260	150	130
SNV200-F-L	670	400	315	280	335	M20	430	260	150	130
SNV215-F-L	800	450	355	315	400	M20	430	260	150	130
SNV230-F-L	900	530	400	355	450	M24	740	360	210	180
SNV240-F-L	1 000	600	450	400	500	M24	740	360	210	180
SNV250-F-L	1 060	630	475	425	530	M24	740	360	210	180
SNV260-F-L	1 180	710	530	475	600	M24	740	360	210	180
SNV270-F-L	1 180	710	530	475	600	M24	740	360	210	180
SNV280-F-L	1 320	750	600	530	630	M24	740	360	210	180
SNV290-F-L	1 400	850	630	560	710	M24	740	360	210	180
SNV300-F-L	1 500	900	670	600	750	M24	740	360	210	180
SNV320-F-L	1 700	1 000	750	670	850	M24	740	360	210	180
SNV340-F-L	1 900	1 120	850	750	950	M30	1 450	640	370	320

Housings made from spheroidal graphite cast iron (suffix D) have a housing rupture load that is 1,6 times higher than that of housings made from flake graphite cast iron.

[1] *The tightening torques are maximum values when utilising 90% of the yield stress of the screw material and with a friction factor of 0,14. We recommend that the screws should be inserted to 70% of these values.*

[2] *Maximum load carrying capacity in load direction F, where there is still contact at the parting line between the upper and lower housing sections.*

https://www.schaeffler.de/std/1D65

2.6 Lubrication

Grease lubrication

Split plummer block housings SNV are principally intended for grease lubrication. The housings can, however, also be supplied in a design for oil lubrication.

Lubricating greases

Suitable greases

Arcanol MULTITOP, a lithium soap grease of NLGI class 2 with particularly effective EP additives, is highly suitable under the following conditions:

- bearing operating temperatures $<$ +100 °C
- bearing loads P/C $<$ 0,3
- bearing-specific speed parameter $k_f \cdot n \cdot d_M < 700\,000$ min$^{-1} \cdot$ mm where: $k_f = 1$ for self-aligning ball bearings and deep groove ball bearings, $k_f = 8$ to 10,5 for spherical roller bearings.

Due to their favourable flow behaviour, greases of NLGI grade 2, such as Arcanol MULTITOP and Arcanol MULTI2, are more suitable for relubrication than greases of higher consistency grades.

Grease quantities

Basic rule for initial greasing

For initial greasing, the basic rule is that the bearing should be filled with grease to 100% and the free volume of the housing to 60%. This is the basis for the recommended grease quantities ➤*1580*|▦ *3*. The free volume is the space that remains in the housing once the bearing, adapter sleeve, shaft and seals have been fitted.

Relubrication

For relubrication, minimum quantities of grease are recommended ➤*1580*|▦ *3*.

▦ **3**
Recommended grease quantities for initial greasing and relubrication

Housing	Grease quantity	
	Initial greasing ≈ g	Relubrication (minimum quantity) ≈ g
SNV052-F	30	5
SNV062-F	45	5
SNV072-F	65	10
SNV080-F	80	10
SNV085-F	105	10
SNV090-F	130	10
SNV100-F	180	15
SNV110-F	210	15
SNV120-F	270	20
SNV125-F	290	20
SNV130-F	330	20
SNV140-F	440	25
SNV150-F	500	30
SNV160-F	650	40
SNV170-F	700	45
SNV180-F	900	55
SNV190-F	950	60
SNV200-F	1 200	70
SNV215-F	1 400	80
SNV230-F	1 600	85
SNV240-F	1 700	90
SNV250-F	2 000	100
SNV260-F	2 000	120
SNV270-F	2 500	130

continued ▼

https://www.schaeffler.de/std/1D65

3 *Recommended grease quantities for initial greasing and relubrication*

Housing	Grease quantity	
	Initial greasing ≈ g	Relubrication (minimum quantity) ≈ g
SNV280-F	2 600	140
SNV290-F	3 000	150
SNV300-F	3 100	160
SNV320-F	3 700	200
SNV340-F	4 500	240

continued ▲

Special case with 100% grease filling

With a speed parameter $n \cdot d_M < 50\,000\ min^{-1} \cdot mm$ and a non-contact seal (labyrinth seal TSV), where the grease should also perform a sealing function, the housing and seal cavities should be filled to 100%.

Relubrication

Bearings with circumferential lubrication groove

Where relubrication is carried out on bearings with a circumferential lubrication groove, the grease is introduced into the housing via the central lubrication hole ➤ *1582* | 4. In this type of relubrication, the grease acts directly on the bearing raceway.

Bearings without lubrication groove

Where relubrication is carried out on bearings without a lubrication groove, the grease must be introduced into the housing via the lateral lubrication hole. In this case, the housing cavities on the side with the lubrication nipple must be filled completely with grease so that the relubrication grease can act immediately on the bearing.

Permanent use of lubrication nipples

In both cases, the lubrication hole present (threaded hole M10×1) is prepared by removing the screw plug and permanently inserting one of the lubrication nipples supplied at this point.

Marked positions for further lubrication holes

As an alternative to the lubrication holes already present, lubrication holes may be introduced at other positions as indicated by the cast-in marking points.

Lubrication holes can be introduced at further marked positions for the relubrication of labyrinth seals.

Prevention of overgreasing

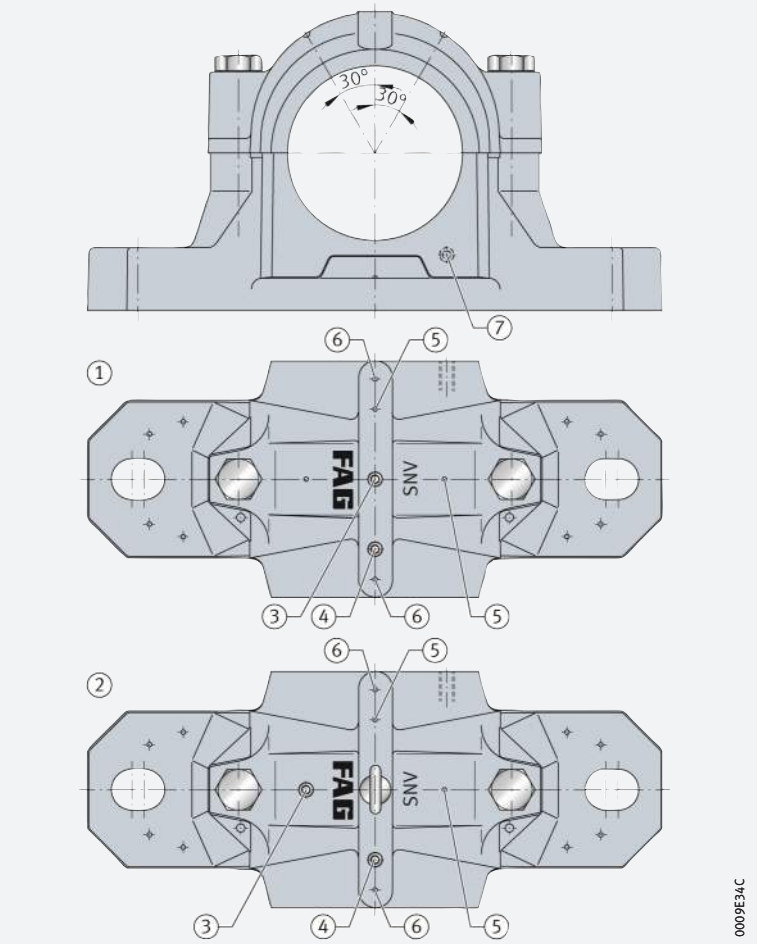
For relubrication, minimum quantities of grease are recommended ➤ *1580* | 3. In order to prevent overgreasing, the screw plug in the grease outlet hole in the lower housing section must be removed while relubrication is being carried out. This allows superfluous grease to escape. This must be observed in particular when using double lip seals DH. Otherwise, there is a risk that the double lip seal will be pressed out of the housing.

The grease outlet hole must then be closed off again using the screw plug. If unfavourable environmental conditions are present, there is therefore a risk of contaminant ingress into the housing when the grease outlet holes are opened.

https://www.schaeffler.de/std/1D65

4
Positions for relubrication

① *SNV052-F to SNV200-F*
② *SNV215-F to SNV340-F*
③ *Central lubrication hole, for bearings with lubrication groove*
④ *Lateral lubrication hole, for bearings without lubrication groove*
⑤ *Marked positions for further lubrication holes for lubrication of the bearing*
⑥ *Marked positions for lubrication holes for lubrication of seals*
⑦ *Grease outlet hole*



Standard parts and dimensions

Screw plugs
The lubrication and grease outlet holes are closed off using screw plugs to DIN 906.

Lubrication nipples
Lubrication nipples with a dust cap are supplied as followed:
- button head lubrication nipples to DIN 3404-M10×1
- taper type lubrication nipple to DIN 71412-AM10×1.

Dimensions
The size of the grease outlet hole is dependent on the size of the housing ➤ *1582* | *4*.

4
Dimensions of threaded holes

Housing	Thread for	
	Grease outlet hole	Relubrication hole
SNV052-F – SNV090-F	M10×1	M10×1
SNV100-F – SNV125-F	M14×1,5	
SNV130-F – SNV340-F	M20×1,5	

https://www.schaeffler.de/std/1D65

Oil lubrication

Suitability for oil bath and recirculating oil lubrication

Split plummer block housings SNV are suitable not only for grease lubrication but also for oil bath lubrication and recirculating oil lubrication. The housings have a large internal cavity with oil collector pockets in the lower section. Due to the housing geometry, it is possible to introduce connection holes for oil inlet, oil outlet, an oil sight glass and a temperature sensor.

Connection holes for oil lubrication

Dimensions

The recommended dimensions are valid for oil bath lubrication and for recirculating oil lubrication ➤ *1583* | ▦ *5*, ➤ *1584* | ▦ *6* and ➤ *1584* | ⧉ *5*.

Utilisation

If recirculating oil lubrication is used, the hole M_2 is intended for the oil inlet function. If oil bath lubrication is used, a venting device can be installed for venting of the housing.

If oil bath lubrication is used, the hole M_4 is intended for the oil sight glass. If recirculating oil lubrication is used, the hole can be used for the oil outlet.

▦ **5**
Recommended dimensions of connnection holes for oil inlet and oil outlet

Housing	Connection for				
	Oil inlet		Oil outlet		
	M_2	$n_3/2$ mm	M_3	α °	g_6 mm
SNV100-F	$G^1/_4$	31	M10×1	50	44
SNV110-F	$G^1/_4$	33,5	M10×1	50	46
SNV120-F	$G^1/_4$	35,5	M10×1	50	49
SNV125-F	$G^1/_4$	28,5	M10×1	50	49
SNV130-F	$G^1/_4$	38	M10×1	50	51,5
SNV140-F	$G^1/_4$	40,5	M10×1	60	57,5
SNV150-F	$G^1/_4$	42,5	M10×1	60	60
SNV160-F	$G^1/_4$	45	M10×1	60	62,5
SNV170-F	$G^1/_4$	46,5	M10×1	60	64
SNV180-F	$G^1/_4$	19,5	M10×1	60	69
SNV190-F	$G^1/_4$	49,5	M10×1	60	68,5
SNV200-F	$G^1/_4$	55,5	M10×1	60	77,5
SNV215-F	$G^1/_4$	58,5	M10×1	60	80
SNV230-F	$G^1/_4$	61	M10×1	60	83
SNV240-F	$G^1/_4$	60	M10×1	60	81,5
SNV250-F	$G^1/_4$	65,5	M10×1	60	89
SNV260-F	$G^1/_4$	62,5	M10×1	60	84
SNV270-F	$G^1/_4$	71,5	M10×1	60	86,5
SNV280-F	$G^1/_4$	68	M10×1	60	92,5
SNV290-F	$G^1/_4$	76	M10×1	60	102,5
SNV300-F	$G^1/_4$	73	M10×1	60	99,5
SNV320-F	$G^1/_4$	77	M10×1	60	105,5
SNV340-F	$G^1/_4$	81	M10×1	60	109,5

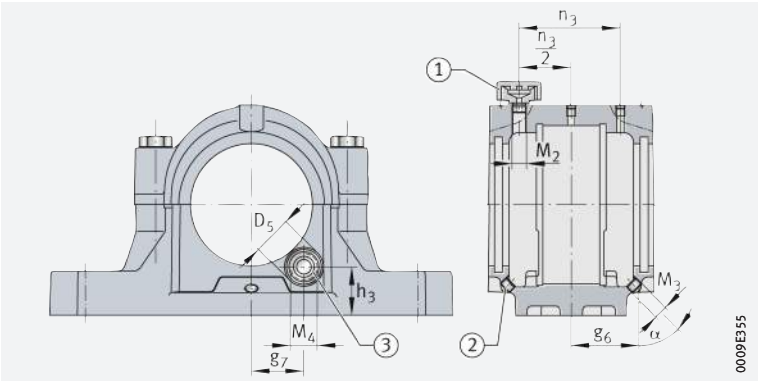
https://www.schaeffler.de/std/1D65

6
Recommended dimensions of connection holes for oil sight glass

Housing	Connection for oil sight glass			
	M_4	g_7 mm	h_3	D_5
SNV100-F	$G^3/_8$	33	31	24
SNV110-F	$G^3/_8$	35	28	24
SNV120-F	$G^3/_8$	38	35	24
SNV125-F	$G^3/_8$	44	24	24
SNV130-F	$G^1/_2$	43	28,5	30
SNV140-F	$G^1/_2$	45	40	30
SNV150-F	$G^1/_2$	47	38	30
SNV160-F	$G^1/_2$	50	39	30
SNV170-F	$G^3/_4$	55	46	36
SNV180-F	$G^3/_4$	57	43	36
SNV190-F	$G^3/_4$	48	45	36
SNV200-F	$G^3/_4$	62	50	36
SNV215-F	$G^3/_4$	67	58	36
SNV230-F	$G^3/_4$	70	60	36
SNV240-F	$G^3/_4$	61	60	36
SNV250-F	$G^3/_4$	75	55	36
SNV260-F	$G^3/_4$	65	65	36
SNV270-F	$G^3/_4$	81	55	36
SNV280-F	$G^3/_4$	70	60	36
SNV290-F	$G^3/_4$	87	58	36
SNV300-F	$G^3/_4$	75	70	36
SNV320-F	$G^3/_4$	80	73	36
SNV340-F	$G^3/_4$	95	75	36

5
Dimensions of connection holes

① *Venting device*
② *Screw plug*
③ *Oil sight glass*



https://www.schaeffler.de/std/1D65

Design for oil lubrication

Housings with connection holes for oil lubrication

Plummer block housings SNV can be supplied by agreement in a design for oil lubrication. Housings of this design already have the connection holes for oil inlet, oil outlet and an oil sight glass to the recommended dimensions ➤*1583*|▦ *5*, ➤*1584*|▦ *6* and ➤*1584*|⧉ *5*.

The scope of delivery of the design for oil lubrication includes:

- 1 oil sight glass OSGL
- 1 venting device VENT
- 2 screw plugs VSB.

Housings with connection holes according to individual customer specifications can also be supplied once their feasibility has been checked.

Sealing

Sealing of the shaft

When using the double lip seal DH, a certain amount of oil leakage must be expected, which is unavoidable with seals that are split and not spring-loaded.

In order to limit oil leakage to a small quantity, the shaft in the seal area should have the following characteristics:

- hardness at least 55 HRC
- ground without spiral marks to Ra = 0,2 mm, but at least Ra ≦ 0,5 µm.

A technically oiltight design is only possible with a spring-loaded, unsplit rotary shaft seal.

Sealing of the housing body

The parting line between the upper and lower housing sections must be sealed with a thin layer of a commercial sealant (with permanent elasticity). In the case of a housing closed on one side, the base of the groove in which the cover is inserted must be brushed with sealant.

Guidelines for oil bath lubrication

Minimum oil level

When using oil bath lubrication, a minimum oil level must be ensured. This corresponds to the dimension h3 ➤*1584*|▦ *6* and ➤*1584*|⧉ *5*.

Housing venting

When using oil bath lubrication, venting of the housing is absolutely necessary.

For operation with oil bath lubrication, venting of the housing must be provided. For example, the filling hole can be closed off using a bleed screw.

https://www.schaeffler.de/std/1D65

2.7 Sealing

Seals

Standard seals

For the sealing of the bearing housings, the standard seals available are the double lip seal, the felt seal, the labyrinth seal, the V ring seal and the taconite seal. These seals are matched to the rectangular section annular slots on both sides of the housings. They are principally suitable for grease lubrication. The seals must be ordered separately. In the case of the double lip seal and felt seal, the scope of delivery comprises two seals, while all other seals are supplied individually. If a continuous shaft is present, two seals must be ordered.

Special seals

Special seals are also available by agreement.

Double lip seal DH

Separate sealing functions inwards and outwards

The seal lips of the double lip seal DH slide on the rotating shaft. The outer seal lip prevents ingress of contamination into the bearing. This effect is supported by the grease inserted between the seal lips. The inner seal lip prevents lubricant from escaping from the housing. The seal is made from acrylonitrile butadiene rubber NBR and is suitable for circumferential velocities of up to 13 m/s. For continuous operation, a maximum circumferential velocity of 6 m/s is recommended.

The seal is suitable for temperatures from –40 °C to +100 °C. It allows shaft misalignment of up to 0,5° in both directions.

Two-piece seal for simplified fitting

The double lip seal DH is a two-piece seal. It can be easily inserted in the annular slots in the housing. The parting joint of the seal halves should be in the same plane as the parting joint of the housing.

Shaft

The contact running area on the shaft for the seal lips should have a roughness Ra 3,2.

Felt seals FSV

Robust seal for grease lubrication

Felt seals FSV are particularly suitable for grease lubrication. They comprise an adapter holding the inserted, oil-impregnated felt strip and the adapter is secured against rotation by an O ring in the annular slot in the housing. The seals are suitable for circumferential velocities of up to 5 m/s and, after running-in, of up to 15 m/s. They can be used at temperatures up to +100 °C. The permissible shaft misalignment is 0,5° in both directions.

Aramide packing

By agreement, aramide packing is available for temperatures of more than 100 °C.

Labyrinth seals TSV

Non-contact seal for high circumferential velocities

Labyrinth seals TSV give non-contact sealing. They are therefore suitable for high circumferential velocities. The O ring, which is pressed between the labyrinth ring and shaft, is made from fluoro rubber FKM and is suitable for temperatures of up to +200 °C. The labyrinth seal allows shaft misalignment of up to 0,5° in both directions.

Relubrication

If necessary, the labyrinth can be relubricated. For this purpose, a lubrication hole must be made in the upper housing section for each labyrinth seal. The optimum positions are indicated by cast-in pilot holes.

V ring seals DHV

Seal in axial contact

In the case of V ring seals DHV, the seal lip is in axial contact with the sliding surface which is located in the rectangular section annular slot of the housing. The seal is made from NBR and is suitable, when using grease lubrication, for circumferential velocities of up to 12 m/s. If circumferential velocities of more than 8 m/s are present, axial location is necessary. The seal allows shaft misalignment of up to 0,5° in both directions.

Taconite seals TCV

Seal for extreme contamination impact

Taconite seals TCV are combined seals comprising a labyrinth seal and a V ring. These seals are suitable for extreme operating conditions in relation to contamination and dust. The V ring is made from NBR and is suitable for temperatures of up to +100 °C. The taconite seal allows shaft misalignment of up to 0,5° in both directions.

https://www.schaeffler.de/std/1D65

Covers

Covers are used in the case of housings closed on one side. The covers fit in the rectangular section annular slots in the housings.

Covers DKV

✎ *Covers made from plastic*

Covers DKV are made from plastic and are suitable for long term temperatures of up to +120 °C. The covers must be ordered separately.

Covers DKVT

✎ *Covers made from metal*

Covers DKVT are made from steel, flake graphite cast iron or spheroidal graphite cast iron and are suitable for temperatures of up to +200 °C. Covers are available by agreement.

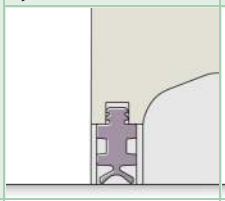
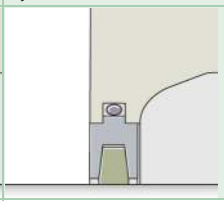
Characteristics and operating limits

The characteristics and operating limits of the standard seals and covers are compared in an overview ➤ *1588* | ▦ *7*.

https://www.schaeffler.de/std/1D65

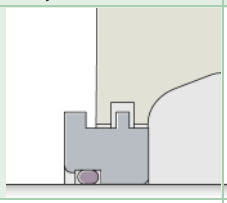
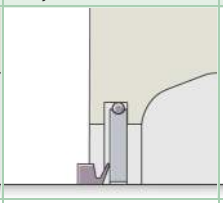
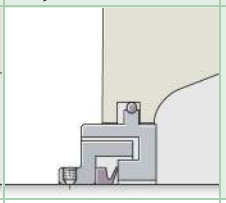
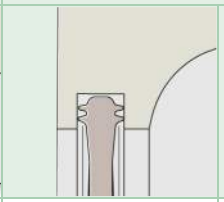
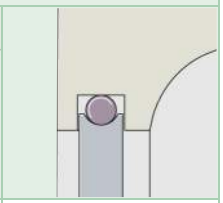
7
Standard seals and covers for plummer block housings SNV

++ = *highly suitable*
\+ = *suitable*
(+) = *suitable with restrictions*
– = *not suitable*

Seals and covers		**Double lip seal, split**	**Felt seal, split**
			
Designation		**DH**	**FSV**
Material		NBR	Steel, felt, NBR
Pieces per pack		2	2
Suitability for sealing against			
dust		++	+
fine, solid particles		++	–
coarse, solid particles		+	–
slivers		+	+
spray liquids		+	–
Operating limits			
Long term temperature	°C	–40 to +100 (due to NBR)	–30 to +100 (due to NBR)
	°F	–40 to +210 (due to NBR)	–22 to +210 (due to NBR)
Circumferential velocity	m/s	≦13 (continuous 6)	5 (after running-in 15)
Misalignment	°	≦0,5	≦0,5
Low friction		++	–
Axial shaft displacement (suitability as non-locating bearing)		++	++
Vertical arrangement		+	–
Suitability for grease relubrication		++	–
Suitability for oil lubrication		(+)	–
Compatibility with sunlight		+	++
Preconditions			
Tolerance class[1] of shaft diameter		h8 (h9)	h8 (h9)
Shaft roughness	µm	Ra 3,2	Ra 3,2

[1] *The envelope requirement Ⓔ applies*

https://www.schaeffler.de/std/1D65

	Labyrinth seal, unsplit	V ring seal, unsplit	Taconite seal, unsplit	Covers	
					
	TSV	**DHV**	**TCV**	**DKV**	**DKVT**
	Steel, FKM	Steel, NBR	Steel, NBR	Plastic	Steel or cast iron, FKM
	1	1	1	1	1
	+	+	++	+	+
	+	+	++	+	+
	+	–	++	+	+
	++	–	++	+	+
	–	+	++	+	+
	–20 to +200 (due to FKM)	–30 to +100 (due to NBR)	–30 to +100 (due to NBR)	–40 to +120	–20 to +200 (due to FKM)
	–4 to +390 (due to FKM)	–22 to +210 (due to NBR)	–22 to +210 (due to NBR)	–40 to +250	–4 to +390 (due to FKM)
	No restriction	≦12	≦12	Not applicable	Not applicable
	≦0,5	≦0,5	≦0,5	Not applicable	Not applicable
	++	++	+	Not applicable	Not applicable
	+	(+)	+	Not applicable	Not applicable
	–	(+)	–	+	+
	+	(+)	+	+	++
	–	–	–	–	++
	++	–	++	(+)	++
	h8 (h9)	h8 (h9)	h8 (h9)	Not applicable	Not applicable
	Ra 3,2	Ra 3,2	Ra 3,2	Not applicable	Not applicable

https://www.schaeffler.de/std/1D65

2.8 Dimensions, tolerances

Dimensions

The dimensions of housings SNV correspond to ISO 113 and DIN 736 to DIN 739.

Interchangeability

The housings SNV are interchangeable with the existing housings SN and SNE.

Tolerances for the bearing seat

The bearing seat in split plummer block housings SNV is machined to the tolerance class G7 in accordance with DIN EN ISO 286-1. The tolerance indicated is valid in the delivered condition, i. e. before the screws connecting the upper and lower sections are loosened.

By agreement, the housings can also be supplied with other tolerance classes for the bearing seat.

2.9 Housing configurations

Possible combinations

Modular construction allows numerous combinations

On the basis of the standard components, the following features can be varied in the housing configuration ➤*1591*|*6* and ➤*1591*|*7*:

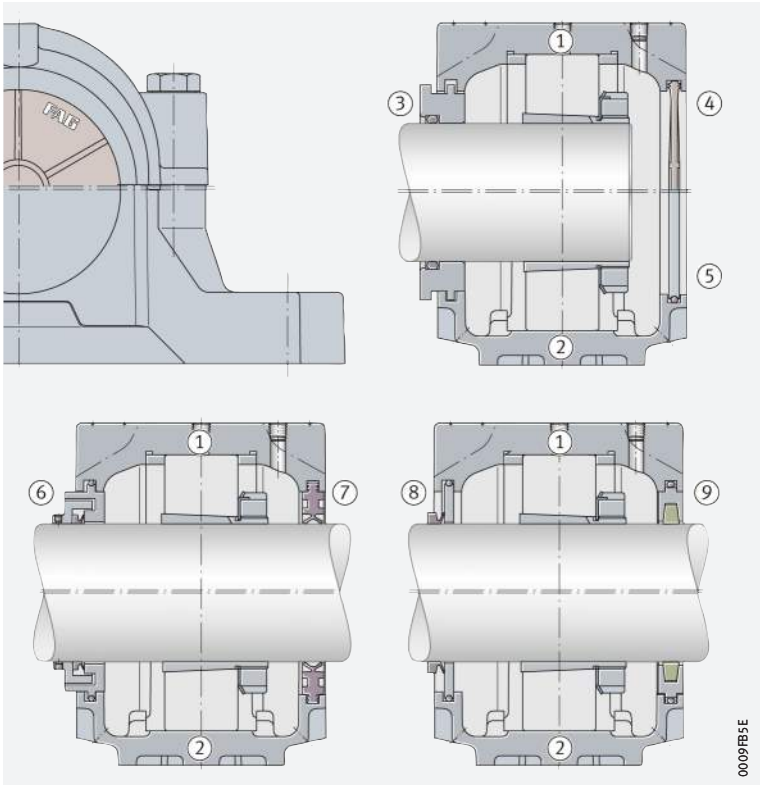
- location of bearings with a tapered bore by means of an adapter sleeve on a shaft of constant diameter or of bearings with a cylindrical bore directly on a stepped shaft
- sealing of housing by double lip seal, felt seal, labyrinth seal, V ring seal or taconite seal
- continuous shaft or a housing closed on one side
- cover made from plastic (DKV) or cover made from steel or cast iron (DKVT)
- design of the bearing arrangement as a locating bearing arrangement or a non-locating bearing arrangement
- spherical roller bearing of split or unsplit design.

https://www.schaeffler.de/std/1D65

6

Plummer block housing SNV for bearings with tapered bore and adapter sleeve (overview of combinations)

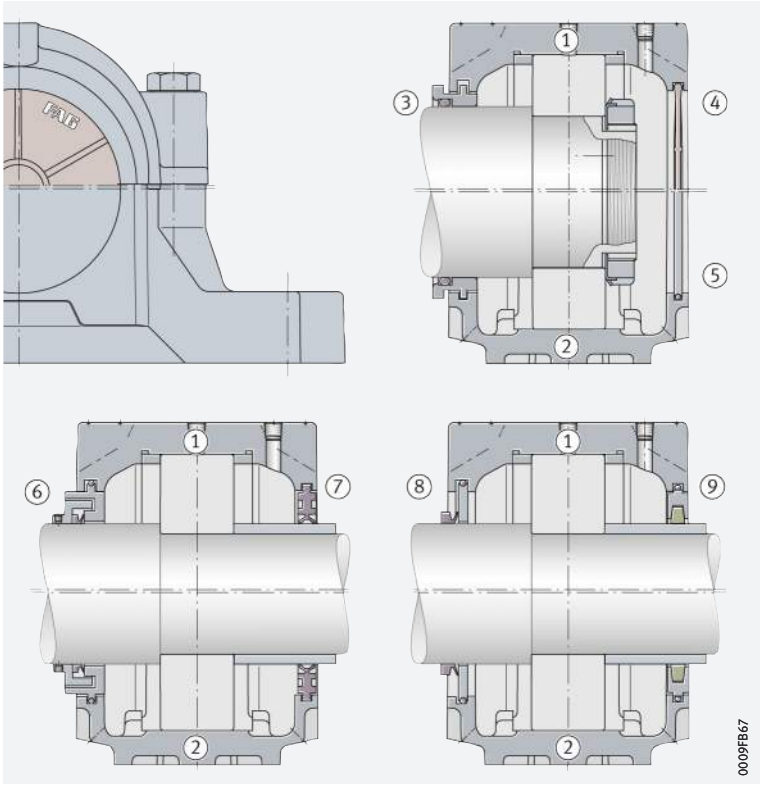
① *Locating bearing*
② *Non-locating bearing*
③ *Labyrinth seal TSV*
④ *Cover DKV*
⑤ *Cover DKVT*
⑥ *Taconite seal TCV*
⑦ *Double lip seal DH*
⑧ *V ring seal DHV*
⑨ *Felt seal FSV*



7

Plummer block housing SNV for bearings with cylindrical bore (overview of combinations)

① *Locating bearing*
② *Non-locating bearing*
③ *Labyrinth seal TSV*
④ *Cover DKV*
⑤ *Cover DKVT*
⑥ *Taconite seal TCV*
⑦ *Double lip seal DH*
⑧ *V ring seal DHV*
⑨ *Felt seal FSV*



https://www.schaeffler.de/std/1D65

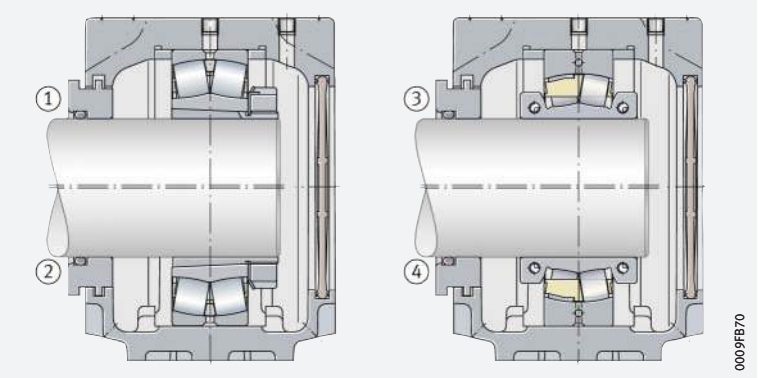
Mounting of split spherical roller bearings

✎ Simplified bearing replacement by means of split bearing

In the case of plummer block housings SNV, an unsplit spherical roller bearing with a tapered bore and adapter sleeve can be replaced by a split spherical roller bearing ➤ *1592* | *8*.

8
Plummer block housing SNV with split and unsplit spherical roller bearing

① *Locating bearing with unsplit bearing*
② *Non-locating bearing with unsplit bearing*
③ *Locating bearing with split bearing*
④ *Non-locating bearing with split bearing*



In order to ensure selection of the correct combination of housing and bearing when using split bearings, please contact Schaeffler.

The range of split spherical roller bearings is described in detail in a separate publication ➤ *TPI 250*.

2.10 Structure of housing designation

The designation of the housings and associated seals, covers and locating rings follows a set model. Description of the designation components ➤ *1592* | *8* to ➤ *1594* | *11*. Structure of designations ➤ *1592* | *9* to ➤ *1594* | *12*.

8
Components of the designations of plummer block housings SNV

Characteristic		Code	Description
①	Series	SNV	Split plummer block housings SNV
②	Bearing outside diameter	340	Outside diameter 340 mm
③	Housing design	F	Threaded holes for grease relubrication and grease outlet
④	Housing material	L	Flake graphite cast iron (standard)
		D	Spheroidal graphite cast iron

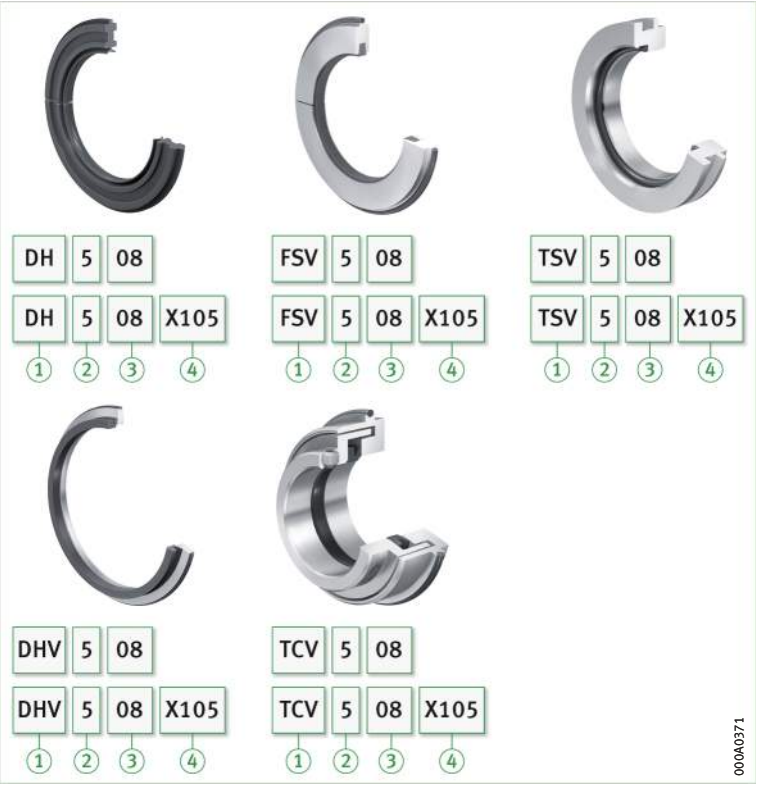
9
Designation structure of plummer block housings SNV, example

https://www.schaeffler.de/std/1D65

9
Components of the designations of standard seals

Characteristic		Code	Description
①	Series	DH	Double lip seal, split
		FSV	Felt seal, split
		TSV	Labyrinth seal, unsplit
		DHV	V ring seal, unsplit
		TCV	Taconite seal, unsplit
②	Diameter series of bearing, bearing bore	2	Bearings of diameter series 2, cylindrical bearing bore
		3	Bearings of diameter series 3, cylindrical bearing bore
		5	Bearings of diameter series 2, tapered bearing bore and adapter sleeve
		6	Bearings of diameter series 3, tapered bearing bore and adapter sleeve
③	Bore code of bearing	08	Bore diameter (8 · 5) mm = 40 mm
④	Shaft diameter	No further indications	Standard shaft diameter of dimension series
		X105	Inch size shaft diameter: ■ 1 inch + 5 · $^{1}/_{16}$ inch = $1\,^{5}/_{16}$ inch

10
Designation structure of standard seals, examples



https://www.schaeffler.de/std/1D65

10 *Components of designations of covers*

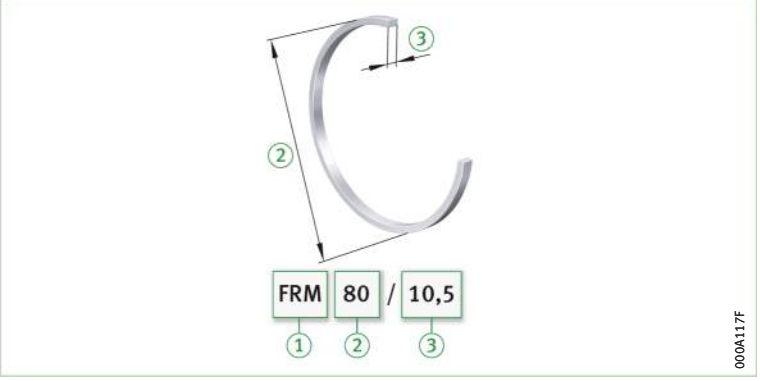
Characteristic		Code	Description
①	Series	DKV	Cover made from plastic
		DKVT	Cover made from steel and FKM
②	Housing size	080	Cover suitable for housing SNV080

11 *Designation structure of covers, examples*

11 *Components of designations of locating rings*

Characteristic		Code	Description
①	Series	FRM	Locating ring
②	Outside diameter	80	Outside diameter 80 mm
③	Width	10,5	Width 10,5 mm

12 *Designation structure of locating rings, example*



https://www.schaeffler.de/std/1D65

Ordering examples

Separate ordering of housing body and accessories

When a split plummer block housing SNV is ordered, the housing designation only describes the housing body. The other components such as seals, covers or locating rings must be ordered separately in the specific design required. The rolling bearing and, if necessary, the adapter sleeve must also be ordered separately.

Plummer block housings SNV with a bearing fitted give non-locating bearing arrangements. These can be converted into locating bearing arrangements through the additional insertion of locating rings FRM.

The ordering examples show the construction of orders for selected housing combinations and the appropriate bearings. The allocation of housings, bearings and accessories for all housing sizes is shown in the product tables ➤ *1598*.

Example 1

Plummer block housing SNV made from flake graphite cast iron, closed on one side, self-aligning ball bearing 2210-K-TVH-C3 as locating bearing, location by means of an adapter sleeve on shaft diameter of 45 mm, double lip seal.

Order

1 plummer block housing	SNV090-F-L
1 self-aligning ball bearing	2210-K-TVH-C3
1 adapter sleeve	H310
2 locating rings	FRM90/9
1 cover	DKV090
1 double lip seal	DH510 (2 pieces per pack)

Example 2

Plummer block housing SNV made from flake graphite cast iron, for continuous shaft, split spherical roller bearing 222SM70-TVPA as locating bearing, double lip seal.

Order

1 plummer block housing	SNV140-F-L
1 split spherical roller bearing	222SM70-TVPA
2 locating rings	FRM140/12,5
2 double lip seals	DH516 (2 pieces per pack)

Example 3

Plummer block housing SNV made from spheroidal graphite cast iron, closed on one side, spherical roller bearing 23218-E1-TVPB as non-locating bearing, felt seal.

Order

1 plummer block housing	SNV160-F-D
1 spherical roller bearing	23218-E1-TVPB
1 shaft nut	KM18
1 tab washer	MB18
1 cover	DKV160
1 felt seal	FSV218 (2 pieces per pack)

https://www.schaeffler.de/std/1D65

2.11 Mounting and dismounting

Eye bolts

In the case of housing size SNV215 and larger, the upper housing section has an eye bolt in accordance with DIN 580. This is intended as a locating point for mounting and dismounting of the housing. The load carrying capacity of the eye bolt allows lifting of the housing including a bearing fitted in the housing.

The eye bolt must always be screwed fully into the housing.

The eye bolt must not be subjected to a mass greater than that of the housing together with the bearing fitted in the housing.

Foot screws

Foot screws are used for screw mounting of the housing to the mounting surface. They are not included in the scope of delivery of the housings.

The appropriate screw size for each housing is given in the product tables ➤ *1598*.

Tightening torques for foot screws

The following table contains tightening torques for metric coarse pitch threads in accordance with DIN 13, DIN 962 and DIN ISO 965-2.

The tightening torques are maximum values when utilising 90% of the yield stress of the screw material 8.8 and with a friction factor of 0,14. We recommend that foot screws should be tightened to approx. 70% of these values ➤ *1596*.

12
Tightening torques for foot screws with metric thread in accordance with DIN 13, DIN 962 and DIN ISO 965-2

Nominal screw diameter	Maximum tightening torque Nm	Recommended tightening torque Nm
M12	93	65
M16	230	160
M20	464	325
M24	798	550
M30	1 597	1 100
M36	2 778	1 950

Detailed information on mounting

Careful and correct mounting of the bearing housing, including the correct mounting of the rolling bearing in the housing, is fundamental to reliable operation. Comprehensive information is given in Catalogue GK 1, Bearing Housings ➤ *https://www.schaeffler.de/std/1D54*.

2.12 Legal notice regarding data freshness

The further development of products may also result in technical changes to catalogue products

Of central interest to Schaeffler is the further development and optimisation of its products and the satisfaction of its customers. In order that you, as the customer, can keep yourself optimally informed about the progress that is being made here and with regard to the current technical status of the products, we publish any product changes which differ from the printed version in our electronic product catalogue.

We therefore reserve the right to make changes to the data and illustrations in this catalogue. This catalogue reflects the status at the time of printing. More recent publications released by us (as printed or digital media) will automatically precede this catalogue if they involve the same subject. Therefore, please always use our electronic product catalogue to check whether more up-to-date information or modification notices exist for your desired product.

Link to electronic product catalogue

The following link will take you to the Schaeffler electronic product catalogue: ➤ *https://medias.schaeffler.com*.

https://www.schaeffler.de/std/1D65

2.13 Further information

In addition to the data in this chapter, the following chapters must also be observed in the selection of a housing:

- Lubrication ➤*70|6*
- Locating and non-locating bearing concepts ➤*1571|1.2*
- Housing materials ➤*1573|1.3*

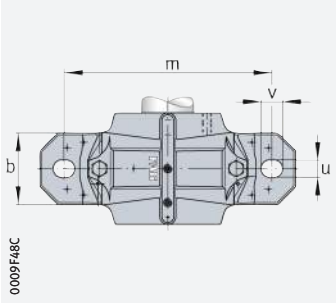
Further information:

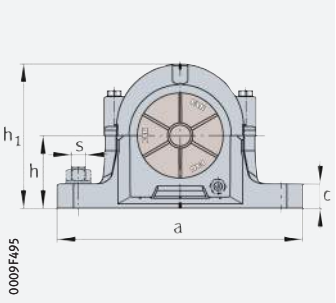
- Product tables on split plummer block housings SNV for inch size shaft diameters ➤ 🕮 *GK 1*
- Electronic housing selection wizard ➤*https://www.schaeffler.de/std/1D61*

https://www.schaeffler.de/std/1D65

Plummer block housings

SNV, split
For bearings with tapered bore and adapter sleeve, metric shaft





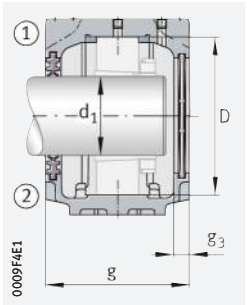
d_1 = 20 – 35 mm

Shaft	Housing														Housing
	Dimensions													Mass	Designation
d_1	h	h_1	g	b	c	a	m	v	u	s		D	g_3	m	➤ *1592|2.10*
mm										mm	inch			≈ kg	
20	40	75	70	46	19	165	130	20	15	M12	1/2	52	10,5	1,3	**SNV052-F-L**
	50	91	75	52	22	185	150	20	15	M12	1/2	62	10,5	1,9	**SNV062-F-L**
	40	75	70	46	19	165	130	20	15	M12	1/2	52	10,5	1,3	**SNV052-F-L**
	40	75	70	46	19	165	130	20	15	M12	1/2	52	10,5	1,3	**SNV052-F-L**
	40	75	70	46	19	165	130	20	15	M12	1/2	52	10,5	1,3	**SNV052-F-L**
	50	91	75	52	22	185	150	20	15	M12	1/2	62	10,5	1,9	**SNV062-F-L**
25	50	91	75	52	22	185	150	20	15	M12	1/2	62	10,5	1,9	**SNV062-F-L**
	50	97	80	52	22	185	150	20	15	M12	1/2	72	10,5	2	**SNV072-F-L**
	50	91	75	52	22	185	150	20	15	M12	1/2	62	10,5	1,9	**SNV062-F-L**
	50	91	75	52	22	185	150	20	15	M12	1/2	62	10,5	1,9	**SNV062-F-L**
	50	91	75	52	22	185	150	20	15	M12	1/2	62	10,5	1,9	**SNV062-F-L**
	50	97	80	52	22	185	150	20	15	M12	1/2	72	10,5	2	**SNV072-F-L**
30	50	97	80	52	22	185	150	20	15	M12	1/2	72	10,5	2	**SNV072-F-L**
	60	112	85	60	25	205	170	20	15	M12	1/2	80	10,5	2,9	**SNV080-F-L**
	50	97	80	52	22	185	150	20	15	M12	1/2	72	10,5	2	**SNV072-F-L**
	60	112	85	60	25	205	170	20	15	M12	1/2	80	10,5	2,9	**SNV080-F-L**
	50	97	80	52	22	185	150	20	15	M12	1/2	72	10,5	2	**SNV072-F-L**
	50	97	80	52	22	185	150	20	15	M12	1/2	72	10,5	2	**SNV072-F-L**
	60	112	85	60	25	205	170	20	15	M12	1/2	80	10,5	2,9	**SNV080-F-L**
35	60	112	85	60	25	205	170	20	15	M12	1/2	80	10,5	2,9	**SNV080-F-L**
	60	117	100	60	25	205	170	20	15	M12	1/2	90	12,5	3,1	**SNV090-F-L**
	60	112	85	60	25	205	170	20	15	M12	1/2	80	10,5	2,9	**SNV080-F-L**
	60	117	100	60	25	205	170	20	15	M12	1/2	90	12,5	3,1	**SNV090-F-L**
	60	112	85	60	25	205	170	20	15	M12	1/2	80	10,5	2,9	**SNV080-F-L**
	60	112	85	60	25	205	170	20	15	M12	1/2	80	10,5	2,9	**SNV080-F-L**
	60	117	100	60	25	205	170	20	15	M12	1/2	90	12,5	3,1	**SNV090-F-L**
	60	117	100	60	25	205	170	20	15	M12	1/2	90	12,5	3,1	**SNV090-F-L**

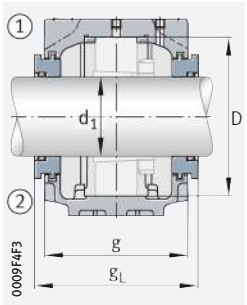
medias ➤ *https://www.schaeffler.de/std/1E88*

① Locating bearing; ② Non-locating bearing

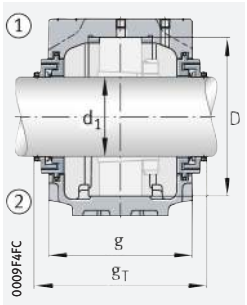
https://www.schaeffler.de/std/1D65



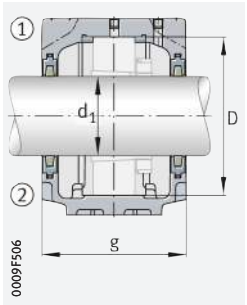
Double lip seal DH
Cover DKV



Labyrinth seal TSV



Taconite seal TCV



Felt seal FSV

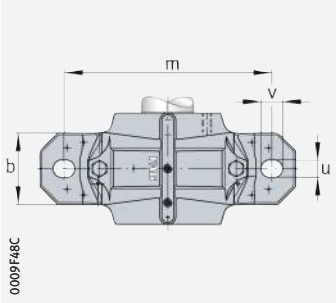
Bearings and accessories

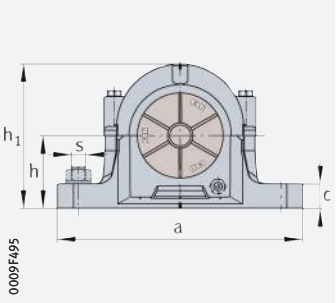
Bearing	Adapter sleeve	Locating ring 2 pieces	Double lip seal	Felt seal	Labyrinth seal		V ring seal		Taconite seal		Cover
						g_L mm		g_V mm		g_T mm	
1205-K	H205	FRM52/6	DH505	FSV505	TSV505	83	DHV505	76	–	–	DKV052
1305-K	H305	FRM62/6,5	DH605	FSV605	TSV605	88	DHV605	81	–	–	DKV062
20205-K	H205	FRM52/6	DH505	FSV505	TSV505	83	DHV505	76	–	–	DKV052
2205-K	H305	FRM52/4,5	DH505	FSV505	TSV505	83	DHV505	76	–	–	DKV052
22205..-K	H305	FRM52/4,5	DH505	FSV505	TSV505	83	DHV505	76	–	–	DKV052
2305-K	H2305	FRM62/3	DH605	FSV605	TSV605	88	DHV605	81	–	–	DKV062
1206-K	H206	FRM62/7	DH506	FSV506	TSV506	88	DHV506	81	–	–	DKV062
1306-K	H306	FRM72/7	DH606	FSV606	TSV606	93	DHV606	86	TCV606	117	DKV072
20206-K	H206	FRM62/7	DH506	FSV506	TSV506	88	DHV506	81	–	–	DKV062
2206-K	H306	FRM62/5	DH506	FSV506	TSV506	88	DHV506	81	–	–	DKV062
22206..-K	H306	FRM62/5	DH506	FSV506	TSV506	88	DHV506	81	–	–	DKV062
2306-K	H2306	FRM72/3	DH606	FSV606	TSV606	93	DHV606	86	TCV606	117	DKV072
1207-K	H207	FRM72/8	DH507	FSV507	TSV507	93	DHV507	86	–	–	DKV072
1307-K	H307	FRM80/9	DH607	FSV607	TSV607	98	DHV607	91	TCV607	122	DKV080
20207-K	H207	FRM72/8	DH507	FSV507	TSV507	93	DHV507	86	–	–	DKV072
21307..-K	H307	FRM80/9	DH607	FSV607	TSV607	98	DHV607	91	TCV607	122	DKV080
2207-K	H307	FRM72/5	DH507	FSV507	TSV507	93	DHV507	86	–	–	DKV072
22207..-K	H307	FRM72/5	DH507	FSV507	TSV507	93	DHV507	86	–	–	DKV072
2307-K	H2307	FRM80/4	DH607	FSV607	TSV607	98	DHV607	91	TCV607	122	DKV080
1208-K	H208	FRM80/10,5	DH508	FSV508	TSV508	98	DHV508	91	TCV508	122	DKV080
1308-K	H308	FRM90/9	DH608	FSV608	TSV608	114	DHV608	104	TCV608	136	DKV090
20208-K	H208	FRM80/10,5	DH508	FSV508	TSV508	98	DHV508	91	TCV508	122	DKV080
21308..-K	H308	FRM90/9	DH608	FSV608	TSV608	114	DHV608	104	TCV608	136	DKV090
2208-K	H308	FRM80/8	DH508	FSV508	TSV508	98	DHV508	91	TCV508	122	DKV080
22208..-K	H308	FRM80/8	DH508	FSV508	TSV508	98	DHV508	91	TCV508	122	DKV080
22308..-K	H2308	FRM90/4	DH608	FSV608	TSV608	114	DHV608	104	TCV608	136	DKV090
2308-K	H2308	FRM90/4	DH608	FSV608	TSV608	114	DHV608	104	TCV608	136	DKV090

https://www.schaeffler.de/std/1D65

Plummer block housings

SNV, split
For bearings with tapered bore and adapter sleeve, metric shaft





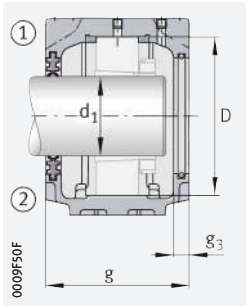
d_1 = 40 – 50 mm

Shaft	Housing													Housing
	Dimensions												Mass	Designation
d_1	h	h_1	g	b	c	a	m	v	u	s		D	g_3	m	➤ *1592|2.10*
mm										mm	inch			≈ kg	
40	60	114	87	60	25	205	170	20	15	M12	1/2	85	12,5	2,8	**SNV085-F-L**
	70	133	105	70	28	255	210	23	18	M16	5/8	100	12,5	4,3	**SNV100-F-L**
	60	114	87	60	25	205	170	20	15	M12	1/2	85	12,5	2,8	**SNV085-F-L**
	70	133	105	70	28	255	210	23	18	M16	5/8	100	12,5	4,3	**SNV100-F-L**
	60	114	87	60	25	205	170	20	15	M12	1/2	85	12,5	2,8	**SNV085-F-L**
	60	114	87	60	25	205	170	20	15	M12	1/2	85	12,5	2,8	**SNV085-F-L**
	70	133	105	70	28	255	210	23	18	M16	5/8	100	12,5	4,3	**SNV100-F-L**
	70	133	105	70	28	255	210	23	18	M16	5/8	100	12,5	4,3	**SNV100-F-L**
45	60	117	100	60	25	205	170	20	15	M12	1/2	90	12,5	3,1	**SNV090-F-L**
	70	139	110	70	30	255	210	23	18	M16	5/8	110	12,5	4,9	**SNV110-F-L**
	60	117	100	60	25	205	170	20	15	M12	1/2	90	12,5	3,1	**SNV090-F-L**
	70	139	110	70	30	255	210	23	18	M16	5/8	110	12,5	4,9	**SNV110-F-L**
	60	117	100	60	25	205	170	20	15	M12	1/2	90	12,5	3,1	**SNV090-F-L**
	60	117	100	60	25	205	170	20	15	M12	1/2	90	12,5	3,1	**SNV090-F-L**
	70	139	110	70	30	255	210	23	18	M16	5/8	110	12,5	4,9	**SNV110-F-L**
	70	139	110	70	30	255	210	23	18	M16	5/8	110	12,5	4,9	**SNV110-F-L**
50	70	133	105	70	28	255	210	23	18	M16	5/8	100	12,5	4,3	**SNV100-F-L**
	80	155	115	80	30	275	230	23	18	M16	5/8	120	12,5	6,1	**SNV120-F-L**
	70	133	105	70	28	255	210	23	18	M16	5/8	100	12,5	4,3	**SNV100-F-L**
	80	155	115	80	30	275	230	23	18	M16	5/8	120	12,5	6,1	**SNV120-F-L**
	80	155	115	80	30	275	230	23	18	M16	5/8	120	12,5	6,1	**SNV120-F-L**
	70	133	105	70	28	255	210	23	18	M16	5/8	100	12,5	4,3	**SNV100-F-L**
	70	133	105	70	28	255	210	23	18	M16	5/8	100	12,5	4,3	**SNV100-F-L**
	80	155	115	80	30	275	230	23	18	M16	5/8	120	12,5	6,1	**SNV120-F-L**
	80	155	115	80	30	275	230	23	18	M16	5/8	120	12,5	6,1	**SNV120-F-L**

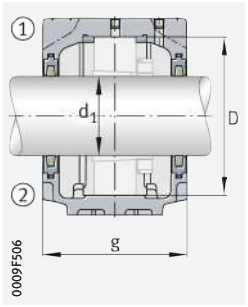
medias ➤ *https://www.schaeffler.de/std/1E89*

① Locating bearing; ② Non-locating bearing

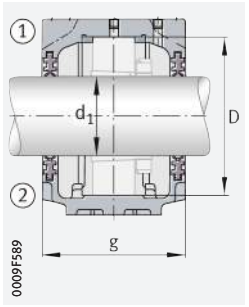
https://www.schaeffler.de/std/1D65



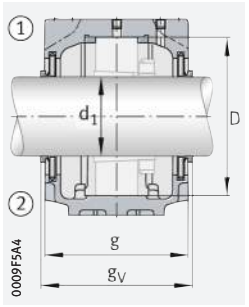
Double lip seal DH
Cover DKVT



Felt seal FSV



Double lip seal DH



V ring seal DHV

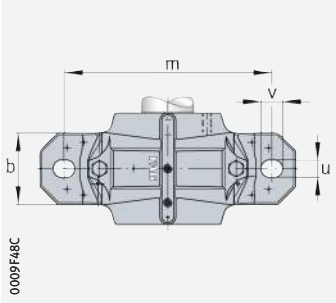
Bearings and accessories

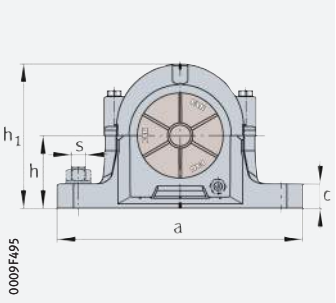
Bearing	Adapter sleeve	Locating ring 2 pieces	Double lip seal	Felt seal	Labyrinth seal		V ring seal		Taconite seal		Cover
						g_L mm		g_V mm		g_T mm	
1209-K	H209	FRM85/6	DH509	FSV509	TSV509	101	DHV509	93	TCV509	125	DKV085
1309-K	H309	FRM100/9,5	DH609	FSV609	TSV609	119	DHV609	111	TCV609	143	DKV100
20209-K	H209	FRM85/6	DH509	FSV509	TSV509	101	DHV509	93	TCV509	125	DKV085
21309..-K	H309	FRM100/9,5	DH609	FSV609	TSV609	119	DHV609	111	TCV609	143	DKV100
2209-K	H309	FRM85/4	DH509	FSV509	TSV509	101	DHV509	93	TCV509	125	DKV085
22209..-K	H309	FRM85/4	DH509	FSV509	TSV509	101	DHV509	93	TCV509	125	DKV085
22309..-K	H2309	FRM100/4	DH609	FSV609	TSV609	119	DHV609	111	TCV609	143	DKV100
2309-K	H2309	FRM100/4	DH609	FSV609	TSV609	119	DHV609	111	TCV609	143	DKV100
1210-K	H210	FRM90/10,5	DH510	FSV510	TSV510	114	DHV510	106	TCV510	138	DKV090
1310-K	H310	FRM110/10,5	DH610	FSV610	TSV610	124	DHV610	116	TCV610	148	DKV110
20210-K	H210	FRM90/10,5	DH510	FSV510	TSV510	114	DHV510	106	TCV510	138	DKV090
21310..-K	H310	FRM110/10,5	DH610	FSV610	TSV610	124	DHV610	116	TCV610	148	DKV110
2210-K	H310	FRM90/9	DH510	FSV510	TSV510	114	DHV510	106	TCV510	138	DKV090
22210..-K	H310	FRM90/9	DH510	FSV510	TSV510	114	DHV510	106	TCV510	138	DKV090
22310..-K	H2310	FRM110/4	DH610	FSV610	TSV610	124	DHV610	116	TCV610	148	DKV110
2310-K	H2310	FRM110/4	DH610	FSV610	TSV610	124	DHV610	116	TCV610	148	DKV110
1211-K	H211	FRM100/11,5	DH511	FSV511	TSV511	119	DHV511	111	TCV511	143	DKV100
1311-K	H311	FRM120/11	DH611	FSV611	TSV611	129	DHV611	121	TCV611	153	DKV120
20211-K	H211	FRM100/11,5	DH511	FSV511	TSV511	119	DHV511	111	TCV511	143	DKV100
20311-K	H311	FRM120/11	DH611	FSV611	TSV611	129	DHV611	121	TCV611	153	DKV120
21311..-K	H311	FRM120/11	DH611	FSV611	TSV611	129	DHV611	121	TCV611	153	DKV120
2211-K	H311	FRM100/9,5	DH511	FSV511	TSV511	119	DHV511	111	TCV511	143	DKV100
22211..-K	H311	FRM100/9,5	DH511	FSV511	TSV511	119	DHV511	111	TCV511	143	DKV100
22311..-K	H2311	FRM120/4	DH611	FSV611	TSV611	129	DHV611	121	TCV611	153	DKV120
2311-K	H2311	FRM120/4	DH611	FSV611	TSV611	129	DHV611	121	TCV611	153	DKV120

https://www.schaeffler.de/std/1D65

Plummer block housings

SNV, split
For bearings with tapered bore and adapter sleeve, metric shaft





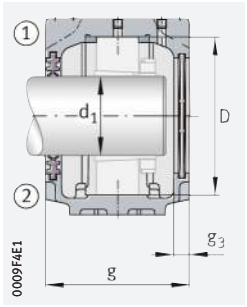
d_1 = 55 – 65 mm

Shaft	Housing													Housing
	Dimensions												Mass	Designation
d_1	h	h_1	g	b	c	a	m	v	u	s		D	g_3	m	➤ *1592|2.10*
mm										mm	inch			≈ kg	
55	70	139	110	70	30	255	210	23	18	M16	5/8	110	12,5	4,9	**SNV110-F-L**
	80	161	120	80	30	280	230	23	18	M16	5/8	130	12,5	6,8	**SNV130-F-L**
	70	139	110	70	30	255	210	23	18	M16	5/8	110	12,5	4,9	**SNV110-F-L**
	80	161	120	80	30	280	230	23	18	M16	5/8	130	12,5	6,8	**SNV130-F-L**
	80	161	120	80	30	280	230	23	18	M16	5/8	130	12,5	6,8	**SNV130-F-L**
	70	139	110	70	30	255	210	23	18	M16	5/8	110	12,5	4,9	**SNV110-F-L**
	70	139	110	70	30	255	210	23	18	M16	5/8	110	12,5	4,9	**SNV110-F-L**
	80	161	120	80	30	280	230	23	18	M16	5/8	130	12,5	6,8	**SNV130-F-L**
	80	161	120	80	30	280	230	23	18	M16	5/8	130	12,5	6,8	**SNV130-F-L**
60	80	155	115	80	30	275	230	23	18	M16	5/8	120	12,5	6,1	**SNV120-F-L**
	95	183	135	90	32	315	260	27	22	M20	3/4	140	15	9,3	**SNV140-F-L**
	80	155	115	80	30	275	230	23	18	M16	5/8	120	12,5	6,1	**SNV120-F-L**
	95	183	135	90	32	315	260	27	22	M20	3/4	140	15	9,3	**SNV140-F-L**
	95	183	135	90	32	315	260	27	22	M20	3/4	140	15	9,3	**SNV140-F-L**
	80	155	115	80	30	275	230	23	18	M16	5/8	120	12,5	6,1	**SNV120-F-L**
	80	155	115	80	30	275	230	23	18	M16	5/8	120	12,5	6,1	**SNV120-F-L**
	95	183	135	90	32	315	260	27	22	M20	3/4	140	15	9,3	**SNV140-F-L**
	95	183	135	90	32	315	260	27	22	M20	3/4	140	15	9,3	**SNV140-F-L**
65	80	161	120	80	30	280	230	23	18	M16	5/8	130	12,5	6,8	**SNV130-F-L**
	100	201	145	100	35	345	290	27	22	M20	3/4	160	15	12,8	**SNV160-F-L**
	80	161	120	80	30	280	230	23	18	M16	5/8	130	12,5	6,8	**SNV130-F-L**
	100	201	145	100	35	345	290	27	22	M20	3/4	160	15	12,8	**SNV160-F-L**
	80	161	120	80	30	280	230	23	18	M16	5/8	130	12,5	6,8	**SNV130-F-L**
	80	161	120	80	30	280	230	23	18	M16	5/8	130	12,5	6,8	**SNV130-F-L**
	100	201	145	100	35	345	290	27	22	M20	3/4	160	15	12,8	**SNV160-F-L**
	100	201	145	100	35	345	290	27	22	M20	3/4	160	15	12,8	**SNV160-F-L**

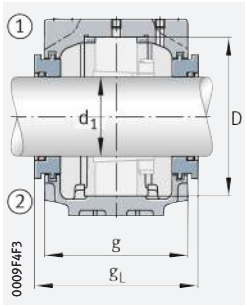
medias ➤ *https://www.schaeffler.de/std/1E8A*

① Locating bearing; ② Non-locating bearing

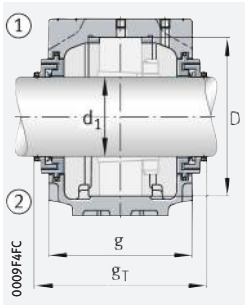
https://www.schaeffler.de/std/1D65



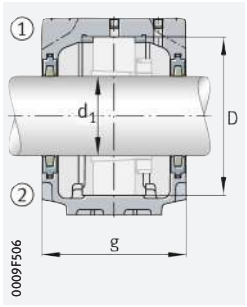
Double lip seal DH
Cover DKV



Labyrinth seal TSV



Taconite seal TCV



Felt seal FSV

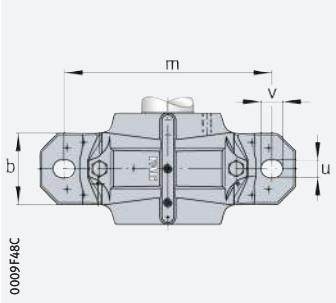
Bearings and accessories

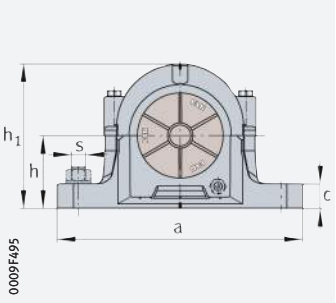
Bearing	Adapter sleeve	Locating ring 2 pieces	Double lip seal	Felt seal	Labyrinth seal		V ring seal		Taconite seal		Cover
						g_L mm		g_V mm		g_T mm	
1212-K	H212	FRM110/13	DH512	FSV512	TSV512	124	DHV512	116	TCV512	148	DKV110
1312-K	H312	FRM130/12,5	DH612	FSV612	TSV612	134	DHV612	126	TCV612	158	DKV130
20212-K	H212	FRM110/13	DH512	FSV512	TSV512	124	DHV512	116	TCV512	148	DKV110
20312-K	H312	FRM130/12,5	DH612	FSV612	TSV612	134	DHV612	126	TCV612	158	DKV130
21312..-K	H312	FRM130/12,5	DH612	FSV612	TSV612	134	DHV612	126	TCV612	158	DKV130
2212-K	H312	FRM110/10	DH512	FSV512	TSV512	124	DHV512	116	TCV512	148	DKV110
22212..-K	H312	FRM110/10	DH512	FSV512	TSV512	124	DHV512	116	TCV512	148	DKV110
22312..-K	H2312	FRM130/5	DH612	FSV612	TSV612	134	DHV612	126	TCV612	158	DKV130
2312-K	H2312	FRM130/5	DH612	FSV612	TSV612	134	DHV612	126	TCV612	158	DKV130
1213-K	H213	FRM120/14	DH513	FSV513	TSV513	129	DHV513	121	TCV513	153	DKV120
1313-K	H313	FRM140/12,5	DH613	FSV613	TSV613	150,3	DHV613	139	TCV613	172	DKV140
20213-K	H213	FRM120/14	DH513	FSV513	TSV513	129	DHV513	121	TCV513	153	DKV120
20313-K	H313	FRM140/12,5	DH613	FSV613	TSV613	150,3	DHV613	139	TCV613	172	DKV140
21313..-K	H313	FRM140/12,5	DH613	FSV613	TSV613	150,3	DHV613	139	TCV613	172	DKV140
2213-K	H313	FRM120/10	DH513	FSV513	TSV513	129	DHV513	121	TCV513	153	DKV120
22213..-K	H313	FRM120/10	DH513	FSV513	TSV513	129	DHV513	121	TCV513	153	DKV120
22313..-K	H2313	FRM140/5	DH613	FSV613	TSV613	150,3	DHV613	139	TCV613	172	DKV140
2313-K	H2313	FRM140/5	DH613	FSV613	TSV613	150,3	DHV613	139	TCV613	172	DKV140
1215-K	H215	FRM130/15,5	DH515	FSV515	TSV515	134	DHV515	126	TCV515	158	DKV130
1315-K	H315	FRM160/14	DH615	FSV615	TSV615	160,3	DHV615	149	TCV615	182	DKV160
20215-K	H215	FRM130/15,5	DH515	FSV515	TSV515	134	DHV515	126	TCV515	158	DKV130
21315..-K	H315	FRM160/14	DH615	FSV615	TSV615	160,3	DHV615	149	TCV615	182	DKV160
2215-K	H315	FRM130/12,5	DH515	FSV515	TSV515	134	DHV515	126	TCV515	158	DKV130
22215..-K	H315	FRM130/12,5	DH515	FSV515	TSV515	134	DHV515	126	TCV515	158	DKV130
22315..-K	H2315	FRM160/5	DH615	FSV615	TSV615	160,3	DHV615	149	TCV615	182	DKV160
2315-K	H2315	FRM160/5	DH615	FSV615	TSV615	160,3	DHV615	149	TCV615	182	DKV160

https://www.schaeffler.de/std/1D65

Plummer block housings

SNV, split
For bearings with tapered bore and adapter sleeve, metric shaft





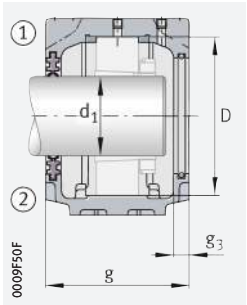
d_1 = 70 – 80 mm

Shaft	Housing													Housing
	Dimensions												Mass	Designation
d_1	h	h_1	g	b	c	a	m	v	u	s		D	g_3	m	➤ *1592|2.10*
mm										mm	inch			≈ kg	
70	95	183	135	90	32	315	260	27	22	M20	3/4	140	15	9,3	**SNV140-F-L**
	112	219	150	100	35	345	290	27	22	M20	3/4	170	16	14,4	**SNV170-F-L**
	95	183	135	90	32	315	260	27	22	M20	3/4	140	15	9,3	**SNV140-F-L**
	112	219	150	100	35	345	290	27	22	M20	3/4	170	16	14,4	**SNV170-F-L**
	95	183	135	90	32	315	260	27	22	M20	3/4	140	15	9,3	**SNV140-F-L**
	95	183	135	90	32	315	260	27	22	M20	3/4	140	15	9,3	**SNV140-F-L**
	112	219	150	100	35	345	290	27	22	M20	3/4	170	16	14,4	**SNV170-F-L**
	112	219	150	100	35	345	290	27	22	M20	3/4	170	16	14,4	**SNV170-F-L**
75	95	189	140	90	32	320	260	27	22	M20	3/4	150	15	9,9	**SNV150-F-L**
	112	223	160	110	40	380	320	32	26	M24	7/8	180	16	17	**SNV180-F-L**
	95	189	140	90	32	320	260	27	22	M20	3/4	150	15	9,9	**SNV150-F-L**
	112	223	160	110	40	380	320	32	26	M24	7/8	180	16	17	**SNV180-F-L**
	95	189	140	90	32	320	260	27	22	M20	3/4	150	15	9,9	**SNV150-F-L**
	95	189	140	90	32	320	260	27	22	M20	3/4	150	15	9,9	**SNV150-F-L**
	112	223	160	110	40	380	320	32	26	M24	7/8	180	16	17	**SNV180-F-L**
	112	223	160	110	40	380	320	32	26	M24	7/8	180	16	17	**SNV180-F-L**
80	100	201	145	100	35	345	290	27	22	M20	3/4	160	15	12,8	**SNV160-F-L**
	112	229	155	110	40	380	320	32	26	M24	7/8	190	15	22	**SNV190-F-L**
	100	201	145	100	35	345	290	27	22	M20	3/4	160	15	12,8	**SNV160-F-L**
	112	229	155	110	40	380	320	32	26	M24	7/8	190	15	22	**SNV190-F-L**
	112	229	155	110	40	380	320	32	26	M24	7/8	190	15	22	**SNV190-F-L**
	100	201	145	100	35	345	290	27	22	M20	3/4	160	15	12,8	**SNV160-F-L**
	100	201	145	100	35	345	290	27	22	M20	3/4	160	15	12,8	**SNV160-F-L**
	112	229	155	110	40	380	320	32	26	M24	7/8	190	15	22	**SNV190-F-L**
	112	229	155	110	40	380	320	32	26	M24	7/8	190	15	22	**SNV190-F-L**
	100	201	145	100	35	345	290	27	22	M20	3/4	160	15	12,8	**SNV160-F-L**

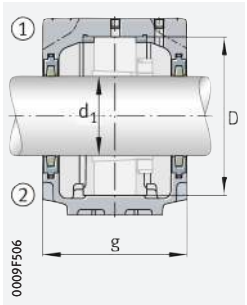
medias ➤ *https://www.schaeffler.de/std/1E8B*

① Locating bearing; ② Non-locating bearing

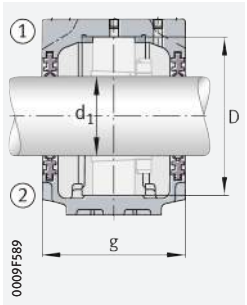
https://www.schaeffler.de/std/1D65



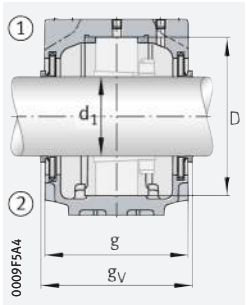
Double lip seal DH
Cover DKVT



Felt seal FSV



Double lip seal DH



V ring seal DHV

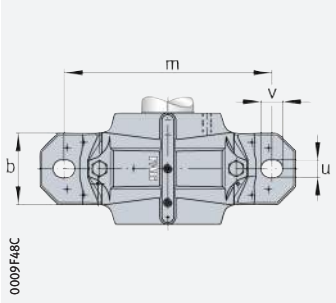
Bearings and accessories

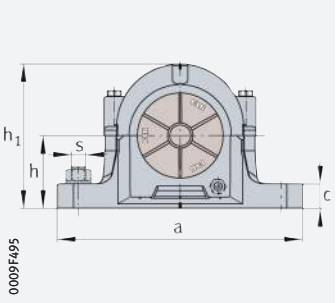
Bearing	Adapter sleeve	Locating ring 2 pieces	Double lip seal	Felt seal	Labyrinth seal		V ring seal		Taconite seal		Cover
						g_L mm		g_V mm		g_T mm	
1216-K	H216	FRM140/16	DH516	FSV516	TSV516	150,3	DHV516	143	TCV516	176	DKV140
1316-K	H316	FRM170/14,5	DH616	FSV616	TSV616	167,3	DHV616	158	TCV616	193	DKV170
20216-K	H216	FRM140/16	DH516	FSV516	TSV516	150,3	DHV516	143	TCV516	176	DKV140
21316..-K	H316	FRM170/14,5	DH616	FSV616	TSV616	167,3	DHV616	158	TCV616	193	DKV170
2216-K	H316	FRM140/12,5	DH516	FSV516	TSV516	150,3	DHV516	143	TCV516	176	DKV140
22216..-K	H316	FRM140/12,5	DH516	FSV516	TSV516	150,3	DHV516	143	TCV516	176	DKV140
22316..-K	H2316	FRM170/5	DH616	FSV616	TSV616	167,3	DHV616	158	TCV616	193	DKV170
2316-K	H2316	FRM170/5	DH616	FSV616	TSV616	167,3	DHV616	158	TCV616	193	DKV170
1217-K	H217	FRM150/16,5	DH517	FSV517	TSV517	155,3	DHV517	148	TCV517	181	DKV150
1317-K	H317	FRM180/14,5	DH617	FSV617	TSV617	177,3	DHV617	168	TCV617	203	DKV180
20217-K	H217	FRM150/16,5	DH517	FSV517	TSV517	155,3	DHV517	148	TCV517	181	DKV150
21317..-K	H317	FRM180/14,5	DH617	FSV617	TSV617	177,3	DHV617	168	TCV617	203	DKV180
2217-K	H317	FRM150/12,5	DH517	FSV517	TSV517	155,3	DHV517	148	TCV517	181	DKV150
22217..-K	H317	FRM150/12,5	DH517	FSV517	TSV517	155,3	DHV517	148	TCV517	181	DKV150
22317..-K	H2317	FRM180/5	DH617	FSV617	TSV617	177,3	DHV617	168	TCV617	203	DKV180
2317-K	H2317	FRM180/5	DH617	FSV617	TSV617	177,3	DHV617	168	TCV617	203	DKV180
1218-K	H218	FRM160/17,5	DH518	FSV518	TSV518	160,3	DHV518	153	TCV518	186	DKV160
1318-K	H318	FRM190/15,5	DH518	FSV518	TSV518	170,3	DHV518	163	TCV518	178	DKV160
20218-K	H218	FRM160/17,5	DH518	FSV518	TSV518	160,3	DHV518	153	TCV518	186	DKV160
20318-K	H318	FRM190/15,5	DH518	FSV518	TSV518	170,3	DHV518	163	TCV518	178	DKV160
21318..-K	H318	FRM190/15,5	DH518	FSV518	TSV518	170,3	DHV518	163	TCV518	178	DKV160
2218-K	H318	FRM160/12,5	DH518	FSV518	TSV518	160,3	DHV518	153	TCV518	186	DKV160
22218..-K	H318	FRM160/12,5	DH518	FSV518	TSV518	160,3	DHV518	153	TCV518	186	DKV160
22318..-K	H2318	FRM190/5	DH518	FSV518	TSV518	170,3	DHV518	163	TCV518	178	DKV160
2318-K	H2318	FRM190/5	DH518	FSV518	TSV518	170,3	DHV518	163	TCV518	178	DKV160
23218..-K	H2318	FRM160/6,3	DH518	FSV518	TSV518	160,3	DHV518	153	TCV518	186	DKV160

https://www.schaeffler.de/std/1D65

Plummer block housings

SNV, split
For bearings with tapered bore and adapter sleeve, metric shaft





d_1 = 85 – 110 mm

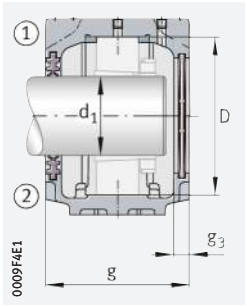
Shaft	Housing														Housing Designation ➤1592|2.10
	Dimensions													Mass	
d_1	h	h_1	g	b	c	a	m	v	u	s		D	g_3	m	
mm										mm	inch			≈ kg	
85	112	219	150	100	35	345	290	27	22	M20	3/4	170	16	14,4	**SNV170-F-L**
	125	248	175	120	45	410	350	32	26	M24	7/8	200	16	21	**SNV200-F-L**
	125	248	175	120	45	410	350	32	26	M24	7/8	200	16	21	**SNV200-F-L**
	112	219	150	100	35	345	290	27	22	M20	3/4	170	16	14,4	**SNV170-F-L**
	112	219	150	100	35	345	290	27	22	M20	3/4	170	16	14,4	**SNV170-F-L**
	125	248	175	120	45	410	350	32	26	M24	7/8	200	16	21	**SNV200-F-L**
	125	248	175	120	45	410	350	32	26	M24	7/8	200	16	21	**SNV200-F-L**
90	112	223	160	110	40	380	320	32	26	M24	7/8	180	16	17	**SNV180-F-L**
	140	271	180	120	45	410	350	32	26	M24	7/8	215	16	24,5	**SNV215-F-L**[1)]
	112	223	160	110	40	380	320	32	26	M24	7/8	180	16	17	**SNV180-F-L**
	140	271	180	120	45	410	350	32	26	M24	7/8	215	16	24,5	**SNV215-F-L**[1)]
	140	271	180	120	45	410	350	32	26	M24	7/8	215	16	24,5	**SNV215-F-L**[1)]
	112	223	160	110	40	380	320	32	26	M24	7/8	180	16	17	**SNV180-F-L**
	112	223	160	110	40	380	320	32	26	M24	7/8	180	16	17	**SNV180-F-L**
	140	271	180	120	45	410	350	32	26	M24	7/8	215	16	24,5	**SNV215-F-L**[1)]
	140	271	180	120	45	410	350	32	26	M24	7/8	215	16	24,5	**SNV215-F-L**[1)]
	112	223	160	110	40	380	320	32	26	M24	7/8	180	16	17	**SNV180-F-L**
100	125	248	175	120	45	410	350	32	26	M24	7/8	200	16	21	**SNV200-F-L**
	150	298	185	130	50	450	390	35	28	M24	1	240	18	32	**SNV240-F-L**[1)]
	125	248	175	120	45	410	350	32	26	M24	7/8	200	16	21	**SNV200-F-L**
	150	298	185	130	50	450	390	35	28	M24	1	240	18	32	**SNV240-F-L**[1)]
	125	248	175	120	45	410	350	32	26	M24	7/8	200	16	21	**SNV200-F-L**
	125	248	175	120	45	410	350	32	26	M24	7/8	200	16	21	**SNV200-F-L**
	150	298	185	130	50	450	390	35	28	M24	1	240	18	32	**SNV240-F-L**[1)]
	125	248	175	120	45	410	350	32	26	M24	7/8	200	16	21	**SNV200-F-L**
	150	298	185	130	50	450	390	35	28	M24	1	240	18	32	**SNV240-F-L**[1)]
110	140	271	180	120	45	410	350	32	26	M24	7/8	215	16	24,5	**SNV215-F-L**[1)]
	140	271	180	120	45	410	350	32	26	M24	7/8	215	16	24,5	**SNV215-F-L**[1)]
	160	321	190	160	60	530	450	42	35	M30	1 1/4	260	18	48	**SNV260-F-L**[1)]
	140	271	180	120	45	410	350	32	26	M24	7/8	215	16	24,5	**SNV215-F-L**[1)]

medias ➤ *https://www.schaeffler.de/std/1E8C*

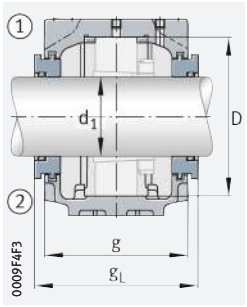
① Locating bearing; ② Non-locating bearing

[1)] Housing with eye bolt.

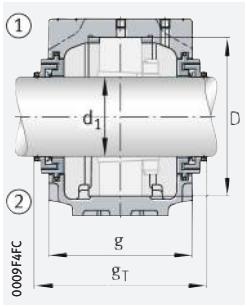
https://www.schaeffler.de/std/1D65



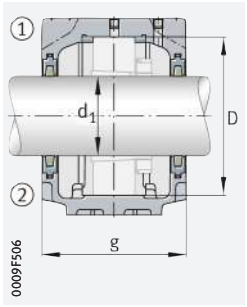
Double lip seal DH
Cover DKV



Labyrinth seal TSV



Taconite seal TCV



Felt seal FSV

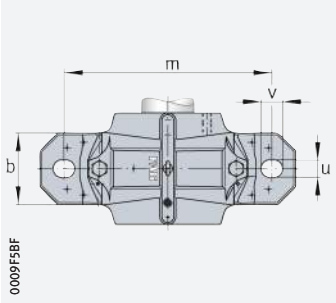
Bearings and accessories

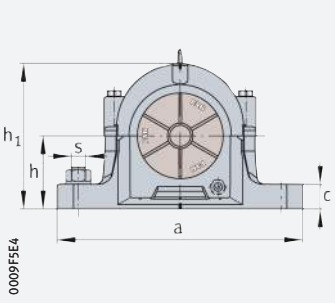
Bearing	Adapter sleeve	Locating ring 2 pieces	Double lip seal	Felt seal	Labyrinth seal		V ring seal		Taconite seal		Cover
						g_L mm		g_V mm		g_T mm	
1219-K	H219	FRM170/18	DH519	FSV519	TSV519	167,3	DHV519	158	TCV519	193	DKV170
1319-K	H319	FRM200/17,5	DH619	FSV619	TSV619	192,3	DHV619	183	TCV619	218	DKV200
21319..-K	H319	FRM200/17,5	DH619	FSV619	TSV619	192,3	DHV619	183	TCV619	218	DKV200
2219-K	H319	FRM170/12,5	DH519	FSV519	TSV519	167,3	DHV519	158	TCV519	193	DKV170
22219..-K	H319	FRM170/12,5	DH519	FSV519	TSV519	167,3	DHV519	158	TCV519	193	DKV170
22319..-K	H2319	FRM200/6,5	DH619	FSV619	TSV619	192,3	DHV619	183	TCV619	218	DKV200
2319-K	H2319	FRM200/6,5	DH619	FSV619	TSV619	192,3	DHV619	183	TCV619	218	DKV200
1220-K	H220	FRM180/18	DH520	FSV520	TSV520	177,3	DHV520	168	TCV520	203	DKV180
1320-K	H320	FRM215/19,5	DH620	FSV620	TSV620	197,3	DHV620	188	TCV620	224	DKV215
20220-K	H220	FRM180/18	DH520	FSV520	TSV520	177,3	DHV520	168	TCV520	203	DKV180
20320-K	H320	FRM215/19,5	DH620	FSV620	TSV620	197,3	DHV620	188	TCV620	224	DKV215
21320..-K	H320	FRM215/19,5	DH620	FSV620	TSV620	197,3	DHV620	188	TCV620	224	DKV215
2220-K	H320	FRM180/12	DH520	FSV520	TSV520	177,3	DHV520	168	TCV520	203	DKV180
22220..-K	H320	FRM180/12	DH520	FSV520	TSV520	177,3	DHV520	168	TCV520	203	DKV180
22320..-K	H2320	FRM215/6,5	DH620	FSV620	TSV620	197,3	DHV620	188	TCV620	224	DKV215
2320-K	H2320	FRM215/6,5	DH620	FSV620	TSV620	197,3	DHV620	188	TCV620	224	DKV215
23220..-K	H2320	FRM180/4,85	DH520	FSV520	TSV520	177,3	DHV520	168	TCV520	203	DKV180
1222-K	H222	FRM200/21	DH522	FSV522	TSV522	195,3	DHV522	183	TCV522	218	DKV200
1322-K	H322	FRM240/20	DH522	FSV522	TSV522	203,3	DHV522	191	TCV522	226	DKV200
20222-K	H222	FRM200/21	DH522	FSV522	TSV522	195,3	DHV522	183	TCV522	218	DKV200
21322..-K	H322	FRM240/20	DH522	FSV522	TSV522	203,3	DHV522	191	TCV522	226	DKV200
22222..-K	H322	FRM200/13,5	DH522	FSV522	TSV522	195,3	DHV522	183	TCV522	218	DKV200
2222-K	H322	FRM200/13,5	DH522	FSV522	TSV522	195,3	DHV522	183	TCV522	218	DKV200
22322..-K	H2322	FRM240/5	DH522	FSV522	TSV522	203,3	DHV522	191	TCV522	226	DKV200
23222..-K	H2322	FRM200/5,1	DH522	FSV522	TSV522	195,3	DHV522	183	TCV522	218	DKV200
2322-K	H2322	FRM240/5	DH522	FSV522	TSV522	203,3	DHV522	191	TCV522	226	DKV200
20224-K	H3024	FRM215/23	DH524	FSV524	TSV524	200,3	DHV524	191	TCV524	227	DKV215
22224..-K	H3124	FRM215/14	DH524	FSV524	TSV524	200,3	DHV524	191	TCV524	227	DKV215
22324..-K	H2324	FRM260/5	DH524	FSV524	TSV524	208,3	DHV524	199	TCV524	235	DKV215
23224..-K	H2324	FRM215/5	DH524	FSV524	TSV524	200,3	DHV524	191	TCV524	227	DKV215

https://www.schaeffler.de/std/1D65

Plummer block housings

SNV, split
For bearings with tapered bore and adapter sleeve, metric shaft





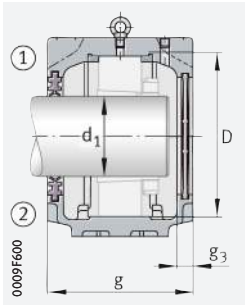
d_1 = 115 – 140 mm

Shaft	Housing													Housing
	Dimensions												Mass	Designation
d_1	h	h_1	g	b	c	a	m	v	u	s		D	g_3	m	➤1592|2.10
mm										mm	inch			≈ kg	
115	150	291	190	130	50	445	380	35	28	M24	1	230	18	30	**SNV230-F-L**
	150	291	190	130	50	445	380	35	28	M24	1	230	18	30	**SNV230-F-L**
	170	344	205	160	60	550	470	42	35	M30	$1\,1/4$	280	18	55	**SNV280-F-L**
	150	291	190	130	50	445	380	35	28	M24	1	230	18	30	**SNV230-F-L**
125	150	304	200	150	50	500	420	42	35	M30	$1\,1/4$	250	18	38	**SNV250-F-L**
	150	304	200	150	50	500	420	42	35	M30	$1\,1/4$	250	18	38	**SNV250-F-L**
	180	366	215	170	65	620	520	42	35	M30	$1\,1/4$	300	18	70	**SNV300-F-L**
	150	304	200	150	50	500	420	42	35	M30	$1\,1/4$	250	18	38	**SNV250-F-L**
135	160	328	215	160	60	530	450	42	35	M30	$1\,1/4$	270	18	45,5	**SNV270-F-L**
	160	328	215	160	60	530	450	42	35	M30	$1\,1/4$	270	18	45,5	**SNV270-F-L**
	190	386	225	180	65	650	560	42	35	M30	$1\,1/4$	320	18	95	**SNV320-F-L**
	160	328	215	160	60	530	450	42	35	M30	$1\,1/4$	270	18	45,5	**SNV270-F-L**
140	170	351	225	160	60	550	470	42	35	M30	$1\,1/4$	290	18	53,8	**SNV290-F-L**
	170	351	225	160	60	550	470	42	35	M30	$1\,1/4$	290	18	53,8	**SNV290-F-L**
	200	406	235	190	70	680	580	50	42	M36	$1\,1/2$	340	18	115	**SNV340-F-L**
	170	351	225	160	60	550	470	42	35	M30	$1\,1/4$	290	18	53,8	**SNV290-F-L**

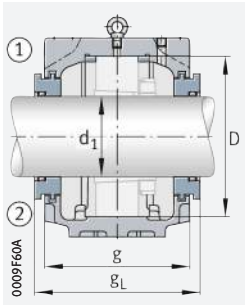
medias ➤ *https://www.schaeffler.de/std/1E8D*

① Locating bearing; ② Non-locating bearing

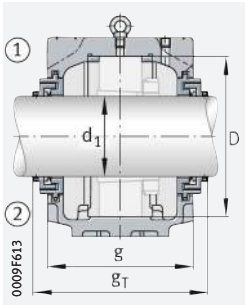
https://www.schaeffler.de/std/1D65



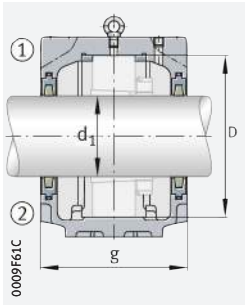
Double lip seal DH
Cover DKV



Labyrinth seal TSV



Taconite seal TCV



Felt seal FSV

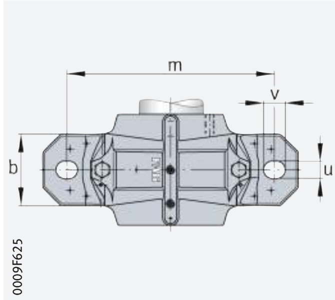
Bearings and accessories

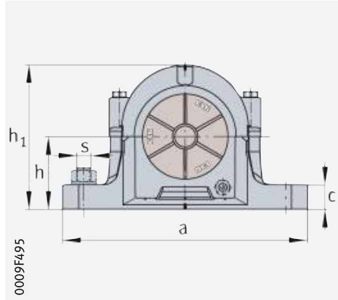
Bearing	Adapter sleeve	Locating ring 2 pieces	Double lip seal	Felt seal	Labyrinth seal		V ring seal		Taconite seal		Cover
						g_L mm		g_V mm		g_T mm	
20226-K	H3026	FRM230/25	DH526	FSV526	TSV526	208,3	DHV526	199	TCV526	235	DKV230
22226..-K	H3126	FRM230/13	DH526	FSV526	TSV526	208,3	DHV526	199	TCV526	235	DKV230
22326..-K	H2326	FRM280/5	DH526	FSV526	TSV526	223,3	DHV526	214	TCV526	250	DKV230
23226..-K	H2326	FRM230/5	DH526	FSV526	TSV526	208,3	DHV526	199	TCV526	235	DKV230
20228-K	H3028	FRM250/28	DH528	FSV528	TSV528	218,3	DHV528	209	TCV528	245	DKV250
22228..-K	H3128	FRM250/15	DH528	FSV528	TSV528	218,3	DHV528	209	TCV528	245	DKV250
22328..-K	H2328	FRM300/5	DH528	FSV528	TSV528	233,3	DHV528	224	TCV528	260	DKV250
23228..-K	H2328	FRM250/5	DH528	FSV528	TSV528	218,3	DHV528	209	TCV528	245	DKV250
20230-K	H3030	FRM270/30,5	DH530	FSV530	TSV530	233,3	DHV530	224	TCV530	260	DKV270
22230..-K	H3130	FRM270/16,5	DH530	FSV530	TSV530	233,3	DHV530	224	TCV530	260	DKV270
22330..-K	H2330	FRM320/5	DH530	FSV530	TSV530	243,3	DHV530	234	TCV530	270	DKV270
23230..-K	H2330	FRM270/5	DH530	FSV530	TSV530	233,3	DHV530	224	TCV530	260	DKV270
20232-K	H3032(-HG)	FRM290/33	DH532	FSV532	TSV532	243,3	DHV532	234	TCV532	270	DKV290
22232..-K	H3132(-HG)	FRM290/17	DH532	FSV532	TSV532	243,3	DHV532	234	TCV532	270	DKV290
22332-K	H2332(-HG)	FRM340/5	DH532	FSV532	TSV532	253,3	DHV532	244	TCV532	298	DKV290
23232..-K	H2332(-HG)	FRM290/5	DH532	FSV532	TSV532	243,3	DHV532	234	TCV532	270	DKV290

https://www.schaeffler.de/std/1D65

Plummer block housings

SNV, split
For bearings with cylindrical bore, metric shaft





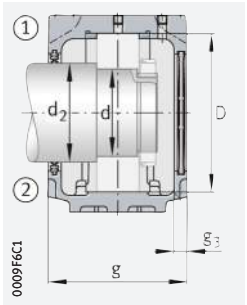
d = 20 – 35 mm

Shaft		Housing														Housing
		Dimensions													Mass	Designation
d	d_2	h	h_1	g	b	c	a	m	v	u	s		D	g_3	m	➤1592 | 2.10
											mm	inch			≈ kg	
20	25	40	75	70	46	19	165	130	20	15	M12	1/2	52	10,5	1,3	**SNV052-F-L**
	25	40	75	70	46	19	165	130	20	15	M12	1/2	52	10,5	1,3	**SNV052-F-L**
	25	40	75	70	46	19	165	130	20	15	M12	1/2	52	10,5	1,3	**SNV052-F-L**
	25	40	75	70	46	19	165	130	20	15	M12	1/2	52	10,5	1,3	**SNV052-F-L**
25	30	40	75	70	46	19	165	130	20	15	M12	1/2	52	10,5	1,3	**SNV052-F-L**
	30	50	91	75	52	22	185	150	20	15	M12	1/2	62	10,5	1,9	**SNV062-F-L**
	30	40	75	70	46	19	165	130	20	15	M12	1/2	52	10,5	1,3	**SNV052-F-L**
	30	50	91	75	52	22	185	150	20	15	M12	1/2	62	10,5	1,9	**SNV062-F-L**
	30	40	75	70	46	19	165	130	20	15	M12	1/2	52	10,5	1,3	**SNV052-F-L**
	30	50	91	75	52	22	185	150	20	15	M12	1/2	62	10,5	1,9	**SNV062-F-L**
	30	50	91	75	52	22	185	150	20	15	M12	1/2	62	10,5	1,9	**SNV062-F-L**
	30	40	75	70	46	19	165	130	20	15	M12	1/2	52	10,5	1,3	**SNV052-F-L**
30	35	50	91	75	52	22	185	150	20	15	M12	1/2	62	10,5	1,9	**SNV062-F-L**
	35	50	97	80	52	22	185	150	20	15	M12	1/2	72	10,5	2	**SNV072-F-L**
	35	50	91	75	52	22	185	150	20	15	M12	1/2	62	10,5	1,9	**SNV062-F-L**
	35	50	97	80	52	22	185	150	20	15	M12	1/2	72	10,5	2	**SNV072-F-L**
	35	50	91	75	52	22	185	150	20	15	M12	1/2	62	10,5	1,9	**SNV062-F-L**
	35	50	97	80	52	22	185	150	20	15	M12	1/2	72	10,5	2	**SNV072-F-L**
	35	50	97	80	52	22	185	150	20	15	M12	1/2	72	10,5	2	**SNV072-F-L**
	35	50	91	75	52	22	185	150	20	15	M12	1/2	62	10,5	1,9	**SNV062-F-L**
35	45	50	97	80	52	22	185	150	20	15	M12	1/2	72	10,5	2	**SNV072-F-L**
	45	60	112	85	60	25	205	170	20	15	M12	1/2	80	10,5	2,9	**SNV080-F-L**
	45	50	97	80	52	22	185	150	20	15	M12	1/2	72	10,5	2	**SNV072-F-L**
	45	60	112	85	60	25	205	170	20	15	M12	1/2	80	10,5	2,9	**SNV080-F-L**
	45	50	97	80	52	22	185	150	20	15	M12	1/2	72	10,5	2	**SNV072-F-L**
	45	60	112	85	60	25	205	170	20	15	M12	1/2	80	10,5	2,9	**SNV080-F-L**
	45	60	112	85	60	25	205	170	20	15	M12	1/2	80	10,5	2,9	**SNV080-F-L**
	45	50	97	80	52	22	185	150	20	15	M12	1/2	72	10,5	2	**SNV072-F-L**

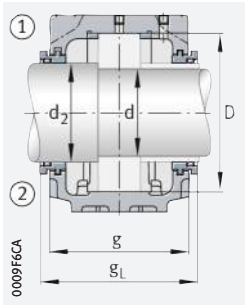
medias ➤ *https://www.schaeffler.de/std/1E8E*

① Locating bearing; ② Non-locating bearing

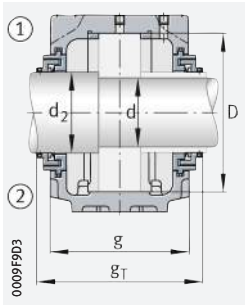
https://www.schaeffler.de/std/1D65



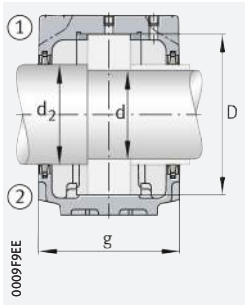
Double lip seal DH
Cover DKV



Labyrinth seal TSV



Taconite seal TCV



Felt seal FSV

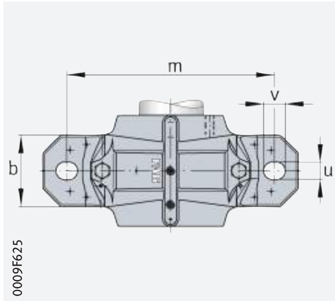
Bearings and accessories

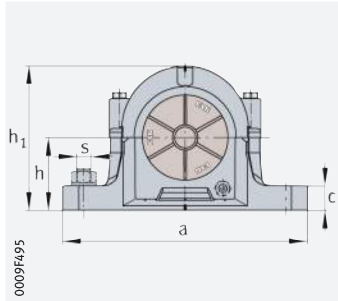
Bearing	Lock-nut	Tab washer	Locating ring 2 pieces	Double lip seal	Felt seal	Labyrinth seal		V ring seal		Taconite seal		Cover
							g_L mm		g_V mm		g_T mm	
1304	KM4	MB4	FRM52/6	DH304	–	TSV304	95	DHV304	76	–	–	DKV052
2304	KM4	MB4	FRM52/3	DH304	–	TSV304	95	DHV304	76	–	–	DKV052
20304	KM4	MB4	FRM52/6	DH304	–	TSV304	95	DHV304	76	–	–	DKV052
21304	KM4	MB4	FRM52/6	DH304	–	TSV304	95	DHV304	76	–	–	DKV052
1205	KM5	MB5	FRM52/6	DH205	–	TSV205	95	–	–	–	–	DKV052
1305	KM5	MB5	FRM62/6,5	DH305	FSV305	TSV305	100	DHV305	81	–	–	DKV062
2205	KM5	MB5	FRM52/4,5	DH205	–	TSV205	95	–	–	–	–	DKV052
2305	KM5	MB5	FRM62/3	DH305	FSV305	TSV305	100	DHV305	81	–	–	DKV062
20205	KM5	MB5	FRM52/6	DH205	–	TSV205	95	–	–	–	–	DKV052
20305	KM5	MB5	FRM62/6,5	DH305	FSV305	TSV305	100	DHV305	81	–	–	DKV062
21305	KM5	MB5	FRM62/6,5	DH305	FSV305	TSV305	100	DHV305	81	–	–	DKV062
22205	KM5	MB5	FRM52/4,5	DH205	–	TSV205	95	–	–	–	–	DKV052
1206	KM6	MB6	FRM62/7	DH206	–	TSV206	100	–	–	–	–	DKV062
1306	KM6	MB6	FRM72/7	DH306	FSV306	TSV306	93	DHV306	86	–	–	DKV072
2206	KM6	MB6	FRM62/5	DH206	–	TSV206	100	–	–	–	–	DKV062
2306	KM6	MB6	FRM72/3	DH306	FSV306	TSV306	93	DHV306	86	–	–	DKV072
20206	KM6	MB6	FRM62/7	DH206	–	TSV206	100	–	–	–	–	DKV062
20306	KM6	MB6	FRM72/7	DH306	FSV306	TSV306	93	DHV306	86	–	–	DKV072
21306	KM6	MB6	FRM72/7	DH306	FSV306	TSV306	93	DHV306	86	–	–	DKV072
22206	KM6	MB6	FRM62/5	DH206	–	TSV206	100	–	–	–	–	DKV062
1207	KM7	MB7	FRM72/8	DH207	–	TSV207	107	–	–	–	–	DKV072
1307	KM7	MB7	FRM80/9	DH307	FSV307	TSV307	98	DHV307	93	–	–	DKV080
2207	KM7	MB7	FRM72/5	DH207	–	TSV207	107	–	–	–	–	DKV072
2307	KM7	MB7	FRM80/4	DH307	FSV307	TSV307	98	DHV307	93	–	–	DKV080
20207	KM7	MB7	FRM72/8	DH207	–	TSV207	107	–	–	–	–	DKV072
20307	KM7	MB7	FRM80/9	DH307	FSV307	TSV307	98	DHV307	93	–	–	DKV080
21307	KM7	MB7	FRM80/9	DH307	FSV307	TSV307	98	DHV307	93	–	–	DKV080
22207	KM7	MB7	FRM72/5	DH207	–	TSV207	107	–	–	–	–	DKV072

https://www.schaeffler.de/std/1D65

Plummer block housings

SNV, split
For bearings
with cylindrical bore,
metric shaft





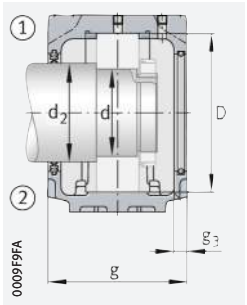
d = 40 – 50 mm

Shaft		Housing														Housing
		Dimensions													Mass	Designation
d	d_2	h	h_1	g	b	c	a	m	v	u	s		D	g_3	m	➤1592 | 2.10
											mm	inch			≈ kg	
40	50	60	112	85	60	25	205	170	20	15	M12	1/2	80	10,5	2,9	**SNV080-F-L**
	50	60	117	100	60	25	205	170	20	15	M12	1/2	90	12,5	3,1	**SNV090-F-L**
	50	60	112	85	60	25	205	170	20	15	M12	1/2	80	10,5	2,9	**SNV080-F-L**
	50	60	117	100	60	25	205	170	20	15	M12	1/2	90	12,5	3,1	**SNV090-F-L**
	50	60	112	85	60	25	205	170	20	15	M12	1/2	80	10,5	2,9	**SNV080-F-L**
	50	60	117	100	60	25	205	170	20	15	M12	1/2	90	12,5	3,1	**SNV090-F-L**
	50	60	117	100	60	25	205	170	20	15	M12	1/2	90	12,5	3,1	**SNV090-F-L**
	50	60	112	85	60	25	205	170	20	15	M12	1/2	80	10,5	2,9	**SNV080-F-L**
	50	60	117	100	60	25	205	170	20	15	M12	1/2	90	12,5	3,1	**SNV090-F-L**
45	55	60	114	87	60	25	205	170	20	15	M12	1/2	85	12,5	2,8	**SNV085-F-L**
	55	70	133	105	70	28	255	210	23	18	M16	5/8	100	12,5	4,3	**SNV100-F-L**
	55	60	114	87	60	25	205	170	20	15	M12	1/2	85	12,5	2,8	**SNV085-F-L**
	55	70	133	105	70	28	255	210	23	18	M16	5/8	100	12,5	4,3	**SNV100-F-L**
	55	60	114	87	60	25	205	170	20	15	M12	1/2	85	12,5	2,8	**SNV085-F-L**
	55	70	133	105	70	28	255	210	23	18	M16	5/8	100	12,5	4,3	**SNV100-F-L**
	55	70	133	105	70	28	255	210	23	18	M16	5/8	100	12,5	4,3	**SNV100-F-L**
	55	60	114	87	60	25	205	170	20	15	M12	1/2	85	12,5	2,8	**SNV085-F-L**
	55	70	133	105	70	28	255	210	23	18	M16	5/8	100	12,5	4,3	**SNV100-F-L**
50	60	60	117	100	60	25	205	170	20	15	M12	1/2	90	12,5	3,1	**SNV090-F-L**
	60	70	139	110	70	30	255	210	23	18	M16	5/8	110	12,5	4,9	**SNV110-F-L**
	60	60	117	100	60	25	205	170	20	15	M12	1/2	90	12,5	3,1	**SNV090-F-L**
	60	70	139	110	70	30	255	210	23	18	M16	5/8	110	12,5	4,9	**SNV110-F-L**
	60	60	117	100	60	25	205	170	20	15	M12	1/2	90	12,5	3,1	**SNV090-F-L**
	60	70	139	110	70	30	255	210	23	18	M16	5/8	110	12,5	4,9	**SNV110-F-L**
	60	70	139	110	70	30	255	210	23	18	M16	5/8	110	12,5	4,9	**SNV110-F-L**
	60	60	117	100	60	25	205	170	20	15	M12	1/2	90	12,5	3,1	**SNV090-F-L**
	60	70	139	110	70	30	255	210	23	18	M16	5/8	110	12,5	4,9	**SNV110-F-L**

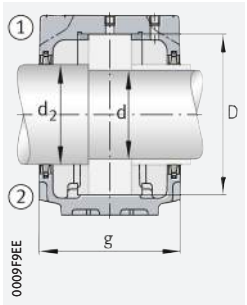
medias *➤https://www.schaeffler.de/std/1E8F*

① Locating bearing; ② Non-locating bearing

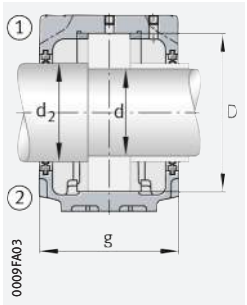
https://www.schaeffler.de/std/1D65



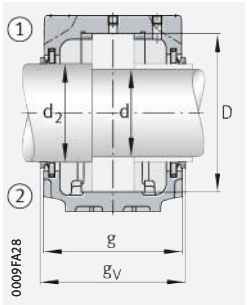
Double lip seal DH
Cover DKVT



Felt seal FSV



Double lip seal DH



V ring seal DHV

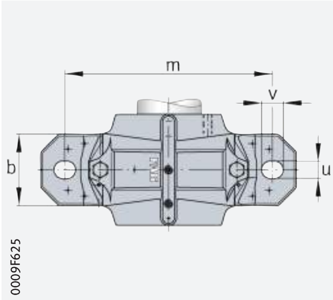
Bearings and accessories

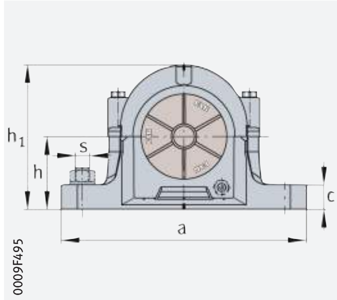
Bearing	Lock-nut	Tab washer	Locating ring 2 pieces	Double lip seal	Felt seal	Labyrinth seal		V ring seal		Taconite seal		Cover
							g_L mm		g_V mm		g_T mm	
1208	KM8	MB8	FRM80/10,5	DH208	FSV208	TSV208	98	DHV208	93	–	–	DKV080
1308	KM8	MB8	FRM90/9	DH308	FSV308	TSV308	114	DHV308	106	–	–	DKV090
2208	KM8	MB8	FRM80/8	DH208	FSV208	TSV208	98	DHV208	93	–	–	DKV080
2308	KM8	MB8	FRM90/4	DH308	FSV308	TSV308	114	DHV308	106	–	–	DKV090
20208	KM8	MB8	FRM80/10,5	DH208	FSV208	TSV208	98	DHV208	93	–	–	DKV080
20308	KM8	MB8	FRM90/9	DH308	FSV308	TSV308	114	DHV308	106	–	–	DKV090
21308	KM8	MB8	FRM90/9	DH308	FSV308	TSV308	114	DHV308	106	–	–	DKV090
22208	KM8	MB8	FRM80/8	DH208	FSV208	TSV208	98	DHV208	93	–	–	DKV080
22308	KM8	MB8	FRM90/4	DH308	FSV308	TSV308	114	DHV308	106	–	–	DKV090
1209	KM9	MB9	FRM85/6	DH209	FSV209	TSV209	101	DHV209	93	–	–	DKV085
1309	KM9	MB9	FRM100/9,5	DH309	FSV309	TSV309	119	DHV309	111	–	–	DKV100
2209	KM9	MB9	FRM85/4	DH209	FSV209	TSV209	101	DHV209	93	–	–	DKV085
2309	KM9	MB9	FRM100/4	DH309	FSV309	TSV309	119	DHV309	111	–	–	DKV100
20209	KM9	MB9	FRM85/6	DH209	FSV209	TSV209	101	DHV209	93	–	–	DKV085
20309	KM9	MB9	FRM100/9,5	DH309	FSV309	TSV309	119	DHV309	111	–	–	DKV100
21309	KM9	MB9	FRM100/9,5	DH309	FSV309	TSV309	119	DHV309	111	–	–	DKV100
22209	KM9	MB9	FRM85/4	DH209	FSV209	TSV209	101	DHV209	93	–	–	DKV085
22309	KM9	MB9	FRM100/4	DH309	FSV309	TSV309	119	DHV309	111	–	–	DKV100
1210	KM10	MB10	FRM90/10,5	DH210	FSV210	TSV210	114	DHV210	106	–	–	DKV090
1310	KM10	MB10	FRM110/10,5	DH310	FSV310	TSV310	124	DHV310	116	–	–	DKV110
2210	KM10	MB10	FRM90/9	DH210	FSV210	TSV210	114	DHV210	106	–	–	DKV090
2310	KM10	MB10	FRM110/4	DH310	FSV310	TSV310	124	DHV310	116	–	–	DKV110
20210	KM10	MB10	FRM90/10,5	DH210	FSV210	TSV210	114	DHV210	106	–	–	DKV090
20310	KM10	MB10	FRM110/10,5	DH310	FSV310	TSV310	124	DHV310	116	–	–	DKV110
21310	KM10	MB10	FRM110/10,5	DH310	FSV310	TSV310	124	DHV310	116	–	–	DKV110
22210	KM10	MB10	FRM90/9	DH210	FSV210	TSV210	114	DHV210	106	–	–	DKV090
22310	KM10	MB10	FRM110/4	DH310	FSV310	TSV310	124	DHV310	116	–	–	DKV110

https://www.schaeffler.de/std/1D65

Plummer block housings

SNV, split
For bearings
with cylindrical bore,
metric shaft





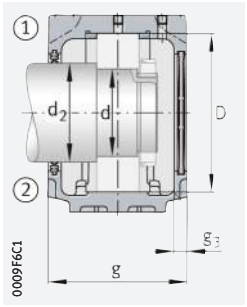
d = 55 – 65 mm

Shaft		Housing														Housing
		Dimensions													Mass	Designation
d	d_2	h	h_1	g	b	c	a	m	v	u	s		D	g_3	m	➤1592|2.10
											mm	inch			≈ kg	
55	65	70	133	105	70	28	255	210	23	18	M16	5/8	100	12,5	4,3	**SNV100-F-L**
	65	80	155	115	80	30	275	230	23	18	M16	5/8	120	12,5	6,1	**SNV120-F-L**
	65	70	133	105	70	28	255	210	23	18	M16	5/8	100	12,5	4,3	**SNV100-F-L**
	65	80	155	115	80	30	275	230	23	18	M16	5/8	120	12,5	6,1	**SNV120-F-L**
	65	70	133	105	70	28	255	210	23	18	M16	5/8	100	12,5	4,3	**SNV100-F-L**
	65	80	155	115	80	30	275	230	23	18	M16	5/8	120	12,5	6,1	**SNV120-F-L**
	65	80	155	115	80	30	275	230	23	18	M16	5/8	120	12,5	6,1	**SNV120-F-L**
	65	70	133	105	70	28	255	210	23	18	M16	5/8	100	12,5	4,3	**SNV100-F-L**
	65	80	155	115	80	30	275	230	23	18	M16	5/8	120	12,5	6,1	**SNV120-F-L**
60	70	70	139	110	70	30	255	210	23	18	M16	5/8	110	12,5	4,9	**SNV110-F-L**
	70	80	161	120	80	30	280	230	23	18	M16	5/8	130	12,5	6,8	**SNV130-F-L**
	70	70	139	110	70	30	255	210	23	18	M16	5/8	110	12,5	4,9	**SNV110-F-L**
	70	80	161	120	80	30	280	230	23	18	M16	5/8	130	12,5	6,8	**SNV130-F-L**
	70	70	139	110	70	30	255	210	23	18	M16	5/8	110	12,5	4,9	**SNV110-F-L**
	70	80	161	120	80	30	280	230	23	18	M16	5/8	130	12,5	6,8	**SNV130-F-L**
	70	80	161	120	80	30	280	230	23	18	M16	5/8	130	12,5	6,8	**SNV130-F-L**
	70	70	139	110	70	30	255	210	23	18	M16	5/8	110	12,5	4,9	**SNV110-F-L**
	70	80	161	120	80	30	280	230	23	18	M16	5/8	130	12,5	6,8	**SNV130-F-L**
65	75	80	155	115	80	30	275	230	23	18	M16	5/8	120	12,5	6,1	**SNV120-F-L**
	75	95	183	135	90	32	315	260	27	22	M20	3/4	140	15	9,3	**SNV140-F-L**
	75	80	155	115	80	30	275	230	23	18	M16	5/8	120	12,5	6,1	**SNV120-F-L**
	75	95	183	135	90	32	315	260	27	22	M20	3/4	140	15	9,3	**SNV140-F-L**
	75	80	155	115	80	30	275	230	23	18	M16	5/8	120	12,5	6,1	**SNV120-F-L**
	75	95	183	135	90	32	315	260	27	22	M20	3/4	140	15	9,3	**SNV140-F-L**
	75	95	183	135	90	32	315	260	27	22	M20	3/4	140	15	9,3	**SNV140-F-L**
	75	80	155	115	80	30	275	230	23	18	M16	5/8	120	12,5	6,1	**SNV120-F-L**
	75	95	183	135	90	32	315	260	27	22	M20	3/4	140	15	9,3	**SNV140-F-L**

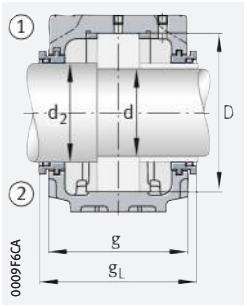
medias ➤ *https://www.schaeffler.de/std/1E90*

① Locating bearing; ② Non-locating bearing

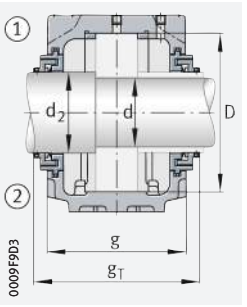
https://www.schaeffler.de/std/1D65



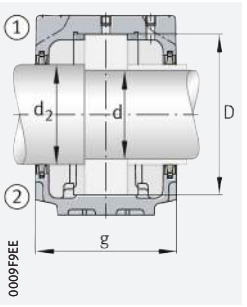
Double lip seal DH
Cover DKV



Labyrinth seal TSV



Taconite seal TCV



Felt seal FSV

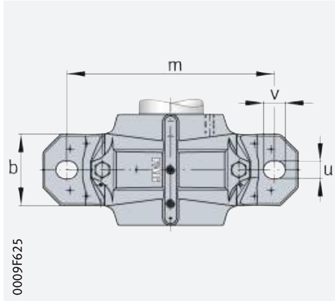
Bearings and accessories

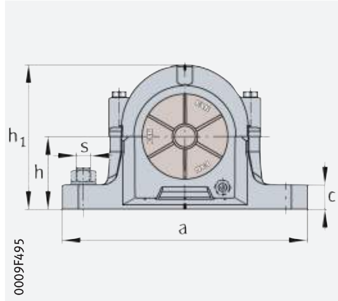
Bearing	Lock-nut	Tab washer	Locating ring 2 pieces	Double lip seal	Felt seal	Labyrinth seal		V ring seal		Taconite seal		Cover
							g_L mm		g_V mm		g_T mm	
1211	KM11	MB11	FRM100/11,5	DH211	FSV211	TSV211	119	DHV211	111	–	–	DKV100
1311	KM11	MB11	FRM120/11	DH311	FSV311	TSV311	129	DHV311	121	–	–	DKV120
2211	KM11	MB11	FRM100/9,5	DH211	FSV211	TSV211	119	DHV211	111	–	–	DKV100
2311	KM11	MB11	FRM120/4	DH311	FSV311	TSV311	129	DHV311	121	–	–	DKV120
20211	KM11	MB11	FRM100/11,5	DH211	FSV211	TSV211	119	DHV211	111	–	–	DKV100
20311	KM11	MB11	FRM120/11	DH311	FSV311	TSV311	129	DHV311	121	–	–	DKV120
21311	KM11	MB11	FRM120/11	DH311	FSV311	TSV311	129	DHV311	121	–	–	DKV120
22211	KM11	MB11	FRM100/9,5	DH211	FSV211	TSV211	119	DHV211	111	–	–	DKV100
22311	KM11	MB11	FRM120/4	DH311	FSV311	TSV311	129	DHV311	121	–	–	DKV120
1212	KM12	MB12	FRM110/13	DH212	FSV212	TSV212	124	DHV212	120	–	–	DKV110
1312	KM12	MB12	FRM130/12,5	DH312	FSV312	TSV312	134	DHV312	130	TCV312	158	DKV130
2212	KM12	MB12	FRM110/10	DH212	FSV212	TSV212	124	DHV212	120	–	–	DKV110
2312	KM12	MB12	FRM130/5	DH312	FSV312	TSV312	134	DHV312	130	TCV312	158	DKV130
20212	KM12	MB12	FRM110/13	DH212	FSV212	TSV212	124	DHV212	120	–	–	DKV110
20312	KM12	MB12	FRM130/12,5	DH312	FSV312	TSV312	134	DHV312	130	TCV312	158	DKV130
21312	KM12	MB12	FRM130/12,5	DH312	FSV312	TSV312	134	DHV312	130	TCV312	158	DKV130
22212	KM12	MB12	FRM110/10	DH212	FSV212	TSV212	124	DHV212	120	–	–	DKV110
22312	KM12	MB12	FRM130/5	DH312	FSV312	TSV312	134	DHV312	130	TCV312	158	DKV130
1213	KM13	MB13	FRM120/14	DH213	FSV213	TSV213	129	DHV213	125	–	–	DKV120
1313	KM13	MB13	FRM140/12,5	DH313	FSV313	TSV313	150,3	DHV313	142,5	TCV313	175,5	DKV140
2213	KM13	MB13	FRM120/10	DH213	FSV213	TSV213	129	DHV213	125	–	–	DKV120
2313	KM13	MB13	FRM140/5	DH313	FSV313	TSV313	150,3	DHV313	142,5	TCV313	175,5	DKV140
20213	KM13	MB13	FRM120/14	DH213	FSV213	TSV213	129	DHV213	125	–	–	DKV120
20313	KM13	MB13	FRM140/12,5	DH313	FSV313	TSV313	150,3	DHV313	142,5	TCV313	175,5	DKV140
21313	KM13	MB13	FRM140/12,5	DH313	FSV313	TSV313	150,3	DHV313	142,5	TCV313	175,5	DKV140
22213	KM13	MB13	FRM120/10	DH213	FSV213	TSV213	129	DHV213	125	–	–	DKV120
22313	KM13	MB13	FRM140/5	DH313	FSV313	TSV313	150,3	DHV313	142,5	TCV313	175,5	DKV140

https://www.schaeffler.de/std/1D65

Plummer block housings

SNV, split
For bearings
with cylindrical bore,
metric shaft





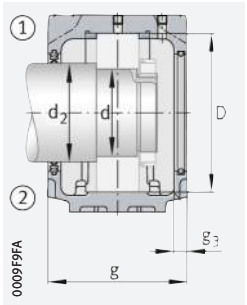
d = 70 – 80 mm

Shaft		Housing														Housing
		Dimensions													Mass	Designation
d	d_2	h	h_1	g	b	c	a	m	v	u	s		D	g_3	m	➤1592 | 2.10
											mm	inch			≈ kg	
70	80	80	158	105	80	30	275	230	23	18	M16	5/8	125	15	6,5	**SNV125-F-L**
	80	95	189	140	90	32	320	260	27	22	M20	3/4	150	15	9,9	**SNV150-F-L**
	80	80	158	105	80	30	275	230	23	18	M16	5/8	125	15	6,5	**SNV125-F-L**
	80	95	189	140	90	32	320	260	27	22	M20	3/4	150	15	9,9	**SNV150-F-L**
	80	80	158	105	80	30	275	230	23	18	M16	5/8	125	15	6,5	**SNV125-F-L**
	80	95	189	140	90	32	320	260	27	22	M20	3/4	150	15	9,9	**SNV150-F-L**
	80	95	189	140	90	32	320	260	27	22	M20	3/4	150	15	9,9	**SNV150-F-L**
	80	80	158	105	80	30	275	230	23	18	M16	5/8	125	15	6,5	**SNV125-F-L**
	80	95	189	140	90	32	320	260	27	22	M20	3/4	150	15	9,9	**SNV150-F-L**
75	85	80	161	120	80	30	280	230	23	18	M16	5/8	130	12,5	6,8	**SNV130-F-L**
	85	100	201	145	100	35	345	290	27	22	M20	3/4	160	15	12,8	**SNV160-F-L**
	85	80	161	120	80	30	280	230	23	18	M16	5/8	130	12,5	6,8	**SNV130-F-L**
	85	100	201	145	100	35	345	290	27	22	M20	3/4	160	15	12,8	**SNV160-F-L**
	85	80	161	120	80	30	280	230	23	18	M16	5/8	130	12,5	6,8	**SNV130-F-L**
	85	100	201	145	100	35	345	290	27	22	M20	3/4	160	15	12,8	**SNV160-F-L**
	85	100	201	145	100	35	345	290	27	22	M20	3/4	160	15	12,8	**SNV160-F-L**
	85	80	161	120	80	30	280	230	23	18	M16	5/8	130	12,5	6,8	**SNV130-F-L**
	85	100	201	145	100	35	345	290	27	22	M20	3/4	160	15	12,8	**SNV160-F-L**
80	90	95	183	135	90	32	315	260	27	22	M20	3/4	140	15	9,3	**SNV140-F-L**
	90	112	219	150	100	35	345	290	27	22	M20	3/4	170	16	14,4	**SNV170-F-L**
	90	95	183	135	90	32	315	260	27	22	M20	3/4	140	15	9,3	**SNV140-F-L**
	90	112	219	150	100	35	345	290	27	22	M20	3/4	170	16	14,4	**SNV170-F-L**
	90	95	183	135	90	32	315	260	27	22	M20	3/4	140	15	9,3	**SNV140-F-L**
	90	112	219	150	100	35	345	290	27	22	M20	3/4	170	16	14,4	**SNV170-F-L**
	90	112	219	150	100	35	345	290	27	22	M20	3/4	170	16	14,4	**SNV170-F-L**
	90	95	183	135	90	32	315	260	27	22	M20	3/4	140	15	9,3	**SNV140-F-L**
	90	112	219	150	100	35	345	290	27	22	M20	3/4	170	16	14,4	**SNV170-F-L**

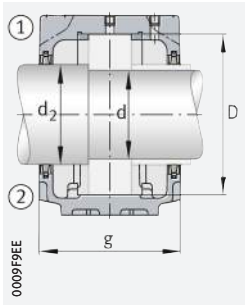
medias ➤ *https://www.schaeffler.de/std/1E91*

① Locating bearing; ② Non-locating bearing

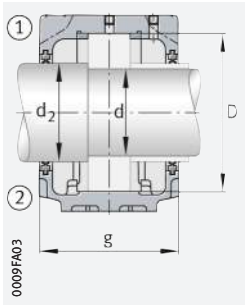
https://www.schaeffler.de/std/1D65



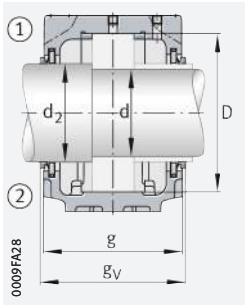
Double lip seal DH
Cover DKVT



Felt seal FSV



Double lip seal DH



V ring seal DHV

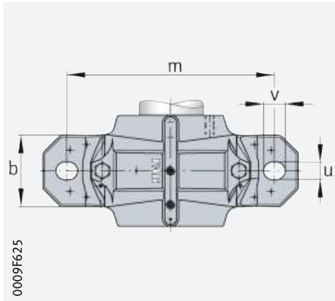
Bearings and accessories

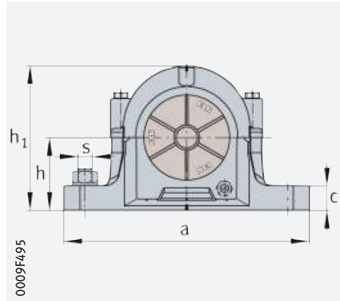
Bearing	Lock-nut	Tab washer	Locating ring 2 pieces	Double lip seal	Felt seal	Labyrinth seal		V ring seal		Taconite seal		Cover
							g_L mm		g_V mm		g_T mm	
1214	KM14	MB14	FRM125/7,5	DH214	FSV214	TSV214	120,3	DHV214	110	TCV214	143	DKV150
1314	KM14	MB14	FRM150/13	DH214	FSV214	TSV214	155,3	DHV214	147,5	TCV214	180,5	DKV150
2214	KM14	MB14	FRM125/4	DH214	FSV214	TSV214	120,3	DHV214	110	TCV214	143	DKV150
2314	KM14	MB14	FRM150/5	DH214	FSV214	TSV214	155,3	DHV214	147,5	TCV214	180,5	DKV150
20214	KM14	MB14	FRM125/7,5	DH214	FSV214	TSV214	120,3	DHV214	110	TCV214	143	DKV150
20314	KM14	MB14	FRM150/13	DH214	FSV214	TSV214	155,3	DHV214	147,5	TCV214	180,5	DKV150
21314	KM14	MB14	FRM150/13	DH214	FSV214	TSV214	155,3	DHV214	147,5	TCV214	180,5	DKV150
22214	KM14	MB14	FRM125/4	DH214	FSV214	TSV214	120,3	DHV214	110	TCV214	143	DKV150
22314	KM14	MB14	FRM150/5	DH214	FSV214	TSV214	155,3	DHV214	147,5	TCV214	180,5	DKV150
1215	KM15	MB15	FRM130/15,5	DH215	FSV215	TSV215	134	DHV215	130	–	–	DKV130
1315	KM15	MB15	FRM160/14	DH315	FSV315	TSV315	160,3	DHV315	152,5	TCV315	185,5	DKV160
2215	KM15	MB15	FRM130/12,5	DH215	FSV215	TSV215	134	DHV215	130	–	–	DKV130
2315	KM15	MB15	FRM160/5	DH315	FSV315	TSV315	160,3	DHV315	152,5	TCV315	185,5	DKV160
20215	KM15	MB15	FRM130/15,5	DH215	FSV215	TSV215	134	DHV215	130	–	–	DKV130
20315	KM15	MB15	FRM160/14	DH315	FSV315	TSV315	160,3	DHV315	152,5	TCV315	185,5	DKV160
21315	KM15	MB15	FRM160/14	DH315	FSV315	TSV315	160,3	DHV315	152,5	TCV315	185,5	DKV160
22215	KM15	MB15	FRM130/12,5	DH215	FSV215	TSV215	134	DHV215	130	–	–	DKV130
22315	KM15	MB15	FRM160/5	DH315	FSV315	TSV315	160,3	DHV315	152,5	TCV315	185,5	DKV160
1216	KM16	MB16	FRM140/16	DH216	FSV216	TSV216	150,3	DHV216	142,5	–	–	DKV140
1316	KM16	MB16	FRM170/14,5	DH316	FSV316	TSV316	167,3	DHV316	157,5	TCV316	192,5	DKV170
2216	KM16	MB16	FRM140/12,5	DH216	FSV216	TSV216	150,3	DHV216	142,5	–	–	DKV140
2316	KM16	MB16	FRM170/5	DH316	FSV316	TSV316	167,3	DHV316	157,5	TCV316	192,5	DKV170
20216	KM16	MB16	FRM140/16	DH216	FSV216	TSV216	150,3	DHV216	142,5	–	–	DKV140
20316	KM16	MB16	FRM170/14,5	DH316	FSV316	TSV316	167,3	DHV316	157,5	TCV316	192,5	DKV170
21316	KM16	MB16	FRM170/14,5	DH316	FSV316	TSV316	167,3	DHV316	157,5	TCV316	192,5	DKV170
22216	KM16	MB16	FRM140/12,5	DH216	FSV216	TSV216	150,3	DHV216	142,5	–	–	DKV140
22316	KM16	MB16	FRM170/5	DH316	FSV316	TSV316	167,3	DHV316	157,5	TCV316	192,5	DKV170

https://www.schaeffler.de/std/1D65

Plummer block housings

SNV, split
For bearings
with cylindrical bore,
metric shaft





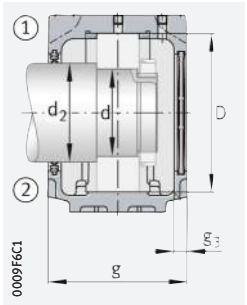
d = 85 – 95 mm

Shaft		Housing														Housing
		Dimensions													Mass	Designation
d	d_2	h	h_1	g	b	c	a	m	v	u	s		D	g_3	m	➤1592 | 2.10
											mm	inch			≈ kg	
85	95	95	189	140	90	32	320	260	27	22	M20	3/4	150	15	9,9	**SNV150-F-L**
	95	112	223	160	110	40	380	320	32	26	M24	7/8	180	16	17	**SNV180-F-L**
	95	95	189	140	90	32	320	260	27	22	M20	3/4	150	15	9,9	**SNV150-F-L**
	95	112	223	160	110	40	380	320	32	26	M24	7/8	180	16	17	**SNV180-F-L**
	95	95	189	140	90	32	320	260	27	22	M20	3/4	150	15	9,9	**SNV150-F-L**
	95	112	223	160	110	40	380	320	32	26	M24	7/8	180	16	17	**SNV180-F-L**
	95	112	223	160	110	40	380	320	32	26	M24	7/8	180	16	17	**SNV180-F-L**
	95	95	189	140	90	32	320	260	27	22	M20	3/4	150	15	9,9	**SNV150-F-L**
	95	112	223	160	110	40	380	320	32	26	M24	7/8	180	16	17	**SNV180-F-L**
90	100	100	201	145	100	35	345	290	27	22	M20	3/4	160	15	12,8	**SNV160-F-L**
	105	112	229	155	110	40	380	320	32	26	M24	7/8	190	15	22	**SNV190-F-L**
	100	100	201	145	100	35	345	290	27	22	M20	3/4	160	15	12,8	**SNV160-F-L**
	105	112	229	155	110	40	380	320	32	26	M24	7/8	190	15	22	**SNV190-F-L**
	100	100	201	145	100	35	345	290	27	22	M20	3/4	160	15	12,8	**SNV160-F-L**
	105	112	229	155	110	40	380	320	32	26	M24	7/8	190	15	22	**SNV190-F-L**
	105	112	229	155	110	40	380	320	32	26	M24	7/8	190	15	22	**SNV190-F-L**
	100	100	201	145	100	35	345	290	27	22	M20	3/4	160	15	12,8	**SNV160-F-L**
	105	112	229	155	110	40	380	320	32	26	M24	7/8	190	15	22	**SNV190-F-L**
	100	100	201	145	100	35	345	290	27	22	M20	3/4	160	15	12,8	**SNV160-F-L**
95	110	112	219	150	100	35	345	290	27	22	M20	3/4	170	16	14,4	**SNV170-F-L**
	110	125	248	175	120	45	410	350	32	26	M24	7/8	200	16	21	**SNV200-F-L**
	110	112	219	150	100	35	345	290	27	22	M20	3/4	170	16	14,4	**SNV170-F-L**
	110	125	248	175	120	45	410	350	32	26	M24	7/8	200	16	21	**SNV200-F-L**
	110	112	219	150	100	35	345	290	27	22	M20	3/4	170	16	14,4	**SNV170-F-L**
	110	125	248	175	120	45	410	350	32	26	M24	7/8	200	16	21	**SNV200-F-L**
	110	125	248	175	120	45	410	350	32	26	M24	7/8	200	16	21	**SNV200-F-L**
	110	112	219	150	100	35	345	290	27	22	M20	3/4	170	16	14,4	**SNV170-F-L**
	110	125	248	175	120	45	410	350	32	26	M24	7/8	200	16	21	**SNV200-F-L**

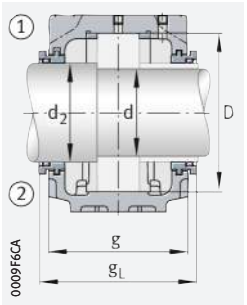
medias ➤ *https://www.schaeffler.de/std/1E92*

① Locating bearing; ② Non-locating bearing

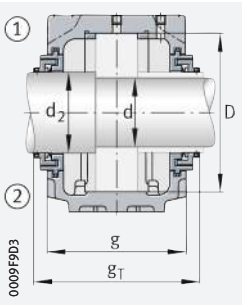
https://www.schaeffler.de/std/1D65



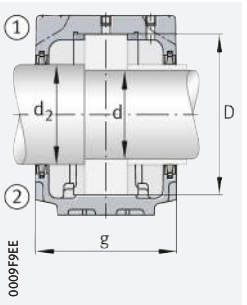
Double lip seal DH
Cover DKV



Labyrinth seal TSV



Taconite seal TCV



Felt seal FSV

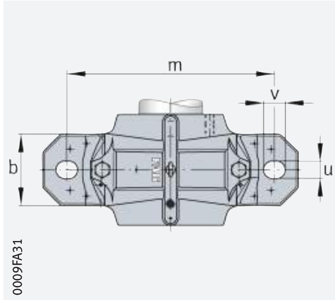
Bearings and accessories

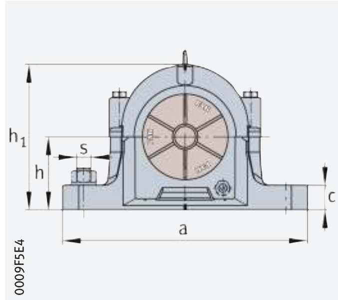
Bearing	Lock-nut	Tab washer	Locating ring 2 pieces	Double lip seal	Felt seal	Labyrinth seal		V ring seal		Taconite seal		Cover
							g_L mm		g_V mm		g_T mm	
1217	KM17	MB17	FRM150/16,5	DH217	FSV217	TSV217	155,3	DHV217	137,5	–	–	DKV150
1317	KM17	MB17	FRM180/14,5	DH317	FSV317	TSV317	177,3	DHV317	167,5	TCV317	202,5	DKV180
2217	KM17	MB17	FRM150/12,5	DH217	FSV217	TSV217	155,3	DHV217	137,5	–	–	DKV150
2317	KM17	MB17	FRM180/5	DH317	FSV317	TSV317	177,3	DHV317	167,5	TCV317	202,5	DKV180
20217	KM17	MB17	FRM150/16,5	DH217	FSV217	TSV217	155,3	DHV217	137,5	–	–	DKV150
20317	KM17	MB17	FRM180/14,5	DH317	FSV317	TSV317	177,3	DHV317	167,5	TCV317	202,5	DKV180
21317	KM17	MB17	FRM180/14,5	DH317	FSV317	TSV317	177,3	DHV317	167,5	TCV317	202,5	DKV180
22217	KM17	MB17	FRM150/12,5	DH217	FSV217	TSV217	155,3	DHV217	137,5	–	–	DKV150
22317	KM17	MB17	FRM180/5	DH317	FSV317	TSV317	177,3	DHV317	167,5	TCV317	202,5	DKV180
1218	KM18	MB18	FRM160/17,5	DH218	FSV218	TSV218	160,3	DHV218	152,5	–	–	DKV160
1318	KM18	MB18	FRM190/15,5	DH318	FSV318	TSV318	170,3	DHV318	162,5	–	–	DKV160
2218	KM18	MB18	FRM160/12,5	DH218	FSV218	TSV218	160,3	DHV218	152,5	–	–	DKV160
2318	KM18	MB18	FRM190/5	DH318	FSV318	TSV318	170,3	DHV318	162,5	–	–	DKV160
20218	KM18	MB18	FRM160/17,5	DH218	FSV218	TSV218	160,3	DHV218	152,5	–	–	DKV160
20318	KM18	MB18	FRM190/15,5	DH318	FSV318	TSV318	170,3	DHV318	162,5	–	–	DKV160
21318	KM18	MB18	FRM190/15,5	DH318	FSV318	TSV318	170,3	DHV318	162,5	–	–	DKV160
22218	KM18	MB18	FRM160/12,5	DH218	FSV218	TSV218	160,3	DHV218	152,5	–	–	DKV160
22318	KM18	MB18	FRM190/5	DH318	FSV318	TSV318	170,3	DHV318	162,5	–	–	DKV160
23218	KM18	MB18	FRM160/6,3	DH218	FSV218	TSV218	160,3	DHV218	152,5	–	–	DKV160
1219	KM19	MB19	FRM170/18	DH219	FSV219	TSV219	167,3	DHV219	160,5	–	–	DKV170
1319	KM19	MB19	FRM200/17,5	DH319	FSV319	TSV319	192,3	DHV319	185,5	TCV319	217,5	DKV200
2219	KM19	MB19	FRM170/12,5	DH219	FSV219	TSV219	167,3	DHV219	160,5	–	–	DKV170
2319	KM19	MB19	FRM200/6,5	DH319	FSV319	TSV319	192,3	DHV319	185,5	TCV319	217,5	DKV200
20219	KM19	MB19	FRM170/18	DH219	FSV219	TSV219	167,3	DHV219	160,5	–	–	DKV170
20319	KM19	MB19	FRM200/17,5	DH319	FSV319	TSV319	192,3	DHV319	185,5	TCV319	217,5	DKV200
21319	KM19	MB19	FRM200/17,5	DH319	FSV319	TSV319	192,3	DHV319	185,5	TCV319	217,5	DKV200
22219	KM19	MB19	FRM170/12,5	DH219	FSV219	TSV219	167,3	DHV219	160,5	–	–	DKV170
22319	KM19	MB19	FRM200/6,5	DH319	FSV319	TSV319	192,3	DHV319	185,5	TCV319	217,5	DKV200

https://www.schaeffler.de/std/1D65

Plummer block housings

SNV, split
For bearings
with cylindrical bore,
metric shaft





d = 100 – 120 mm

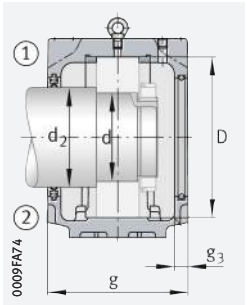
Shaft		Housing														Housing
		Dimensions													Mass	Designation
d	d_2	h	h_1	g	b	c	a	m	v	u	s		D	g_3	m	➤1592 | 2.10
											mm	inch			≈ kg	
100	115	112	223	160	110	40	380	320	32	26	M24	7/8	180	16	17	**SNV180-F-L**[1]
	115	140	271	180	120	45	410	350	32	26	M24	7/8	215	16	24,5	**SNV215-F-L**
	115	112	223	160	110	40	380	320	32	26	M24	7/8	180	16	17	**SNV180-F-L**[1]
	115	140	271	180	120	45	410	350	32	26	M24	7/8	215	16	24,5	**SNV215-F-L**
	115	112	223	160	110	40	380	320	32	26	M24	7/8	180	16	17	**SNV180-F-L**[1]
	115	140	271	180	120	45	410	350	32	26	M24	7/8	215	16	24,5	**SNV215-F-L**
	115	140	271	180	120	45	410	350	32	26	M24	7/8	215	16	24,5	**SNV215-F-L**
	115	112	223	160	110	40	380	320	32	26	M24	7/8	180	16	17	**SNV180-F-L**[1]
	115	140	271	180	120	45	410	350	32	26	M24	7/8	215	16	24,5	**SNV215-F-L**
	115	112	223	160	110	40	380	320	32	26	M24	7/8	180	16	17	**SNV180-F-L**[1]
110	125	125	248	175	120	45	410	350	32	26	M24	7/8	200	16	21	**SNV200-F-L**[1]
	125	150	298	185	130	50	450	390	35	28	M24	1	240	18	32	**SNV240-F-L**
	125	125	248	175	120	45	410	350	32	26	M24	7/8	200	16	21	**SNV200-F-L**[1]
	125	150	298	185	130	50	450	390	35	28	M24	1	240	18	32	**SNV240-F-L**
	125	125	248	175	120	45	410	350	32	26	M24	7/8	200	16	21	**SNV200-F-L**[1]
	125	150	298	185	130	50	450	390	35	28	M24	1	240	18	32	**SNV240-F-L**
	125	150	298	185	130	50	450	390	35	28	M24	1	240	18	32	**SNV240-F-L**
	125	125	248	175	120	45	410	350	32	26	M24	7/8	200	16	21	**SNV200-F-L**[1]
	125	150	298	185	130	50	450	390	35	28	M24	1	240	18	32	**SNV240-F-L**
	125	125	248	175	120	45	410	350	32	26	M24	7/8	200	16	21	**SNV200-F-L**[1]
120	135	140	271	180	120	45	410	350	32	26	M24	7/8	215	16	24,5	**SNV215-F-L**
	135	160	321	190	160	60	530	450	42	35	M30	1 1/4	260	18	48	**SNV260-F-L**
	135	140	271	180	120	45	410	350	32	26	M24	7/8	215	16	24,5	**SNV215-F-L**
	135	160	321	190	160	60	530	450	42	35	M30	1 1/4	260	18	48	**SNV260-F-L**
	135	140	271	180	120	45	410	350	32	26	M24	7/8	215	16	24,5	**SNV215-F-L**

medias ➤ *https://www.schaeffler.de/std/1E93*

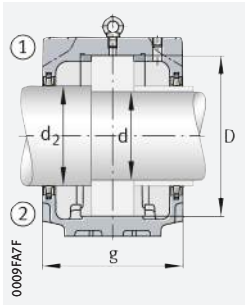
① Locating bearing; ② Non-locating bearing

1) Housing without eye bolt.

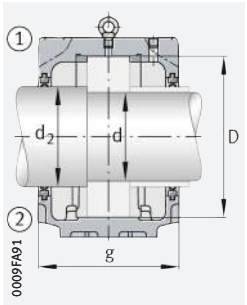
https://www.schaeffler.de/std/1D65



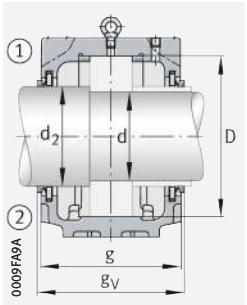
Double lip seal DH
Cover DKVT



Felt seal FSV



Double lip seal DH



V ring seal DHV

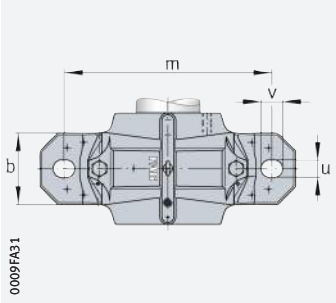
Bearings and accessories

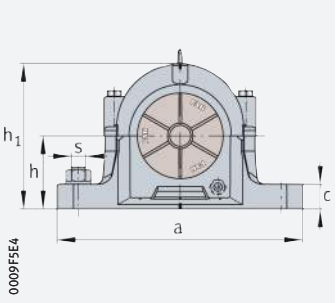
Bearing	Lock-nut	Tab washer	Locating ring 2 pieces	Double lip seal	Felt seal	Labyrinth seal		V ring seal		Taconite seal		Cover
							g_L mm		g_V mm		g_T mm	
1220	KM20	MB20	FRM180/18	DH220	FSV220	TSV220	177,3	DHV220	170,5	–	–	DKV180
1320	KM20	MB20	FRM215/19,5	DH320	FSV320	TSV320	197,3	DHV320	190,5	TCV320	226,5	DKV215
2220	KM20	MB20	FRM180/12	DH220	FSV220	TSV220	177,3	DHV220	170,5	–	–	DKV180
2320	KM20	MB20	FRM215/6,5	DH320	FSV320	TSV320	197,3	DHV320	190,5	TCV320	226,5	DKV215
20220	KM20	MB20	FRM180/18	DH220	FSV220	TSV220	177,3	DHV220	170,5	–	–	DKV180
20320	KM20	MB20	FRM215/19,5	DH320	FSV320	TSV320	197,3	DHV320	190,5	TCV320	226,5	DKV215
21320	KM20	MB20	FRM215/19,5	DH320	FSV320	TSV320	197,3	DHV320	190,5	TCV320	226,5	DKV215
22220	KM20	MB20	FRM180/12	DH220	FSV220	TSV220	177,3	DHV220	170,5	–	–	DKV180
22320	KM20	MB20	FRM215/6,5	DH320	FSV320	TSV320	197,3	DHV320	190,5	TCV320	226,5	DKV215
23220	KM20	MB20	FRM180/4,85	DH220	FSV220	TSV220	177,3	DHV220	170,5	–	–	DKV180
1222	KM22	MB22	FRM200/21	DH222	FSV222	TSV222	195,3	DHV222	185,5	–	–	DKV200
1322	KM22	MB22	FRM240/20	DH222	FSV222	TSV222	203,3	DHV222	193,5	–	–	DKV200
2222	KM22	MB22	FRM200/13,5	DH222	FSV222	TSV222	195,3	DHV222	185,5	–	–	DKV200
2322	KM22	MB22	FRM240/5	DH222	FSV222	TSV222	203,3	DHV222	193,5	–	–	DKV200
20222	KM22	MB22	FRM200/21	DH222	FSV222	TSV222	195,3	DHV222	185,5	–	–	DKV200
20322	KM22	MB22	FRM240/20	DH222	FSV222	TSV222	203,3	DHV222	193,5	–	–	DKV200
21322	KM22	MB22	FRM240/20	DH222	FSV222	TSV222	203,3	DHV222	193,5	–	–	DKV200
22222	KM22	MB22	FRM200/13,5	DH222	FSV222	TSV222	195,3	DHV222	185,5	–	–	DKV200
22322	KM22	MB22	FRM240/5	DH222	FSV222	TSV222	203,3	DHV222	193,5	–	–	DKV200
23222	KM22	MB22	FRM200/5,1	DH222	FSV222	TSV222	195,3	DHV222	185,5	–	–	DKV200
20224	KM24	MB24	FRM215/23	DH224	FSV224	TSV224	200,3	DHV224	190,5	–	–	DKV215
20324	KM24	MB24	FRM260/20,5	DH224	FSV224	TSV224	208,3	DHV224	198,5	–	–	DKV215
22224	KM24	MB24	FRM215/14	DH224	FSV224	TSV224	200,3	DHV224	190,5	–	–	DKV215
22324	KM24	MB24	FRM260/5	DH224	FSV224	TSV224	208,3	DHV224	198,5	–	–	DKV215
23224	KM24	MB24	FRM215/5	DH224	FSV224	TSV224	200,3	DHV224	190,5	–	–	DKV215

https://www.schaeffler.de/std/1D65

Plummer block housings

SNV, split
For bearings
with cylindrical bore,
metric shaft





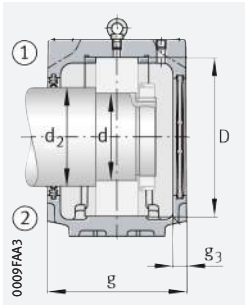
d = 130 – 160 mm

Shaft		Housing													Housing
		Dimensions												Mass	Designation
d	d_2	h	h_1	g	b	c	a	m	v	u	s	D	g_3	m	➤*1592|2.10*
											mm / inch			≈ kg	
130	145	150	291	190	130	50	445	380	35	28	M24 / 1	230	18	30	**SNV230-F-L**
	150	170	344	205	160	60	550	470	42	35	M30 / $1\,1/4$	280	18	55	**SNV280-F-L**
	145	150	291	190	130	50	445	380	35	28	M24 / 1	230	18	30	**SNV230-F-L**
	150	170	344	205	160	60	550	470	42	35	M30 / $1\,1/4$	280	18	55	**SNV280-F-L**
	145	150	291	190	130	50	445	380	35	28	M24 / 1	230	18	30	**SNV230-F-L**
140	155	150	304	200	150	50	500	420	42	35	M30 / $1\,1/4$	250	18	38	**SNV250-F-L**
	160	180	366	215	170	65	620	520	42	35	M30 / $1\,1/4$	300	18	70	**SNV300-F-L**
	155	150	304	200	150	50	500	420	42	35	M30 / $1\,1/4$	250	18	38	**SNV250-F-L**
	160	180	366	215	170	65	620	520	42	35	M30 / $1\,1/4$	300	18	70	**SNV300-F-L**
	155	150	304	200	150	50	500	420	42	35	M30 / $1\,1/4$	250	18	38	**SNV250-F-L**
150	165	160	328	215	160	60	530	450	42	35	M30 / $1\,1/4$	270	18	45,5	**SNV270-F-L**
	170	190	386	225	180	65	650	560	42	35	M30 / $1\,1/4$	320	18	95	**SNV320-F-L**
	165	160	328	215	160	60	530	450	42	35	M30 / $1\,1/4$	270	18	45,5	**SNV270-F-L**
	170	190	386	225	180	65	650	560	42	35	M30 / $1\,1/4$	320	18	95	**SNV320-F-L**
	165	160	328	215	160	60	530	450	42	35	M30 / $1\,1/4$	270	18	45,5	**SNV270-F-L**
160	175	170	351	225	160	60	550	470	42	35	M30 / $1\,1/4$	290	18	53,8	**SNV290-F-L**
	175	170	351	225	160	60	550	470	42	35	M30 / $1\,1/4$	290	18	53,8	**SNV290-F-L**
	180	200	406	235	190	70	680	580	50	42	M36 / $1\,1/2$	340	18	115	**SNV340-F-L**
	175	170	351	225	160	60	550	470	42	35	M30 / $1\,1/4$	290	18	53,8	**SNV290-F-L**

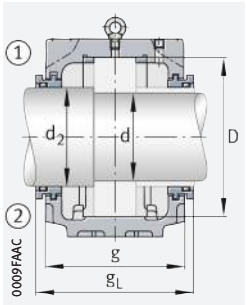
medias ➤ *https://www.schaeffler.de/std/1E94*

① Locating bearing; ② Non-locating bearing

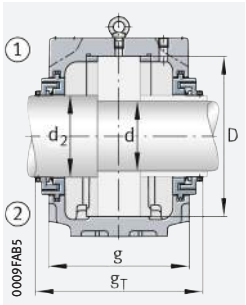
https://www.schaeffler.de/std/1D65



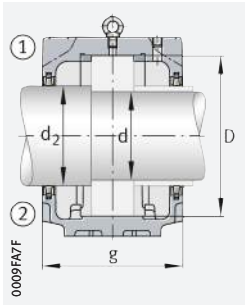
Double lip seal DH
Cover DKV



Labyrinth seal TSV



Taconite seal TCV



Felt seal FSV

Bearings and accessories

Bearing	Lock-nut	Tab washer	Locating ring 2 pieces	Double lip seal	Felt seal	Labyrinth seal		V ring seal		Taconite seal		Cover
							g_L mm		g_V mm		g_T mm	
20226	KM26	MB26	FRM230/25	DH226	FSV226	TSV226	208,3	DHV226	198,5	–	–	DKV230
20326	KM26	MB26	FRM280/22,5	DH326	FSV326	TSV326	223,3	DHV326	213,5	–	–	DKV230
22226	KM26	MB26	FRM230/13	DH226	FSV226	TSV226	208,3	DHV226	198,5	–	–	DKV230
22326	KM26	MB26	FRM280/5	DH326	FSV326	TSV326	223,3	DHV326	213,5	–	–	DKV230
23226	KM26	MB26	FRM230/5	DH226	FSV226	TSV226	208,3	DHV226	198,5	–	–	DKV230
20228	KM28	MB28	FRM250/28	DH228	FSV228	TSV228	218,3	DHV228	211,5	–	–	DKV250
20328	KM28	MB28	FRM300/25	DH328	FSV328	TSV328	233,3	DHV328	226,5	–	–	DKV250
22228	KM28	MB28	FRM250/15	DH228	FSV228	TSV228	218,3	DHV228	211,5	–	–	DKV250
22328	KM28	MB28	FRM300/5	DH328	FSV328	TSV328	233,3	DHV328	226,5	–	–	DKV250
23228	KM28	MB28	FRM250/5	DH228	FSV228	TSV228	218,3	DHV228	211,5	–	–	DKV250
20230	KM30	MB30	FRM270/30,5	DH230	FSV230	TSV230	233,3	DHV230	228,5	–	–	DKV270
20330	KM30	MB30	FRM320/26,5	DH330	FSV330	TSV330	243,3	DHV330	236,5	–	–	DKV270
22230	KM30	MB30	FRM270/16,5	DH230	FSV230	TSV230	233,3	DHV230	228,5	–	–	DKV270
22330	KM30	MB30	FRM320/5	DH330	FSV330	TSV330	243,3	DHV330	236,5	–	–	DKV270
23230	KM30	MB30	FRM270/5	DH230	FSV230	TSV230	233,3	DHV230	228,5	–	–	DKV270
20232	KM32	MB32	FRM290/33	DH232	FSV232	TSV232	243,3	DHV232	236,5	–	–	DKV290
22232	KM32	MB32	FRM290/17	DH232	FSV232	TSV232	243,3	DHV232	236,5	–	–	DKV290
22332	KM32	MB32	FRM340/5	DH332	FSV332	TSV332	253,3	DHV332	246,5	–	–	DKV290
23232	KM32	MB32	FRM290/5	DH232	FSV232	TSV232	243,3	DHV232	236,5	–	–	DKV290

https://www.schaeffler.de/std/1D65

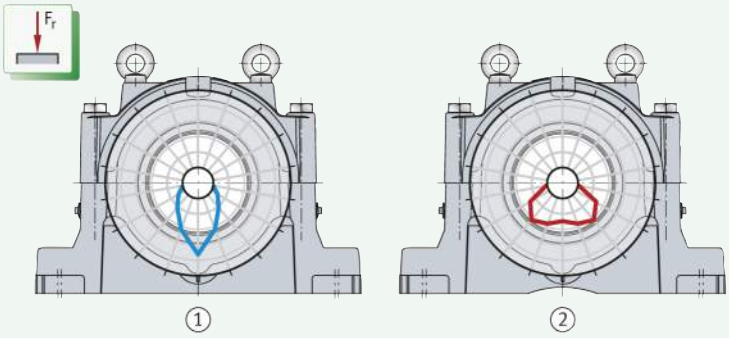
3 Split plummer block housings SNS

Split plummer block housings SNS:

- are designed in accordance with a modular concept and are highly versatile in application ➤*1624|3.1*
- are suitable for different bearing types and sizes with bore diameters from 115 mm to 530 mm ➤*1627|3.2*
- lead, as a result of their design, to optimised load distribution and thereby increase the rating life of the bearing by up to 50% ➤*1624|1* and ➤*1624|3.1*
- give a reduction, due to the lower replacement frequency of the bearing fitted, in total costs over the running time.

1
Influence of housing design on the load distribution in the bearing

① *Conventional plummer block housing with associated load distribution*
② *FAG plummer block housing SNS with associated load distribution*



3.1 Housing design

✎ *Housings for aggressive environmental conditions*

Split plummer block housings SNS are highly robust and therefore particularly suitable for aggressive environmental conditions such as those in mining applications ➤*1624|2* and ➤*1625|3*.

2
Split plummer block housings SNS..-H and SNS..-Z

Housing design for labyrinth and taconite seal

https://www.schaeffler.de/std/1D65

3
Split plummer block housings SNS..-B

Housing design for Bolt-on seal

Modular concept

The decisive factor is the outside diameter of the bearing

The housings are designed in accordance with a modular concept. Each housing can be fitted with rolling bearings of various diameter and width series if they have the correct outside diameter for the housing.

Seals are matched to the shaft diameter

Depending on their design, the bearings can be located either directly on the shaft or by means of an adapter sleeve. This gives different shaft diameters for the same bearing size. The spacings between the shaft and housing body are compensated by means of appropriately matched seals.

Longer bearing life

Bearing rating life up to 50% longer than with conventional plummer block housings

In the case of plummer block housings SNS, the life of the spherical roller bearings fitted is up to 50% longer than in the case of conventional plummer block housings. The increase in life is dependent on the application, the load and the bearing design. Calculation of the bearing life is based on the calculation software BEARINX. The reason for the longer bearing life is the optimised load distribution in the bearing that is achieved as a result of the new housing design ➤ *1624* | 1.

Conventional plummer block housings: unfavourable load distribution in the bearing

Conventional plummer block housings are designed such that the bearing load is introduced into the housing locating face by means of a support area directly below the bearing. If loading is in the main load direction, namely with an orientation vertical to the housing locating face, an unfavourable load distribution occurs in the bearing. Due to the narrow load zone, the load is distributed over only a small number of rolling elements, leading to a particularly high load maximum on the roller in the apex position.

Plummer block housings SNS: optimised load distribution

In the case of plummer block housings SNS, a material recess below the bearing distributes the support area over two symmetrically arranged support faces. This leads to a significant improvement in the load distribution in the bearing. The load zone is wider and the load is distributed more uniformly over several rolling elements. The maximum is now present on the two neighbouring rollers of the roller in the apex position and is reduced. This results in a significant increase in the fatigue life of the rolling bearings.

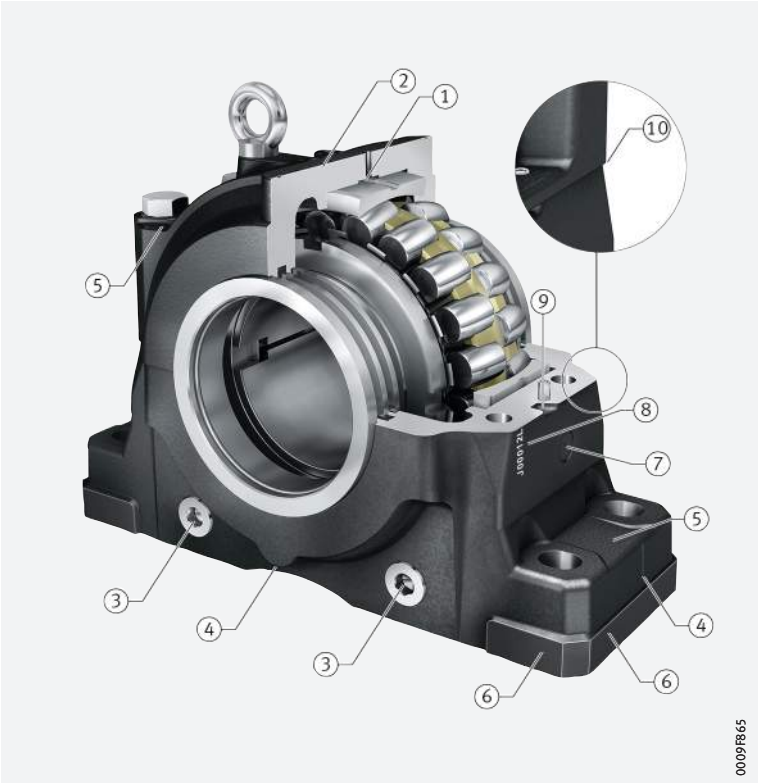
https://www.schaeffler.de/std/1D65

Advantages of detailed design

A large number of details in the housing design that are systematically matched to practical application allows a particularly flexible and economical usage of plummer block housings SNS ➤ *1626*| *4*.

4
Advantages of detailed design

① *Lubrication hole with long axial lubrication groove*
② *Pilot hole at predefined position for condition monitoring*
③ *Grease outlet holes*
④ *Indentations indicating shaft and bearing centres*
⑤ *Inclined run-off areas*
⑥ *Machined locating faces*
⑦ *Prepared mounting points for condition monitoring*
⑧ *Marking of housing halves*
⑨ *Dismounting notches*
⑩ *Overhang of upper housing section*



✎ *Lubrication hole with long axial lubrication groove*

A lubrication hole with a long axial lubrication groove in the upper housing section ensures supply of lubricant irrespective of bearing position to all bearing series that can be fitted. Suitable lubrication nipples are included in the scope of delivery.

✎ *Grease outlet holes*

Grease outlet holes in the lower housing section allow the escape of used and superfluous grease during relubrication.

✎ *Indentations*

Indentations in the lower housing section indicate the shaft and bearing centres in the housing. This allows rapid alignment and reduces mounting time.

✎ *Inclined run-off areas*

Inclined run-off areas on the upper and lower housing section promote the removal of fluids and reduce deposits of contamination. This leads to reduced cleaning work and a lower risk of corrosion.

✎ *Machined locating faces*

Machined locating faces on the lower housing section allow precise alignment of the housing. When the housing is painted, the locating faces are also provided with a universal paint coating. Since the locating faces are raised, strips can be used as an alignment aid. One-off alignment is sufficient to allow rapid interchange of the housing when necessary.

✎ *Prepared mounting points for condition monitoring*

In order to allow the uncomplicated use of condition monitoring, the lower housing section has a connection facility on both sides for condition monitoring systems. Due to the thread M6 and a flattened area of diameter 26 mm, it is possible to directly connect FAG SmartCheck, a modular online measuring system for machine monitoring. Alternatively, other vibration sensors can also be connected.

If neither of the two connection points is accessible as a result of the adjacent construction, a further suitable connection point on the upper section is indicated by a cast-in pilot hole.

https://www.schaeffler.de/std/1D65

FAG SmartCheck must be ordered separately. Detailed information ➤ 🕮 *TPI 214* or ➤ *https://www.schaeffler.de/std/1B73*.

✎ *Marking of housing halves*

The upper housing section and lower housing section are matched to each other and must not be transposed with other housing halves. The serial numbering on both halves of the housing ensure their correction allocation. Furthermore, the serial numbering allows traceability and simplified documentation.

✎ *Dismounting notches*

Recessed dismounting notches on the interface of the housing halves make it easier to remove the upper housing section.

✎ *Overhang of upper housing section*

The overhang of the upper housing section prevents the collection of fluids and contaminants at the interface of the two housing halves. This leads to reduced cleaning work and a lower risk of corrosion.

3.2 Suitable bearings

✎ *Shaft diameters from 115 mm to 530 mm and from $4^{7}/_{16}$ inch to $19^{1}/_{2}$ inch*

Split plummer block housings SNS are suitable for fitting with spherical roller bearings or toroidal roller bearings with a tapered or cylindrical bore ➤ *1627* | ▦ *1*. The range of shaft diameters is 115 mm to 530 mm and $4^{7}/_{16}$ inch to $19^{1}/_{2}$ inch.

▦ **1**
Bearing types and sizes

Bearing type	Size
Spherical roller bearings	
■ with tapered bore and adapter sleeve	22232..-K to 22272..-K
	22326..-K to 22356..-K
	23036-K to 230/530..-K
	23134..-K to 23196..-K
	23232..-K to 23288..-K
■ with cylindrical bore	22232 to 22272
	22326 to 22356
	23036 to 230/530
	23134 to 23196
	23232 to 23288
	24036 to 240/530
■ split	230SM160 to 230SM410
	230S.607 to 230S.1608
	231SM150 to 231SM410
	231S.515 to 231S.1500
	232SM260 to 232SM340
	232S.1200 to 232S.1308
Toroidal roller bearings	
■ with tapered bore and adapter sleeve	C2232..-K to C2244..-K
	C2326..-K to C2356..-K
	C3036-K to C30/530..-K
	C3134..-K to C3196..-K
	C3232..-K to C3288..-K
■ with cylindrical bore	C2232 to C2244
	C2326 to C2356
	C3036 to C30/530
	C3134 to C3196
	C3232 to C3288
	C4036 to C40/530

✎ *Split spherical roller bearings*

Unsplit spherical roller bearings with an adapter sleeve can be replaced by split spherical roller bearings ➤ *1627* | ▦ *1*. This gives a considerable reduction in the work associated with bearing replacement in numerous applications.

In order to ensure selection of the correct combination of housing and bearing when using split bearings, please contact Schaeffler.

The range of split spherical roller bearings is described in detail in a separate publication ➤ 🕮 *TPI 250*.

https://www.schaeffler.de/std/1D65

✎ *Allocation of bearing and housing series*

On the basis of the modular concept, one or more series of plummer block housings SNS are suitable for each series of spherical roller bearings ➤ *1628* | ▦ *2* to ➤ *1628* | ▦ *4*.

▦ *2*
Plummer block housings SNS for spherical roller bearings with tapered bore and adapter sleeve

● = *suitable*

Bearing	Plummer block housing										
Series	SNS2264		SNS30		SNS31			SNS32		SNS40	
	Suffixes										
	H	Z	H	Z	H	Z	B	H	Z	H	Z
222..-K	●	–	●	–	●	–	–	–	–	–	–
223..-K	–	–	●	–	●	–	–	–	–	–	–
230..-K	–	–	●	–	–	–	–	–	–	–	–
231..-K	–	–	–	–	●	–	●	–	–	–	–
232..-K	–	–	●	–	–	–	–	●	–	–	–

▦ *3*
Plummer block housings SNS for spherical roller bearings with cylindrical bore

● = *suitable*

Bearing	Plummer block housing										
Series	SNS2264		SNS30		SNS31			SNS32		SNS40	
	Suffixes										
	H	Z	H	Z	H	Z	B	H	Z	H	Z
222	–	●	●	–	●	●	–	–	–	–	–
223	–	–	●	–	●	–	–	–	–	–	–
230	–	–	●	●	–	–	–	–	–	–	–
231	–	–	–	–	●	●	–	–	–	–	–
232	–	–	●	–	–	–	–	–	●	–	–
240	–	–	●	●	–	–	–	–	–	–	●

▦ *4*
Plummer block housings SNS for split spherical roller bearings

● = *suitable*

Bearing	Plummer block housing										
Series	SNS2264		SNS30		SNS31			SNS32		SNS40	
	Suffixes										
	H	Z	H	Z	H	Z	B	H	Z	H	Z
230S	–	–	●	–	–	–	–	–	–	–	–
231S	–	–	–	–	●	–	●	–	–	–	–
232S	–	–	–	–	–	–	–	●	–	–	–

3.3 Materials, corrosion protection

✎ *Material*

The housing bodies are made from spheroidal graphite cast iron GJS-400-15 (suffix D).

✎ *Corrosion protection*

All outer surfaces not machined by chip-forming methods and the locating surfaces on the lower housing section have a universal paint coating (colour RAL 7016, anthracite grey). The coating can be finished using all synthetic resin, polyurethane, acrylic, epoxy resin, chlorinated rubber, nitrocellulose and acid-hardening hammer tone finishes.

Inner and outer surfaces machined by chip-forming methods are provided with anti-corrosion protection that can be easily removed.
It is recommended that only volatile solvents and lint-free cloths should be used.

3.4 Locating and non-locating bearings

✎ *Locating bearing arrangement by means of locating rings*

The bearing seats in the housing are machined such that the bearings are movable and can thus function as non-locating bearings. Locating bearing arrangements can be achieved by the insertion of locating rings NFR on both sides of the bearing outer ring. Depending on the combination of housing and bearing, 2, 4 or 6 locating rings will be required ➤ *1650* | ▦. Locating rings must be ordered separately.

https://www.schaeffler.de/std/1D65

3.5 Load carrying capacity

Guide values

Guide values are given for the rupture load of plummer block housings SNS and the maximum load carrying capacity of connecting screws for the upper and lower housing sections, ➤ *1629* | 5 and ➤ *1630* | 5. The guide values are valid for purely static loading.

The guide values only apply if the flatness of the mounting surface in accordance with DIN EN ISO 1101 corresponds to the tolerance grade IT7 in accordance with DIN EN ISO 286-1 (measured across the diagonal). A precondition for supporting loads is that the housing base surface is completely and rigidly supported.

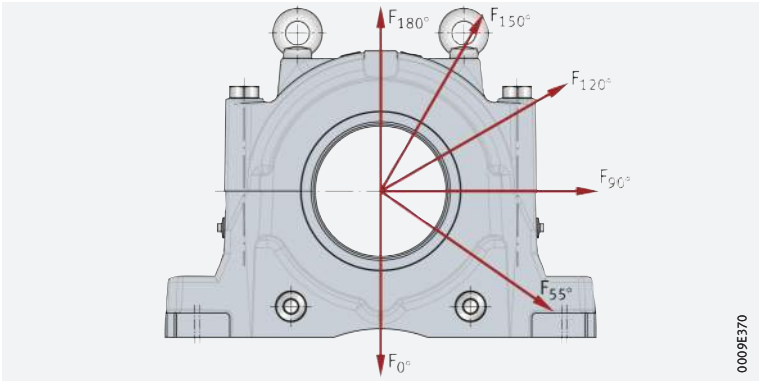
Safety factors

When determining the permissible static load, safety factors must be applied. For general machine building, the safety factor 6 relative to the housing rupture load is normally applied. Based on the precise calculation of the housing rupture loads using the Finite Element method and the use, as standard, of spheroidal graphite cast iron as the housing material, the safety factor 5 is sufficient for plummer block housings SNS.

A safety factor is not required for the values given for the load carrying capacity of the connecting screws.

If the housing is subjected to axial load, the permissible axial load of the bearing fitted must be taken into consideration. If the bearing is located on the shaft using an adapter sleeve, the axial retaining force of the bearing and adapter sleeve must also be taken into consideration.

If the load direction is between 55° and 120° or axial load is present, we recommend that the housings should be secured in the load direction by means of stops.



5 *Load directions F for the guide values for the housing rupture load and the maximum load carrying capacity of the connecting screws*

https://www.schaeffler.de/std/1D65

5
Guide values for housing rupture load and maximum load carrying capacity of connecting screws. Tightening torques

Housing designation					Housing rupture loads[1] in load direction F	
SNS22	SNS30	SNS31	SNS32	SNS40	0° kN	55° kN
–	SNS3036	SNS3134	–	–	4 050	4 540
–	SNS3038	SNS3136	–	–	4 400	4 940
–	SNS3040	SNS3138	SNS3234	–	4 880	5 480
–	–	–	SNS3236	–	4 880	5 480
–	SNS3044	SNS3140	SNS3238	–	5 800	6 500
–	SNS3048	SNS3144	SNS3240	–	6 240	7 560
–	SNS3052	SNS3148	–	–	7 330	8 550
–	–	–	SNS3244	–	7 330	8 550
–	SNS3056	SNS3152	–	–	8 740	9 810
–	–	–	SNS3248	–	8 740	9 810
–	SNS3060	SNS3156	–	–	9 200	10 320
–	SNS3064	SNS3160	–	–	10 150	11 390
–	–	–	SNS3252	–	10 150	11 390
–	–	–	SNS3256	–	10 150	11 390
–	SNS3068	SNS3164	–	–	11 410	12 810
–	SNS3072	–	–	–	11 410	12 810
–	–	–	SNS3260	–	11 410	12 810
SNS2264	SNS3076	SNS3168	–	SNS4076	13 300	14 930
–	–	–	SNS3264	–	13 300	14 930
–	SNS3080	SNS3172	–	–	14 740	16 540
–	–	–	–	SNS4080	14 740	16 540
–	SNS3084	SNS3176	–	–	15 940	17 890
–	–	–	SNS3268	–	15 940	17 890
–	–	–	–	SNS4084	15 940	17 890
–	SNS3088	SNS3180	–	–	18 490	20 750
–	–	–	SNS3272	–	18 490	20 750
–	–	–	–	SNS4088	18 490	20 750
–	SNS3092	SNS3184	–	SNS4092	20 180	22 650
–	SNS3096	–	–	SNS4096	20 180	22 650
–	–	–	SNS3276	–	20 180	22 650
–	SNS30/500	SNS3188	–	–	21 940	24 620
–	–	–	SNS3280	–	21 940	24 620
–	–	–	–	SNS40/500	21 940	24 620
–	–	SNS3192	–	–	24 150	27 100
–	–	–	SNS3284	–	24 150	27 100
–	SNS30/530	SNS3196	–	SNS40/530	26 080	29 270
–	–	–	SNS3288	–	26 080	29 270

1) *For housings made from spheroidal graphite cast iron GJS-400-15 (suffix D).*

2) *Maximum load carrying capacity in load direction F, where there is still contact at the parting line between the upper and lower housing sections.*

https://www.schaeffler.de/std/1D65

					Connecting screws					
					Screws to DIN EN ISO 4014	Tightening torque	Maximum load carrying capacity in load direction F[2)]			
90°	120°	150°	180°	axial	Grade 8.8		90°	120°	150°	180°
kN	kN	kN	kN	kN		Nm	kN	kN	kN	kN
3 040	1 650	1 190	1 220	1 170	M24	559	1 380	760	618	725
3 300	1 800	1 300	1 330	1 270	M24	559	1 370	760	615	723
3 660	1 990	1 440	1 470	1 410	M24	559	1 500	830	670	790
3 660	1 990	1 440	1 470	1 410	M24	559	1 500	830	670	790
4 350	2 370	1 700	1 750	1 670	M24	559	1 510	836	677	796
5 070	2 880	2 360	2 380	1 880	M24	559	1 484	820	664	781
5 720	3 190	2 470	2 510	2 080	M30	1 118	2 380	1 315	1 065	1 252
5 720	3 190	2 470	2 510	1 880	M30	1 118	2 380	1 315	1 065	1 252
6 550	3 570	2 580	2 640	2 520	M30	1 118	2 372	1 310	1 061	1 250
6 550	3 570	2 580	2 640	1 410	M30	1 118	2 372	1 310	1 061	1 250
6 900	3 760	2 710	2 780	2 652	M30	1 118	2 330	1 290	1 040	1 230
7 620	4 150	3 000	3 070	2 810	M30	1 118	2 220	1 230	990	1 170
7 620	4 150	3 000	3 070	2 230	M30	1 118	2 220	1 230	990	1 170
7 620	4 150	3 000	3 070	2 230	M30	1 118	2 220	1 230	990	1 170
8 560	4 660	3 370	3 450	3 355	M30	1 118	2 220	1 230	1 000	1 170
8 560	4 660	3 370	3 450	3 355	M30	1 118	2 200	1 230	1 000	1 170
8 560	4 660	3 370	3 450	2 900	M30	1 118	2 200	1 230	1 000	1 170
9 980	5 430	3 930	4 020	3 480	M36	1 945	3 260	1 800	1 460	1 720
9 980	5 430	3 930	4 020	2 690	M36	1 945	3 260	1 800	1 460	1 720
11 060	6 020	4 350	4 450	4 250	M36	1 945	3 100	1 710	1 390	1 630
11 060	6 020	4 350	4 450	4 295	M36	1 945	3 100	1 710	1 390	1 630
11 960	6 510	4 710	4 820	4 600	M36	1 945	3 100	1 710	1 390	1 630
11 960	6 510	4 710	4 820	3 628	M36	1 945	3 100	1 710	1 390	1 630
11 960	6 510	4 710	4 820	4 200	M36	1 945	3 100	1 710	1 390	1 630
13 870	7 560	5 460	5 590	5 330	M36	1 945	3 200	1 770	1 430	1 690
13 870	7 560	5 460	5 590	3 200	M36	1 945	3 200	1 770	1 430	1 690
13 870	7 560	5 460	5 590	4 535	M36	1 945	3 200	1 770	1 430	1 690
15 140	8 250	5 960	6 100	5 650	M42	2 794	4 110	2 270	1 840	2 160
15 140	8 250	5 960	6 100	5 650	M42	2 794	4 110	2 270	1 840	2 160
15 140	8 250	5 960	6 100	4 530	M42	2 794	4 110	2 270	1 840	2 160
16 460	8 970	6 480	6 630	6 320	M42	2 794	4 110	2 270	1 840	2 160
16 460	8 970	6 480	6 630	4 360	M42	2 794	4 110	2 270	1 840	2 160
16 460	8 970	6 480	6 630	6 350	M42	2 794	4 110	2 270	1 840	2 160
18 120	9 870	7 130	7 300	6 962	M42	2 794	4 160	2 300	1 860	2 190
18 120	9 870	7 130	7 300	4 747	M42	2 794	4 160	2 300	1 860	2 190
19 560	10 660	7 700	7 880	7 420	M42	2 794	4 160	2 300	1 860	2 190
19 560	10 660	7 700	7 880	4 500	M42	2 794	4 160	2 300	1 860	2 190

https://www.schaeffler.de/std/1D65

3.6 Lubrication

Split plummer block housings SNS are principally intended for grease lubrication. However, a design for oil lubrication is also available by agreement.

Lubricating greases

Arcanol rolling bearing greases

In order to achieve a long operating life and high operational security of the bearing arrangement, we recommend the use of rolling bearing greases Arcanol ➤*92|6.5*. These have been designed and tested for bearing arrangement engineering.

Grease quantity

Basic rule for initial greasing

For initial greasing, the basic rule is that the bearing should be filled with grease to 100% and the free volume of the housing to 60%.
The free volume is the space that remains in the housing once the bearing, adapter sleeve, shaft and seals have been fitted.

Recommended grease quantity

The recommended grease quantity can also be stated in grams once the density of the grease has been taken into consideration ➤*1632|⊞6*.

The recommended grease quantity takes account of:

- filling of the free volume to 60%
- grease with a density of 0,9 g/cm³.

⊞6 *Recommended grease quantity for selected housing/ bearing combinations*

Information on the recommended grease quantity for other housing sizes is available by agreement.

Housing		Bearing	Adapter sleeve	Free volume (100%) cm³	Recommended grease quantity ≈ g
SNS22	SNS2264-H-D	22264..-K	H3064	27 550	14 900
SNS30	SNS3036-H-D	23036..-K	H3036	2 900	1 600
	SNS3038-H-D	23038..-K	H3038	3 900	2 250
	SNS3040-H-D	23040..-K	H3040	5 020	3 050
	SNS3044-H-D	23044..-K	H3044	5 770	4 260
	SNS3048-H-D	23048..-K	H3048	7 280	4 550
	SNS3052-H-D	23052..-K	H3052	9 930	6 750
	SNS3056-H-D	23056..-K	H3056	12 500	6 750
	SNS3060-H-D	23060..-K	H3060	14 800	8 000
	SNS3064-H-D	23064..-K	H3064	19 400	10 500
	SNS3068-H-D	23068..-K	H3068	24 000	13 000
	SNS3072-H-D	23072..-K	H3072	30 400	16 450
	SNS3076-H-D	23076..-K	H3076	32 000	17 300
	SNS3080-H-D	23080..-K	H3080	33 500	18 100
	SNS3084-H-D	23084..-K	H3084	35 000	18 900
	SNS3088-H-D	23088..-K	H3088	43 400	23 450
	SNS3092-H-D	23092..-K	H3092	56 600	30 600
	SNS3096-H-D	23096..-K	H3096	55 200	29 850
	SNS30/500-H-D	230/500..-K	H30/500	55 200	29 850
	SNS30/530-H-D	230/530..-K	H30/530	67 500	36 450

continued ▼

https://www.schaeffler.de/std/1D65

6 *Recommended grease quantity for selected housing/ bearing combinations*

Information on the recommended grease quantity for other housing sizes is available by agreement.

Housing		Bearing	Adapter sleeve	Free volume (100%) cm^3	Recommended grease quantity ≈ g
SNS31	SNS3134-H-D	23134..-K	H3134	2 900	1 600
	SNS3136-H-D	23136..-K	H3136	3 810	2 060
	SNS3138-H-D	23138..-K	H3138	5 030	2 720
	SNS3140-H-D	23140..-K	H3140	6 780	3 660
	SNS3144-H-D	23144..-K	H3144	7 520	4 060
	SNS3148-H-D	23148..-K	H3148	10 100	5 990
	SNS3152-H-D	23152..-K	H3152	11 650	6 300
	SNS3156-H-D	23156..-K	H3156	12 550	6 800
	SNS3160-H-D	23160..-K	H3160	17 200	9 300
	SNS3164-H-D	23164..-K	H3164	21 250	11 500
	SNS3168-H-D	23168..-K	H3168	27 550	14 900
	SNS3172-H-D	23172..-K	H3172	28 500	15 400
	SNS3176-H-D	23176..-K	H3176	28 300	15 300
	SNS3180-H-D	23180..-K	H3180	36 450	19 700
	SNS3184-H-D	23184..-K	H3184	45 550	24 600
	SNS3188-H-D	23188..-K	H3188	48 300	26 100
	SNS3192-H-D	23192..-K	H3192	52 000	28 100
	SNS3196-H-D	23196..-K	H3196	55 000	29 700
SNS32	SNS3234-H-D	23234..-K	H2334	5 350	2 900
	SNS3236-H-D	23236..-K	H2336	5 350	2 900
	SNS3238-H-D	23238..-K	H2338	6 500	3 510
	SNS3240-H-D	23240..-K	H2340	6 900	3 760
	SNS3244-H-D	23244..-K	H2344	10 000	5 400
	SNS3248-H-D	23248..-K	H2348	10 200	5 550
	SNS3252-H-D	23252..-K	H2352	15 500	8 400
	SNS3256-H-D	23256..-K	H2356	15 500	8 400
	SNS3260-H-D	23260..-K	H3260	19 000	10 300
	SNS3264-H-D	23264..-K	H3264	25 300	13 700
	SNS3268-H-D	23268..-K	H3268	25 000	13 500
	SNS3272-H-D	23272..-K	H3272	26 800	14 500
	SNS3276-H-D	23276..-K	H3276	38 600	20 850
	SNS3280-H-D	23280..-K	H3280	44 100	23 850
	SNS3284-H-D	23284..-K	H3284	45 000	24 350
	SNS3288-H-D	23288..-K	H3288	49 400	26 700

continued ▲

✎ *Deviation from basic rule*

The recommended degree of filling for the greasing of bearings, as a function of the application and speed, may deviate from 100%.

https://www.schaeffler.de/std/1D65

Relubrication

Bearings with circumferential lubrication groove

Where relubrication is carried out on bearings with a circumferential lubrication groove, the grease is introduced into the housing via the central lubrication hole ➤*1635*|*6*. In this type of relubrication, the grease acts directly on the bearing.

Bearings without lubrication groove

For the relubrication of bearings without a lubrication groove, two relubrication points are provided in the upper housing section. One of the two points has a threaded hole, while the other is indicated by a cast-in pilot hole.

Lubrication holes and lubrication nipples

The lubrication holes and lubrication nipples provided for relubrication differ according to the design of the housing ➤*1634*|*7*. In the case of housings SNS..-H and SNS..-Z, the threaded holes are closed off by a screw plug. This must be removed and permanently replaced by one of the lubrication nipples supplied. In the case of housings SNS..-B, both taper type lubrication nipples are already fitted.

7
Lubrication holes and lubrication nipples

Housing	Thread	Lubrication nipple	Delivery quantity
SNS..-H SNS..-Z	M10×1	Button head lubrication nipple to DIN 3404-M10×1 (with dust cap)	1
		Taper type lubrication nipple to DIN 71412-AM10×1 (with dust cap)	1
SNS..-B	ISO 288-G1/4	Button head lubrication nipple to DIN 3404-A G1/4 St	2

Positions for further lubrication holes

Lubrication holes can be provided at two further points for relubrication of labyrinth seals. These positions are indicated by marks on the housing.

Prevention of overgreasing

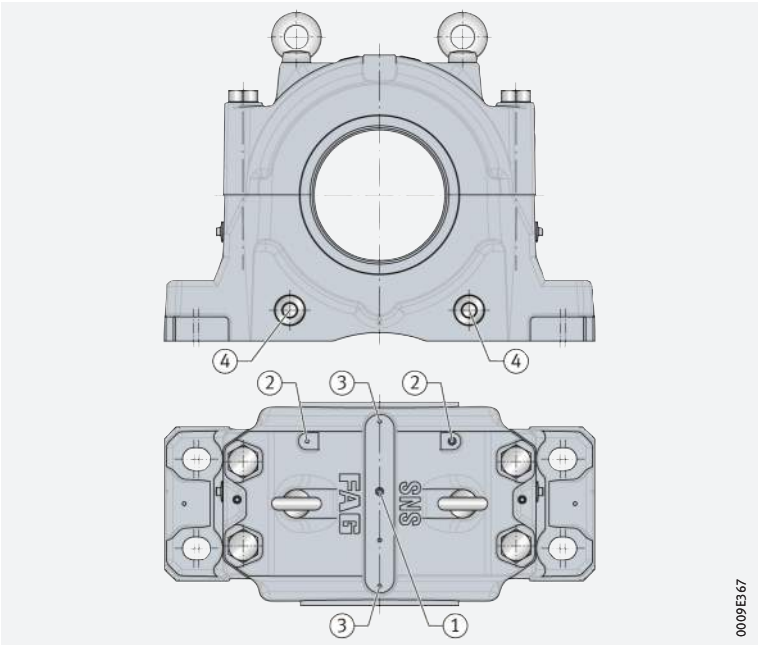
In order to prevent overgreasing, the screw plugs must be removed from the two grease outlet holes in the lower housing section for the duration of relubrication. This allows superfluous grease to escape. The grease outlet holes must then be closed off again using the screw plugs.

If unfavourable environmental conditions are present, there is therefore a risk of contaminant ingress into the housing when the grease outlet holes are opened.

https://www.schaeffler.de/std/1D65

6
Positions for relubrication

① *Central lubrication hole, for bearings with lubrication groove*
② *Points for relubrication of bearings without lubrication groove*
③ *Points for relubrication of labyrinth seals*
④ *Grease outlet holes*



https://www.schaeffler.de/std/1D65

3.7 Sealing

Seals

Standard seals

For sealing of the bearing housings, the following standard seals are available:

- labyrinth seals and taconite seals, each in a split and unsplit design. These seals are matched to the rectangular section annular slots on both sides of the housings SNS..-H and SNS..-Z
- Bolt-on seal. This seal is screw mounted to the outside of housings SNS..-B.

Seals must be ordered separately. They are supplied individually.
If a continuous shaft is present, two seals are necessary.

Labyrinth seals NTS

Non-contact seal for high circumferential velocities

Labyrinth seals NTS give non-contact sealing. They are therefore suitable for high circumferential velocities. The O ring, which is pressed between the labyrinth ring and shaft, is made from fluoro rubber FKM and is suitable for temperatures of up to +200 °C. The labyrinth seal allows shaft misalignment of up to 0,3° in both directions and is suitable for grease lubrication.

Relubrication

If necessary, the labyrinth can be relubricated. For this purpose, a lubrication hole must be made in the upper housing section for each labyrinth seal. The optimum positions are indicated by cast-in pilot holes.

Taconite seals NTC

Seals for extreme contamination impact

Taconite seals NTC are combined seals comprising a labyrinth seal and a V ring. These seals are suitable for extreme operating conditions in relation to contamination and dust. The V ring is made from NBR and is suitable for temperatures of up to +100 °C.

The taconite seal allows shaft misalignment of up to 0,3° in both directions and is suitable for grease lubrication. For relubrication, the seal is fitted with a lubrication nipple.

Split labyrinth seals NTSG

Split seal reduces mounting work

For plummer block housings SNS, labyrinth seals are also available in a split design. As a result, the work involved in fitting or replacing the seal can be considerably reduced, especially if a split bearing is also fitted.

The characteristics and operating limits correspond to those of the unsplit labyrinth seal NTS.

Split labyrinth seals NTSG are available in various sizes ➤ *1636* | ▦ *8*. Other sizes are available by agreement.

▦ *8* *Sizes*

Sizes of split labyrinth seals for	
Metric shaft	Inch size shaft
NTSG34	NTSG34×515
NTSG36	NTSG36×607
NTSG38	–
NTSG40	–
NTSG44	–
NTSG48	–
NTSG52	–

Split taconite seals NTCG

Split seal reduces mounting work

For plummer block housings SNS, taconite seals are also available in a split design. As a result, the work involved in fitting or replacing the seal can be considerably reduced, especially if a split bearing is also fitted.

Split taconite seals are supplied by agreement.

https://www.schaeffler.de/std/1D65

Bolt-on seal BTAC

✎ Seal for extreme contamination impact

Bolt-on seals BTAC are combined seals comprising a labyrinth ring and a V ring. They are screw mounted to the outside of the housing and, unlike all other seals for plummer block housings SNS, are not inserted in the annular slots in the housing. The seals are suitable for extreme operating conditions in relation to contamination and dust. The V ring is made from NBR and is suitable for temperatures of up to +100 °C.

The Bolt-on seal allows shaft misalignment of up to 0,4° in both directions and is suitable for grease lubrication. For relubrication, the seal is fitted with a lubrication nipple.

The seals are available in the sizes BTAC34 to BTAC68.

✎ Special housing design required

When using Bolt-on seals, housings of a special design SNS..-B are required instead of the designs SNS..-H and SNS..-Z suitable for all other seals.

Covers

Covers are used in the case of housings closed on one side. The covers must be ordered separately.

Covers NDK

✎ For housings with annular slot

Covers NDK fit in the rectangular section annular slots of the housings, designed for labyrinth and taconite seals, SNS..-H and SNS..-Z. They are suitable for temperatures up to +200 °C.

Covers BDK

✎ For housings with Bolt-on seal

Covers BDK are screw mounted to the outside of the housing. They are suitable for the housings SNS..-B designed for the Bolt-on seal.

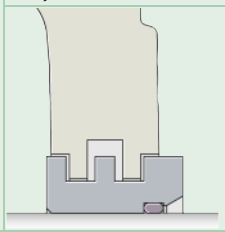
Characteristics and operating limits

The characteristics and operating limits of the standard seals and covers are compared in an overview ➤ *1638* | ▦ *9*.

https://www.schaeffler.de/std/1D65

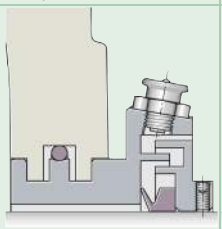
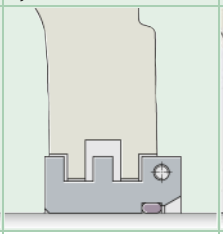
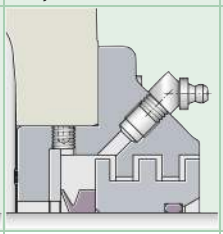
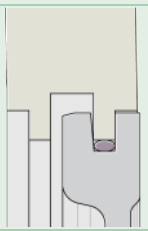
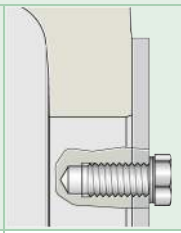
9
Standard seals and covers for plummer block housings SNS

++ = *highly suitable*
\+ = *suitable*
(+) = *suitable with restrictions*
– = *not suitable*

Seals and covers		**Labyrinth seal, unsplit**
		
Designation		**NTS**
Material		Steel, FKM
Pieces per pack		1
Suitability for sealing against		
dust		(+)
fine, solid particles		+
coarse, solid particles		+
slivers		++
spray liquids		–
Operating limits		
Long term temperature	°C	–20 to +200 (due to FKM)
	°F	–4 to +390 (due to FKM)
Circumferential velocity	m/s	No restriction
Misalignment	°	≦0,3
Low friction		++
Axial shaft displacement (suitability as non-locating bearing)		+
Vertical arrangement		–
Suitability for grease relubrication		+
Suitability for oil lubrication		–
Compatibility with sunlight		++
Preconditions		
Tolerance class[1)] of shaft diameter		h8 (h9)
Shaft roughness	µm	Ra 3,2

1) *The envelope requirement Ⓔ applies*

https://www.schaeffler.de/std/1D65

Taconite seal, unsplit	Labyrinth seal, split	Bolt-on seal, unsplit	Covers	
				
NTC	**NTSG**	**BTAC**	**NDK**	**BDK**
Steel, NBR	Steel, FKM	Steel, NBR	Steel, FKM	Steel
1	1	1	1	1
++	(+)	++	++	++
++	+	++	++	++
++	+	++	++	++
++	++	++	++	++
++	–	++	++	++
–30 to +100 (due to NBR)	–20 to +200 (due to FKM)	–30 to +100 (due to NBR)	–20 to +200 (due to FKM)	Not applicable
–22 to +210 (due to NBR)	–4 to +390 (due to FKM)	–22 to +210 (due to NBR)	–4 to +390 (due to FKM)	Not applicable
≦12	No restriction	≦12	Not applicable	Not applicable
≦0,3	≦0,3	≦0,4	Not applicable	Not applicable
+	++	+	Not applicable	Not applicable
+	+	+	Not applicable	Not applicable
(+)	–	–	++	++
+	+	++	++	++
(+)	–	–	+	–
++	++	++	++	++
h8 (h9)	h8 (h9)	h8 (h9)	Not applicable	Not applicable
Ra 3,2	Ra 3,2	Ra 3,2	Not applicable	Not applicable

https://www.schaeffler.de/std/1D65

3.8 Dimensions, tolerances

Dimensions

The dimensions of the housings conform to ISO 113.

Interchangeability

FAG plummer block housings SNS are a further development of the FAG plummer block housings SD31. The design envelope and mounting dimensions of both series of housings are identical and the housings are interchangeable 1:1.

The interchangeability with other series of FAG housings is as follows:

- All bearing series that can be combined with the plummer block housings SD5 and SD6 can be fitted in plummer block housings SNS
- Bearing series that can be combined with the plummer block housings S30 can only be fitted in certain cases in plummer block housings SNS.

The dimensions of housings SD5, SD6 and S30 are not identical with the dimensions of housings SNS.

Tolerances for the bearing seat

The bearing seat in split plummer block housings SNS is machined to the tolerance class G7 in accordance with DIN EN ISO 286-1.

By agreement, the housings can also be supplied with other tolerance classes for the bearing seat.

3.9 Housing configurations

Possible combinations

Modular construction allows numerous combinations

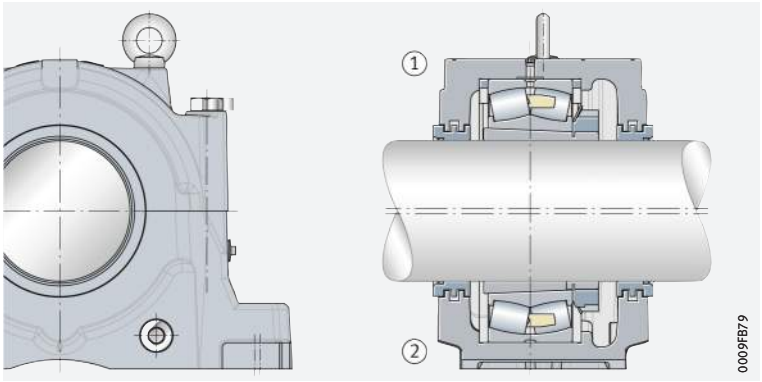
On the basis of the standard components, the following features can be varied in the housing configuration:

- location of bearings with a tapered bore by means of an adapter sleeve on a shaft of constant diameter or of bearings with a cylindrical bore directly on a stepped shaft
- sealing of housing by labyrinth seals (unsplit or split), taconite seals (unsplit or split) or Bolt-on seals (in combination with housings of design SNS..-B)
- with a continuous shaft or a housing closed on one side
- design of the bearing arrangement as a locating bearing arrangement or a non-locating bearing arrangement
- spherical roller bearing in a split or unsplit design.

The resulting possible housing configurations make it possible to fulfil various requirements on the bearing positions by means of standard components ➤*1640*|*7* to ➤*1643*|*16*.

7
Plummer block housing SNS for bearings with tapered bore and adapter sleeve (2 labyrinth seals NTS)

① *Locating bearing*
② *Non-locating bearing*

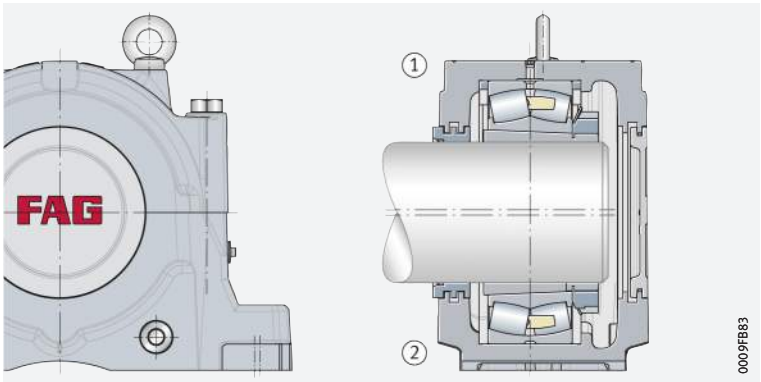


https://www.schaeffler.de/std/1D65

8

Plummer block housing SNS for bearings with tapered bore and adapter sleeve (labyrinth seal NTS and cover NDK)

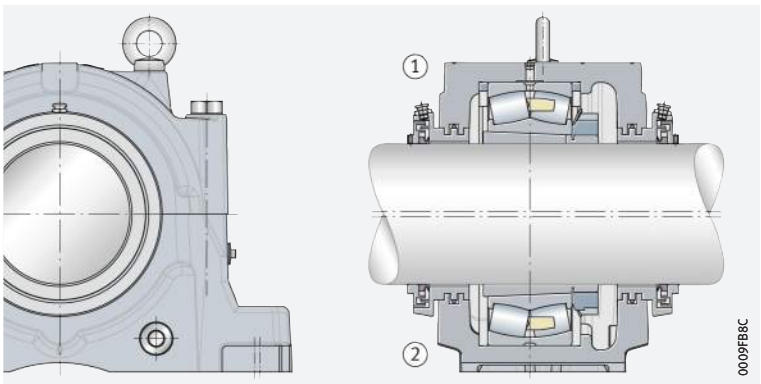
① *Locating bearing*
② *Non-locating bearing*



9

Plummer block housing SNS for bearings with tapered bore and adapter sleeve (2 taconite seals NTC)

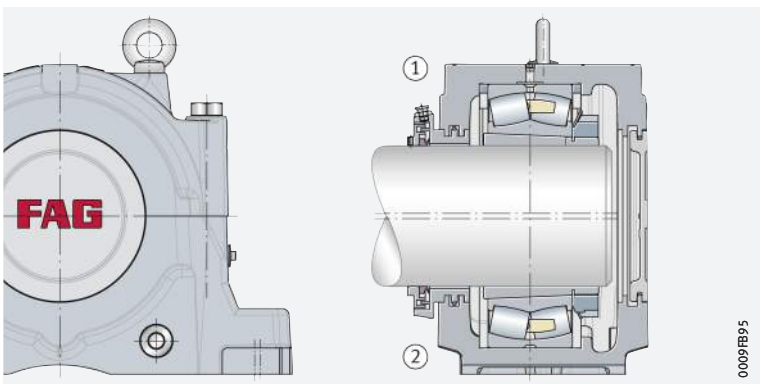
① *Locating bearing*
② *Non-locating bearing*



10

Plummer block housing SNS for bearings with tapered bore and adapter sleeve (taconite seal NTC and cover NDK)

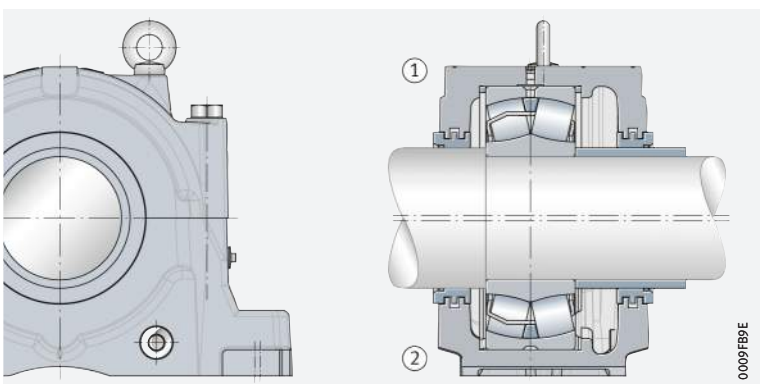
① *Locating bearing*
② *Non-locating bearing*



11

Plummer block housing SNS for bearings with cylindrical bore (2 labyrinth seals NTS)

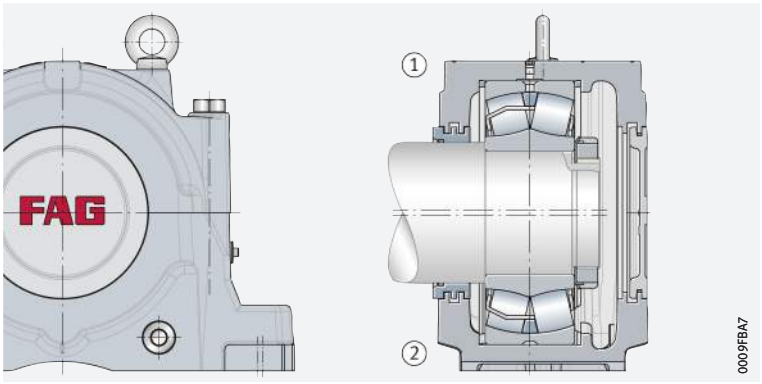
① *Locating bearing*
② *Non-locating bearing*



https://www.schaeffler.de/std/1D65

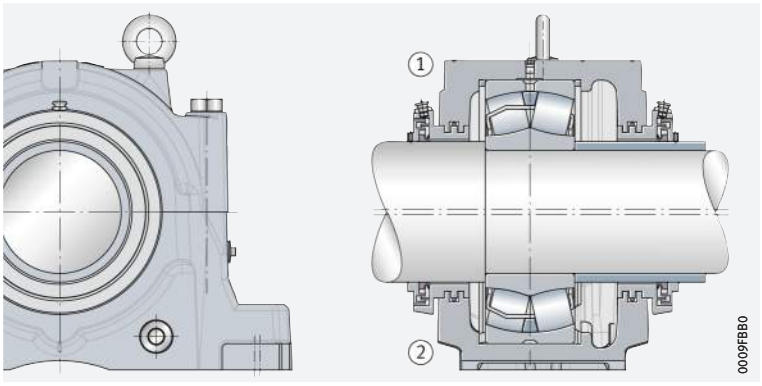
12
Plummer block housing SNS for bearings with cylindrical bore (labyrinth seal NTS and cover NDK)

① *Locating bearing*
② *Non-locating bearing*



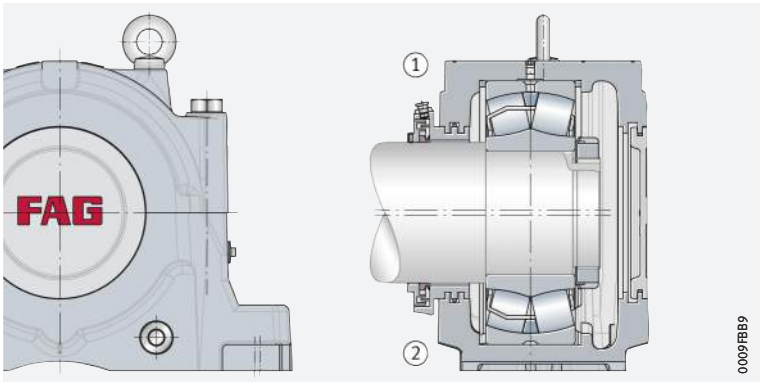
13
Plummer block housing SNS for bearings with cylindrical bore (2 taconite seals NTC)

① *Locating bearing*
② *Non-locating bearing*



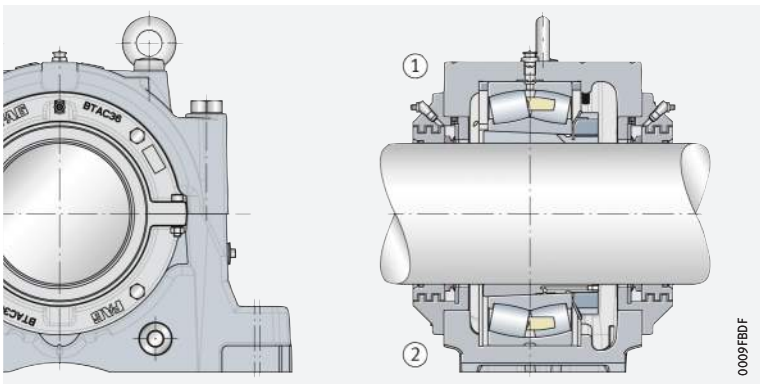
14
Plummer block housing SNS for bearings with cylindrical bore (taconite seal NTC and cover NDK)

① *Locating bearing*
② *Non-locating bearing*



15
Plummer block housing SNS for bearings with tapered bore and adapter sleeve (2 Bolt-on seals BTAC)

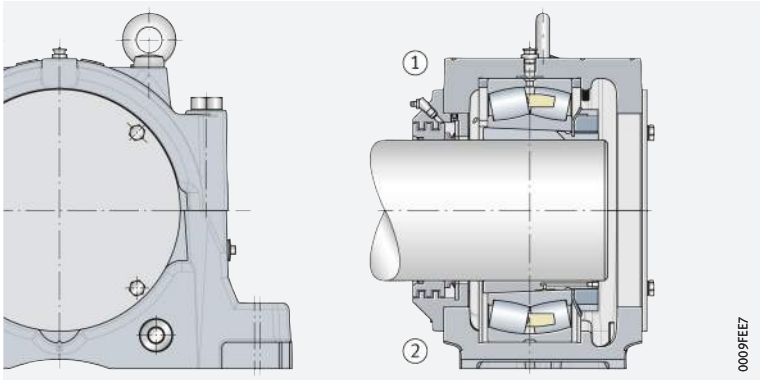
① *Locating bearing*
② *Non-locating bearing*



https://www.schaeffler.de/std/1D65

16
Plummer block housing SNS for bearings with tapered bore and adapter sleeve (Bolt-on seal BTAC and cover BDK)

① *Locating bearing*
② *Non-locating bearing*



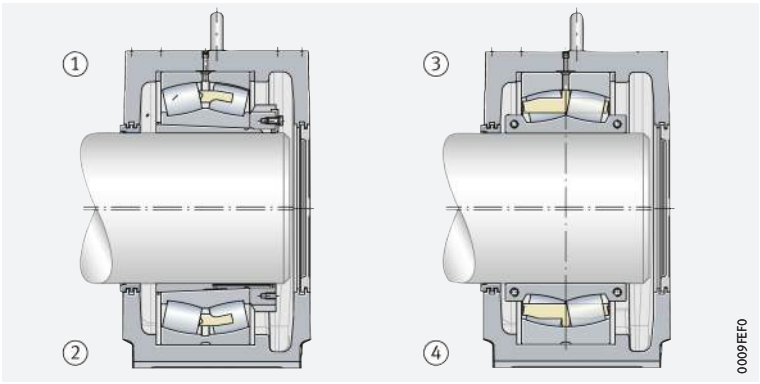
Mounting of split spherical roller bearings

✎ Simplified bearing replacement by means of split bearing

In the case of plummer block housings SNS, an unsplit spherical roller bearing with a tapered bore and adapter sleeve can be replaced by a split spherical roller bearing ➤*1643*|*17*.

17
Plummer block housing SNS with split and unsplit spherical roller bearing

① *Locating bearing with unsplit bearing*
② *Non-locating bearing with unsplit bearing*
③ *Locating bearing with split bearing*
④ *Non-locating bearing with split bearing*



In order to ensure selection of the correct combination of housing and bearing when using split bearings, please contact Schaeffler.

The range of split spherical roller bearings is described in detail in a separate publication ➤ 🕮 *TPI 250*.

https://www.schaeffler.de/std/1D65

3.10 Structure of housing designation

The designation of the housings and associated seals, covers and locating rings follows a set model. Description of the designation components ➤*1644*|▦ *10* to ➤*1646*|▦ *14*. Structure of designations ➤*1644*|⧉ *18* to ➤*1646*|⧉ *21*.

▦ 10
Components of the designations of plummer block housings SNS

Characteristic		Code	Description
①	Series	SNS	Split plummer block housings SNS
②	ISO dimension series of bearing	30	ISO dimension series 22, 23, 30 and 40
		31	ISO dimension series 22, 23 and 31
		32	ISO dimension series 22 and 32
		40	ISO dimension series 40
③	Housing size	36	For bearings of ISO dimension series 30, 31 and 32: ■ Bore code of bearing
		/530	
④	Housing design	H	Main design ➤*1644*|▦ *11*
		Z	Additional design ➤*1644*|▦ *11*
		B	Design for Bolt-on seal
⑤	Housing material	D	Spheroidal graphite cast iron

⧉ 18
Designation structure of plummer block housings SNS, example

Plummer block housings SNS with labyrinth and taconite seals are available in the housing designs H and Z. Spherical roller bearings can be fitted, as a function of the bearing series, in one of the two housing designs ➤*1644*|▦ *11*.

▦ 11
Allocation of housing designs H and Z to bearing types

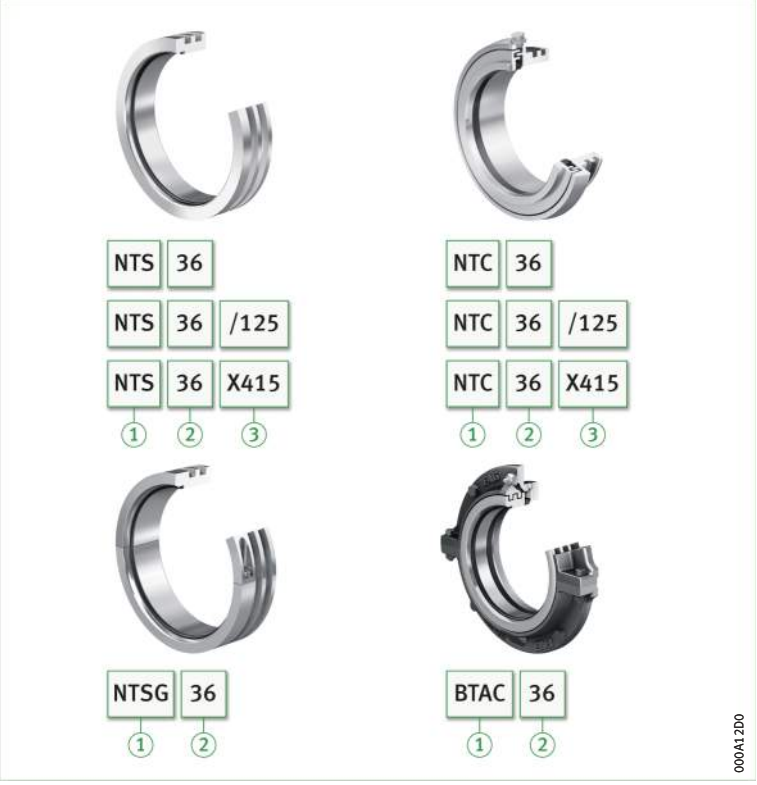
Housing design	Bearing series
H	Spherical roller bearings with tapered bore and adapter sleeve
	Split spherical roller bearings
	Following spherical roller bearings with cylindrical bore: 22232, 22234, 22252, 22272, 22326, 22328, 22330, 22332, 22334, 22338, 22344, 22348, 22352, 22356, 23232, 24036
Z	Spherical roller bearings with cylindrical bore, not allocated to housing design H

https://www.schaeffler.de/std/1D65

12 *Components of the designations of standard seals*

Characteristic		Code	Description
①	Series	NTS	Labyrinth seal, unsplit
		NTC	Taconite seal, unsplit
		NTSG	Labyrinth seal, split
		BTAC	Bolt-on seal, unsplit
②	Dimension series	36	Dimension series 36
③	Shaft diameter	No further indications	Standard shaft diameter of dimension series
		/125	Metric shaft diameter: ■ 125 mm
		X415	Inch size shaft diameter: ■ 4 inch + 15 · $^{1}/_{16}$ inch = $4^{15}/_{16}$ inch

19 *Designation structure of standard seals, examples*



13 *Components of designations of covers*

Characteristic		Code	Description
①	Series	NDK	Cover for plummer block housings SNS..-H and SNS..-Z
		BDK	Cover for plummer block housing SNS..-B
②	Dimension series	36	Dimension series 36

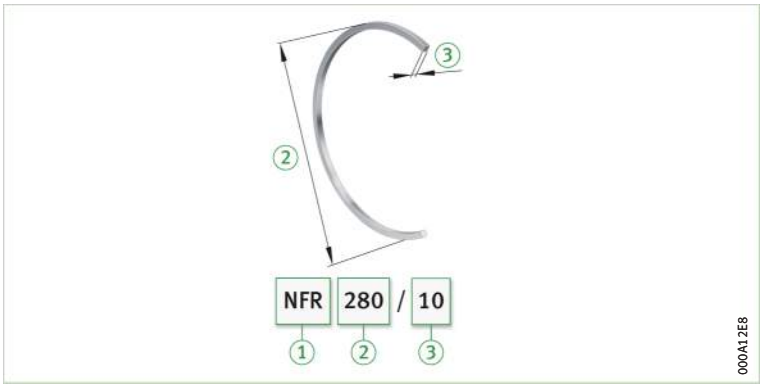
https://www.schaeffler.de/std/1D65

20
Designation structure of covers, example

14
Components of designations of locating rings

Characteristic		Code	Description
①	Series	NFR	Locating ring
②	Outside diameter	280	Outside diameter 280 mm
③	Width	10	Width 10 mm

21
Designation structure of locating rings, example



Ordering examples

Separate ordering of housing body and accessories

When a split plummer block housing SNS is ordered, the housing designation only describes the housing body. The other components such as seals, covers or locating rings must be ordered separately in the specific design required. The rolling bearing and, if necessary, the adapter sleeve must also be ordered separately.

Plummer block housings SNS with a bearing fitted give non-locating bearing arrangements. These can be converted into locating bearing arrangements through the additional insertion of locating rings NFR.

The ordering examples show the construction of orders for selected housing combinations and the appropriate bearings. The allocation of housings, bearings and accessories for all housing sizes is shown in the product tables ➤ *1650*.

Example 1

Plummer block housing SNS made from spheroidal graphite cast iron, closed on one side, spherical roller bearing 23136-E1A-K-M as locating bearing, location by means of adapter sleeve on shaft diameter of 160 mm, labyrinth seal.

Order

1 plummer block housing	SNS3136-H-D
1 spherical roller bearing	23136-E1A-K-M
1 adapter sleeve	H3136-HG
2 locating rings	NFR300/10
1 cover	NDK36
1 labyrinth seal	NTS36

https://www.schaeffler.de/std/1D65

Example 2

Plummer block housing SNS made from spheroidal graphite cast iron, continuous shaft, spherical roller bearing 23136-E1A-K-M as non-locating bearing, location by means of adapter sleeve on shaft diameter of 160 mm, taconite seal.

✎ *Order*

1 plummer block housing	SNS3136-H-D
1 spherical roller bearing	23136-E1A-K-M
1 adapter sleeve	H3136-HG
2 taconite seals	NTC36

Example 3

Plummer block housing SNS made from spheroidal graphite cast iron, closed on one side, spherical roller bearing 23136-E1A-K-M as non-locating bearing, location by means of adapter sleeve on shaft diameter of 160 mm, Bolt-on seal.

✎ *Order*

1 plummer block housing	SNS3136-B-D
1 spherical roller bearing	23136-E1A-K-M
1 adapter sleeve	H3136-HG
1 cover	BDK36
1 Bolt-on seal	BTAC36

3.11 Mounting and dismounting

Eye bolts

The upper housing section has 2 eye bolts in accordance with DIN 580. These are intended as locating points for mounting and dismounting of the housing. The load carrying capacity of the eye bolts allows lifting of the housing including a bearing fitted in the housing.

Eye bolts must always be screwed fully into the housing.

Eye bolts must not be subjected to a mass greater than that of the housing together with the bearing fitted in the housing.

Foot screws

Foot screws are used for screw mounting of the housing to the mounting surface. They are not included in the scope of delivery of the housings.

The appropriate screw size for each housing is given in the product tables ➤ *1650*.

✎ *Tightening torques for foot screws*

The following table contains tightening torques for metric coarse pitch threads in accordance with DIN 13, DIN 962 and DIN ISO 965-2.

The maximum tightening torques are valid when utilising 90% of the yield stress of the screw material 8.8 and with a friction factor of 0,14. We recommend that foot screws should be tightened to approx. 70% of these values ➤ *1647*.

15
Tightening torques for foot screws with metric thread in accordance with DIN 13, DIN 962 and DIN ISO 965-2

Nominal screw diameter	Maximum tightening torque Nm	Recommended tightening torque Nm
M24	798	550
M30	1 597	1 100
M36	2 778	1 950
M42	3 991	2 750
M48	6 021	4 250

https://www.schaeffler.de/std/1D65

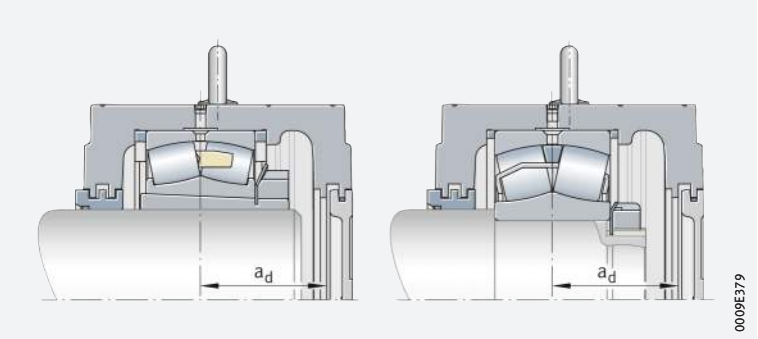
Permissible shaft end designs

✎ No contact between shaft and cover

In the case of a housing closed on one side, the length of the shaft in the housing must be restricted such that no contact occurs between the shaft and the cover. In this case, the displacement facility of the bearing in a non-locating bearing arrangement must be taken into consideration. The basis for determining the permissible length of the shaft is the spacing between the centre of the bearing seat and the cover ➤ *1648* | *22* and ➤ *1648* | *16*.

22
Spacing between centre of bearing seat and cover

a_d = *spacing between centre of bearing seat and cover*



16
Spacing between centre of bearing seat and cover

Housing					Spacing
SNS22	SNS30	SNS31	SNS32	SNS40	a_d mm
–	SNS3036	SNS3134	–	–	107,5
–	SNS3038	SNS3136	–	–	113,5
–	SNS3040	SNS3138	SNS3234	–	117,5
–	–	–	SNS3236	–	117,5
–	SNS3044	SNS3140	SNS3238	–	127,5
–	SNS3048	SNS3144	SNS3240	–	133,5
–	SNS3052	SNS3148	SNS3244	–	141,5
–	SNS3056	SNS3152	SNS3248	–	151,5
–	SNS3060	SNS3156	–	–	154,5
–	SNS3064	SNS3160	SNS3252	–	175,5
–	–	–	SNS3256	–	175,5
–	SNS3068	SNS3164	SNS3260	–	186,5
–	SNS3072	–	–	–	186,5
SNS2264	SNS3076	SNS3168	SNS3264	SNS4076	202,5
–	SNS3080	SNS3172	SNS3268	SNS4080	208,5
–	SNS3084	SNS3176	–	SNS4084	208,5
–	SNS3088	SNS3180	SNS3272	SNS4088	223,5
–	SNS3092	SNS3184	SNS3276	SNS4092	243,5
–	SNS3096	SNS3188	SNS3280	SNS4096	243,5
–	SNS30/500	–	–	SNS40/500	243,5
–	SNS30/530	SNS3192	SNS3284	SNS40/530	248,5
–	–	SNS3196	SNS3288	–	248,5

Detailed information on mounting

Careful and correct mounting of the bearing housing, including the correct mounting of the rolling bearing in the housing, is fundamental to reliable operation. Detailed information is given in the publication MON 84 ➤ *https://www.schaeffler.de/std/1D63*.

https://www.schaeffler.de/std/1D65

3.12 Legal notice regarding data freshness

✎ The further development of products may also result in technical changes to catalogue products

Of central interest to Schaeffler is the further development and optimisation of its products and the satisfaction of its customers. In order that you, as the customer, can keep yourself optimally informed about the progress that is being made here and with regard to the current technical status of the products, we publish any product changes which differ from the printed version in our electronic product catalogue.

§ We therefore reserve the right to make changes to the data and illustrations in this catalogue. This catalogue reflects the status at the time of printing. More recent publications released by us (as printed or digital media) will automatically precede this catalogue if they involve the same subject. Therefore, please always use our electronic product catalogue to check whether more up-to-date information or modification notices exist for your desired product.

Link to electronic product catalogue

The following link will take you to the Schaeffler electronic product catalogue: ➤ *https://medias.schaeffler.com*.

3.13 Further information

In addition to the data in this chapter, the following chapters must also be observed in the selection of a housing:

- Lubrication ➤ *70|6*
- Locating and non-locating bearing concepts ➤ *1571|1.2*
- Housing materials ➤ *1573|1.3*

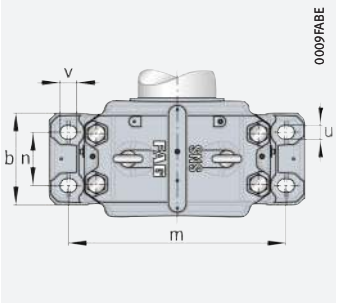
Further information:

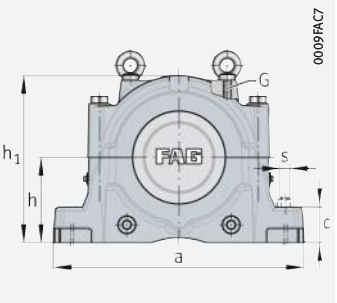
- Product tables on split plummer block housings SNS for inch size shaft diameters ➤ 🕮 *GK 1*
- Product tables on split plummer block housings SNS in combination with Bolt-on seals ➤ 🕮 *GK 1*
- Electronic housing selection wizard ➤ *https://www.schaeffler.de/std/1D61*

https://www.schaeffler.de/std/1D65

Plummer block housings

SNS, split
For spherical roller bearings with tapered bore and adapter sleeve, metric shaft





d_1 = 115 – 170 mm

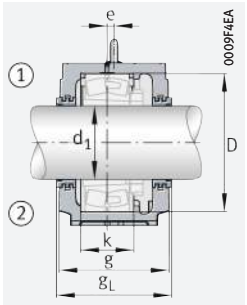
Shaft	Housing																Housing
	Dimensions															Mass	Designation
d_1	h	h_1	g	b	c	a	m	n	v	u	s	D	k	e	G	m	➤ *1644|3.10*
																≈ kg	
115	170	333	230	180	70	510	430	100	34	28	M24	280	108	14	M16	75	**SNS3134-H-D**
125	180	353	240	190	75	530	450	110	34	28	M24	300	116	15	M16	83	**SNS3136-H-D**
135	190	375	260	210	80	560	480	120	34	28	M24	320	124	10	M20	102	**SNS3138-H-D**
140	180	353	240	190	75	530	450	110	34	28	M24	290	115	15	M16	86	**SNS3038-H-D**
	210	411	280	230	85	610	510	130	42	35	M30	340	132	10	M20	133	**SNS3140-H-D**
	180	353	240	190	75	530	450	110	34	28	M24	290	115	15	M16	86	**SNS3038-H-D**
150	190	375	260	210	80	560	480	120	34	28	M24	310	122	10	M20	105	**SNS3040-H-D**
	220	434	290	240	90	640	540	140	42	35	M30	360	140	12	M20	148	**SNS3048-H-D**
	170	333	230	180	70	510	430	100	34	28	M24	280	108	14	M16	75	**SNS3134-H-D**
	170	333	230	180	70	510	430	100	34	28	M24	280	108	14	M16	75	**SNS3134-H-D**
	190	375	260	210	80	560	480	120	34	28	M24	310	122	10	M20	105	**SNS3234-H-D**
160	190	375	260	210	80	560	480	120	34	28	M24	320	124	10	M20	102	**SNS3138-H-D**
	170	333	230	180	70	510	430	100	34	28	M24	280	108	14	M16	74	**SNS3036-H-D**
	170	333	230	180	70	510	430	100	34	28	M24	280	108	14	M16	74	**SNS3036-H-D**
	180	353	240	190	75	530	450	110	34	28	M24	300	116	15	M16	83	**SNS3136-H-D**
	180	353	240	190	75	530	450	110	34	28	M24	300	116	15	M16	83	**SNS3136-H-D**
	190	375	260	210	80	560	480	120	34	28	M24	320	124	10	M20	102	**SNS3236-H-D**
170	210	411	280	230	85	610	510	130	42	35	M30	340	132	10	M20	133	**SNS3140-H-D**
	240	474	310	260	95	700	600	150	42	35	M30	400	148	12	M24	184	**SNS3148-H-D**
	180	353	240	190	75	530	450	110	34	28	M24	290	115	15	M16	86	**SNS3038-H-D**
	180	353	240	190	75	530	450	110	34	28	M24	290	115	15	M16	86	**SNS3038-H-D**
	190	375	260	210	80	560	480	120	34	28	M24	320	124	10	M20	102	**SNS3138-H-D**
	190	375	260	210	80	560	480	120	34	28	M24	320	124	10	M20	102	**SNS3138-H-D**
	210	411	280	230	85	610	510	130	42	35	M30	340	132	10	M20	133	**SNS3238-H-D**

medias ➤ *https://www.schaeffler.de/std/1F1A*

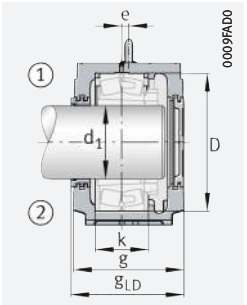
① Locating bearing; ② Non-locating bearing

1) Split bearing in associated housing has restricted usability. Please ask for further information.
2) Alternatively also available with split labyrinth seal NTSG.
3) With NTSG: width g_L increased by 16 mm.
4) With NTSG: width g_{LD} increased by 8 mm.

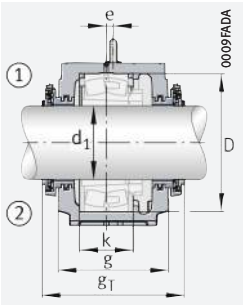
https://www.schaeffler.de/std/1D65



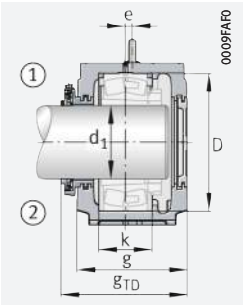
Labyrinth seal NTS



Labyrinth seal NTS
Cover NDK



Taconite seal NTC



Taconite seal NTC
Cover NDK

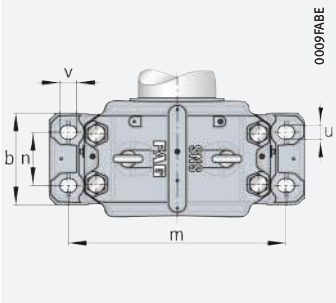
Spherical roller bearings and accessories

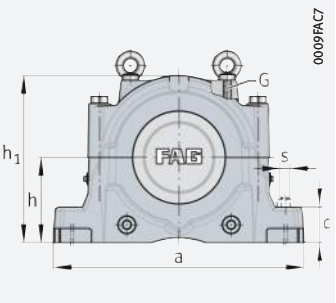
Bearing	Adapter sleeve	Locating ring		Labyrinth seal			Taconite seal			Cover
			Quantity		g_L mm	g_{LD} mm		g_T mm	g_{TD} mm	
22326..-K	H2326	NFR280/7,5	2	NTS34/115	241	235,5	NTC34/115	299	264	NDK34
22328..-K	H2328	NFR300/7	2	NTS36/125	251	245,5	NTC36/125	310	274,5	NDK36
22330..-K	H2330	NFR320/8	2	NTS38/135	271	265,5	NTC38/135	330	294,5	NDK38
22232..-K	H3132(-HG)	NFR290/17,5	2	NTS38/140	251	245,5	NTC38/140	312	275,5	NDK38
22332..-K	H2332(-HG)	NFR340/9	2	NTS40/140	291	285,5	NTC40/140	347	313	NDK40
23232..-K	H2332(-HG)	NFR290/5,5	2	NTS38/140	251	245,5	NTC38/140	312	275,5	NDK38
22234..-K	H3134(-HG)	NFR310/18	2	NTS40/150	271	265,5	NTC40/150	326	293	NDK40
22334..-K	H2334(-HG)	NFR360/10	2	NTS48/150	301	295,5	NTC48/150	380	335	NDK48
23134..-K	H3134(-HG)	NFR280/10	2	NTS34[2]	241[3]	235,5[4]	NTC34	299	264,5	NDK34
231SM150-MA[1]	–	NFR280/10	2	NTS34[2]	241[3]	235,5[4]	NTC34	299	264,5	NDK34
23234..-K	H2334(-HG)	NFR310/6	2	NTS40/150	271	265,5	NTC40/150	327	293	NDK40
22236..-K	H3136(-HG)	NFR320/19	2	NTS38/160	271	265,5	NTC38/160	329	294,5	NDK38
23036..-K	H3036(-HG)	NFR280/17	2	NTS36[2]	241[3]	235,5[4]	NTC36	304	267	NDK36
230SM160-MA[1]	–	NFR280/17	2	NTS36[2]	241[3]	235,5[4]	NTC36	304	267	NDK36
23136..-K	H3136(-HG)	NFR300/10	2	NTS36[2]	251[3]	245,5[4]	NTC36	314	277	NDK36
231SM160-MA[1]	–	NFR300/10	2	NTS36[2]	251[3]	245,5[4]	NTC36	314	277	NDK36
23236..-K	H2336(-HG)	NFR320/6	2	NTS38/160	271	265,5	NTC38/160	330	294,5	NDK38
22238..-K	H3138(-HG)	NFR340/10	4	NTS40/170	291	285,5	NTC40/170	346	313	NDK40
22338..-K	H2338(-HG)	NFR400/8	2	NTS48/170	321	315,5	NTC48/170	401	355	NDK48
23038..-K	H3038(-HG)	NFR290/10	4	NTS38[2]	251[3]	245,5[4]	NTC38	312	275,5	NDK38
230SM170-MA[1]	–	NFR290/10	4	NTS38[2]	251[3]	245,5[4]	NTC38	312	275,5	NDK38
23138..-K	H3138(-HG)	NFR320/10	2	NTS38[2]	271[3]	265,5[4]	NTC38	334	297	NDK38
231SM170-MA	–	NFR320/10	2	NTS38[2]	271[3]	265,5[4]	NTC38	334	297	NDK38
23238..-K	H2338(-HG)	NFR340/6	2	NTS40/170	291	285,5	NTC40/170	347	313	NDK40

https://www.schaeffler.de/std/1D65

Plummer block housings

SNS, split
For spherical roller bearings with tapered bore and adapter sleeve, metric shaft





d_1 = 180 – 240 mm

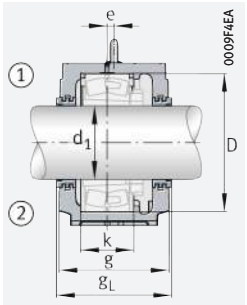
Shaft	Housing																Housing
	Dimensions															Mass	Designation
d_1	h	h_1	g	b	c	a	m	n	v	u	s	D	k	e	G	m	➤ *1644|3.10*
																≈ kg	
180	220	434	290	240	90	640	540	140	42	35	M30	360	140	12	M20	148	**SNS3048-H-D**
	260	516	320	280	100	770	650	160	50	42	M36	420	166	13	M24	249	**SNS3056-H-D**
	190	375	260	210	80	560	480	120	34	28	M24	310	122	10	M20	105	**SNS3040-H-D**
	190	375	260	210	80	560	480	120	34	28	M24	310	122	10	M20	105	**SNS3040-H-D**
	210	411	280	230	85	610	510	130	42	35	M30	340	132	10	M20	133	**SNS3140-H-D**
	210	411	280	230	85	610	510	130	42	35	M30	340	132	10	M20	133	**SNS3140-H-D**
	220	434	290	240	90	640	540	140	42	35	M30	360	140	12	M20	148	**SNS3240-H-D**
200	240	474	310	260	95	700	600	150	42	35	M30	400	148	12	M24	184	**SNS3148-H-D**
	280	550	320	280	105	790	670	160	50	42	M36	460	166	16	M24	264	**SNS3156-H-D**
	210	411	280	230	85	610	510	130	42	35	M30	340	130	10	M20	129	**SNS3044-H-D**
	210	411	280	230	85	610	510	130	42	35	M30	340	130	10	M20	129	**SNS3044-H-D**
	220	434	290	240	90	640	540	140	42	35	M30	370	140	12	M20	146	**SNS3144-H-D**
	220	434	290	240	90	640	540	140	42	35	M30	370	140	12	M20	146	**SNS3144-H-D**
	240	474	310	260	95	700	600	150	42	35	M30	400	164	12	M24	183	**SNS3244-H-D**
220	260	516	320	280	100	770	650	160	50	42	M36	440	164	13	M24	238	**SNS3152-H-D**
	300	591	350	310	110	830	710	190	50	42	M36	500	180	22	M30	317	**SNS3160-H-D**
	220	434	290	240	90	640	540	140	42	35	M30	360	140	12	M20	148	**SNS3048-H-D**
	220	434	290	240	90	640	540	140	42	35	M30	360	140	12	M20	148	**SNS3048-H-D**
	240	474	310	260	95	700	600	150	42	35	M30	400	148	12	M24	184	**SNS3148-H-D**
	240	474	310	260	95	700	600	150	42	35	M30	400	148	12	M24	184	**SNS3148-H-D**
	260	516	320	280	100	770	650	160	50	42	M36	440	180	13	M24	235	**SNS3248-H-D**
240	300	591	350	310	110	830	710	190	50	42	M36	480	181	22	M30	332	**SNS3064-H-D**
	320	631	370	330	115	880	750	200	50	42	M36	540	196	23	M30	368	**SNS3164-H-D**
	240	474	310	260	95	700	600	150	42	35	M30	400	148	12	M24	180	**SNS3052-H-D**
	240	474	310	260	95	700	600	150	42	35	M30	400	148	12	M24	180	**SNS3052-H-D**
	260	516	320	280	100	770	650	160	50	42	M36	440	164	13	M24	238	**SNS3152-H-D**
	260	516	320	280	100	770	650	160	50	42	M36	440	164	13	M24	238	**SNS3152-H-D**
	300	591	350	310	110	830	710	190	50	42	M36	480	194	22	M30	331	**SNS3252-H-D**

medias ➤ *https://www.schaeffler.de/std/1F1B*

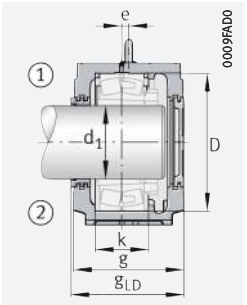
① Locating bearing; ② Non-locating bearing

1) Split bearing in associated housing has restricted usability. Please ask for further information.
2) Alternatively also available with split labyrinth seal NTSG.
3) With NTSG: width g_L increased by 16 mm.
4) With NTSG: width g_{LD} increased by 8 mm.

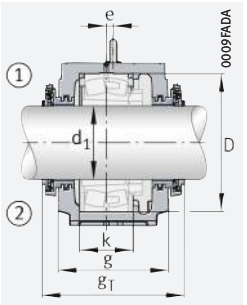
https://www.schaeffler.de/std/1D65



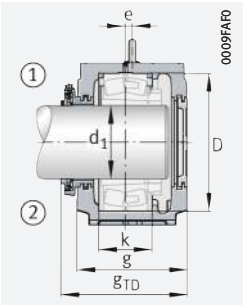
Labyrinth seal NTS



Labyrinth seal NTS
Cover NDK



Taconite seal NTC



Taconite seal NTC
Cover NDK

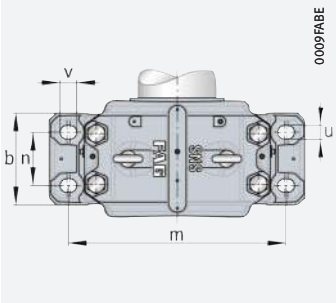
Spherical roller bearings and accessories

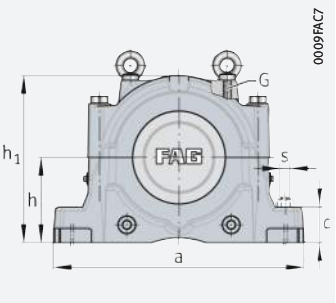
Bearing	Adapter sleeve	Locating ring		Labyrinth seal			Taconite seal			Cover
			Quantity		g_L mm	g_{LD} mm		g_T mm	g_{TD} mm	
22240..-K	H3140(-HG)	NFR360/21	2	NTS48/180	301	295,5	NTC48/180	380	335	NDK48
22340..-K	H2340(-HG)	NFR420/14	2	NTS56/180	331	325,5	NTC56/180	411	365	NDK56
23040..-K	H3040(-HG)	NFR310/10	4	NTS40[2]	271[3]	265,5[4]	NTC40	326	293	NDK40
230SM180-MA[1]	–	NFR310/10	4	NTS40[2]	271[3]	265,5[4]	NTC40	326	293	NDK40
23140..-K	H3140(-HG)	NFR340/10	2	NTS40[2]	291[3]	285,5[4]	NTC40	354	317	NDK40
231SM180-MA	–	NFR340/10	2	NTS40[2]	291[3]	285,5[4]	NTC40	354	317	NDK40
23240..-K	H2340(-HG)	NFR360/6	2	NTS48/180	301	295,5	NTC48/180	381	335	NDK48
22244..-K	H3144X(-HG)	NFR400/10	4	NTS48/200	321	315,5	NTC48/200	400	355	NDK48
22344..-K	H2344X(-HG)	NFR460/10,5	2	NTS56/200	331	325,5	NTC56/200	411	365	NDK56
23044..-K	H3044X(-HG)	NFR340/10	4	NTS44[2]	291[3]	285,5[4]	NTC44	370	325	NDK44
230SM200-MA	–	NFR340/10	4	NTS44[2]	291[3]	285,5[4]	NTC44	370	325	NDK44
23144..-K	H3144X(-HG)	NFR370/10	2	NTS44[2]	301[3]	295,5[4]	NTC44	380	335	NDK44
231SM200-MA[1]	–	NFR370/10	2	NTS44[2]	301[3]	295,5[4]	NTC44	380	335	NDK44
23244..-K	H2344X(-HG)	NFR400/10	2	NTS48/200	321	315,5	NTC48/200	401	355	NDK48
22248..-K	H3148X(-HG)	NFR440/22	2	NTS52/220	331	325,5	NTC52/220	410	365	NDK52
22348..-K	H2348X(-HG)	NFR500/12,5	2	NTS60/220	361	355,5	NTC60/220	441	395	NDK60
23048..-K	H3048(-HG)	NFR360/12	4	NTS48[2]	301[3]	295,5[4]	NTC48	380	335	NDK48
230SM220-MA[1]	–	NFR360/12	4	NTS48[2]	301[3]	295,5[4]	NTC48	380	335	NDK48
23148..-K	H3148X(-HG)	NFR400/10	2	NTS48[2]	321[3]	315,5[4]	NTC48	400	355	NDK48
231SM220-MA	–	NFR400/10	2	NTS48[2]	321[3]	315,5[4]	NTC48	400	355	NDK48
23248..-K	H2348X(-HG)	NFR440/10	2	NTS52/220	331	325,5	NTC52/220	410	365	NDK52
22252..-K	H3152X(-HG)	NFR480/25,5	2	NTS64/240	361	355,5	NTC64/240	440	395	NDK64
22352..-K	H2352X(-HG)	NFR540/15,5	2	NTS64/240	381	375,5	NTC64/240	460	415	NDK64
23052..-K	H3052X(-HG)	NFR400/22	2	NTS52[2]	321[3]	315,5[4]	NTC52	401	355	NDK52
230SM240-MA	–	NFR400/22	2	NTS52[2]	321[3]	315,5[4]	NTC52	401	355	NDK52
23152..-K	H3152X(-HG)	NFR440/10	2	NTS52[2]	331[3]	325,5[4]	NTC52	410	365	NDK52
231SM240-MA[1]	–	NFR440/10	2	NTS52[2]	331[3]	325,5[4]	NTC52	410	365	NDK52
23252..-K	H2352X(-HG)	NFR480/10	2	NTS64/240	361	355,5	NTC64/240	440	395	NDK64

https://www.schaeffler.de/std/1D65

Plummer block housings

SNS, split
For spherical roller bearings with tapered bore and adapter sleeve, metric shaft





d_1 = 260 – 320 mm

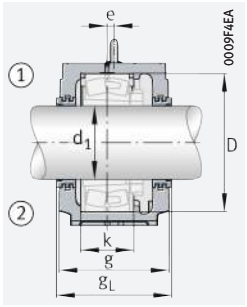
Shaft	Housing																Housing
	Dimensions															Mass	Designation
d_1	h	h_1	g	b	c	a	m	n	v	u	s	D	k	e	G	m	➤ *1644|3.10*
																≈ kg	
260	300	591	350	310	110	830	710	190	50	42	M36	500	180	22	M30	317	**SNS3160-H-D**
	340	675	400	360	120	950	810	220	50	42	M36	580	210	24	M30	461	**SNS3168-H-D**
	260	516	320	280	100	770	650	160	50	42	M36	420	166	13	M24	249	**SNS3056-H-D**
	260	516	320	280	100	770	650	160	50	42	M36	420	166	13	M24	249	**SNS3056-H-D**
	280	550	320	280	105	790	670	160	50	42	M36	460	166	16	M24	264	**SNS3156-H-D**
	280	550	320	280	105	790	670	160	50	42	M36	460	166	16	M24	264	**SNS3156-H-D**
	300	591	350	310	110	830	710	190	50	42	M36	500	196	22	M30	314	**SNS3256-H-D**
	300	591	350	310	110	830	710	190	50	42	M36	500	196	22	M30	314	**SNS3256-H-D**
280	320	631	370	330	115	880	750	200	50	42	M36	540	196	23	M30	368	**SNS3164-H-D**
	280	550	320	280	105	790	670	160	50	42	M36	460	168	16	M24	260	**SNS3060-H-D**
	280	550	320	280	105	790	670	160	50	42	M36	460	168	16	M24	260	**SNS3060-H-D**
	300	591	350	310	110	830	710	190	50	42	M36	500	180	22	M30	317	**SNS3160-H-D**
	300	591	350	310	110	830	710	190	50	42	M36	500	180	22	M30	317	**SNS3160-H-D**
	320	631	370	330	115	880	750	200	50	42	M36	540	212	23	M30	364	**SNS3260-H-D**
300	340	675	400	360	120	950	810	220	50	42	M36	580	190	24	M30	466	**SNS2264-H-D**
	300	591	350	310	110	830	710	190	50	42	M36	480	181	22	M30	332	**SNS3064-H-D**
	300	591	350	310	110	830	710	190	50	42	M36	480	181	22	M30	332	**SNS3064-H-D**
	320	631	370	330	115	880	750	200	50	42	M36	540	196	23	M30	368	**SNS3164-H-D**
	320	631	370	330	115	880	750	200	50	42	M36	540	196	23	M30	368	**SNS3164-H-D**
	340	675	400	360	120	950	810	220	50	42	M36	580	228	24	M30	457	**SNS3264-H-D**
	340	675	400	360	120	950	810	220	50	42	M36	580	228	24	M30	457	**SNS3264-H-D**
320	320	631	370	330	115	880	750	200	50	42	M36	520	197	23	M30	386	**SNS3068-H-D**
	320	631	370	330	115	880	750	200	50	42	M36	520	197	23	M30	386	**SNS3068-H-D**
	340	675	400	360	120	950	810	220	50	42	M36	580	210	24	M30	461	**SNS3168-H-D**
	340	675	400	360	120	950	810	220	50	42	M36	580	210	24	M30	461	**SNS3168-H-D**
	360	715	400	360	120	1 040	870	220	50	42	M36	620	244	30	M36	530	**SNS3268-H-D**

medias ➤ *https://www.schaeffler.de/std/1F1C*

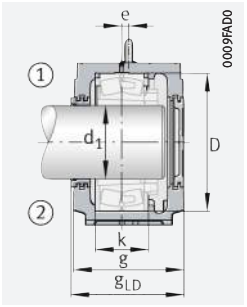
① Locating bearing; ② Non-locating bearing

[1] Split bearing in associated housing has restricted usability. Please ask for further information.

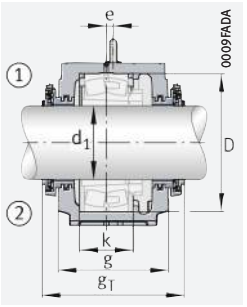
https://www.schaeffler.de/std/1D65



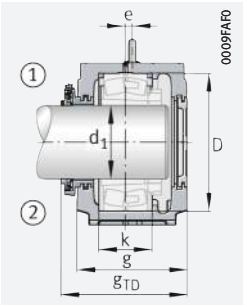
Labyrinth seal NTS



Labyrinth seal NTS
Cover NDK



Taconite seal NTC



Taconite seal NTC
Cover NDK

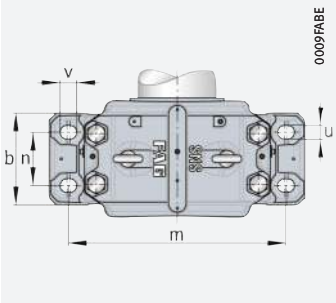
Spherical roller bearings and accessories

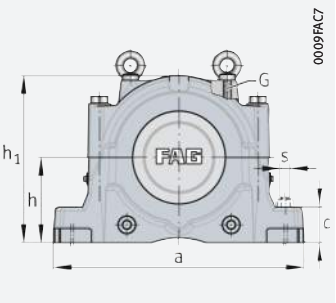
Bearing	Adapter sleeve	Locating ring		Labyrinth seal			Taconite seal			Cover
			Quantity		g_L mm	g_{LD} mm		g_T mm	g_{TD} mm	
22256..-K	H3156X(-HG)	NFR500/25	2	NTS60/260	361	355,5	NTC60/260	440	395	NDK60
22356..-K	H2356X(-HG)	NFR580/17,5	2	NTS68/260	411	405,5	NTC68/260	490	445	NDK68
23056..-K	H3056(-HG)	NFR420/10	6	NTS56	331	325,5	NTC56	411	365	NDK56
230SM260-MA[1)]	–	NFR420/10	6	NTS56	331	325,5	NTC56	411	365	NDK56
23156..-K	H3156X(-HG)	NFR460/10	2	NTS56	331	325,5	NTC56	410	365	NDK56
231SM260-MA	–	NFR460/10	2	NTS56	331	325,5	NTC56	410	365	NDK56
23256..-K	H2356X(-HG)	NFR500/10	2	NTS60/260	361	355,5	NTC60/260	441	395	NDK60
232SM260-MA[1)]	–	NFR500/10	2	NTS60/260	361	355,5	NTC60/260	441	395	NDK60
22260..-K	H3160(-HG)	NFR540/28	2	NTS64/280	381	375,5	NTC64/280	460	415	NDK64
23060..-K	H3060(-HG)	NFR460/25	2	NTS60	331	325,5	NTC60	411	365	NDK60
230SM280-MA[1)]	–	NFR460/25	2	NTS60	331	325,5	NTC60	411	365	NDK60
23160..-K	H3160(-HG)	NFR500/10	2	NTS60	361	355,5	NTC60	440	395	NDK60
231SM280-MA[1)]	–	NFR500/10	2	NTS60	361	355,5	NTC60	440	395	NDK60
23260..-K	H3260(-HG)	NFR540/10	2	NTS64/280	381	375,5	NTC64/280	461	415	NDK64
22264..-K	H3164-HG	NFR580/20	2	NTS68/300	411	405,5	NTC68/300	490	445	NDK68
23064..-K	H3064-HG	NFR480/10	6	NTS64	361	355,5	NTC64	441	395	NDK64
230SM300-MA[1)]	–	NFR480/10	6	NTS64	361	355,5	NTC64	441	395	NDK64
23164..-K	H3164-HG	NFR540/10	2	NTS64	381	375,5	NTC64	460	415	NDK64
231SM300-MA[1)]	–	NFR540/10	2	NTS64	381	375,5	NTC64	460	415	NDK64
23264..-K	H3264-HG	NFR580/10	2	NTS68/300	411	405,5	NTC68/300	491	445	NDK68
232SM300-MA[1)]	–	NFR580/10	2	NTS68/300	411	405,5	NTC68/300	491	445	NDK68
23068..-K	H3068-HG	NFR520/16	4	NTS68	381	375,5	NTC68	461	415	NDK68
230SM320-MA[1)]	–	NFR520/16	4	NTS68	381	375,5	NTC68	461	415	NDK68
23168..-K	H3168-HG	NFR580/10	2	NTS68	411	405,5	NTC68	490	445	NDK68
231SM320-MA	–	NFR580/10	2	NTS68	411	405,5	NTC68	490	445	NDK68
23268..-K	H3268-HG	NFR620/10	2	NTS76/320	411	405,5	NTC76/320	490	445	NDK76

https://www.schaeffler.de/std/1D65

Plummer block housings

SNS, split
For spherical roller bearings with tapered bore and adapter sleeve, metric shaft





d_1 = 340 – 400 mm

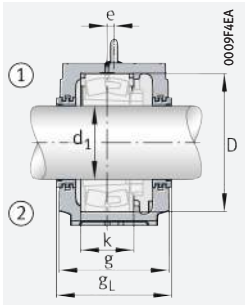
Shaft	Housing																Housing
	Dimensions															Mass	Designation
d_1	h	h_1	g	b	c	a	m	n	v	u	s	D	k	e	G	m	➤ *1644|3.10*
																≈ kg	
340	380	755	430	390	125	1 120	950	240	60	48	M42	650	220	30	M42	681	**SNS3180-H-D**
	320	631	370	330	115	880	750	200	50	42	M36	540	198	23	M30	356	**SNS3072-H-D**
	320	631	370	330	115	880	750	200	50	42	M36	540	198	23	M30	356	**SNS3072-H-D**
	350	695	400	360	120	1 000	840	220	50	42	M36	600	212	30	M36	498	**SNS3172-H-D**
	350	695	400	360	120	1 000	840	220	50	42	M36	600	212	30	M36	498	**SNS3172-H-D**
	380	755	430	390	125	1 120	950	240	60	48	M42	650	252	30	M42	675	**SNS3272-H-D**
	380	755	430	390	125	1 120	950	240	60	48	M42	650	252	30	M42	675	**SNS3272-H-D**
360	340	675	400	360	120	950	810	220	50	42	M36	560	180	24	M30	481	**SNS3076-H-D**
	340	675	400	360	120	950	810	220	50	42	M36	560	180	24	M30	481	**SNS3076-H-D**
	360	715	400	360	120	1 040	870	220	50	42	M36	620	214	30	M36	534	**SNS3176-H-D**
	360	715	400	360	120	1 040	870	220	50	42	M36	620	214	30	M36	534	**SNS3176-H-D**
	410	810	460	420	130	1 170	1 000	260	60	48	M42	680	260	35	M42	841	**SNS3276-H-D**
380	350	695	400	360	120	1 000	840	220	50	42	M36	600	192	30	M36	489	**SNS3080-H-D**
	350	695	400	360	120	1 000	840	220	50	42	M36	600	192	30	M36	489	**SNS3080-H-D**
	380	755	430	390	125	1 120	950	240	60	48	M42	650	220	30	M42	681	**SNS3180-H-D**
	380	755	430	390	125	1 120	950	240	60	48	M42	650	220	30	M42	681	**SNS3180-H-D**
	420	835	460	430	135	1 220	1 030	260	60	48	M42	720	276	35	M42	895	**SNS3280-H-D**
400	360	715	400	360	120	1 040	870	220	50	42	M36	620	194	30	M36	527	**SNS3084-H-D**
	360	715	400	360	120	1 040	870	220	50	42	M36	620	194	30	M36	527	**SNS3084-H-D**
	410	810	460	420	130	1 170	1 000	260	60	48	M42	700	244	35	M42	821	**SNS3184-H-D**
	410	810	460	420	130	1 170	1 000	260	60	48	M42	700	244	35	M42	821	**SNS3184-H-D**
	440	880	470	440	145	1 280	1 070	260	60	48	M42	760	292	35	M48	984	**SNS3284-H-D**

medias ➤ *https://www.schaeffler.de/std/1F1D*

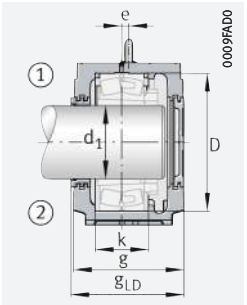
① Locating bearing; ② Non-locating bearing

[1] Split bearing in associated housing has restricted usability. Please ask for further information.

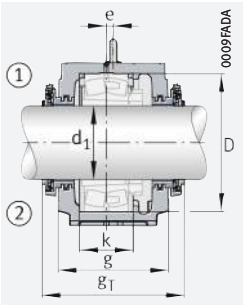
https://www.schaeffler.de/std/1D65



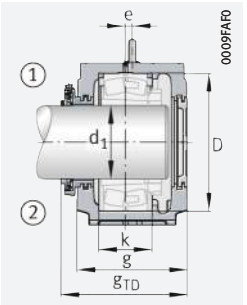
Labyrinth seal NTS



Labyrinth seal NTS
Cover NDK



Taconite seal NTC



Taconite seal NTC
Cover NDK

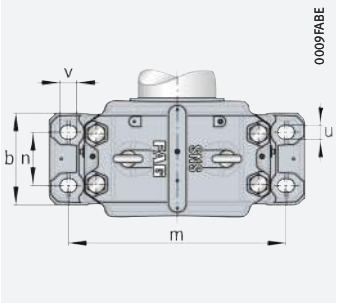
Spherical roller bearings and accessories

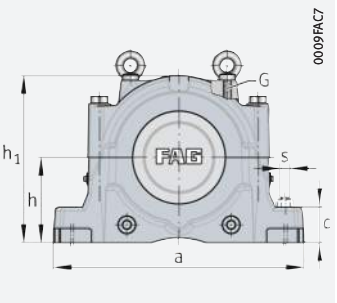
Bearing	Adapter sleeve	Locating ring		Labyrinth seal			Taconite seal			Cover
			Quantity		g_L mm	g_{LD} mm		g_T mm	g_{TD} mm	
22272..-K	H3172-HG	NFR650/25	2	NTS80/340	441	435,5	NTC80/340	520	475	NDK80
23072..-K	H3072-HG	NFR540/16	4	NTS72	381	375,5	NTC72	461	415	NDK72
230SM340-MA[1)]	–	NFR540/16	4	NTS72	381	375,5	NTC72	461	415	NDK72
23172..-K	H3172-HG	NFR600/10	2	NTS72	411	405,5	NTC72	490	445	NDK72
231SM340-MA[1)]	–	NFR600/10	2	NTS72	411	405,5	NTC72	490	445	NDK72
23272..-K	H3272-HG	NFR650/10	2	NTS80/340	441	435,5	NTC80/340	520	475	NDK80
232SM340-MA[1)]	–	NFR650/10	2	NTS80/340	441	435,5	NTC80/340	520	475	NDK80
23076..-K	H3076-HG	NFR560/22,5	2	NTS76	411	405,5	NTC76	491	445	NDK76
230SM360-MA	–	NFR560/22,5	2	NTS76	411	405,5	NTC76	491	445	NDK76
23176..-K	H3176-HG	NFR620/10	2	NTS76	411	405,5	NTC76	490	445	NDK76
231SM360-MA[1)]	–	NFR620/10	2	NTS76	411	405,5	NTC76	490	445	NDK76
23276..-K	H3276-HG	NFR680/10	2	NTS92/360	471	465,5	NTC92/360	550	505	NDK92
23080..-K	H3080-HG	NFR600/22	2	NTS80	411	405,5	NTC80	491	445	NDK80
230SM380-MA[1)]	–	NFR600/22	2	NTS80	411	405,5	NTC80	491	445	NDK80
23180..-K	H3180-HG	NFR650/10	2	NTS80	441	435,5	NTC80	520	475	NDK80
231SM380-MA[1)]	–	NFR650/10	2	NTS80	441	435,5	NTC80	520	475	NDK80
23280..-K	H3280-HG	NFR720/10	2	NTS88/380	471	465,5	NTC88/380	550	505	NDK88
23084..-K	H3084X-HG	NFR620/22	2	NTS84	411	405,5	NTC84	491	445	NDK84
230SM400-MA[1)]	–	NFR620/22	2	NTS84	411	405,5	NTC84	491	445	NDK84
23184..-K	H3184-HG	NFR700/10	2	NTS84	471	465,5	NTC84	550	505	NDK84
231SM400-MA	–	NFR700/10	2	NTS84	471	465,5	NTC84	550	505	NDK84
23284..-K	H3284-HG	NFR760/10	2	NTS92/400	481	475,5	NTC92/400	560	515	NDK92

https://www.schaeffler.de/std/1D65

Plummer block housings

SNS, split
For spherical roller bearings with tapered bore and adapter sleeve, metric shaft





d_1 = 410 – 500 mm

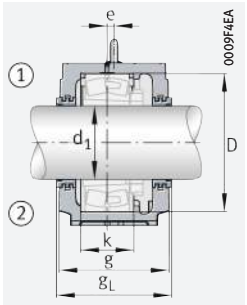
Shaft	Housing																Housing
	Dimensions															Mass	Designation
d_1	h	h_1	g	b	c	a	m	n	v	u	s	D	k	e	G	m	➤ *1644|3.10*
																≈ kg	
410	380	755	430	390	125	1 120	950	240	60	48	M42	650	200	30	M42	672	**SNS3088-H-D**
	380	755	430	390	125	1 120	950	240	60	48	M42	650	200	30	M42	672	**SNS3088-H-D**
	420	835	460	430	135	1 220	1 030	260	60	48	M42	720	246	35	M42	895	**SNS3188-H-D**
	420	835	460	430	135	1 220	1 030	260	60	48	M42	720	246	35	M42	895	**SNS3188-H-D**
	460	920	470	440	155	1 330	1 110	260	70	56	M48	790	300	35	M48	1 100	**SNS3288-H-D**
430	410	810	460	420	130	1 170	1 000	260	60	48	M42	680	224	35	M42	849	**SNS3092-H-D**
	440	880	470	440	145	1 280	1 070	260	60	48	M42	760	260	35	M48	993	**SNS3192-H-D**
450	410	810	460	420	130	1 170	1 000	260	60	48	M42	700	224	35	M42	806	**SNS3096-H-D**
	460	920	470	440	155	1 330	1 110	260	70	56	M48	790	268	35	M48	1 100	**SNS3196-H-D**
470	420	835	460	430	135	1 220	1 030	260	60	48	M42	720	226	35	M42	895	**SNS30/500-H-D**
500	460	920	470	440	155	1 330	1 110	260	70	56	M48	780	248	35	M48	1 100	**SNS30/530-H-D**

medias ➤ *https://www.schaeffler.de/std/1F1E*

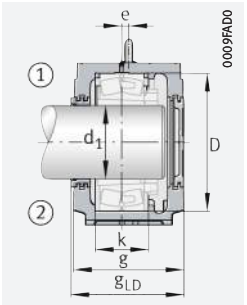
① Locating bearing; ② Non-locating bearing

[1] Split bearing in associated housing has restricted usability. Please ask for further information.

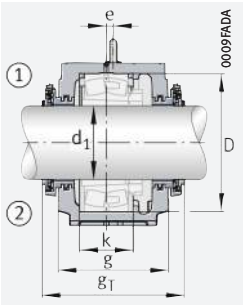
https://www.schaeffler.de/std/1D65



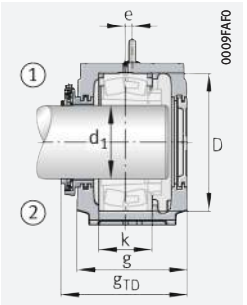
Labyrinth seal NTS



Labyrinth seal NTS
Cover NDK



Taconite seal NTC



Taconite seal NTC
Cover NDK

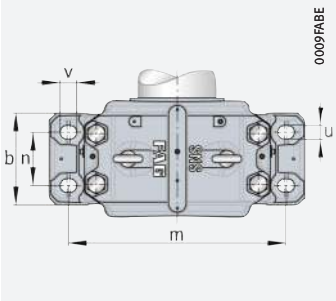
Spherical roller bearings and accessories

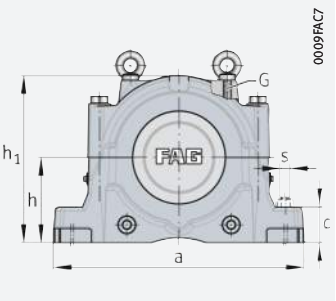
Bearing	Adapter sleeve	Locating ring		Labyrinth seal			Taconite seal			Cover
			Quantity		g_L mm	g_{LD} mm		g_T mm	g_{TD} mm	
23088..-K	H3088-HG	NFR650/21,5	2	NTS88	441	435,5	NTC88	521	475	NDK88
230SM410-MA	–	NFR650/21,5	2	NTS88	441	435,5	NTC88	521	475	NDK88
23188..-K	H3188-HG	NFR720/10	2	NTS88	471	465,5	NTC88	550	505	NDK88
231SM410-MA[1)]	–	NFR720/10	2	NTS88	471	465,5	NTC88	550	505	NDK88
23288..-K	H3288-HG	NFR790/10	2	NTS96/410	481	475,5	NTC96/410	560	515	NDK96
23092..-K	H3092-HG	NFR680/30,5	2	NTS92	471	465,5	NTC92	551	505	NDK92
23192..-K	H3192-HG	NFR760/10	2	NTS92	481	475,5	NTC92	560	515	NDK92
23096..-K	H3096-HG	NFR700/29,5	2	NTS96	471	465,5	NTC96	551	505	NDK96
23196..-K	H3196-HG	NFR790/10	2	NTS96	481	475,5	NTC96	560	515	NDK96
230/500..-K	H30/500-HG	NFR720/29,5	2	NTS500	471	465,5	NTC500	551	505	NDK500
230/530..-K	H30/530-HG	NFR780/31,5	2	NTS530	481	475,5	NTC530	561	515	NDK530

https://www.schaeffler.de/std/1D65

Plummer block housings

SNS, split
For spherical roller bearings with cylindrical bore, metric shaft





d = 130 – 200 mm

Shaft		Housing																Housing Designation
		Dimensions															Mass	
d	d_2	h	h_1	g	b	c	a	m	n	v	u	s	D	k	e	G	m ≈ kg	➤1644|3.10
130	150	170	333	230	180	70	510	430	100	34	28	M24	280	108	14	M16	75	**SNS3134-H-D**
140	160	180	353	240	190	75	530	450	110	34	28	M24	300	116	15	M16	83	**SNS3136-H-D**
150	170	190	375	260	210	80	560	480	120	34	28	M24	320	124	10	M20	102	**SNS3138-H-D**
160	180	180	353	240	190	75	530	450	110	34	28	M24	290	115	15	M16	86	**SNS3038-H-D**
	180	210	411	280	230	85	610	510	130	42	35	M30	340	132	10	M20	133	**SNS3140-H-D**
	180	180	353	240	190	75	530	450	110	34	28	M24	290	115	15	M16	86	**SNS3038-H-D**
170	190	190	375	260	210	80	560	480	120	34	28	M24	310	122	10	M20	105	**SNS3040-H-D**
	190	220	434	290	240	90	640	540	140	42	35	M30	360	140	12	M20	148	**SNS3048-H-D**
	180	170	333	230	180	70	510	430	100	34	28	M24	280	108	14	M16	71	**SNS3134-Z-D**
	190	190	375	260	210	80	560	480	120	34	28	M24	310	122	10	M20	105	**SNS3234-Z-D**
180	200	190	375	260	210	80	560	480	120	34	28	M24	320	124	10	M20	97	**SNS3138-Z-D**
	200	170	333	230	180	70	510	430	100	34	28	M24	280	108	14	M16	67	**SNS3036-Z-D**
	200	180	353	240	190	75	530	450	110	34	28	M24	300	116	15	M16	77	**SNS3136-Z-D**
	200	190	375	260	210	80	560	480	120	34	28	M24	320	124	10	M20	97	**SNS3236-Z-D**
	200	170	333	230	180	70	510	430	100	34	28	M24	280	108	14	M16	67	**SNS3036-Z-D**
190	210	210	411	280	230	85	610	510	130	42	35	M30	340	132	10	M20	125	**SNS3140-Z-D**
	210	240	474	310	260	95	700	600	150	42	35	M30	400	148	12	M24	184	**SNS3148-H-D**
	200	180	353	240	190	75	530	450	110	34	28	M24	290	115	15	M16	81	**SNS3038-Z-D**
	200	190	375	260	210	80	560	480	120	34	28	M24	320	124	10	M20	97	**SNS3138-Z-D**
	210	210	411	280	230	85	610	510	130	42	35	M30	340	132	10	M20	125	**SNS3238-Z-D**
	200	180	353	240	190	75	530	450	110	34	28	M24	290	115	15	M16	81	**SNS3038-Z-D**
200	220	220	434	290	240	90	640	540	140	42	35	M30	360	140	12	M20	148	**SNS3048-H-D**
	220	190	375	260	210	80	560	480	120	34	28	M24	310	122	10	M20	97	**SNS3040-Z-D**
	220	210	411	280	230	85	610	510	130	42	35	M30	340	132	10	M20	125	**SNS3140-Z-D**
	220	220	434	290	240	90	640	540	140	42	35	M30	360	140	12	M20	148	**SNS3240-Z-D**
	220	190	375	260	210	80	560	480	120	34	28	M24	310	122	10	M20	97	**SNS3040-Z-D**

medias ➤ *https://www.schaeffler.de/std/1F1F*

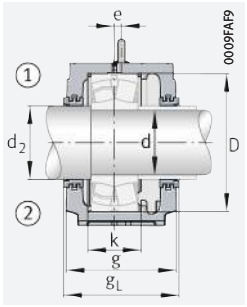
① Locating bearing; ② Non-locating bearing

1) Alternatively also available with split labyrinth seal NTSG.

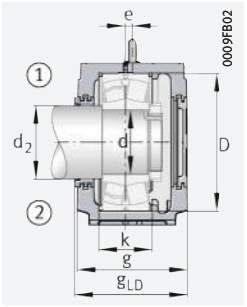
2) With NTSG: width g_L increased by 16 mm.

3) With NTSG: width g_{LD} increased by 8 mm.

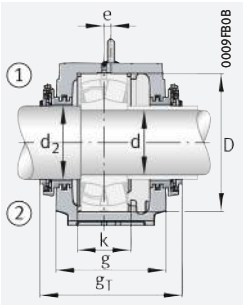
https://www.schaeffler.de/std/1D65



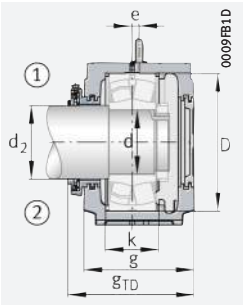
Labyrinth seal NTS



Labyrinth seal NTS
Cover NDK



Taconite seal NTC



Taconite seal NTC
Cover NDK

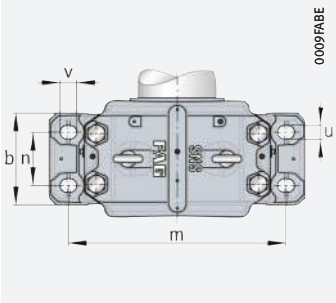
Spherical roller bearings and accessories

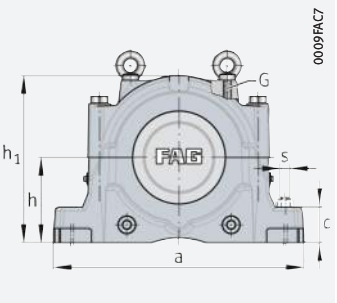
Bearing	Locating ring		Labyrinth seal			Taconite seal			Cover
		Quantity		g_L mm	g_{LD} mm		g_T mm	g_{TD} mm	
22326	NFR280/7,5	2	NTS34[1]	241[2]	235,5[3]	NTC34	299	264,5	NDK34
22328	NFR300/7	2	NTS36[1]	251[2]	245,5[3]	NTC36	314	277	NDK36
22330	NFR320/8	2	NTS38[1]	271[2]	265,5[3]	NTC38	334	297	NDK38
22232	NFR290/17,5	2	NTS38/180	251	245,5	NTC38/180	314	277	NDK38
22332	NFR340/9	2	NTS40[1]	291[2]	285,5[3]	NTC40	354	317	NDK40
23232	NFR290/5,5	2	NTS38/180	251	245,5	NTC38/180	314	277	NDK38
22234	NFR310/18	2	NTS40/190	271	265,5	NTC40/190	334	297	NDK40
22334	NFR360/10	2	NTS48/190	301	295,5	NTC48/190	380	335	NDK48
23134	NFR280/10	2	NTS40[1]	241[2]	235,5[3]	NTC40	298	264	NDK40
23234	NFR310/6	2	NTS40/190	271	265,5	NTC40/190	326	293	NDK40
22236	NFR320/19	2	NTS44[1]	271[2]	265,5[3]	NTC44	350	305	NDK44
23036	NFR280/17	2	NTS44[1]	241[2]	235,5[3]	NTC44	320	275	NDK44
23136	NFR300/10	2	NTS44[1]	251[2]	245,5[3]	NTC44	330	285	NDK44
23236	NFR320/6	2	NTS44[1]	271[2]	265,5[3]	NTC44	350	305	NDK44
24036	NFR280/4	2	NTS44[1]	241[2]	235,5[3]	NTC44	320	275	NDK44
22238	NFR340/10	4	NTS48/210	291	285,5	NTC48/210	372	302,5	NDK48
22338	NFR400/8	2	NTS48/210	321	315,5	NTC48/210	402	329,5	NDK48
23038	NFR290/10	4	NTS44[1]	251[2]	245,5[3]	NTC44	330	285	NDK44
23138	NFR320/10	2	NTS44[1]	271[2]	265,5[3]	NTC44	350	305	NDK44
23238	NFR340/6	2	NTS48/210	291	285,5	NTC48/210	372	302,5	NDK48
24038	NFR290/7,5	2	NTS44[1]	251[2]	245,5[3]	NTC44	330	285	NDK44
22240	NFR360/21	2	NTS48[1]	301[2]	295,5[3]	NTC48	380	335	NDK48
23040	NFR310/10	4	NTS48[1]	271[2]	265,5[3]	NTC48	350	305	NDK48
23140	NFR340/10	2	NTS48[1]	291[2]	285,5[3]	NTC48	372	302,5	NDK48
23240	NFR360/6	2	NTS48[1]	301[2]	295,5[3]	NTC48	380	335	NDK48
24040	NFR310/6,5	2	NTS48[1]	271[2]	265,5[3]	NTC48	350	305	NDK48

https://www.schaeffler.de/std/1D65

Plummer block housings

SNS, split
For spherical roller bearings with cylindrical bore, metric shaft





d = 220 – 280 mm

Shaft		Housing																Housing
		Dimensions															Mass	Designation
d	d_2	h	h_1	g	b	c	a	m	n	v	u	s	D	k	e	G	m	➤ *1644|3.10*
																	≈ kg	
220	240	240	474	310	260	95	700	600	150	42	35	M30	400	148	12	M24	176	**SNS3148-Z-D**
	240	280	550	320	280	105	790	670	160	50	42	M36	460	166	16	M24	264	**SNS3156-H-D**
	240	210	411	280	230	85	610	510	130	42	35	M30	340	130	10	M20	121	**SNS3044-Z-D**
	240	220	434	290	240	90	640	540	140	42	35	M30	370	140	12	M20	138	**SNS3144-Z-D**
	240	240	474	310	260	95	700	600	150	42	35	M30	400	164	12	M24	174	**SNS3244-Z-D**
	240	210	411	280	230	85	610	510	130	42	35	M30	340	130	10	M20	121	**SNS3044-Z-D**
240	260	260	516	320	280	100	770	650	160	50	42	M36	440	164	13	M24	229	**SNS3152-Z-D**
	260	300	591	350	310	110	830	710	190	50	42	M36	500	180	22	M30	317	**SNS3160-H-D**
	260	220	434	290	240	90	640	540	140	42	35	M30	360	140	12	M20	140	**SNS3048-Z-D**
	260	240	474	310	260	95	700	600	150	42	35	M30	400	148	12	M24	176	**SNS3148-Z-D**
	260	260	516	320	280	100	770	650	160	50	42	M36	440	180	13	M24	226	**SNS3248-Z-D**
	260	220	434	290	240	90	640	540	140	42	35	M30	360	140	12	M20	140	**SNS3048-Z-D**
260	280	300	591	350	310	110	830	710	190	50	42	M36	480	181	22	M30	332	**SNS3064-H-D**
	290	320	631	370	330	115	880	750	200	50	42	M36	540	196	23	M30	368	**SNS3164-H-D**
	280	240	474	310	260	95	700	600	150	42	35	M30	400	148	12	M24	171	**SNS3052-Z-D**
	280	260	516	320	280	100	770	650	160	50	42	M36	440	164	13	M24	229	**SNS3152-Z-D**
	280	300	591	350	310	110	830	710	190	50	42	M36	480	194	22	M30	331	**SNS3252-Z-D**
	280	240	474	310	260	95	700	600	150	42	35	M30	400	148	12	M24	171	**SNS3052-Z-D**
280	300	300	591	350	310	110	830	710	190	50	42	M36	500	180	22	M30	307	**SNS3160-Z-D**
	310	340	675	400	360	120	950	810	220	50	42	M36	580	210	24	M30	461	**SNS3168-H-D**
	300	260	516	320	280	100	770	650	160	50	42	M36	420	166	13	M24	240	**SNS3056-Z-D**
	300	280	550	320	280	105	790	670	160	50	42	M36	460	166	16	M24	255	**SNS3156-Z-D**
	300	300	591	350	310	110	830	710	190	50	42	M36	500	196	22	300	591	**SNS3256-Z-D**
	300	260	516	320	280	100	770	650	160	50	42	M36	420	166	13	M24	240	**SNS3056-Z-D**

medias ➤ *https://www.schaeffler.de/std/1F20*

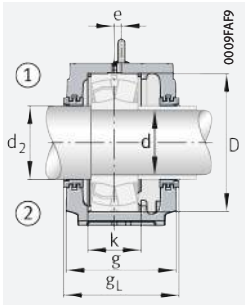
① Locating bearing; ② Non-locating bearing

1) Alternatively also available with split labyrinth seal NTSG.

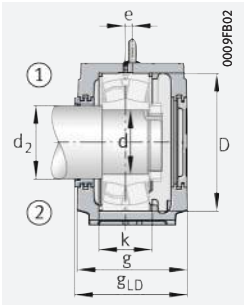
2) With NTSG: width g_L increased by 16 mm.

3) With NTSG: width g_{LD} increased by 8 mm.

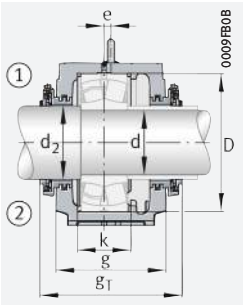
https://www.schaeffler.de/std/1D65



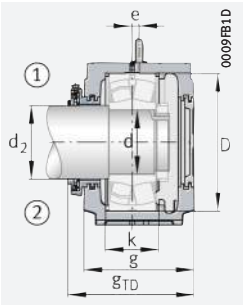
Labyrinth seal NTS



Labyrinth seal NTS
Cover NDK



Taconite seal NTC



Taconite seal NTC
Cover NDK

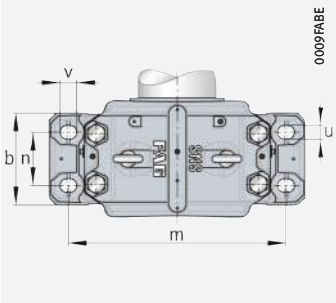
Spherical roller bearings and accessories

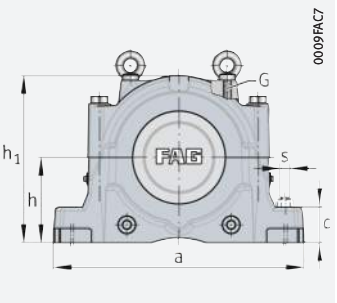
Bearing	Locating ring		Labyrinth seal			Taconite seal			Cover
		Quantity		g_L mm	g_{LD} mm		g_T mm	g_{TD} mm	
22244	NFR400/10	4	NTS56/240	321	315,5	NTC56/240	400	355	NDK56
22344	NFR460/10,5	2	NTS56/240	331	325,5	NTC56/240	410	365	NDK56
23044	NFR340/10	4	NTS52[1)]	291[2)]	285,5[3)]	NTC52	370	325	NDK52
23144	NFR370/10	2	NTS52[1)]	301[2)]	295,5[3)]	NTC52	380	335	NDK52
23244	NFR400/10	2	NTS56/240	321	315,5	NTC56/240	400	355	NDK56
24044	NFR340/6	2	NTS52[1)]	291[2)]	285,5[3)]	NTC52	370	325	NDK52
22248	NFR440/22	2	NTS60/260	331	325,5	NTC60/260	410	365	NDK60
22348	NFR500/12,5	2	NTS60/260	361	355,5	NTC60/260	440	395	NDK60
23048	NFR360/12	4	NTS56	301	295,5	NTC56	380	335	NDK56
23148	NFR400/10	2	NTS56	321	315,5	NTC56	400	355	NDK56
23248	NFR440/10	2	NTS60/260	331	325,5	NTC60/260	410	365	NDK60
24048	NFR360/11	2	NTS56	301	295,5	NTC56	380	335	NDK56
22252	NFR480/25,5	2	NTS64/280	361	355,5	NTC64/280	440	395	NDK64
22352	NFR540/15,5	2	NTS64/290	381	375,5	NTC64/290	460	415	NDK64
23052	NFR400/22	2	NTS60	321	315,5	NTC60	400	355	NDK60
23152	NFR440/10	2	NTS60	331	325,5	NTC60	410	365	NDK60
23252	NFR480/10	2	NTS64/280	361	355,5	NTC64/280	440	395	NDK64
24052	NFR400/4	2	NTS60	321	315,5	NTC60	400	355	NDK60
22256	NFR500/25	2	NTS68/300	361	355,5	NTC68/300	440	395	NDK68
22356	NFR580/17,5	2	NTS68/310	411	405,5	NTC68/310	490	445	NDK68
23056	NFR420/10	6	NTS64	331	325,5	NTC64	410	365	NDK64
23156	NFR460/10	2	NTS64	331	325,5	NTC64	410	365	NDK64
23256	NFR500/10	2	NTS68/300	361	355,5	NTC68/300	440	395	NDK68
24056	NFR420/13	2	NTS64	331	325,5	NTC64	410	365	NDK64

https://www.schaeffler.de/std/1D65

Plummer block housings

SNS, split
For spherical roller bearings with cylindrical bore, metric shaft





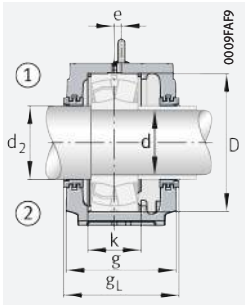
d = 300 – 380 mm

Shaft		Housing																Housing
		Dimensions															Mass	Designation
d	d_2	h	h_1	g	b	c	a	m	n	v	u	s	D	k	e	G	m	➤1644|3.10
																	≈ kg	
300	320	320	631	370	330	115	880	750	200	50	42	M36	540	196	23	M30	357	**SNS3164-Z-D**
	320	280	550	320	280	105	790	670	160	50	42	M36	460	168	16	M24	249	**SNS3060-Z-D**
	320	300	591	350	310	110	830	710	190	50	42	M36	500	180	22	M30	307	**SNS3160-Z-D**
	320	320	631	370	330	115	880	750	200	50	42	M36	540	212	23	M30	353	**SNS3260-Z-D**
	320	280	550	320	280	105	790	670	160	50	42	M36	460	168	16	M24	249	**SNS3060-Z-D**
320	340	340	675	400	360	120	950	810	220	50	42	M36	580	190	24	M30	455	**SNS2264-Z-D**
	340	300	591	350	310	110	830	710	190	50	42	M36	480	181	22	M30	321	**SNS3064-Z-D**
	340	320	631	370	330	115	880	750	200	50	42	M36	540	196	23	M30	357	**SNS3164-Z-D**
	340	340	675	400	360	120	950	810	220	50	42	M36	580	228	24	M30	445	**SNS3264-Z-D**
	340	300	591	350	310	110	830	710	190	50	42	M36	480	181	22	M30	321	**SNS3064-Z-D**
340	360	320	631	370	330	115	880	750	200	50	42	M36	520	197	23	M30	374	**SNS3068-Z-D**
	360	340	675	400	360	120	950	810	220	50	42	M36	580	210	24	M30	450	**SNS3168-Z-D**
	370	360	715	400	360	120	1 040	870	220	50	42	M36	620	244	30	M36	530	**SNS3268-Z-D**
	360	320	631	370	330	115	880	750	200	50	42	M36	520	197	23	M30	374	**SNS3068-Z-D**
360	390	380	755	430	390	125	1 120	950	240	60	48	M42	650	220	30	M42	681	**SNS3180-H-D**
	380	320	631	370	330	115	880	750	200	50	42	M36	540	198	23	M30	344	**SNS3072-Z-D**
	380	350	695	400	360	120	1 000	840	220	50	42	M36	600	212	30	M36	486	**SNS3172-Z-D**
	390	380	755	430	390	125	1 120	950	240	60	48	M42	650	252	30	M42	675	**SNS3272-Z-D**
	380	320	631	370	330	115	880	750	200	50	42	M36	540	198	23	M30	344	**SNS3072-Z-D**
380	400	340	675	400	360	120	950	810	220	50	42	M36	560	180	24	M30	467	**SNS3076-Z-D**
	400	360	715	400	360	120	1 040	870	220	50	42	M36	620	214	30	M36	521	**SNS3176-Z-D**
	410	410	810	460	420	130	1 170	1 000	260	60	48	M42	680	260	35	M42	841	**SNS3276-Z-D**
	400	340	675	400	360	120	950	810	220	50	42	M36	560	200	24	M30	465	**SNS4076-Z-D**

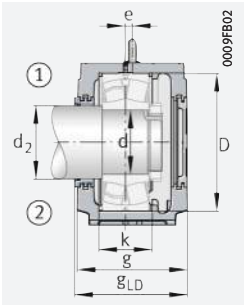
medias ➤ *https://www.schaeffler.de/std/1F21*

① Locating bearing; ② Non-locating bearing

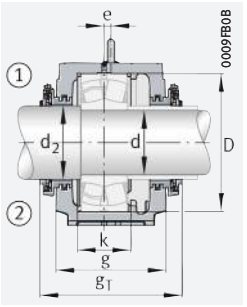
https://www.schaeffler.de/std/1D65



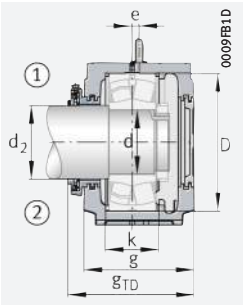
Labyrinth seal NTS



Labyrinth seal NTS
Cover NDK



Taconite seal NTC



Taconite seal NTC
Cover NDK

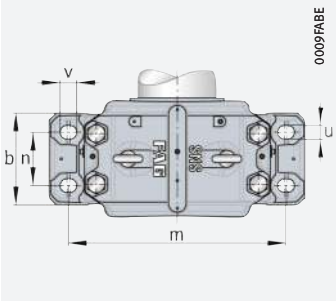
Spherical roller bearings and accessories

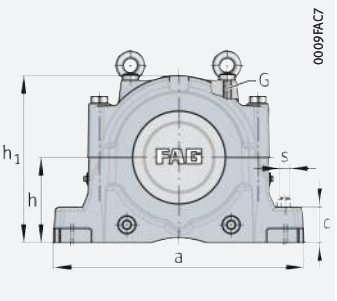
Bearing	Locating ring		Labyrinth seal			Taconite seal			Cover
		Quantity		g_L mm	g_{LD} mm		g_T mm	g_{TD} mm	
22260	NFR540/28	2	NTS72/320	381	375,5	NTC72/320	460	415	NDK72
23060	NFR460/25	2	NTS68	331	325,5	NTC68	410	365	NDK68
23160	NFR500/10	2	NTS68	361	355,5	NTC68	440	395	NDK68
23260	NFR540/10	2	NTS72/320	381	375,5	NTC72/320	460	415	NDK72
24060	NFR460/4	2	NTS68	331	325,5	NTC68	410	365	NDK68
22264	NFR580/20	2	NTS76/340	411	405,5	NTC76/340	490	445	NDK76
23064	NFR480/10	6	NTS72	361	355,5	NTC72	440	395	NDK72
23164	NFR540/10	2	NTS72	381	375,5	NTC72	460	415	NDK72
23264	NFR580/10	2	NTS76/340	411	405,5	NTC76/340	490	445	NDK76
24064	NFR480/10,5	2	NTS72	361	355,5	NTC72	440	395	NDK72
23068	NFR520/16	4	NTS76	381	375,5	NTC76	460	415	NDK76
23168	NFR580/10	2	NTS76	411	405,5	NTC76	490	445	NDK76
23268	NFR620/10	2	NTS76/370	411	405,5	NTC76/370	490	445	NDK76
24068	NFR520/8,5	2	NTS76	381	375,5	NTC76	460	415	NDK76
22272	NFR650/25	2	NTS80/390	441	435,5	NTC80/390	520	475	NDK80
23072	NFR540/16	4	NTS80	381	375,5	NTC80	460	415	NDK80
23172	NFR600/10	2	NTS80	411	405,5	NTC80	490	445	NDK80
23272	NFR650/10	2	NTS80/390	441	435,5	NTC80/390	520	475	NDK80
24072	NFR540/9	2	NTS80	381	375,5	NTC80	460	415	NDK80
23076	NFR560/22,5	2	NTS84	411	405,5	NTC84	490	445	NDK84
23176	NFR620/10	2	NTS84	411	405,5	NTC84	490	445	NDK84
23276	NFR680/10	2	NTS92/410	471	465,5	NTC92/410	550	505	NDK92
24076	NFR560/10	2	NTS84	411	405,5	NTC84	475	438	NDK84

https://www.schaeffler.de/std/1D65

Plummer block housings

SNS, split
For spherical roller bearings with cylindrical bore, metric shaft





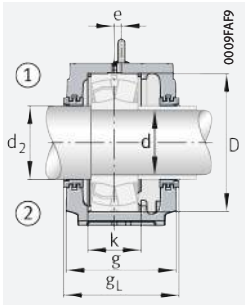
d = 400 – 530 mm

Shaft		Housing																Housing
		Dimensions															Mass	Designation
d	d_2	h	h_1	g	b	c	a	m	n	v	u	s	D	k	e	G	m	➤ *1644|3.10*
																	≈ kg	
400	430	350	695	400	360	120	1 000	840	220	50	42	M36	600	192	30	M36	468	**SNS3080-Z-D**
	430	380	755	430	390	125	1 120	950	240	60	48	M42	650	220	30	M42	660	**SNS3180-Z-D**
	430	420	835	460	430	135	1 220	1 030	260	60	48	M42	720	276	35	M42	895	**SNS3280-Z-D**
	430	350	695	400	360	120	1 000	840	220	50	42	M36	600	220	30	M36	463	**SNS4080-Z-D**
420	450	360	715	400	360	120	1 040	870	220	50	42	M36	620	194	30	M36	505	**SNS3084-Z-D**
	450	410	810	460	420	130	1 170	1 000	260	60	48	M42	700	244	35	M42	799	**SNS3184-Z-D**
	460	440	880	470	440	145	1 280	1 070	260	60	48	M42	760	292	35	M48	956	**SNS3284-Z-D**
	450	360	715	400	360	120	1 040	870	220	50	42	M36	620	220	30	M36	499	**SNS4084-Z-D**
440	470	380	755	430	390	125	1 120	950	240	60	48	M42	650	200	30	M42	649	**SNS3088-Z-D**
	470	420	835	460	430	135	1 220	1 030	260	60	48	M42	720	246	35	M42	895	**SNS3188-Z-D**
	480	460	920	470	440	155	1 330	1 110	260	70	56	M48	790	300	35	M48	1 100	**SNS3288-Z-D**
	470	380	755	430	390	125	1 120	950	240	60	48	M42	650	232	30	M42	642	**SNS4088-Z-D**
460	500	410	810	460	420	130	1 170	1 000	260	60	48	M42	680	224	35	M42	821	**SNS3092-Z-D**
	500	440	880	470	440	145	1 280	1 070	260	60	48	M42	760	260	35	M48	966	**SNS3192-Z-D**
	500	410	810	460	420	130	1 170	1 000	260	60	48	M42	680	238	35	M42	818	**SNS4092-Z-D**
480	510	410	810	460	420	130	1 170	1 000	260	60	48	M42	700	224	35	M42	786	**SNS3096-Z-D**
	520	460	920	470	440	155	1 330	1 110	260	70	56	M48	790	268	35	M48	1 100	**SNS3196-Z-D**
	510	410	810	460	420	130	1 170	1 000	260	60	48	M42	700	238	35	M42	780	**SNS4096-Z-D**
500	530	420	835	460	430	135	1 220	1 030	260	60	48	M42	720	226	35	M42	895	**SNS30/500-Z-D**
	530	420	835	460	430	135	1 220	1 030	260	60	48	M42	720	238	35	M42	895	**SNS40/500-Z-D**
530	560	460	920	470	440	155	1 330	1 110	260	70	56	M48	780	248	35	M48	1 100	**SNS30/530-Z-D**
	560	460	920	470	440	155	1 330	1 110	260	70	56	M48	780	270	35	M48	1 100	**SNS40/530-Z-D**

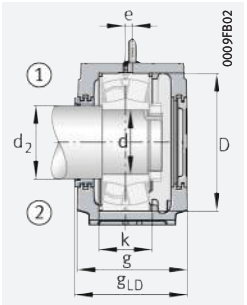
medias ➤ *https://www.schaeffler.de/std/1F22*

① Locating bearing; ② Non-locating bearing

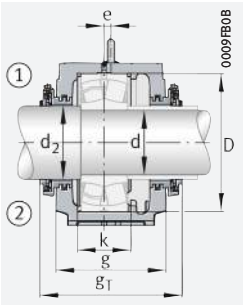
https://www.schaeffler.de/std/1D65



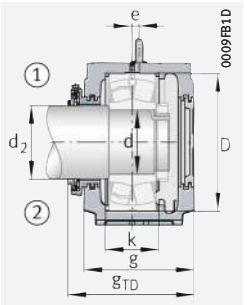
Labyrinth seal NTS



Labyrinth seal NTS
Cover NDK



Taconite seal NTC



Taconite seal NTC
Cover NDK

Spherical roller bearings and accessories

Bearing	Locating ring		Labyrinth seal			Taconite seal			Cover
		Quantity		g_L mm	g_{LD} mm		g_T mm	g_{TD} mm	
23080	NFR600/22	2	NTS92	411	405,5	NTC92	490	445	NDK92
23180	NFR650/10	2	NTS92	441	435,5	NTC92	520	475	NDK92
23280	NFR720/10	2	NTS500/430	471	465,5	NTC500/430	550	505	NDK500
24080	NFR600/10	2	NTS92	411	405,5	NTC92	475	438	NDK92
23084	NFR620/22	2	NTS96	411	405,5	NTC96	490	445	NDK96
23184	NFR700/10	2	NTS96	471	465,5	NTC96	550	505	NDK96
23284	NFR760/10	2	NTS530/460	481	475,5	NTC530/460	560	515	NDK530
24084	NFR620/10	2	NTS96	411	405,5	NTC96	475	438	NDK96
23088	NFR650/21,5	2	NTS500	441	435,5	NTC500	520	475	NDK500
23188	NFR720/10	2	NTS500	471	465,5	NTC500	550	505	NDK500
23288	NFR790/10	2	NTS560/480	481	475,5	NTC560/480	560	515	NDK560
24088	NFR650/10	2	NTS500	441	435,5	NTC500	505	468	NDK500
23092	NFR680/30,5	2	NTS530	471	465,5	NTC530	550	505	NDK530
23192	NFR760/10	2	NTS530	481	475,5	NTC530	560	515	NDK530
24092	NFR680/10	2	NTS530	471	465,5	NTC530	535	498	NDK530
23096	NFR700/29,5	2	NTS530/510	471	465,5	NTC530/510	550	505	NDK530
23196	NFR790/10	2	NTS560/520	481	475,5	NTC560/520	560	515	NDK560
24096	NFR700/10	2	NTS530/510	471	465,5	NTC530/510	535	498	NDK530
230/500	NFR720/29,5	2	NTS560	471	465,5	NTC560	550	505	NDK560
240/500	NFR720/10	2	NTS560	471	465,5	NTC560	535	498	NDK560
230/530	NFR780/31,5	2	NTS600	481	475,5	NTC600	560	515	NDK600
240/530	NFR780/10	2	NTS600	481	475,5	NTC600	545	508	NDK600

https://www.schaeffler.de/std/1D65

4 Other bearing housings

4.1 Split plummer block housings S30

Housings for wide range of applications

Split plummer block housings S30 can be used for various applications, such as sintering and pelletising equipment as well as paper processing machinery ➤*1668*|*1*.

1
Split plummer block housings S30

Suitable bearings

Shaft diameters from 110 mm to 150 mm

The dimensions of split plummer block housings S30 are matched to spherical roller bearings 230 and toroidal roller bearings C30 ➤*1668*|*1*. The range of shaft diameters is between 110 mm and 150 mm.

1
Bearing type and sizes

Bearing type	Size
Spherical roller bearings ■ with tapered bore and adapter sleeve	23024..-K to 23034..-K
■ with cylindrical bore	23024 to 23034
Toroidal roller bearings ■ with tapered bore and adapter sleeve	C3022..-K to C3034..-K
■ with cylindrical bore	C3022 to C3034

Split spherical roller bearings

Unsplit spherical roller bearings with an adapter sleeve can be replaced by split spherical roller bearings. This gives a considerable reduction in the work associated with bearing replacement in numerous applications. In order to ensure selection of the correct combination of housing and bearing when using split bearings, please contact Schaeffler.

The range of split spherical roller bearings is described in detail in a separate publication ➤ *TPI 250*.

Materials

Flake graphite cast iron as standard

Material for housing body:
- flake graphite cast iron (standard)
- spheroidal graphite cast iron
- cast steel.

https://www.schaeffler.de/std/1D65

Locating and non-locating bearings

Locating bearing arrangement by means of locating ring

The bearing seats in the housing are machined such that the bearings are movable in the housing and can thus function as non-locating bearings. Locating bearing arrangements can be achieved by the insertion of a locating ring FRM adjacent to the bearing outer ring.

Lubrication

Grease lubrication

Suitable lubrication method:

- grease lubrication.

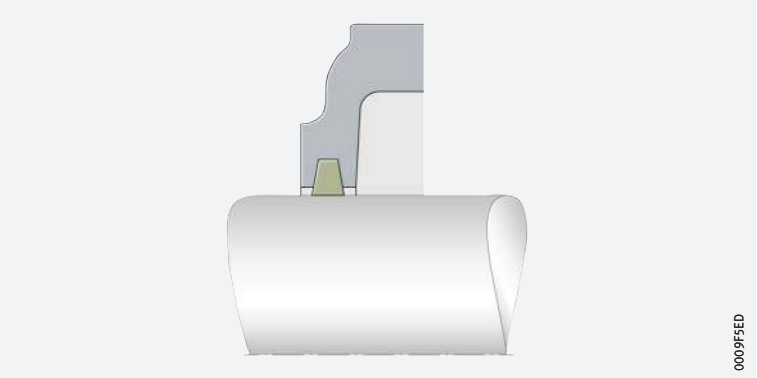
Sealing

Felt seals

Plummer block housings S30 are sealed by means of felt seals ➤*1669*| 2. The felt seals allow shaft misalignment of up to 0,5° in both directions and are suitable for grease lubrication.

The oil-soaked felt strips must be inserted in the associated slots in the housing. In the case of a housing closed on one side, 2 felt strips are inserted, while 4 felt strips are necessary in the case of a continuous shaft.

2
Felt seal for plummer block housing S30



Covers DK made from polyamide

In the case of a housing closed on one side, a cover DK is inserted in the slots can be inserted instead of the felt strips on one side of the housing. Covers DK are made from polyamide.

Scope of delivery

When ordering split plummer block housings S30, the housing designation only describes the housing body. The felt strips for sealing the housing are included in the scope of delivery, while the cover and locating rings must be ordered separately. The rolling bearing and, if necessary, the adapter sleeve must also be ordered separately.

Further information

Detailed information on split plummer block housings S30:
Bearing Housings ➤ 🕮 *GK 1*.

https://www.schaeffler.de/std/1D65

4.2 Split plummer block housings SAF

Housing dimensions for inch size shaft centre heights

Split plummer block housings SAF and the associated bearings form bearing arrangement units that can be matched, through the appropriate selection of accessories, to a wide range of applications. The housings are specifically designed for inch size shaft centre heights ➤*1670*|*3*.

3
Split plummer block housings SAF

Suitable bearings

Shaft diameters from $1\frac{3}{8}$ inch to 8 inch

The dimensions of split plummer block housings SAF are matched to spherical roller bearings 222..-K ➤*1670*|*2*. The range of shaft diameters is between $1\frac{3}{8}$ inch and 8 inch.

2
Bearing type and sizes

Bearing type	Size
Spherical roller bearings ■ with tapered bore and adapter sleeve	22209..-K to 22244..-K

Split spherical roller bearings

In the replacement of bearings, the unsplit spherical roller bearings can be replaced by split spherical roller bearings 222S. This gives a considerable reduction in the work associated with bearing replacement in numerous applications.

In order to ensure selection of the correct combination of housing and bearing when using split bearings, please contact Schaeffler.

The range of split spherical roller bearings is described in detail in a separate publication ➤ *TPI 250*.

Materials

Flake graphite cast iron as standard

Material for housing body:

- flake graphite cast iron to ASTM A48 Class 35 (standard)
- spheroidal graphite cast iron to ASTM A536 Grade 65-45-12.

The colour of the paint coating on housings made from flake graphite cast iron is grey (colour RAL 7016, anthracite grey), while on housings made from spheroidal graphite cast iron it is orange (colour RAL 2004, pure orange).

Locating and non-locating bearings

Locating bearing arrangement by means of locating ring

The bearing seats in the housing are machined such that the bearings are movable and can thus function as non-locating bearings. Locating bearing arrangements can be achieved by the insertion of a locating ring SR.

https://www.schaeffler.de/std/1D65

Lubrication

✎ *Grease or oil lubrication*

Suitable lubrication methods:

- grease lubrication
- oil lubrication.

Sealing

For sealing of the bearing housings, the standard seals available are the labyrinth seal and the taconite seal ➤ *1672*| ▦ *3*. These seals are matched to the rectangular section annular slots on both sides of the housings.

✎ *Labyrinth seals LER*

Labyrinth seals LER give non-contact sealing. They are therefore suitable for high speeds. The O ring, which is pressed between the labyrinth ring and shaft, is made from NBR and is suitable for temperatures of up to +100 °C.

Labyrinth seals allow shaft misalignment of up to 0,3° in both directions and are suitable for grease lubrication. If necessary, the labyrinth can be relubricated. For this purpose, a lubrication hole must be made in the upper housing section for each labyrinth seal. The optimum positions are indicated by cast-in pilot holes on the top of the housing.

✎ *Taconite seals TA*

Taconite seals TA comprise two rings, of which one is located in the housing and the other on the shaft. An axial and a radial labyrinth is formed between these rings, where the effectiveness of the latter is increased by means of two spiral rings. Due to the non-contact sealing, taconite seals are suitable for high speeds. The two statically acting O rings are made from NBR and are suitable for temperatures of up to +100 °C.

Taconite seals are designed for extreme operating conditions characterised by heavy contamination and the impact of abrasive particles.

Taconite seals allow shaft misalignment of up to 0,3° in both directions and are suitable for grease lubrication. For relubrication, the seal is fitted with a lubrication nipple.

✎ *Split labyrinth seals LERS*

For plummer block housings SAF, labyrinth seals are also available in a split design. As a result, the work involved in replacing the seal can be considerably reduced.

✎ *Split taconite seals TAS*

For plummer block housings SAF, taconite seals are also available in a split design. As a result, the work involved in replacing the seal can be considerably reduced. Split taconite seals are not standard seals and are available by agreement.

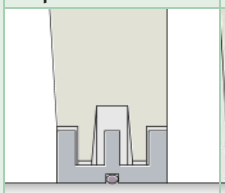
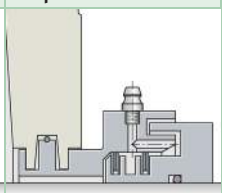
✎ *Covers EC*

Covers EC are used with housings closed on one side. The covers fit in the rectangular section annular slots in the housings. They are suitable for temperatures up to +100 °C.

https://www.schaeffler.de/std/1D65

3
Labyrinth and taconite seal

++ = *highly suitable*
+ = *suitable*
(+) = *suitable with restrictions*
– = *not suitable*

Sealing		**Labyrinth seal, unsplit**	**Taconite seal, unsplit**
			
Designation		**LER**	**TA**
Material		Aluminium, NBR	Steel, NBR
Pieces per pack		1	1
Suitability for sealing against			
dust		(+)	++
fine, solid particles		+	++
coarse, solid particles		+	++
slivers		++	++
spray liquids		–	++
Operating limits			
Long term temperature	°C	–40 to +100 (due to NBR)	–40 to +100 (due to NBR)
	°F	–40 to +210 (due to NBR)	–40 to +210 (due to NBR)
Circumferential velocity	m/s	No restriction	No restriction
Misalignment	°	≦0,3	≦0,3
Low friction		++	+
Axial shaft displacement (suitability as non-locating bearing)		+	+
Vertical arrangement		(+)	(+)
Suitability for grease relubrication		+	++
Suitability for oil lubrication		(+)	–
Compatibility with sunlight		++	++
Preconditions			
Tolerance class[1] of shaft diameter		h8 (h9)	h8 (h9)
Shaft roughness	µm	Ra 3,2	Ra 3,2

[1] *The envelope requirement Ⓔ applies*

Scope of delivery

When ordering a split plummer block housing SAF of universal design SAF..U, the accessories frequently required for standard shaft diameters (labyrinth seals, covers and locating rings) are already included in the scope of delivery. Depending on the housing configuration, it may be necessary to order other accessories separately.

Further information

Detailed information on split plummer block housings SAF:
Split Plummer Block Housings SAF ➤ 🕮 *TPI 229*.

https://www.schaeffler.de/std/1D65

4.3 Split plummer block housings RLE

✎ *Housings for the bearing arrangements of back-up rollers* 4

Split plummer block housings RLE

Split plummer block housings RLE were developed specifically for the bearing arrangements of back-up rollers ➤ *1673* | 4.

Suitable bearings

✎ *Shaft diameters from 180 mm to 500 mm*

The dimensions of split plummer block housings RLE are matched to spherical roller bearings 241 and toroidal roller bearings C41 ➤ *1673* | 4. The range of shaft diameters is between 180 mm and 500 mm.

4 *Bearing type and sizes*

Bearing type	Size
Spherical roller bearings ■ with tapered bore and withdrawal sleeve	24122..-K30 to 241/500..-K30
■ with cylindrical bore	24122 to 241/500
Toroidal roller bearings ■ with tapered bore and withdrawal sleeve	C4120..-K30 to C41/500..-K30
■ with cylindrical bore	C4120 to C41/500

Materials

✎ *Flake graphite cast iron as standard*

Material for housing body:

- flake graphite cast iron (standard)
- spheroidal graphite cast iron
- cast steel.

https://www.schaeffler.de/std/1D65

Locating and non-locating bearings

Housings in locating bearing design and non-locating bearing design

The housings are supplied as a locating bearing design or non-locating bearing design. In the locating bearing, the bearing is clamped between the housing covers. In the non-locating bearing, the bearing can align itself axially, since the covers have shorter centring collars.

Lubrication

Grease lubrication

Suitable lubrication method:

- grease lubrication.

Sealing

Housing designs with and without cover

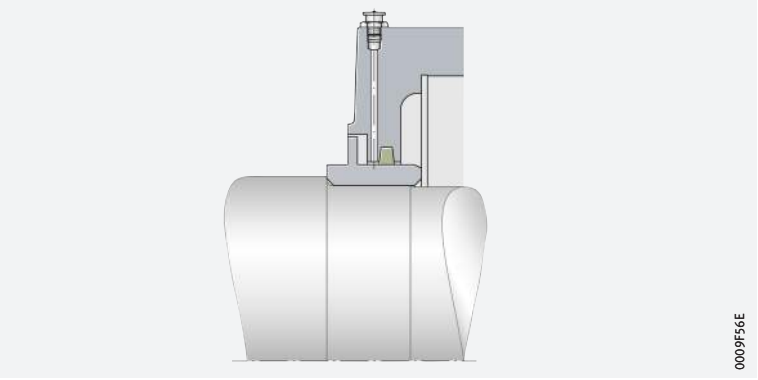
Plummer block housings RLE of design A are intended for the bearing arrangements of shaft ends. One side is closed by a cover and the other side is sealed against the shaft. Design B is intended for continuous shafts, in which case the housing is sealed against the shaft on both sides.

Labyrinth rings with felt seal

The seal is a combination of a labyrinth seal and a felt seal ➤ *1674* | *5*. The labyrinth is separated from the grease cavity in the housing by oil-soaked felt strips, so a more economical grease can be used for labyrinth lubrication.

The labyrinth rings are unsplit. The seal allows shaft misalignment of up to 0,5° in both directions.

5
Labyrinth ring with felt seal for plummer block housing RLE



Scope of delivery

In the case of split plummer block housings RLE, the seals and cover (for a housing design closed on one side) are included in the scope of delivery. The rolling bearing and, if necessary, the withdrawal sleeve must be ordered separately.

Further information

Detailed information on split plummer block housings RLE:
Bearing Housings ➤ *GK 1*.

https://www.schaeffler.de/std/1D65

4.4 Split plummer block housings KPG, KPGZ

✎ *Housings for converters in the steel industry*

Split plummer block housings KPG and KPGZ were developed specifically for the journal bearing arrangement in converters ➤*1675*|🗗*6*.

🗗*6*
Split plummer block housings KPG, KPGZ

Suitable bearings

✎ *Shaft diameters from 470 mm to 1320 mm*

The dimensions of split plummer block housings KPG and KPGZ are matched to spherical roller bearings 249 ➤*1675*|▦*5*. The housings KPG are intended for bearings with a tapered bore and adjustment sleeve, while the housings KPGZ are intended for bearings with a cylindrical bore. The range of shaft diameters is between 470 mm and 1320 mm.

▦*5*
Bearing type and sizes

Bearing type	Size
Spherical roller bearings ■ with tapered bore and adjustment sleeve	249/470..-K30 to 249/1250..-K30
■ with cylindrical bore	249/500 to 249/1320

✎ *Split spherical roller bearings*

On the locating bearing side of the converter, an unsplit spherical roller bearing can be replaced by a split spherical roller bearing. Since there is no need to dismount the drive system, the work involved in mounting can be considerably reduced.

In order to ensure selection of the correct combination of housing and bearing when using split bearings, please contact Schaeffler.

The range of split spherical roller bearings is described in detail in a separate publication ➤🕮 *TPI 250*.

Materials

✎ *Spheroidal graphite cast iron*

Material for housing body:
- spheroidal graphite cast iron.

https://www.schaeffler.de/std/1D65

Locating and non-locating bearings

✎ *Housings in locating bearing design and non-locating bearing design*

The housings are supplied as a locating bearing design or non-locating bearing design. The locating bearing on the drive side provides axial guidance of the converter support ring.

The locating bearing design of the housings KPG and KPGZ is originally designed for the fitting of unsplit spherical roller bearings.
The locating bearing arrangement is formed by locating rings on both sides of the bearing. A housing of the locating bearing design can also accommodate a split spherical roller bearing, replacing an unsplit bearing.

The non-locating bearing design is fitted with unsplit bearings.
The bearing outer ring can be displaced axially in a bearing bush.

Lubrication

✎ *Grease lubrication*

Suitable lubrication method:

- grease lubrication.

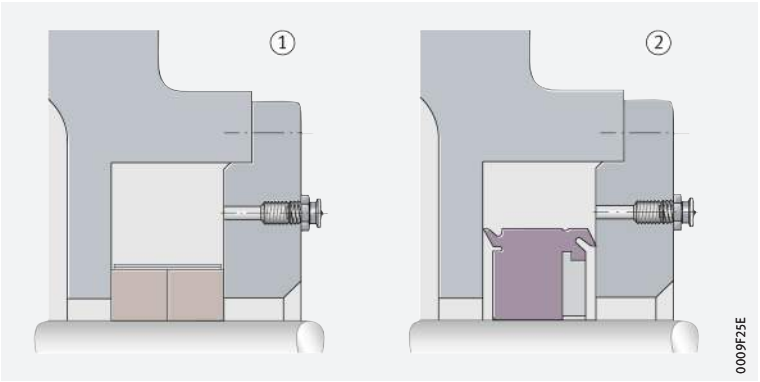
Sealing

✎ *High-pressure packing as standard*

Plummer block housings KPG and KPGZ are sealed by means of high-pressure packing. These allow shaft misalignment of up to 1,5°.
Profiled rubber seals are available by agreement as special seals ➤ *1676* | *7*.

7
Seals for plummer block housings KPG and KPGZ

① *High-pressure packing*
② *Profiled rubber seal*



Scope of delivery

In the case of split plummer block housings KPG and KPGZ, the seals are included in the scope of delivery. The rolling bearing and, if necessary, the adjustment sleeve must be ordered separately.

Since customer-specific solutions using these housings are developed for each converter application, we recommend consulting our engineering service before ordering these housings.

Further information

Detailed information on split plummer block housings KPG and KPGZ: Bearing Housings ➤ 🕮 *GK 1*, and Rolling Bearing Arrangements for Converters ➤ 🕮 *TPI 148*.

https://www.schaeffler.de/std/1D65

4.5 Split plummer block housings LOE

Housings for bearing arrangements running at high speeds

Split plummer block housings LOE are designed for oil lubrication. They are suitable for high speed bearing arrangements, for example in fans ➤*1677*|*8*.

8
Split plummer block housing LOE

Suitable bearings

Shaft diameters from 50 mm to 240 mm

The dimensions of split plummer block housings LOE are matched to spherical roller bearings 222 and 223 ➤*1677*|*6*. The housings LOE2 and LOE3 are intended for bearings with a cylindrical bore, while the housings LOE5 and LOE6 are intended for bearings with a tapered bore and adapter sleeve. The range of shaft diameters is between 50 mm and 240 mm.

6
Bearing type and sizes

Bearing type	Size
Spherical roller bearings	
■ with tapered bore and adapter sleeve	22217..-K to 22248..-K
	22314..-K to 22336..-K
■ with cylindrical bore	22214 to 22248
	22310 to 22336

Materials

Flake graphite cast iron as standard

Material for housing body:
- flake graphite cast iron (standard)
- spheroidal graphite cast iron
- cast steel.

https://www.schaeffler.de/std/1D65

Locating and non-locating bearings

Housings in locating bearing design and non-locating bearing design

The housings are supplied as a locating bearing design or non-locating bearing design. In the locating bearing, the bearing is clamped between the housing covers. In the non-locating bearing, the bearing can align itself axially, since the covers have shorter centring collars.

Lubrication

Oil lubrication

Suitable lubrication method:

- oil lubrication.

Sealing

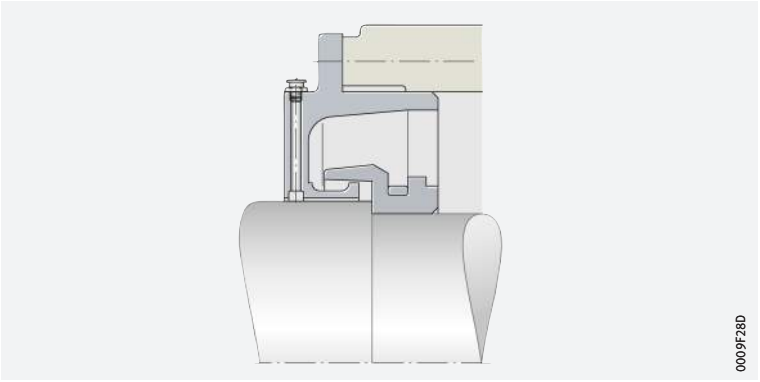
Housing designs with and without cover

Plummer block housings LOE of design A are intended for the bearing arrangements of shaft ends. One side is closed by a cover and the other side is sealed against the shaft. Design B is intended for continuous shafts, in which case the housing is sealed against the shaft on both sides.

Labyrinth seals

The seal used here is a labyrinth seal ➤*1678*|*9*. The labyrinth rings are unsplit. The grease chamber in the labyrinth can be relubricated. The labyrinth seal allows shaft misalignment of up to 0,25° in both directions and is suitable for oil lubrication.

9
Labyrinth seal for plummer block housing LOE



Scope of delivery

In the case of split plummer block housings LOE, the seals and cover (for a housing design closed on one side) are included in the scope of delivery. The rolling bearing and, if necessary, the adapter sleeve or locknut must be ordered separately.

Further information

Detailed information on split plummer block housings LOE:
Bearing Housings ➤ 🕮 *GK 1*.

https://www.schaeffler.de/std/1D65

4.6 Plummer block housing units VRE3

Housing units for wide range of applications

Plummer block housing units VRE3 were originally developed for fan applications, for the flying bearing arrangement of high speed impellers ➤*1679*| *10*. The units are now used wherever there is a requirement for a precise bearing arrangement that can be easily mounted, for example in conveying equipment, test rigs, machinery for process engineering, belt transmissions, laboratory machines, textile machinery and feed equipment.

10
Plummer block housing units VRE3

Complete housing units

Completely assembled units

Plummer block housing units VRE3 comprise a tubular plummer block housing VR3 with seals and a shaft VRW3 supported in rolling bearings of dimension series 3. The units are completely assembled and the bearings are greased. The units can therefore be integrated directly in existing machinery without substantial preparation.

Suitable bearings

Shaft diameters from 25 mm to 120 mm

Plummer block housing units VRE3 are fitted, depending on their design, with various combinations of deep groove ball bearings, cylindrical roller bearings and angular contact ball bearings ➤*1679*| *7*. Only bearings with a cylindrical bore are fitted. The range of shaft diameters is between 25 mm and 120 mm.

7
Plummer block housing units and bearings

Plummer block housing unit	Bearing		
	Quantity	Bearing type	Size
VRE305A – VRE324A	2	Deep groove ball bearings	6305 – 6324
VRE305B – VRE324B	1	Cylindrical roller bearings	NJ305E – NJ324E
	1	Deep groove ball bearings	6305 – 6324
VRE305C – VRE324C	1	Cylindrical roller bearings	NU305E – NU324E
	2	Angular contact ball bearings	7305B.UA – 7324B.UA
VRE305D – VRE324D	1	Cylindrical roller bearings	NU305E – NU324E
	1	Deep groove ball bearings	6305 – 6324
VRE305E – VRE324E	2	Cylindrical roller bearings	NU305E – NU324E
	1	Deep groove ball bearings	6305 – 6324
VRE305F – VRE316F	2	Deep groove ball bearings	6305 – 6316

https://www.schaeffler.de/std/1D65

Materials

✎ *Flake graphite cast iron*

Material for housing body:

- flake graphite cast iron.

Lubrication

✎ *Grease lubrication*

Suitable lubrication method:

- grease lubrication.

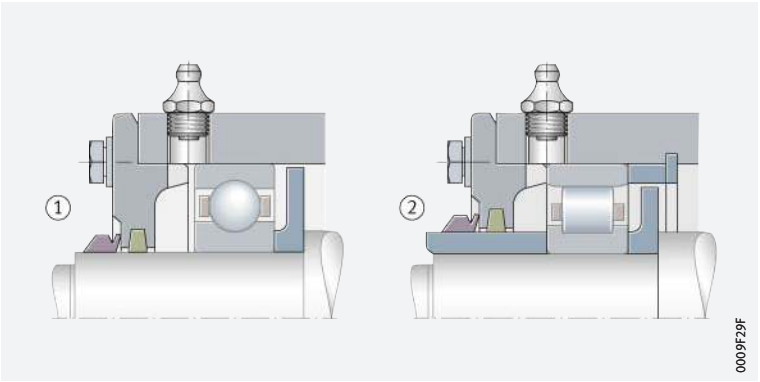
Sealing

✎ *Combined seals comprising felt seal and V ring*

Plummer block housing units VRE3 are sealed on both sides by a combined seal comprising a felt seal and V ring ➤ *1680* | *11*. As a result, effective sealing against the ingress of contamination and the escape of lubricant is achieved. The oil-soaked felt strips are inserted in the slots in the covers on the housing. The external V rings are made from NBR and are suitable for temperatures of up to +100 °C. If a circumferential velocity of more than 8 m/s is present, axial support of the V rings is necessary. At or above 12 m/s, the seal lip lifts and the V ring then acts as a splash ring.

11
Felt seal with V ring for plummer block housing units VRE3

① *Sealing of designs A, B and F*
② *Sealing of designs C, D and E*



Scope of delivery

Plummer block housing units VRE3 are ideally ordered as complete units. The housing body, shaft, seals and rolling bearings are then included in the scope of delivery. It is also possible, however, to order the housing body (with seals), the shaft and the rolling bearings separately.

Further information

Detailed information on plummer block housings VRE3:
Bearing Housings ➤ 🕮 *GK 1*.

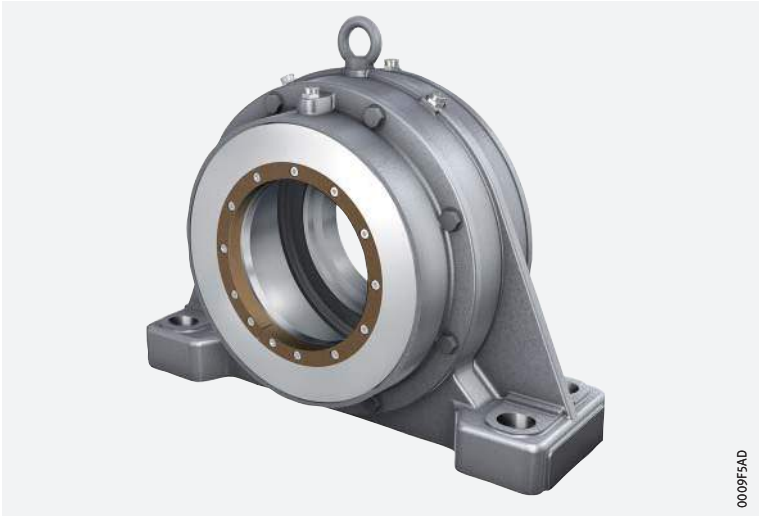
https://www.schaeffler.de/std/1D65

4.7 Unsplit plummer block housings BND

✎ *Housings for very high loads*

Unsplit plummer block housings BND are suitable for very high loads ➤*1681*|🗀 *12*. The housings, which were originally developed for belt conveyors, can also be beneficially used in materials processing, for example in hard crushers, sugar cane mill drives and rotor shafts in wind turbines.

🗀 ***12***
Unsplit plummer block housings BND



Suitable bearings

✎ *Shaft diameters from 60 mm to 420 mm*

The dimensions of unsplit plummer block housings BND are matched to spherical roller bearings 222, 230, 231 and 232 and toroidal roller bearings C22, C30, C31 and C32 ➤*1681*|▦ *8*. The range of shaft diameters is between 60 mm and 420 mm.

▦ ***8***
Bearing type and sizes

Bearing type	Size
Spherical roller bearings	
■ with tapered bore and adapter sleeve	22213..-K to 22284..-K
	23024..-K to 23084..-K
	23122..-K to 23184..-K
	23222..-K to 23284..-K
■ with cylindrical bore	22213 to 22284
	23024 to 23084
	23122 to 23184
	23222 to 23284
Toroidal roller bearings	C2212..-K to C2284..-K
■ with tapered bore and adapter sleeve	C3022..-K to C3084..-K
	C3120..-K to C3184..-K
	C3222..-K to C3284..-K
■ with cylindrical bore	C2212 to C2284
	C3022 to C3084
	C3120 to C3184
	C3222 to C3284

Materials

✎ *Cast steel as standard*

Material for housing body:
- cast steel (standard)
- spheroidal graphite cast iron.

https://www.schaeffler.de/std/1D65

Locating and non-locating bearings

✎ *Housings in locating bearing design and non-locating bearing design*

The housings are supplied as a locating bearing design or non-locating bearing design. In the locating bearing, the bearing is clamped between the housing covers. In the non-locating bearing, the bearing can align itself axially, since the covers have shorter centring collars.

Lubrication

✎ *Grease lubrication*

Suitable lubrication method:

- grease lubrication.

Sealing

✎ *Housing designs with and without cover*

Plummer block housings BND of design A are intended for the bearing arrangements of shaft ends. One side is closed by a cover and the other side is sealed against the shaft. Design B is intended for continuous shafts, in which case the housing is sealed against the shaft on both sides.

✎ *Labyrinth and taconite seals*

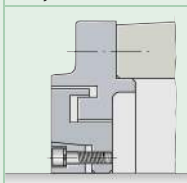
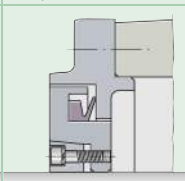
Labyrinth seals (suffix Y) or taconite seals (suffix T) can be used ➤ *1683* | ▦ *9*. Where shafts of constant diameter are used, the seals are located on the shaft by means of slotted conical clamping rings made from laminated fabric. The labyrinth rings, taconite seals and covers are unsplit.

The seals allow shaft misalignment of up to 0,5° in both directions and are suitable for grease lubrication.

https://www.schaeffler.de/std/1D65

9
Labyrinth and taconite seal

++ = *highly suitable*
\+ = *suitable*
(+) = *suitable with restrictions*
– = *not suitable*

Sealing		**Labyrinth seal, unsplit**	**Taconite seal, unsplit**
			
Designation		Suffix **Y**	Suffix **T**
Suitability for sealing against			
dust		+	++
fine, solid particles		+	++
coarse, solid particles		+	++
slivers		++	++
spray liquids		–	+
Operating limits			
Long term temperature	°C	–30 to +100	–30 to +100
	°F	–22 to +210	–22 to +210
Circumferential velocity	m/s	No restriction	≦12
Misalignment	°	≦0,5	≦0,5
Low friction		++	+
Axial shaft displacement (suitability as non-locating bearing)		+	+
Vertical arrangement		–	–
Suitability for grease relubrication		+	++
Suitability for oil lubrication		–	–
Compatibility with sunlight		++	++
Preconditions			
Tolerance class[1] of shaft diameter		h8 (h9)	h8 (h9)
Shaft roughness	µm	Ra 3,2	Ra 3,2

[1] *The envelope requirement Ⓔ applies*

Scope of delivery

In the case of unsplit plummer block housings BND, the seals and cover (for a housing design closed on one side) are included in the scope of delivery. The rolling bearing and, if necessary, the adapter sleeve must be ordered separately.

Further information

Detailed information on unsplit plummer block housings BND:
Bearing Housings ➤ 🕮 *GK 1*.

https://www.schaeffler.de/std/1D65

4.8 Take-up housings SPA

Housings for tensioner drum bearing arrangements

Take-up housings SPA are combined with FAG spherical roller bearings, seals and grease filling to form bearing arrangement units for very high loads ➤ *1684* | *13*. The housings are unsplit. They were developed specifically for tensioner drum bearing arrangements in belt conveyor plant. There is a yoke-shaped drawbar eye for attachment to the tensioning device. The housing is guided by means of rails in the belt support structure.

13
Take-up housing SPA

Suitable bearings

Shaft diameters from 50 mm to 400 mm

The dimensions of take-up housings SPA are matched to spherical roller bearings 222..-K, 230..-K, 231..-K and 232..-K ➤ *1684* | *10*. The range of shaft diameters is between 50 mm and 400 mm.

10
Bearing type and sizes

Bearing type	Size
Spherical roller bearings ■ with tapered bore and adapter sleeve	22211..-K to 22228..-K
	23028..-K to 23056..-K
	23132..-K to 23176..-K
	23222..-K to 23284..-K

Materials

Cast steel as standard

Material for housing body:
- cast steel (standard)
- spheroidal graphite cast iron.

Locating and non-locating bearings

Housings in locating bearing design and non-locating bearing design

The housings are supplied as a locating bearing design or non-locating bearing design. In the locating bearing, the bearing is clamped between the housing covers. In the non-locating bearing, the bearing can align itself axially, since the covers have shorter centring collars.

Lubrication

Grease lubrication

Suitable lubrication method:
- grease lubrication.

Sealing

Housing designs with and without cover

Take-up housings SPA of design A are intended for the bearing arrangements of shaft ends. One side is closed by a cover and the other side is sealed against the shaft. Design B is intended for continuous shafts, in which case the housing is sealed against the shaft on both sides.

https://www.schaeffler.de/std/1D65

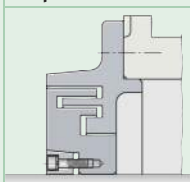
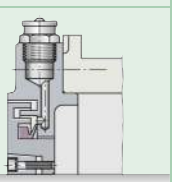
✎ *Labyrinth and taconite seals*

Labyrinth seals (suffix Y) or taconite seals (suffix T) can be used ➤ *1685* | ▦ *11*. Where shafts of constant diameter are used, the seals are located on the shaft by means of slotted conical clamping rings made from laminated fabric. The labyrinth rings, taconite seals and covers are unsplit.

The seals allow shaft misalignment of up to 0,5° in both directions and are suitable for grease lubrication.

▦ **11**
Labyrinth and taconite seal

++ = *highly suitable*
\+ = *suitable*
(+) = *suitable with restrictions*
– = *not suitable*

Sealing		**Labyrinth seal, unsplit**	**Taconite seal, unsplit**
			
Designation		Suffix **Y**	Suffix **T**
Suitability for sealing against			
dust		+	++
fine, solid particles		+	++
coarse, solid particles		+	++
slivers		++	++
spray liquids		–	+
Operating limits			
Long term temperature	°C	–30 to +100	–30 to +100
	°F	–22 to +210	–22 to +210
Circumferential velocity	m/s	No restriction	≦12
Misalignment	°	≦0,5	≦0,5
Low friction		++	+
Axial shaft displacement (suitability as non-locating bearing)		+	+
Vertical arrangement		–	–
Suitability for grease relubrication		+	++
Suitability for oil lubrication		–	–
Compatibility with sunlight		++	++
Preconditions			
Tolerance class[1] of shaft diameter		h8 (h9)	h8 (h9)
Shaft roughness	µm	Ra 3,2	Ra 3,2

[1] *The envelope requirement Ⓔ applies*

Scope of delivery

In the case of take-up housings SPA, the seals and cover (for a housing design closed on one side) are included in the scope of delivery.
The rolling bearing and, if necessary, the adapter sleeve must be ordered separately.

Further information

Detailed information on take-up housings SPA:
Bearing Housings ➤ 🕮 *GK 1*.

https://www.schaeffler.de/std/1D65

4.9 Flanged housings F112

✎ *Housings for wide range of applications*

Flanged housings F112 can be used in a wide variety of applications, for example in machine structures and support structures ➤*1686*|🗀*14*.

🗀**14**
Flanged housing F112

Suitable bearings

✎ *Shaft diameters from 20 mm to 60 mm*

The dimensions of flanged housings F112 are matched to self-aligning ball bearings 112 with an extended inner ring ➤*1686*|▦*12*. The range of shaft diameters is between 20 mm and 60 mm.

▦**12**
Bearing type and sizes

Bearing type	Size
Self-aligning ball bearings ■ with cylindrical bore and extended inner ring	11204 to 11212

Materials

✎ *Flake graphite cast iron*

Material for housing body:
- flake graphite cast iron.

Locating bearing

✎ *Housing in locating bearing design only*

In flanged housings F112, the self-aligning ball bearing is clamped between the abutment shoulder in the housing and the cover. As a result, the bearing acts as a locating bearing.

Lubrication

✎ *Grease lubrication*

Suitable lubrication method:
- grease lubrication.

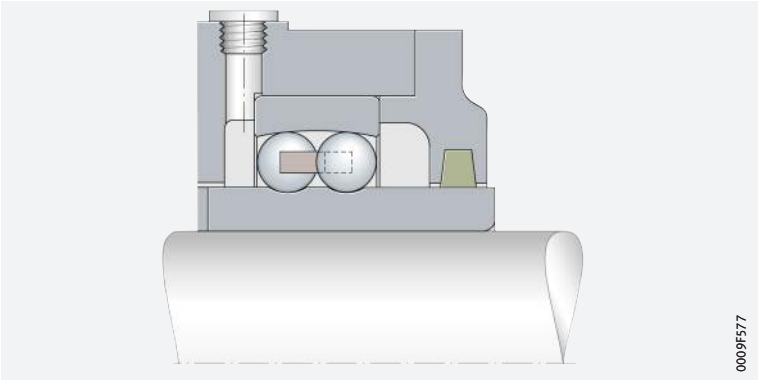
Sealing

✎ *Felt seals*

Flanged housings F112 are sealed by means of felt seals ➤*1687*|🗀*15*. The felt seals allow shaft misalignment of up to 0,5° in both directions and are suitable for grease lubrication. The oil-soaked felt strips must be inserted in the associated slots in the housing.

https://www.schaeffler.de/std/1D65

15
Felt seal for flanged housing F112



Scope of delivery

In the case of flanged housings F112, the felt strips for sealing the housing are included in the scope of delivery. The rolling bearing must be ordered separately.

Further information

Detailed information on flanged housings F112:
Bearing Housings ➤ 🕮 *GK 1*.

4.10 Flanged housings F5

✎ *Housings for wide range of applications*

Flanged housings F5 can be used in a wide variety of applications ➤*1687*|*16*.

16
Flanged housing F5

https://www.schaeffler.de/std/1D65

Suitable bearings

Shaft diameters from 20 mm to 100 mm

Flanged housings F5 are intended for fitting with self-aligning ball bearings, barrel roller bearings and spherical roller bearings with a tapered bore that are located on the shaft using adapter sleeves ➤*1688*|▦*13*. The range of shaft diameters is between 20 mm and 100 mm.

▦*13*
Bearing types and sizes

Bearing type	Size
Spherical roller bearings ■ with tapered bore and adapter sleeve	22205..-K to 22222..-K
Self-aligning ball bearings ■ with tapered bore and adapter sleeve	1205-K to 1222-K 2205-K to 2222-K
Barrel roller bearings ■ with tapered bore and adapter sleeve	20205-K to 20222-K

Materials

Flake graphite cast iron as standard

Material for housing body:

- flake graphite cast iron (standard)
- spheroidal graphite cast iron.

Locating and non-locating bearings

Locating bearing arrangement by means of locating rings

The bearing seats in the housing are machined such that the bearings are movable and can thus function as non-locating bearings. Locating bearing arrangements can be achieved by the insertion of locating rings. For housings F505 to F513, locating rings FE are used, while for housings F515 to F522, locating rings FRM are used. The quantity of locating rings required is 1 or 2. Two rings are inserted on both sides of the bearing, while a single ring is inserted on the side with the adapter sleeve nut.

Lubrication

Grease lubrication

Suitable lubrication method:

- grease lubrication.

Sealing

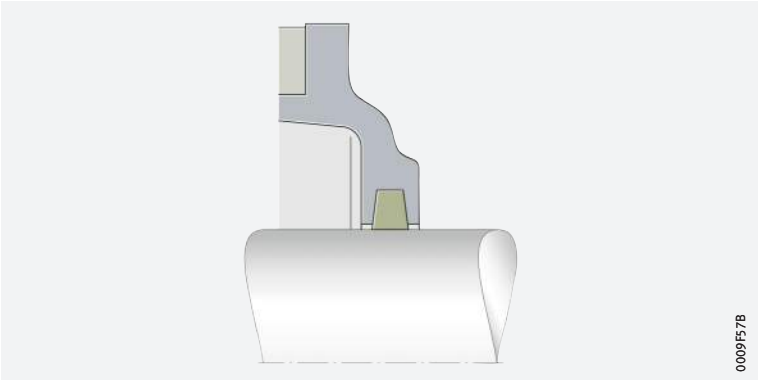
Housing designs with and without cover

Flanged housings F5 of design A are intended for the bearing arrangements of shaft ends. One side is closed by a cover and the other side is sealed against the shaft. Design B is intended for continuous shafts, in which case the housing is sealed against the shaft on both sides.

Felt seals

Flanged housings F5 are sealed by means of felt seals ➤*1688*|⧉*17*. The felt seals allow shaft misalignment of up to 0,5° in both directions and are suitable for grease lubrication. The oil-soaked felt strips must be inserted in the associated slots in the housing.

⧉*17*
Felt seal for flanged housing F5



https://www.schaeffler.de/std/1D65

Scope of delivery

In the case of flanged housings F5, the felt strips for sealing the housing as well as the cover (for a housing design closed on one side) are included in the scope of delivery. Locating rings must be ordered separately. The rolling bearing and the adapter sleeve must also be ordered separately.

Further information

Detailed information on flanged housings F5:
Bearing Housings ➤ 🕮 *GK 1*.

4.11 Legal notice regarding data freshness

✎ The further development of products may also result in technical changes to catalogue products

Of central interest to Schaeffler is the further development and optimisation of its products and the satisfaction of its customers. In order that you, as the customer, can keep yourself optimally informed about the progress that is being made here and with regard to the current technical status of the products, we publish any product changes which differ from the printed version in our electronic product catalogue.

We therefore reserve the right to make changes to the data and illustrations in this catalogue. This catalogue reflects the status at the time of printing. More recent publications released by us (as printed or digital media) will automatically precede this catalogue if they involve the same subject. Therefore, please always use our electronic product catalogue to check whether more up-to-date information or modification notices exist for your desired product.

Link to electronic product catalogue

The following link will take you to the Schaeffler electronic product catalogue: ➤ *https://medias.schaeffler.com*.

4.12 Further information

In addition to the data in this chapter, the following chapters must also be observed in the selection of a housing:

- Lubrication ➤ *70|6*
- Locating and non-locating bearing concepts ➤ *1571|1.2*
- Housing materials ➤ *1573|1.3*

Further information:

- Comprehensive housing catalogue GK 1 ➤ *https://www.schaeffler.de/std/1D54*
- Electronic housing selection wizard ➤ *https://www.schaeffler.de/std/1D61*

https://www.schaeffler.de/std/1D65

Fasteners and retainers

https://www.schaeffler.de/std/1D65

FAG

https://www.schaeffler.de/std/1D65

1 Fasteners and retainers

Adapter sleeves and withdrawal sleeves are suitable for locating bearings with a tapered bore on cylindrical shafts ➤*1692*|*1*, whereby:

- adapter sleeves require no additional means of retention on the shaft ➤*1692*
- withdrawal sleeves give easier subsequent dismounting of the bearing ➤*1694*
- designs with oil slots permit the use of the hydraulic method ➤*1693* and ➤*1694*.

Locknuts and shaft nuts are suitable for locating bearings on cylindrical and tapered shafts, or on adapter sleeves, and for mounting and dismounting of bearings on withdrawal sleeves, whereby:

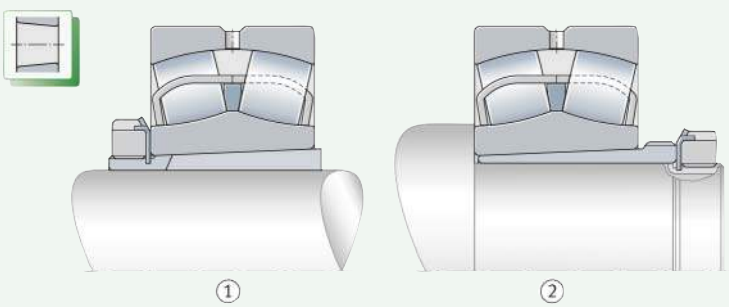
- locknuts can be tightened particularly easily with striking-face or hook wrenches ➤*1695*
- shaft nuts do not require any slots on the outside of the shaft, which increases the strength of the shaft and makes it easier to produce ➤*1695*.

Tab washers and retaining brackets are suitable for securing locknuts, whereby:

- tab washers for smaller locknuts (series KM and KML) ➤*1696* and
- retaining brackets for larger locknuts (series HM30 and HM31) are used ➤*1696*.

1
Location of a spherical roller bearing with tapered bore

① *Cylindrical shaft, adapter sleeve with locknut and tab washer*
② *Cylindrical shaft, withdrawal sleeve with locknut and tab washer*



1.1 Product design

✎ *Suitability and function*

Adapter sleeves

Adapter sleeves are suitable where bearings with a tapered bore are to be located on cylindrical shafts. In this case, the bearing is pressed onto the adapter sleeve until the required reduction in radial internal clearance is achieved. Adapter sleeves require no additional means of retention on the shaft. The bearings can be positioned at any point on shafts with a constant diameter.

If adapter sleeves are used with a support ring to DIN 5418 on stepped shafts, the bearings can be axially located to high accuracy. In addition, this gives simpler dismounting of the bearings.

https://www.schaeffler.de/std/1D65

✎ Design features

The tensile strength of the adapter sleeve material is at least 430 N/mm^2. Adapter sleeves are slotted and have a shaft thread for the locknut. Depending on the series, the outside surface of the adapter sleeves has a taper of 1:12 or 1:30 ➤*1693*|▦ *1*.

▦ **1**
Adapter sleeves

Series	Taper on the outside surface
H2, H3, H23, H28, H30, H31, H32, H33, H38, H39	1:12
H240, H241, H242, H248, H249	1:30

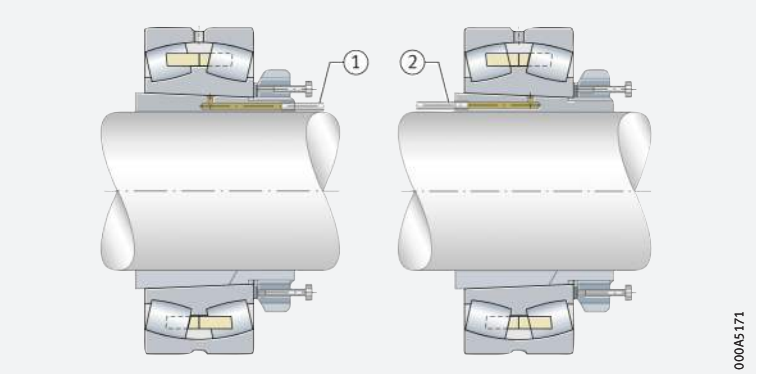
✎ Adapter sleeves for the hydraulic method

The mounting and dismounting of large bearings requires high mounting forces and is made easier by using the hydraulic method. Adapter sleeves for the hydraulic method have oil slots and an oil connector ➤*1693*|⧉ *2*. Depending on the arrangement of oil slots and oil connector, the adapter sleeves have the suffix HG, HGJ, HK or HKJ ➤*1698*|*1.4*. The product tables give the mounting dimensions for the oil connector.

Adapter sleeves with a sleeve bore diameter greater than or equal to 300 mm are only available in the design for the hydraulic method.
For adapter sleeves with sleeve bore measurements between 140 mm and 280 mm, a design with or without oil slots can be selected in the product tables. Smaller adapter sleeves for the hydraulic method are available by agreement.

⧉ **2**
Spherical roller bearings on adapter sleeve for hydraulic method

① *Oil connector on threaded side*
② *Oil connector on taper side*



✎ Available designs

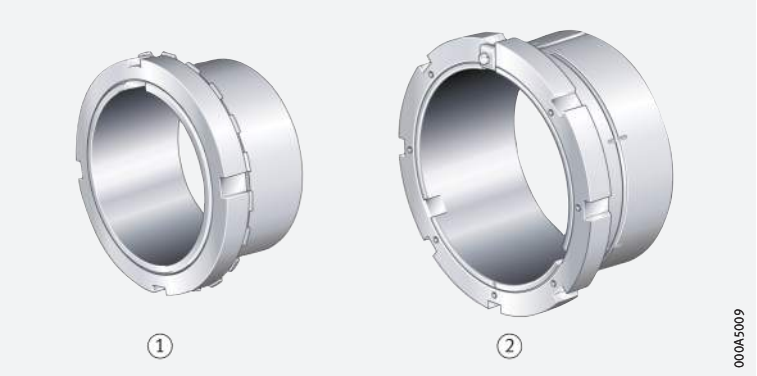
Adapter sleeves are supplied complete with locknuts and tab washers. For larger sizes, retaining brackets are used instead of tab washers ➤*1693*|⧉ *3*. Sizes not listed in the product tables are available by agreement.

The product tables contain adapter sleeves for metric shafts.
Adapter sleeves for inch size shafts are available by agreement.

Adapter sleeves for sealed spherical roller bearings and for toroidal roller bearings are also available by agreement.

⧉ **3**
Adapter sleeves

① *With locknut and tab washer*
② *With locknut and retaining bracket*



https://www.schaeffler.de/std/1D65

Withdrawal sleeves

Suitability and function

Withdrawal sleeves are suitable where bearings with a tapered bore are located on cylindrical shafts. The tapered sleeve is pressed into the bearing bore until the required reduction in radial internal clearance is achieved. The bearing must be axially supported during this process, for example by means of a shaft shoulder.

Withdrawal sleeves give easier dismounting of the bearings, as the press fit of the bearing can be loosened with the aid of a locknut applied to the withdrawal sleeve.

Design features

The tensile strength of the withdrawal sleeve material is at least 430 N/mm^2. Withdrawal sleeves are slotted and have a shaft thread for the locknut. Depending on the series, the outside surface of the withdrawal sleeves has a taper of 1:12 or of 1:30 ➤1694|▦2.

▦2
Withdrawal sleeves

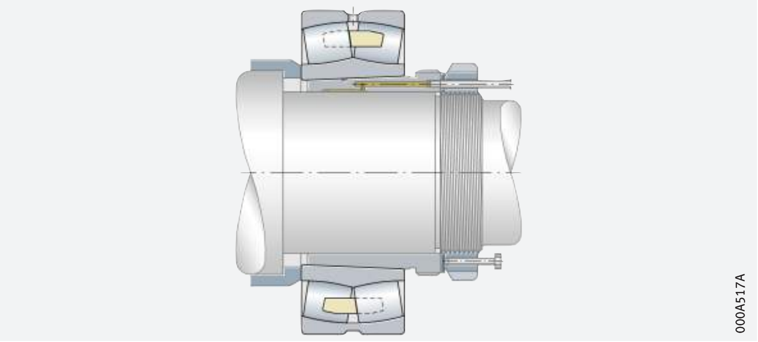
Series	Taper on the outside surface
AH2, AH(X)3, AH22, AH(X)23, AH28, AH(X)30, AH(X)31, AH(X)32, AH33, AH38, AH39	1:12
AH240, AH241, AH242, AH248, AH249	1:30

Withdrawal sleeves for the hydraulic method

The mounting and dismounting of large bearings requires high mounting forces and is made easier by using the hydraulic method. Withdrawal sleeves for the hydraulic method have oil slots in the tapered outside surface and in the sleeve bore ➤1694|4. Oil connectors are offset to each other by 90°. The hydraulic withdrawal sleeves have the suffix H ➤1698|1.4. The product tables give the mounting dimensions for the oil connector.

Withdrawal sleeves with a sleeve bore diameter greater than or equal to 300 mm are only available in the design for the hydraulic method. For withdrawal sleeves with sleeve bore measurements between 150 mm and 280 mm, a design with or without oil slots can be selected in the product tables. Smaller withdrawal sleeves for the hydraulic method are available by agreement.

4
Spherical roller bearing on withdrawal sleeve for hydraulic method



Available designs

Locknuts and retainers are not included in the scope of delivery for withdrawal sleeves ➤1695|5. Sizes not listed in the product tables are available by agreement.

The product tables contain withdrawal sleeves for metric shafts. Withdrawal sleeves for inch size shafts are available by agreement.

https://www.schaeffler.de/std/1D65

5
Withdrawal sleeve

Locknuts

Suitability and function

Locknuts can be used to locate bearings on shafts or adapter sleeves. They also give easier mounting of bearings with a tapered shaft seat and the mounting and dismounting of bearings on withdrawal sleeves.

Design features

The locknuts are made from steel and the tensile strength of the material is at least 350 N/mm^2.

They have four or eight evenly spaced slots on the circumference, into which hook wrenches or striking-face wrenches can be fitted ➤ *1695* | *6*.

Available designs

Locknuts with threaded holes for mounting screws are available by agreement. These locknuts have the suffix H.

Precision locknuts are described in a separate publication ➤ *TPI 123*.

6
Locknuts

① *KM, KML, HM..T*
② *HM30, HM31*

Shaft nuts

Suitability and function

Shaft nuts HMZ allow precise, secure axial location of bearings on cylindrical and tapered shafts or on adapter sleeves.

Design features

The shaft nuts are made from steel and the tensile strength is at least 350 N/mm^2.

Shaft nuts HMZ are interchangeable with conventional locknuts HM and KM. They are secured, however, not by means of form fit using tab washers or retaining brackets, but by force locking. Four or eight axial clamping screws allow uniform clamping of the thread flanks on the circumference ➤ *1696* | *7*. There is no need for slots on the outside diameter of the nut.

For screw mounting on the shaft thread, four or eight threaded blind holes are applied to the circumference of the nut, into which the threaded rod also supplied is screwed.

Advantages for the shaft

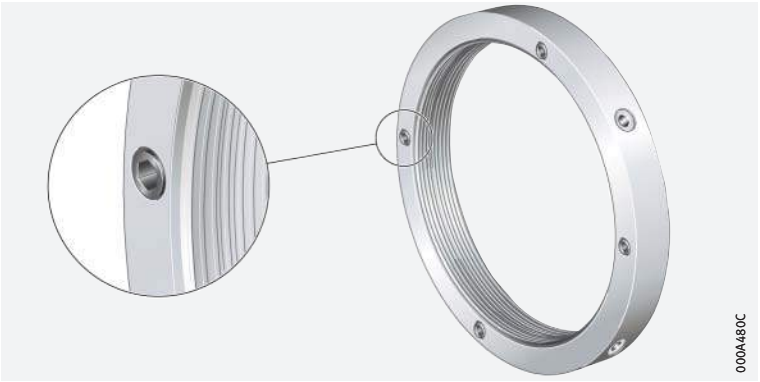
A shaft with a screw mounted shaft nut does not require a retaining slot. As a result, the shaft has higher strength and is more economical to manufacture than a shaft with a retaining slot for a tab washer or retaining bracket.

https://www.schaeffler.de/std/1D65

Detailed description of shaft nuts HMZ ➤ 🕮 *TPI WL 91-8*.

7
Shaft nut

The clamping screws serve to generate a force locking connection between the nut and shaft thread



Retainers

Tab washers

✎ *For smaller locknuts*

Tab washers MB and MBL are simple, reliable elements for securing smaller locknuts (series KM and KML) ➤ *1696*|⧉ *8*.

They have an inner tab and several outer tabs evenly spaced around the circumference. The inner tab grips in the slot on the adapter sleeve or shaft, one of the outer tabs is bent into a slot in the nut for location.

The washers are made from steel and the tensile strength of the material is at least 300 N/mm^2.

Retaining brackets

✎ *For locknuts HM30 and HM31*

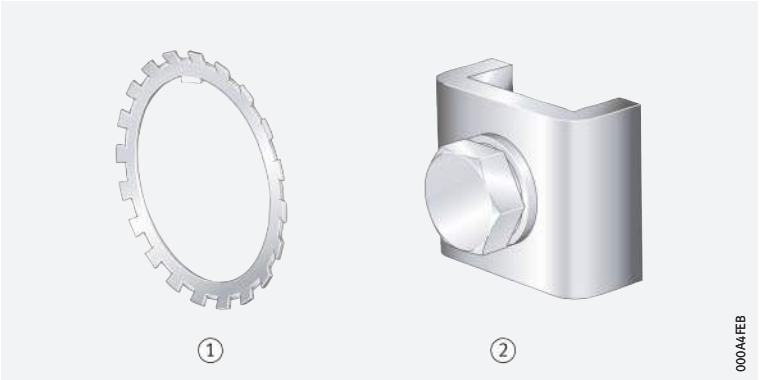
Retaining brackets MS are used to secure locknuts HM30 and HM31.

The retaining brackets are fixed to the locknut using a hexagonal screw. They engage in a slot in the nut and in the adapter sleeve or shaft ➤ *1696*|⧉ *8*.

The fixing screws are secured with a retainer.

8
Retainers

① *Tab washer*
② *Retaining bracket with screw*



https://www.schaeffler.de/std/1D65

1.2 Load carrying capacity

Static axial load carrying capacity of locknuts and shaft nuts

The static axial load carrying capacity of locknuts and shaft nuts must not be exceeded, as this may damage the thread. In this case, operational reliability can no longer be ensured.

The values for static axial load carrying capacity have been calculated in accordance with guideline VDI 2230. The calculation assumes that the quality requirements relating to the shaft thread are met ➤*1698|1.5*.

The values for the static axial load carrying capacity of locknuts are contained in the product tables ➤*1738|*.

For information on the static axial load carrying capacity of shaft nuts HMZ, please consult Schaeffler.

1.3 Dimensions, tolerances

Adapter and withdrawal sleeves

Dimensions and material correspond to DIN 5415 for adapter sleeves, DIN 5416 for withdrawal sleeves and to ISO 2982-1.

The bore tolerance of adapter and withdrawal sleeves before splitting for a taper 1:12 is in tolerance class JS9, for a taper 1:30 in tolerance class JS7 to DIN EN ISO 286-1.

Up to a thread diameter of 200 mm, adapter and withdrawal sleeves have a metric fine pitch thread to DIN 13, tolerance class 6g to DIN ISO 965-3. Larger threads are produced as trapezoidal threads to DIN 103, tolerance zone 7e to DIN 103-3.

Withdrawal sleeves are available in designs with modified thread G. These have the suffix G.

Locknuts and shaft nuts

Dimensions and material correspond to DIN 981 and ISO 2982-2.

Up to a thread diameter of 200 mm, locknuts and shaft nuts have a metric fine pitch thread to DIN 13, tolerance class 6H to DIN ISO 965-3. Larger threads are produced as trapezoidal threads to DIN 103, tolerance zone 7H to DIN 103-3.

https://www.schaeffler.de/std/1D65

1.4 Suffixes

For a description of the suffixes used in this chapter ➤ *1698*| *3* to ➤ *1698*| *5* and ***medias*** interchange ➤ *https://www.schaeffler.de/std/1D52*.

3 *Suffixes and corresponding descriptions, adapter sleeves*

Suffix	Description of suffix	
HG	Hydraulic adapter sleeve with oil slots on the taper face	Standard
HGJ	Hydraulic adapter sleeve with oil slots on the taper face and in the bore	
HK	Design as for HG, but with oil connectors on the opposing axial face	
HKJ	Design as for HGJ, but with oil connectors on the opposing axial face	

4 *Suffixes and corresponding descriptions, withdrawal sleeves*

Suffix	Description of suffix	
H	Hydraulic withdrawal sleeve with oil slots on the taper face and in the bore	Standard
G	Hydraulic withdrawal sleeve with modified thread G	

5 *Suffixes and corresponding descriptions, locknuts*

Suffix	Description of suffix	
H	Locknuts with threaded holes for mounting screws	Standard
HP	Locknuts with threaded holes for mounting screws and through hole for oil connector to withdrawal sleeves ➤ *1694*| *4*	

1.5 Design of bearing arrangements

Shafts for adapter sleeves and withdrawal sleeves

✎ *Diameter tolerances*

Adapter and withdrawal sleeves adapt themselves to the shaft. Larger diameter tolerances are therefore permissible for shafts where the bearing is located using adapter sleeves or withdrawal sleeves, than in the case of a direct cylindrical seat for a bearing on the shaft.

DIN ISO

For general applications, shafts toleranced in accordance with tolerance class h9 Ⓔ to DIN EN ISO 286-1 are sufficient.

✎ *Geometrical tolerances*

The geometrical tolerances of the shafts must be tighter than the diameter tolerances since the geometrical accuracy affects the running accuracy of the bearing arrangement.

DIN ISO

The cylindricity of the shaft for shaft diameters in tolerance classes h7 or h8 should lie within tolerance zone IT5/2 to DIN EN ISO 286-1 and, for shaft diameters in tolerance class h9, within IT6/2.

Shaft thread for locknuts and shaft nuts

✎ *Thread tolerances*

Tolerance specifications must be observed for the thread on shafts that locknuts or shaft nuts are screw mounted onto.

DIN ISO

Metric shaft threads to DIN 13 must be manufactured in accordance with tolerance class 6g to ISO 965-3. Trapezoidal threads to DIN 103 must be manufactured in accordance with tolerance class 7e to DIN 103-3.

https://www.schaeffler.de/std/1D65

1.6 Mounting and dismounting

Adapter and withdrawal sleeves

The mounting and dismounting options for adapter and withdrawal sleeves, by hydraulic or mechanical methods, must be taken into consideration in the design of the bearing position.

Suitable mounting method dependent on the bearing size

The larger the bearing, the higher the forces that will be required for mounting. The bearing is either pressed onto the adapter or withdrawal sleeve, or the sleeve is pressed between the bearing bore and the shaft. Various mounting methods are suitable depending on the size of the bearing:

- direct application of axial mounting forces by tightening of the locknut or shaft nut ➤ *1692* | *1*
- nuts with pressure screws ➤ *197* | *7*
- hydraulic nuts ➤ *197* | *8*
- hydraulic method, made possible through the use of hydraulic adapter or withdrawal sleeves with oil slots and oil connectors ➤ *1693* | *2* and ➤ *1694* | *4*.

Further information on the mounting and dismounting of adapter and withdrawal sleeves is given in the introductory chapter on the mounting and dismounting of bearings ➤ *191* | *10*, the chapter on spherical roller bearings ➤ *685* | *1.16* and ➤ *691* | *1.17*, and in the Schaeffler Mounting Handbook ➤ 🕮 *MH 1*.

Schaeffler Mounting Handbook

Rolling bearings must be handled with great care

Rolling bearings are well-proven precision machine elements for the design of economical and reliable bearing arrangements, which offer high operational security. In order that these products can function correctly and achieve the envisaged operating life without detrimental effect, they must be handled with care.

The Schaeffler Mounting Handbook MH 1 gives comprehensive information about the correct storage, mounting, dismounting and maintenance of rotary rolling bearings ➤ *https://www.schaeffler.de/std/1D53*. It also provides information which should be observed by the designer, in relation to the mounting, dismounting and maintenance of bearings, in the original design of the bearing position. This book is available from Schaeffler on request.

1.7 Legal notice regarding data freshness

The further development of products may also result in technical changes to catalogue products

Of central interest to Schaeffler is the further development and optimisation of its products and the satisfaction of its customers. In order that you, as the customer, can keep yourself optimally informed about the progress that is being made here and with regard to the current technical status of the products, we publish any product changes which differ from the printed version in our electronic product catalogue.

We therefore reserve the right to make changes to the data and illustrations in this catalogue. This catalogue reflects the status at the time of printing. More recent publications released by us (as printed or digital media) will automatically precede this catalogue if they involve the same subject. Therefore, please always use our electronic product catalogue to check whether more up-to-date information or modification notices exist for your desired product.

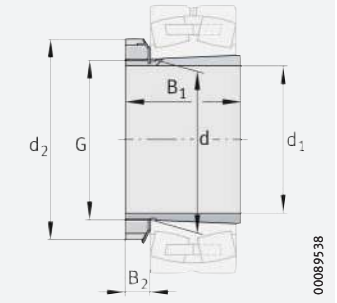
Link to electronic product catalogue

The following link will take you to the Schaeffler electronic product catalogue: ➤ *https://medias.schaeffler.com*.

https://www.schaeffler.de/std/1D65

Adapter sleeves

With locknut and retainer



Taper 1:12
(taper 1:30 for H240, H241)
Tab washer MB

d_1 = 14 – 90 mm

Main dimensions			Mass	Designation ➤1698|1.4			Dimensions		
d_1	G	B_1	m ≈ kg	Adapter sleeve Complete	Locknut	Retainer	d	d_2	B_2 ≈
14	M17×1	21	0,03	**H203**	KM3	MB3	17	28	6
17	M20×1	24	0,04	**H204**	KM4	MB4	20	32	7
	M20×1	28	0,04	**H304**	KM4	MB4	20	32	7
	M20×1	31	0,05	**H2304**	KM4	MB4	20	32	7
20	M25×1,5	26	0,07	**H205**	KM5	MB5	25	38	8,25
	M25×1,5	29	0,07	**H305**	KM5	MB5	25	38	8,25
	M25×1,5	35	0,09	**H2305**	KM5	MB5	25	38	8,25
25	M30×1,5	27	0,1	**H206**	KM6	MB6	30	45	8,25
	M30×1,5	31	0,11	**H306**	KM6	MB6	30	45	8,25
	M30×1,5	38	0,13	**H2306**	KM6	MB6	30	45	8,25
30	M35×1,5	29	0,136	**H207**	KM7	MB7	35	52	9,25
	M35×1,5	35	0,153	**H307**	KM7	MB7	35	52	9,25
	M35×1,5	43	0,16	**H2307**	KM7	MB7	35	52	9,25
35	M40×1,5	31	0,177	**H208**	KM8	MB8	40	58	10,25
	M40×1,5	36	0,192	**H308**	KM8	MB8	40	58	10,25
	M40×1,5	46	0,23	**H2308**	KM8	MB8	40	58	10,25
	M40×1,5	50	0,24	**H3308**	KM8	MB8	40	58	10,25
40	M45×1,5	33	0,23	**H209**	KM9	MB9	45	65	11,25
	M45×1,5	39	0,253	**H309**	KM9	MB9	45	65	11,25
	M45×1,5	50	0,298	**H2309**	KM9	MB9	45	65	11,25
	M45×1,5	54	0,31	**H3309**	KM9	MB9	45	65	11,25
45	M50×1,5	35	0,276	**H210**	KM10	MB10	50	70	12,25
	M50×1,5	42	0,306	**H310**	KM10	MB10	50	70	12,25
	M50×1,5	55	0,36	**H2310**	KM10	MB10	50	70	12,25
	M50×1,5	60	0,39	**H3310**	KM10	MB10	50	70	12,25
50	M55×2	37	0,319	**H211**	KM11	MB11	55	75	12,5
	M55×2	45	0,358	**H311**	KM11	MB11	55	75	12,5
	M55×2	59	0,435	**H2311**	KM11	MB11	55	75	12,5
	M55×2	65	0,46	**H3311**	KM11	MB11	55	75	12,5
55	M60×2	38	0,35	**H212**	KM12	MB12	60	80	12,5
	M60×2	47	0,401	**H312**	KM12	MB12	60	80	12,5
	M60×2	62	0,493	**H2312**	KM12	MB12	60	80	12,5
	M60×2	70	0,54	**H3312**	KM12	MB12	60	80	12,5

medias ➤ *https://www.schaeffler.de/std/1E99*

https://www.schaeffler.de/std/1D65

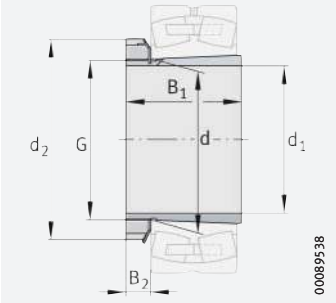
Main dimensions			Mass	Designation ➤*1698|1.4*			Dimensions		
d_1	G	B_1	m ≈ kg	Adapter sleeve Complete	Locknut	Retainer	d	d_2	B_2 ≈
60	M65×2	40	0,4	**H213**	KM13	MB13	65	85	13,5
	M65×2	50	0,471	**H313**	KM13	MB13	65	85	13,5
	M65×2	65	0,57	**H2313**	KM13	MB13	65	85	13,5
	M65×2	75	0,63	**H3313**	KM13	MB13	65	85	13,5
	M70×2	41	0,63	**H214**	KM14	MB14	70	92	13,5
	M70×2	52	0,74	**H314**	KM14	MB14	70	92	13,5
	M70×2	68	0,92	**H2314**	KM14	MB14	70	92	13,5
	M70×2	81	1,08	**H3314**	KM14	MB14	70	92	13,5
65	M75×2	43	0,71	**H215**	KM15	MB15	75	98	14,5
	M75×2	55	0,86	**H315**	KM15	MB15	75	98	14,5
	M75×2	73	1,06	**H2315**	KM15	MB15	75	98	14,5
	M75×2	87	1,25	**H3315**	KM15	MB15	75	98	14,5
70	M80×2	46	0,89	**H216**	KM16	MB16	80	105	16,75
	M80×2	59	1,06	**H316**	KM16	MB16	80	105	16,75
	M80×2	78	1,31	**H2316**	KM16	MB16	80	105	16,75
	M80×2	89	1,46	**H3316**	KM16	MB16	80	105	16,75
75	M85×2	50	1,03	**H217**	KM17	MB17	85	110	17,75
	M85×2	63	1,21	**H317**	KM17	MB17	85	110	17,75
	M85×2	82	1,47	**H2317**	KM17	MB17	85	110	17,75
	M85×2	95	1,68	**H3317**	KM17	MB17	85	110	17,75
80	M90×2	52	1,21	**H218**	KM18	MB18	90	120	17,75
	M90×2	65	1,41	**H318**	KM18	MB18	90	120	17,75
	M90×2	86	1,71	**H2318**	KM18	MB18	90	120	17,75
	M90×2	95	1,87	**H3318**	KM18	MB18	90	120	17,75
85	M95×2	55	1,39	**H219**	KM19	MB19	95	125	18,75
	M95×2	68	1,58	**H319**	KM19	MB19	95	125	18,75
	M95×2	90	1,95	**H2319**	KM19	MB19	95	125	18,75
	M95×2	101	2,16	**H3319**	KM19	MB19	95	125	18,75
90	M100×2	58	1,52	**H220**	KM20	MB20	100	130	19,75
	M100×2	71	1,76	**H320**	KM20	MB20	100	130	19,75
	M100×2	76	1,81	**H3120**	KM20	MB20	100	130	19,75
	M100×2	80	1,77	**H24020**	KM20	MB20	100	130	19,75
	M100×2	94	1,97	**H24120**	KM20	MB20	100	130	19,75
	M100×2	97	2,2	**H2320**	KM20	MB20	100	130	19,75
	M100×2	106	2,38	**H3320**	KM20	MB20	100	130	19,75

medias ➤ *https://www.schaeffler.de/std/1E9A*

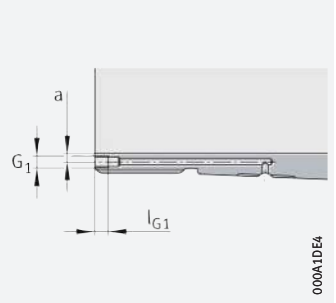
https://www.schaeffler.de/std/1D65

Adapter sleeves

With locknut and retainer



Taper 1:12
(taper 1:30 for H240, H241)
Tab washer MB, MBL



Hydraulic adapter sleeve
(suffix HG)
Mounting dimensions

d_1 = 95 – 150 mm

Main dimensions			Mass	Designation ➤1698|1.4			Dimensions		
d_1	G	B_1	m ≈ kg	Adapter sleeve Complete	Locknut	Retainer	d	d_2	B_2 ≈
95	M105×2	60	1,74	**H221**	KM21	MB21	105	140	19,75
	M105×2	74	1,97	**H321**	KM21	MB21	105	140	19,75
	M105×2	80	2,09	**H3121**	KM21	MB21	105	140	19,75
	M105×2	101	2,5	**H2321**	KM21	MB21	105	140	19,75
	M105×2	111	2,71	**H3321**	KM21	MB21	105	140	19,75
100	M110×2	63	1,95	**H222**	KM22	MB22	110	145	20,75
	M110×2	77	2,25	**H322**	KM22	MB22	110	145	20,75
	M110×2	81	2,32	**H3122**	KM22	MB22	110	145	20,75
	M110×2	90	2,3	**H24022**	KM22	MB22	110	145	20,75
	M110×2	99	2,45	**H24122**	KM22	MB22	110	145	20,75
	M110×2	105	2,78	**H2322**	KM22	MB22	110	145	20,75
	M110×2	117	3,06	**H3322**	KM22	MB22	110	145	20,75
110	M120×2	60	1,78	**H3924**	KML24	MBL24	120	145	22
	M120×2	72	2,01	**H3024**	KML24	MBL24	120	145	22
	M120×2	91	2,24	**H24024**	KML24	MBL24	120	145	22
	M120×2	88	2,7	**H3124**	KM24	MB24	120	155	22
	M120×2	111	2,92	**H24124**	KM24	MB24	120	155	22
	M120×2	112	3,24	**H2324**	KM24	MB24	120	155	22
	M120×2	132	3,77	**H3324**	KM24	MB24	120	155	22
115	M130×2	65	2,53	**H3926**	KML26	MBL26	130	155	23
	M130×2	80	2,96	**H3026**	KML26	MBL26	130	155	23
	M130×2	102	3,4	**H24026**	KML26	MBL26	130	155	23
	M130×2	92	3,74	**H3126**	KM26	MB26	130	165	23
	M130×2	113	4,08	**H24126**	KM26	MB26	130	165	23
	M130×2	121	4,69	**H2326**	KM26	MB26	130	165	23
	M130×2	139	5,35	**H3326**	KM26	MB26	130	165	23
125	M140×2	66	2,78	**H3928**	KML28	MBL28	140	165	24
	M140×2	82	3,3	**H3028**	KML28	MBL28	140	165	24
	M140×2	103	3,75	**H24028**	KML28	MBL28	140	165	24
	M140×2	97	4,46	**H3128**	KM28	MB28	140	180	24
	M140×2	119	4,81	**H24128**	KM28	MB28	140	180	24
	M140×2	131	5,66	**H2328**	KM28	MB28	140	180	24
	M140×2	147	6,32	**H3328**	KM28	MB28	140	180	24

medias ➤ *https://www.schaeffler.de/std/1E9B*

https://www.schaeffler.de/std/1D65

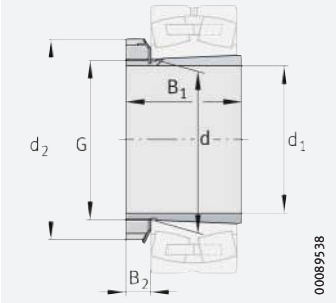
Main dimensions			Mass	Designation ➤*1698|1.4*			Dimensions			Mounting dimensions		
d_1	G	B_1	m ≈ kg	Adapter sleeve Complete	Locknut	Retainer	d	d_2	B_2 ≈	G_1	a	l_{G1}
135	M150×2	76	3,64	**H3930**	KML30	MBL30	150	180	26	–	–	–
	M150×2	87	4,02	**H3030**	KML30	MBL30	150	180	26	–	–	–
	M150×2	112	4,61	**H24030**	KML30	MBL30	150	180	26	–	–	–
	M150×2	111	5,7	**H3130**	KM30	MB30	150	195	26	–	–	–
	M150×2	137	6,1	**H24130**	KM30	MB30	150	195	26	–	–	–
	M150×2	139	6,76	**H2330**	KM30	MB30	150	195	26	–	–	–
	M150×2	159	7,66	**H3330**	KM30	MB30	150	195	26	–	–	–
140	M160×3	78	4,75	**H3932**	KML32	MBL32	160	190	27,5	–	–	–
	M160×3	78	4,75	**H3932-HG**	KML32	MBL32	160	190	27,5	M6	4,2	7
	M160×3	93	5,44	**H3032**	KML32	MBL32	160	190	27,5	–	–	–
	M160×3	93	5,44	**H3032-HG**	KML32	MBL32	160	190	27,5	M6	4,2	7
	M160×3	118	6,27	**H24032**	KML32	MBL32	160	190	27,5	–	–	–
	M160×3	118	6,27	**H24032-HG**	KML32	MBL32	160	190	27,5	M6	4,2	7
	M160×3	119	7,81	**H3132**	KM32	MB32	160	210	27,5	–	–	–
	M160×3	119	7,81	**H3132-HG**	KM32	MB32	160	210	27,5	M6	4,2	7
	M160×3	147	9,32	**H2332**	KM32	MB32	160	210	27,5	–	–	–
	M160×3	147	9,32	**H2332-HG**	KM32	MB32	160	210	27,5	M6	4,2	7
	M160×3	148	8,66	**H24132**	KM32	MB32	160	210	27,5	–	–	–
	M160×3	148	8,66	**H24132-HG**	KM32	MB32	160	210	27,5	M6	4,2	7
	M160×3	170	10,7	**H3332**	KM32	MB32	160	210	27,5	–	–	–
	M160×3	170	10,7	**H3332-HG**	KM32	MB32	160	210	27,5	M6	4,2	7
150	M170×3	79	5,16	**H3934**	KML34	MBL34	170	200	28,5	–	–	–
	M170×3	79	5,16	**H3934-HG**	KML34	MBL34	170	200	28,5	M6	4,2	7
	M170×3	101	6,25	**H3034**	KML34	MBL34	170	200	28,5	–	–	–
	M170×3	101	6,25	**H3034-HG**	KML34	MBL34	170	200	28,5	M6	4,2	7
	M170×3	130	7,28	**H24034**	KML34	MBL34	170	200	28,5	–	–	–
	M170×3	130	7,28	**H24034-HG**	KML34	MBL34	170	200	28,5	M6	4,2	7
	M170×3	122	8,6	**H3134**	KM34	MB34	170	220	28,5	–	–	–
	M170×3	122	8,6	**H3134-HG**	KM34	MB34	170	220	28,5	M6	4,2	7
	M170×3	149	9,32	**H24134**	KM34	MB34	170	220	28,5	–	–	–
	M170×3	149	9,32	**H24134-HG**	KM34	MB34	170	220	28,5	M6	4,2	7
	M170×3	154	10,4	**H2334**	KM34	MB34	170	220	28,5	–	–	–
	M170×3	154	10,4	**H2334-HG**	KM34	MB34	170	220	28,5	M6	4,2	7
	M170×3	175	11,7	**H3334**	KM34	MB34	170	220	28,5	–	–	–
	M170×3	175	11,7	**H3334-HG**	KM34	MB34	170	220	28,5	M6	4,2	7

medias ➤ *https://www.schaeffler.de/std/1E9C*

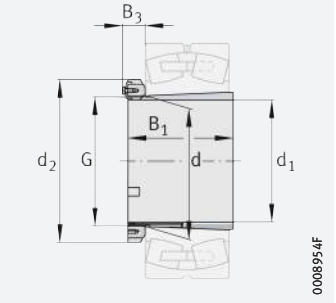
https://www.schaeffler.de/std/1D65

Adapter sleeves

With locknut and retainer



Taper 1:12
(taper 1:30 for H240, H241)
Tab washer MB, MBL



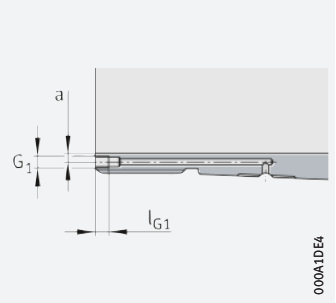
Taper 1:12
(taper 1:30 for H240)
Retaining bracket MS30

d_1 = 160 – 200 mm

Main dimensions			Mass	Designation ➤1698|1.4			Dimensions			Mounting dimensions		
d_1	G	B_1	m ≈ kg	Adapter sleeve Complete	Locknut	Retainer	d	d_2	B_2 ≈	G_1	a	l_{G1}
160	M180×3	87	6,01	**H3936**	KML36	MBL36	180	210	29,5	–	–	–
	M180×3	87	6,01	**H3936-HG**	KML36	MBL36	180	210	29,5	M6	4,2	7
	M180×3	109	7,18	**H3036**	KML36	MBL36	180	210	29,5	–	–	–
	M180×3	109	7,1	**H3036-HG**	KML36	MBL36	180	210	29,5	M6	4,2	7
	M180×3	140	8,33	**H24036**	KML36	MBL36	180	210	29,5	–	–	–
	M180×3	140	8,33	**H24036-HG**	KML36	MBL36	180	210	29,5	M6	4,2	7
	M180×3	131	9,8	**H3136**	KM36	MB36	180	230	29,5	–	–	–
	M180×3	131	9,7	**H3136-HG**	KM36	MB36	180	230	29,5	M6	4,2	7
	M180×3	159	10,5	**H24136**	KM36	MB36	180	230	29,5	–	–	–
	M180×3	159	10,5	**H24136-HG**	KM36	MB36	180	230	29,5	M6	4,2	7
	M180×3	161	11,6	**H2336**	KM36	MB36	180	230	29,5	–	–	–
	M180×3	161	11,6	**H2336-HG**	KM36	MB36	180	230	29,5	M6	4,2	7
	M180×3	186	13,3	**H3336**	KM36	MB36	180	230	29,5	–	–	–
	M180×3	186	13,3	**H3336-HG**	KM36	MB36	180	230	29,5	M6	4,2	7
170	M190×3	89	6,49	**H3938**	KML38	MBL38	190	220	30,5	–	–	–
	M190×3	89	6,49	**H3938-HG**	KML38	MBL38	190	220	30,5	M6	4,2	7
	M190×3	112	7,8	**H3038**	KML38	MBL38	190	220	30,5	–	–	–
	M190×3	112	7,8	**H3038-HG**	KML38	MBL38	190	220	30,5	M6	4,2	7
	M190×3	143	9	**H24038**	KML38	MBL38	190	220	30,5	–	–	–
	M190×3	143	9	**H24038-HG**	KML38	MBL38	190	220	30,5	M6	4,2	7
	M190×3	141	11,1	**H3138**	KM38	MB38	190	240	30,5	–	–	–
	M190×3	141	11	**H3138-HG**	KM38	MB38	190	240	30,5	M6	4,2	7
	M190×3	169	12,9	**H2338**	KM38	MB38	190	240	30,5	–	–	–
	M190×3	169	12,9	**H2338-HG**	KM38	MB38	190	240	30,5	M6	4,2	7
	M190×3	172	11,9	**H24138**	KM38	MB38	190	240	30,5	–	–	–
	M190×3	172	11,9	**H24138-HG**	KM38	MB38	190	240	30,5	M6	4,2	7
	M190×3	193	14,7	**H3338**	KM38	MB38	190	240	30,5	–	–	–
	M190×3	193	14,7	**H3338-HG**	KM38	MB38	190	240	30,5	M6	4,2	7

medias ➤ *https://www.schaeffler.de/std/1E9D*

https://www.schaeffler.de/std/1D65



Hydraulic adapter sleeve (suffix HG) Mounting dimensions

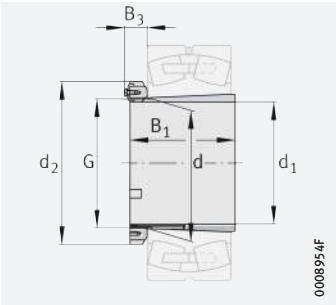
Main dimensions			Mass	Designation ➤*1698|1.4*			Dimensions				Mounting dimensions		
d_1	G	B_1	m ≈ kg	Adapter sleeve Complete	Locknut	Retainer	d	d_2	B_2 ≈	B_3 ≈	G_1	a	l_{G1}
180	M200×3	98	8,2	**H3940**	KML40	MBL40	200	240	31,5	–	–	–	–
	M200×3	98	8,14	**H3940-HG**	KML40	MBL40	200	240	31,5	–	M6	4,2	7
	M200×3	120	9,5	**H3040**	KML40	MBL40	200	240	31,5	–	–	–	–
	M200×3	120	9,5	**H3040-HG**	KML40	MBL40	200	240	31,5	–	M6	4,2	7
	M200×3	153	10,9	**H24040**	KML40	MBL40	200	240	31,5	–	–	–	–
	M200×3	153	10,8	**H24040-HG**	KML40	MBL40	200	240	31,5	–	M6	4,2	7
	M200×3	150	12,5	**H3140**	KM40	MB40	200	250	31,5	–	–	–	–
	M200×3	150	12,3	**H3140-HG**	KM40	MB40	200	250	31,5	–	M6	4,2	7
	M200×3	176	14,2	**H2340**	KM40	MB40	200	250	31,5	–	–	–	–
	M200×3	176	14,2	**H2340-HG**	KM40	MB40	200	250	31,5	–	M6	4,2	7
	M200×3	185	13,4	**H24140**	KM40	MB40	200	250	31,5	–	–	–	–
	M200×3	185	13,4	**H24140-HG**	KM40	MB40	200	250	31,5	–	M6	4,2	7
	M200×3	204	16,4	**H3340**	KM40	MB40	200	250	31,5	–	–	–	–
	M200×3	204	16,4	**H3340-HG**	KM40	MB40	200	250	31,5	–	M6	4,2	7
200	Tr220×4	96	8,45	**H3944**	HM3044	MS3044	220	260	–	39	–	–	–
	Tr220×4	96	8,45	**H3944-HG**	HM3044	MS3044	220	260	–	39	M6	4,2	7
	Tr220×4	126	10,5	**H3044X**	HM3044	MS3044	220	260	–	39	–	–	–
	Tr220×4	126	10,5	**H3044X-HG**	HM3044	MS3044	220	260	–	39	M6	4,2	7
	Tr220×4	162	12,1	**H24044**	HM3044	MS3044	220	260	–	39	–	–	–
	Tr220×4	162	12,4	**H24044-HG**	HM3044	MS3044	220	260	–	39	M6	4,2	7
	Tr220×4	161	16	**H3144X**	HM44T	MB44	220	280	35	–	–	–	–
	Tr220×4	161	15,7	**H3144X-HG**	HM44T	MB44	220	280	35	–	M6	4,2	7
	Tr220×4	186	17,8	**H2344X**	HM44T	MB44	220	280	35	–	–	–	–
	Tr220×4	186	17,8	**H2344X-HG**	HM44T	MB44	220	280	35	–	M6	4,2	7
	Tr220×4	199	17,1	**H24144**	HM44T	MB44	220	280	35	–	–	–	–
	Tr220×4	199	17,3	**H24144-HG**	HM44T	MB44	220	280	35	–	M6	4,2	7
	Tr220×4	223	21,1	**H3344**	HM44T	MB44	220	280	35	–	–	–	–
	Tr220×4	223	21,4	**H3344-HG**	HM44T	MB44	220	280	35	–	M6	4,2	7

medias ➤ *https://www.schaeffler.de/std/1E9E*

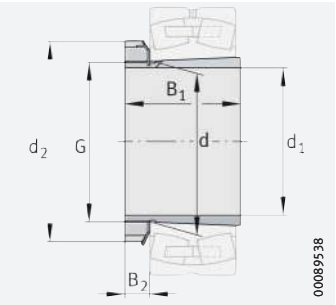
https://www.schaeffler.de/std/1D65

Adapter sleeves

With locknut and retainer



Taper 1:12
(taper 1:30 for H240, H241)
Retaining bracket MS30, MS31



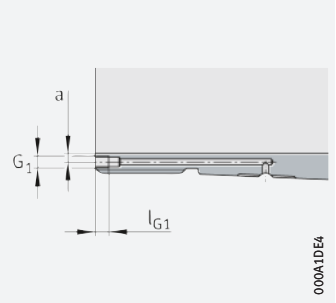
Taper 1:12
(taper 1:30 for H241)
Tab washer MB

d_1 = 220 – 300 mm

Main dimensions			Mass	Designation ➤1698|1.4			Dimensions				Mounting dimensions		
d_1	G	B_1	m ≈ kg	Adapter sleeve Complete	Locknut	Retainer	d	d_2	B_2 ≈	B_3 ≈	G_1	a	l_{G1}
220	Tr240×4	101	11,3	**H3948**	HM3048	MS3048	240	290	–	45	–	–	–
	Tr240×4	101	11,3	**H3948-HG**	HM3048	MS3048	240	290	–	45	M6	4,2	7
	Tr240×4	133	13,7	**H3048**	HM3048	MS3048	240	290	–	45	–	–	–
	Tr240×4	133	13,8	**H3048-HG**	HM3048	MS3048	240	290	–	45	M6	4,2	7
	Tr240×4	167	15,3	**H24048**	HM3048	MS3048	240	290	–	45	–	–	–
	Tr240×4	167	15,3	**H24048-HG**	HM3048	MS3048	240	290	–	45	M6	4,2	7
	Tr240×4	172	18,7	**H3148X**	HM48T	MB48	240	300	37	–	–	–	–
	Tr240×4	172	18,6	**H3148X-HG**	HM48T	MB48	240	300	37	–	M6	4,2	7
	Tr240×4	199	20,9	**H2348X**	HM48T	MB48	240	300	37	–	–	–	–
	Tr240×4	199	20,9	**H2348X-HG**	HM48T	MB48	240	300	37	–	M6	4,2	7
	Tr240×4	212	19,9	**H24148**	HM48T	MB48	240	300	37	–	–	–	–
	Tr240×4	212	19,9	**H24148-HG**	HM48T	MB48	240	300	37	–	M6	4,2	7
	Tr240×4	240	25,1	**H3348**	HM48T	MB48	240	300	37	–	–	–	–
	Tr240×4	240	25,1	**H3348-HG**	HM48T	MB48	240	300	37	–	M6	4,2	7
240	Tr260×4	116	13,6	**H3952**	HM3052	MS3048	260	310	–	45	–	–	–
	Tr260×4	116	13,6	**H3952-HG**	HM3052	MS3048	260	310	–	45	M6	4,2	7
	Tr260×4	145	16	**H3052X**	HM3052	MS3048	260	310	–	45	–	–	–
	Tr260×4	145	16	**H3052X-HG**	HM3052	MS3048	260	310	–	45	M6	4,2	7
	Tr260×4	190	18,4	**H24052**	HM3052	MS3048	260	310	–	45	–	–	–
	Tr260×4	190	18,4	**H24052-HG**	HM3052	MS3048	260	310	–	45	M6	4,2	7
	Tr260×4	190	23,5	**H3152X**	HM52T	MB52	260	330	38	–	–	–	–
	Tr260×4	190	23,6	**H3152X-HG**	HM52T	MB52	260	330	38	–	M6	4,2	7
	Tr260×4	211	25,7	**H2352X**	HM52T	MB52	260	330	38	–	–	–	–
	Tr260×4	211	25,8	**H2352X-HG**	HM52T	MB52	260	330	38	–	M6	4,2	7
	Tr260×4	235	25,2	**H24152**	HM52T	MB52	260	330	38	–	–	–	–
	Tr260×4	235	25,2	**H24152-HG**	HM52T	MB52	260	330	38	–	M6	4,2	7
	Tr260×4	253	30,5	**H3352**	HM52T	MB52	260	330	38	–	–	–	–
	Tr260×4	253	30,5	**H3352-HG**	HM52T	MB52	260	330	38	–	M6	4,2	7

medias ➤ *https://www.schaeffler.de/std/1E9F*

https://www.schaeffler.de/std/1D65



Hydraulic adapter sleeve (suffix HG) Mounting dimensions

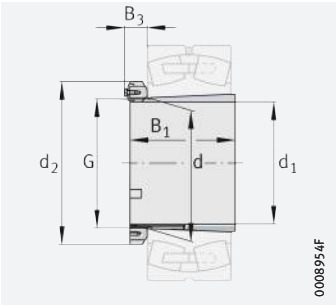
Main dimensions			Mass	Designation ➤*1698|1.4*			Dimensions				Mounting dimensions		
d_1	G	B_1	m ≈ kg	Adapter sleeve Complete	Locknut	Retainer	d	d_2	B_2 ≈	B_3 ≈	G_1	a	l_{G1}
260	Tr280×4	121	15,6	**H3956**	HM3056	MS3056	280	330	–	49	–	–	–
	Tr280×4	121	15,6	**H3956-HG**	HM3056	MS3056	280	330	–	49	M6	4,2	7
	Tr280×4	152	18,5	**H3056**	HM3056	MS3056	280	330	–	49	–	–	–
	Tr280×4	152	18,5	**H3056-HG**	HM3056	MS3056	280	330	–	49	M6	4,2	7
	Tr280×4	195	20,9	**H24056**	HM3056	MS3056	280	330	–	49	–	–	–
	Tr280×4	195	20,7	**H24056-HG**	HM3056	MS3056	280	330	–	49	M6	4,2	7
	Tr280×4	195	26,3	**H3156X**	HM56T	MB56	280	350	39	–	–	–	–
	Tr280×4	195	26,2	**H3156X-HG**	HM56T	MB56	280	350	39	–	M6	4,2	7
	Tr280×4	224	29,8	**H2356X**	HM56T	MB56	280	350	39	–	–	–	–
	Tr280×4	224	29,8	**H2356X-HG**	HM56T	MB56	280	350	39	–	M6	4,2	7
	Tr280×4	238	28	**H24156**	HM56T	MB56	280	350	39	–	–	–	–
	Tr280×4	238	28	**H24156-HG**	HM56T	MB56	280	350	39	–	M6	4,2	7
	Tr280×4	273	36	**H3356**	HM56T	MB56	280	350	39	–	–	–	–
	Tr280×4	273	36	**H3356-HG**	HM56T	MB56	280	350	39	–	M6	4,2	7
280	Tr300×4	140	20,9	**H3960**	HM3060	MS3060	300	360	–	53	–	–	–
	Tr300×4	140	20,9	**H3960-HG**	HM3060	MS3060	300	360	–	53	M6	4,2	7
	Tr300×4	168	23,8	**H3060**	HM3060	MS3060	300	360	–	53	–	–	–
	Tr300×4	168	23,7	**H3060-HG**	HM3060	MS3060	300	360	–	53	M6	4,2	7
	Tr300×4	220	26,9	**H24060**	HM3060	MS3060	300	360	–	53	–	–	–
	Tr300×4	220	26,9	**H24060-HG**	HM3060	MS3060	300	360	–	53	M6	4,2	7
	Tr300×4	208	30,6	**H3160**	HM3160	MS3160	300	380	–	52	–	–	–
	Tr300×4	208	31,1	**H3160-HG**	HM3160	MS3160	300	380	–	52	M6	4,2	7
	Tr300×4	240	34,7	**H3260**	HM3160	MS3160	300	380	–	52	–	–	–
	Tr300×4	240	35,1	**H3260-HG**	HM3160	MS3160	300	380	–	52	M6	4,2	7
	Tr300×4	258	32,7	**H24160**	HM3160	MS3160	300	380	–	52	–	–	–
	Tr300×4	258	32,7	**H24160-HG**	HM3160	MS3160	300	380	–	52	M6	4,2	7
	Tr300×4	284	40,8	**H3360**	HM3160	MS3160	300	380	–	52	–	–	–
	Tr300×4	284	40,8	**H3360-HG**	HM3160	MS3160	300	380	–	52	M6	4,2	7
300	Tr320×5	140	22,1	**H3964-HG**	HM3064	MS3064	320	380	–	54	M6	3,5	7
	Tr320×5	171	25,7	**H3064-HG**	HM3064	MS3064	320	380	–	54	M6	3,5	7
	Tr320×5	220	28,4	**H24064-HG**	HM3064	MS3064	320	380	–	54	M6	3,5	7
	Tr320×5	226	36,2	**H3164-HG**	HM3164	MS3164	320	400	–	55	M6	3,5	7
	Tr320×5	258	40,6	**H3264-HG**	HM3164	MS3164	320	400	–	55	M6	3,5	7
	Tr320×5	278	37,4	**H24164-HG**	HM3164	MS3164	320	400	–	55	M6	3,5	7
	Tr320×5	308	47,8	**H3364-HG**	HM3164	MS3164	320	400	–	55	M6	3,5	7

medias ➤ *https://www.schaeffler.de/std/1EA0*

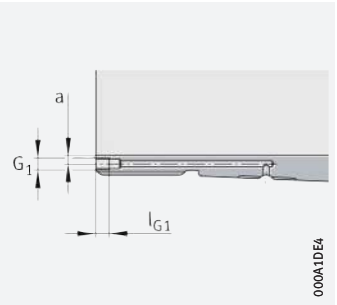
https://www.schaeffler.de/std/1D65

Adapter sleeves

With locknut and retainer



Taper 1:12
(taper 1:30 for H240, H241)
Retaining bracket MS30, MS31



Hydraulic adapter sleeve
(suffix HG)
Mounting dimensions

d_1 = 320 – 500 mm

Main dimensions			Mass	Designation ➤1698|1.4			Dimensions			Mounting dimensions		
d_1	G	B_1	m	Adapter sleeve Complete	Locknut	Retainer	d	d_2	B_3	G_1	a	l_{G1}
			≈ kg						≈			
320	Tr340×5	144	24,8	**H3968-HG**	HM3068	MS3064	340	400	57	M6	3,5	7
	Tr340×5	187	30	**H3068-HG**	HM3068	MS3064	340	400	57	M6	3,5	7
	Tr340×5	244	33,8	**H24068-HG**	HM3068	MS3064	340	400	57	M6	3,5	7
	Tr340×5	254	51,8	**H3168-HG**	HM3168	MS3168	340	440	70	M6	3,5	7
	Tr340×5	288	57,2	**H3268-HG**	HM3168	MS3168	340	440	70	M6	3,5	7
	Tr340×5	317	53	**H24168-HG**	HM3168	MS3168	340	440	70	M6	3,5	7
	Tr340×5	336	63,6	**H3368-HG**	HM3168	MS3168	340	440	70	M6	3,5	7
340	Tr360×5	144	25,9	**H3972-HG**	HM3072	MS3072	360	420	57	M6	3,5	7
	Tr360×5	188	31,6	**H3072-HG**	HM3072	MS3072	360	420	57	M6	3,5	7
	Tr360×5	244	35,6	**H24072-HG**	HM3072	MS3072	360	420	57	M6	3,5	7
	Tr360×5	259	54,3	**H3172-HG**	HM3172	MS3168	360	460	73	M6	3,5	7
	Tr360×5	299	63,8	**H3272-HG**	HM3172	MS3168	360	460	73	M6	3,5	7
	Tr360×5	321	59,9	**H24172-HG**	HM3172	MS3168	360	460	73	M6	3,5	7
	Tr360×5	357	71,8	**H3372-HG**	HM3172	MS3168	360	460	73	M6	3,5	7
360	Tr380×5	164	32,1	**H3976-HG**	HM3076	MS3076	380	450	61	M6	3,5	7
	Tr380×5	193	36,2	**H3076-HG**	HM3076	MS3076	380	450	61	M6	3,5	7
	Tr380×5	248	40,1	**H24076-HG**	HM3076	MS3076	380	450	61	M6	3,5	7
	Tr380×5	264	64,1	**H3176-HG**	HM3176	MS3176	380	490	75	M6	3,5	7
	Tr380×5	310	72,4	**H3276-HG**	HM3176	MS3176	380	490	75	M6	3,5	7
	Tr380×5	323	64,9	**H24176-HG**	HM3176	MS3176	380	490	75	M6	3,5	7
	Tr380×5	370	82,8	**H3376-HG**	HM3176	MS3176	380	490	75	M6	3,5	7
380	Tr400×5	168	35,4	**H3980-HG**	HM3080	MS3076	400	470	65	M6	3,5	7
	Tr400×5	210	41,7	**H3080-HG**	HM3080	MS3076	400	470	65	M6	3,5	7
	Tr400×5	272	46,4	**H24080-HG**	HM3080	MS3076	400	470	65	M6	3,5	7
	Tr400×5	272	71,3	**H3180-HG**	HM3180	MS3180	400	520	80	M6	3,5	7
	Tr400×5	328	83,7	**H3280-HG**	HM3180	MS3180	400	520	80	M6	3,5	7
	Tr400×5	332	73,8	**H24180-HG**	HM3180	MS3180	400	520	80	M6	3,5	7
	Tr400×5	380	93,4	**H3380-HG**	HM3180	MS3180	400	520	80	M6	3,5	7
400	Tr420×5	168	38,6	**H3984-HG**	HM3084	MS3084	420	490	65	M6	3,5	7
	Tr420×5	212	45,7	**H3084X-HG**	HM3084	MS3084	420	490	65	M6	3,5	7
	Tr420×5	274	48,6	**H24084-HG**	HM3084	MS3084	420	490	65	M6	3,5	7
	Tr420×5	304	88,4	**H3184-HG**	HM3184	MS3180	420	540	88	M6	3,5	7
	Tr420×5	352	98,7	**H3284-HG**	HM3184	MS3180	420	540	88	M6	3,5	7
	Tr420×5	372	87,8	**H24184-HG**	HM3184	MS3180	420	540	88	M6	3,5	7
	Tr420×5	395	105	**H3384-HG**	HM3184	MS3180	420	540	88	M6	3,5	7

medias ➤ *https://www.schaeffler.de/std/1EA1*

https://www.schaeffler.de/std/1D65

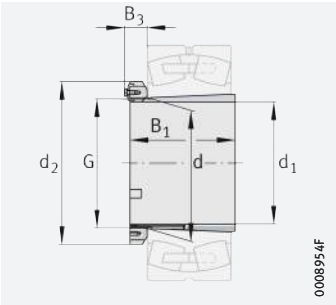
Main dimensions			Mass	Designation ➤*1698|1.4*			Dimensions			Mounting dimensions		
d_1	G	B_1	m ≈ kg	Adapter sleeve Complete	Locknut	Retainer	d	d_2	B_3 ≈	G_1	a	l_{G1}
410	Tr440×5	189	59	**H3988-HG**	HM3088	MS3088	440	520	75	M8	6,5	12
	Tr440×5	228	67,7	**H3088-HG**	HM3088	MS3088	440	520	75	M8	6,5	12
	Tr440×5	294	76,4	**H24088-HG**	HM3088	MS3088	440	520	75	M8	6,5	12
	Tr440×5	307	108	**H3188-HG**	HM3188	MS3188	440	560	88	M8	6,5	12
	Tr440×5	361	123	**H3288-HG**	HM3188	MS3188	440	560	88	M8	6,5	12
	Tr440×5	372	111	**H24188-HG**	HM3188	MS3188	440	560	88	M8	6,5	12
	Tr440×5	426	140	**H3388-HG**	HM3188	MS3188	440	560	88	M8	6,5	12
430	Tr460×5	189	62,4	**H3992-HG**	HM3092	MS3088	460	540	75	M8	6,5	12
	Tr460×5	234	71,8	**H3092-HG**	HM3092	MS3088	460	540	75	M8	6,5	12
	Tr460×5	300	80,8	**H24092-HG**	HM3092	MS3088	460	540	75	M8	6,5	12
	Tr460×5	326	118	**H3192-HG**	HM3192	MS3188	460	580	93	M8	6,5	12
	Tr460×5	382	138,9	**H3292-HG**	HM3192	MS3188	460	580	93	M8	6,5	12
	Tr460×5	398	124	**H24192-HG**	HM3192	MS3188	460	580	93	M8	6,5	12
	Tr460×5	451	157	**H3392-HG**	HM3192	MS3188	460	580	93	M8	6,5	12
450	Tr480×5	200	66,8	**H3996-HG**	HM3096	MS3096	480	560	75	M8	6,5	12
	Tr480×5	237	76,8	**H3096-HG**	HM3096	MS3096	480	560	75	M8	6,5	12
	Tr480×5	301	85,6	**H24096-HG**	HM3096	MS3096	480	560	75	M8	6,5	12
	Tr480×5	335	135	**H3196-HG**	HM3196	MS3196	480	620	93	M8	6,5	12
	Tr480×5	397	159,2	**H3296-HG**	HM3196	MS3196	480	620	93	M8	6,5	12
	Tr480×5	408	142	**H24196-HG**	HM3196	MS3196	480	620	93	M8	6,5	12
	Tr480×5	462	177	**H3396-HG**	HM3196	MS3196	480	620	93	M8	6,5	12
470	Tr500×5	208	76,1	**H39/500-HG**	HM30/500	MS3096	500	580	83	M8	6,5	12
	Tr500×5	247	85,2	**H30/500-HG**	HM30/500	MS3096	500	580	83	M8	6,5	12
	Tr500×5	309	93,8	**H240/500-HG**	HM30/500	MS3096	500	580	83	M8	6,5	12
	Tr500×5	356	149,9	**H31/500-HG**	HM31/500	MS31/500	500	630	98	M8	6,5	12
	Tr500×5	428	174,5	**H32/500-HG**	HM31/500	MS31/500	500	630	98	M8	6,5	12
	Tr500×5	430	155,8	**H241/500-HG**	HM31/500	MS31/500	500	630	98	M8	6,5	12
	Tr500×5	480	189	**H33/500-HG**	HM31/500	MS31/500	500	630	98	M8	6,5	12
500	Tr530×6	216	91,6	**H39/530-HG**	HM30/530	MS30/530	530	630	88	M8	6	12
	Tr530×6	265	103	**H30/530-HG**	HM30/530	MS30/530	530	630	88	M8	6	12
	Tr530×6	343	115	**H240/530-HG**	HM30/530	MS30/530	530	630	88	M8	6	12
	Tr530×6	364	161	**H31/530-HG**	HM31/530	MS31/530	530	670	102	M8	6	12
	Tr530×6	440	167	**H241/530-HG**	HM31/530	MS31/530	530	670	102	M8	6	12
	Tr530×6	447	192	**H32/530-HG**	HM31/530	MS31/530	530	670	102	M8	6	12
	Tr530×6	504	215	**H33/530-HG**	HM31/530	MS31/530	530	670	102	M8	6	12

medias ➤ *https://www.schaeffler.de/std/1EA2*

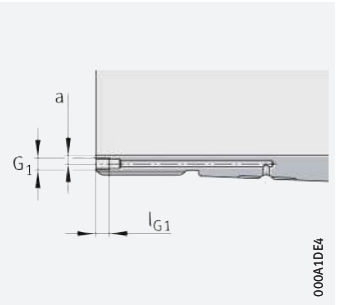
https://www.schaeffler.de/std/1D65

Adapter sleeves

With locknut and retainer



Taper 1:12
(taper 1:30 for H240, H241)
Retaining bracket MS30, MS31



Hydraulic adapter sleeve
(suffix HG)
Mounting dimensions

d_1 = 530 – 900 mm

Main dimensions			Mass	Designation ➤1698|1.4			Dimensions			Mounting dimensions		
d_1	G	B_1	m ≈ kg	Adapter sleeve Complete	Locknut	Retainer	d	d_2	B_3 ≈	G_1	a	l_{G1}
530	Tr560×6	227	98,5	**H39/560-HG**	HM30/560	MS30/560	560	650	95	M8	6	12
	Tr560×6	282	112	**H30/560-HG**	HM30/560	MS30/560	560	650	95	M8	6	12
	Tr560×6	358	124	**H240/560-HG**	HM30/560	MS30/560	560	650	95	M8	6	12
	Tr560×6	377	184	**H31/560-HG**	HM31/560	MS31/560	560	710	107	M8	6	12
	Tr560×6	462	218	**H32/560-HG**	HM31/560	MS31/560	560	710	107	M8	6	12
	Tr560×6	468	195	**H241/560-HG**	HM31/560	MS31/560	560	710	107	M8	6	12
	Tr560×6	535	250	**H33/560-HG**	HM31/560	MS31/560	560	710	107	M8	6	12
560	Tr600×6	239	132,2	**H39/600-HG**	HM30/600	MS30/530	600	700	95	$G^1/_8$	8	12
	Tr600×6	289	152,3	**H30/600-HG**	HM30/600	MS30/530	600	700	95	$G^1/_8$	8	12
	Tr600×6	377	171	**H240/600-HG**	HM30/600	MS30/530	600	700	95	$G^1/_8$	8	12
	Tr600×6	399	241,8	**H31/600-HG**	HM31/600	MS31/560	600	750	108	$G^1/_8$	8	12
	Tr600×6	487	279	**H32/600-HG**	HM31/600	MS31/560	600	750	108	$G^1/_8$	8	12
	Tr600×6	490	249	**H241/600-HG**	HM31/600	MS31/560	600	750	108	$G^1/_8$	8	12
	Tr600×6	561	320	**H33/600-HG**	HM31/600	MS31/560	600	750	108	$G^1/_8$	8	12
600	Tr630×6	254	126,3	**H39/630-HG**	HM30/630	MS30/630	630	730	95	M8	6	12
	Tr630×6	301	143,1	**H30/630-HG**	HM30/630	MS30/630	630	730	95	M8	6	12
	Tr630×6	395	157	**H240/630-HG**	HM30/630	MS30/630	630	730	95	M8	6	12
	Tr630×6	424	261,9	**H31/630-HG**	HM31/630	MS31/630	630	800	118	M8	6	12
	Tr630×6	521	297	**H32/630-HG**	HM31/630	MS31/630	630	800	118	M8	6	12
	Tr630×6	525	273,1	**H241/630-HG**	HM31/630	MS31/630	630	800	118	M8	6	12
	Tr630×6	597	338	**H33/630-HG**	HM31/630	MS31/630	630	800	118	M8	6	12
630	Tr670×6	264	166	**H39/670-HG**	HM30/670	MS30/670	670	780	101	$G^1/_8$	8	12
	Tr670×6	324	194	**H30/670-HG**	HM30/670	MS30/670	670	780	101	$G^1/_8$	8	12
	Tr670×6	418	218	**H240/670-HG**	HM30/670	MS30/670	670	780	101	$G^1/_8$	8	12
	Tr670×6	456	353,3	**H31/670-HG**	HM31/670	MS31/670	670	850	129	$G^1/_8$	8	12
	Tr670×6	548	355	**H241/670-HG**	HM31/670	MS31/670	670	850	129	$G^1/_8$	8	12
	Tr670×6	558	402	**H32/670-HG**	HM31/670	MS31/670	670	850	129	$G^1/_8$	8	12
	Tr670×6	635	453	**H33/670-HG**	HM31/670	MS31/670	670	850	129	$G^1/_8$	8	12
670	Tr710×7	286	206	**H39/710-HG**	HM30/710	MS30/710	710	830	110	$G^1/_8$	8	12
	Tr710×7	342	234,2	**H30/710-HG**	HM30/710	MS30/710	710	830	110	$G^1/_8$	8	12
	Tr710×7	438	254	**H240/710-HG**	HM30/710	MS30/710	710	830	110	$G^1/_8$	8	12
	Tr710×7	467	376	**H31/710-HG**	HM31/710	MS31/710	710	900	132	$G^1/_8$	8	12
	Tr710×7	572	444	**H32/710-HG**	HM31/710	MS31/710	710	900	132	$G^1/_8$	8	12
	Tr710×7	577	412,1	**H241/710-HG**	HM31/710	MS31/710	710	900	132	$G^1/_8$	8	12
	Tr710×7	652	501	**H33/710-HG**	HM31/710	MS31/710	710	900	132	$G^1/_8$	8	12

medias ➤ *https://www.schaeffler.de/std/1EA3*

https://www.schaeffler.de/std/1D65

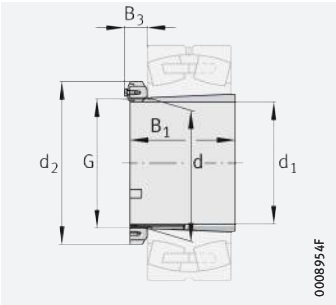
Main dimensions			Mass	Designation ➤1698|1.4			Dimensions			Mounting dimensions		
d_1	G	B_1	m ≈ kg	Adapter sleeve Complete	Locknut	Retainer	d	d_2	B_3 ≈	G_1	a	l_{G1}
710	Tr750×7	291	219,6	**H39/750-HG**	HM30/750	MS30/750	750	870	110	$G1/8$	8	12
	Tr750×7	356	248	**H30/750-HG**	HM30/750	MS30/750	750	870	110	$G1/8$	8	12
	Tr750×7	460	278	**H240/750-HG**	HM30/750	MS30/750	750	870	110	$G1/8$	8	12
	Tr750×7	493	432	**H31/750-HG**	HM31/750	MS31/750	750	950	137	$G1/8$	8	12
	Tr750×7	603	508	**H32/750-HG**	HM31/750	MS31/750	750	950	137	$G1/8$	8	12
	Tr750×7	622	461	**H241/750-HG**	HM31/750	MS31/750	750	950	137	$G1/8$	8	12
	Tr750×7	688	574	**H33/750-HG**	HM31/750	MS31/750	750	950	137	$G1/8$	8	12
750	Tr800×7	303	268,9	**H39/800-HG**	HM30/800	MS30/750	800	920	110	$G1/8$	10	12
	Tr800×7	366	311,6	**H30/800-HG**	HM30/800	MS30/750	800	920	110	$G1/8$	10	12
	Tr800×7	475	349	**H240/800-HG**	HM30/800	MS30/750	800	920	110	$G1/8$	10	12
	Tr800×7	505	515	**H31/800-HG**	HM31/800	MS31/750	800	1 000	137	$G1/8$	10	12
	Tr800×7	618	611	**H32/800-HG**	HM31/800	MS31/750	800	1 000	137	$G1/8$	10	12
	Tr800×7	627	552	**H241/800-HG**	HM31/800	MS31/750	800	1 000	137	$G1/8$	10	12
	Tr800×7	730	716	**H33/800-HG**	HM31/800	MS31/750	800	1 000	137	$G1/8$	10	12
800	Tr850×7	308	298,5	**H39/850-HG**	HM30/850	MS30/850	850	980	113	$G1/8$	10	12
	Tr850×7	380	350,8	**H30/850-HG**	HM30/850	MS30/850	850	980	113	$G1/8$	10	12
	Tr850×7	495	393	**H240/850-HG**	HM30/850	MS30/850	850	980	113	$G1/8$	10	12
	Tr850×7	536	590	**H31/850-HG**	HM31/850	MS31/850	850	1 060	144	$G1/8$	10	12
	Tr850×7	651	696	**H32/850-HG**	HM31/850	MS31/850	850	1 060	144	$G1/8$	10	12
	Tr850×7	658	650,2	**H241/850-HG**	HM31/850	MS31/850	850	1 060	144	$G1/8$	10	12
	Tr850×7	766	814	**H33/850-HG**	HM31/850	MS31/850	850	1 060	144	$G1/8$	10	12
850	Tr900×7	326	335	**H39/900-HG**	HM30/900	MS30/850	900	1 030	122	$G1/8$	10	12
	Tr900×7	400	392	**H30/900-HG**	HM30/900	MS30/850	900	1 030	122	$G1/8$	10	12
	Tr900×7	520	446	**H240/900-HG**	HM30/900	MS30/850	900	1 030	122	$G1/8$	10	12
	Tr900×7	557	674	**H31/900-HG**	HM31/900	MS31/900	900	1 120	150	$G1/8$	10	12
	Tr900×7	660	775	**H32/900-HG**	HM31/900	MS31/900	900	1 120	150	$G1/8$	10	12
	Tr900×7	685	712	**H241/900-HG**	HM31/900	MS31/900	900	1 120	150	$G1/8$	10	12
	Tr900×7	795	923	**H33/900-HG**	HM31/900	MS31/900	900	1 120	150	$G1/8$	10	12
900	Tr950×8	344	369	**H39/950-HG**	HM30/950	MS30/950	950	1 080	122	$G1/8$	10	12
	Tr950×8	420	432	**H30/950-HG**	HM30/950	MS30/950	950	1 080	122	$G1/8$	10	12
	Tr950×8	557	499	**H240/950-HG**	HM30/950	MS30/950	950	1 080	122	$G1/8$	10	12
	Tr950×8	583	738	**H31/950-HG**	HM31/950	MS31/950	950	1 170	151	$G1/8$	10	12
	Tr950×8	675	835	**H32/950-HG**	HM31/950	MS31/950	950	1 170	151	$G1/8$	10	12
	Tr950×8	715	804,8	**H241/950-HG**	HM31/950	MS31/950	950	1 170	151	$G1/8$	10	12
	Tr950×8	815	1 000	**H33/950-HG**	HM31/950	MS31/950	950	1 170	151	$G1/8$	10	12

medias ➤ *https://www.schaeffler.de/std/1EA4*

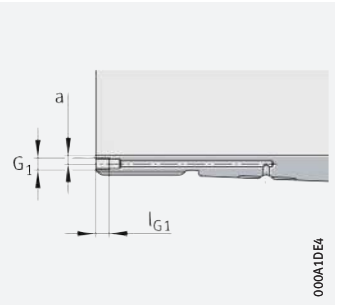
https://www.schaeffler.de/std/1D65

Adapter sleeves

With locknut and retainer



Taper 1:12
(taper 1:30 for H240, H241)
Retaining bracket MS30, MS31



Hydraulic adapter sleeve
(suffix HG)
Mounting dimensions

d_1 = 950 – 1 600 mm

Main dimensions			Mass	Designation ➤ *1698|1.4*			Dimensions			Mounting dimensions		
d_1	G	B_1	m ≈ kg	Adapter sleeve Complete	Locknut	Retainer	d	d_2	B_3 ≈	G_1	a	l_{G1}
950	Tr1000×8	358	410	**H39/1000-HG**	HM30/1000	MS30/1000	1 000	1 140	122	$G^1/_8$	10	12
	Tr1000×8	430	474	**H30/1000-HG**	HM30/1000	MS30/1000	1 000	1 140	122	$G^1/_8$	10	12
	Tr1000×8	562	539	**H240/1000-HG**	HM30/1000	MS30/1000	1 000	1 140	122	$G^1/_8$	10	12
	Tr1000×8	609	840	**H31/1000-HG**	HM31/1000	MS31/1000	1 000	1 240	151	$G^1/_8$	10	12
	Tr1000×8	707	952	**H32/1000-HG**	HM31/1000	MS31/1000	1 000	1 240	151	$G^1/_8$	10	12
	Tr1000×8	755	886	**H241/1000-HG**	HM31/1000	MS31/1000	1 000	1 240	151	$G^1/_8$	10	12
	Tr1000×8	857	1 140	**H33/1000-HG**	HM31/1000	MS31/1000	1 000	1 240	151	$G^1/_8$	10	12
1 000	Tr1060×8	372	493	**H39/1060-HG**	HM30/1060	MS30/1000	1 060	1 200	122	$G^1/_4$	12	15
	Tr1060×8	447	574	**H30/1060-HG**	HM30/1060	MS30/1000	1 060	1 200	122	$G^1/_4$	12	15
	Tr1060×8	588	665	**H240/1060-HG**	HM30/1060	MS30/1000	1 060	1 200	122	$G^1/_4$	12	15
	Tr1060×8	622	985	**H31/1060-HG**	HM31/1060	MS31/1000	1 060	1 300	151	$G^1/_4$	12	15
	Tr1060×8	775	1 060	**H241/1060-HG**	HM31/1060	MS31/1000	1 060	1 300	151	$G^1/_4$	12	15
1 060	Tr1120×8	372	521	**H39/1120-HG**	HM30/1120	MS30/1000	1 120	1 260	122	$G^1/_4$	12	15
	Tr1120×8	467	631	**H30/1120-HG**	HM30/1120	MS30/1000	1 120	1 260	122	$G^1/_4$	12	15
	Tr1120×8	612	728	**H240/1120-HG**	HM30/1120	MS30/1000	1 120	1 260	122	$G^1/_4$	12	15
	Tr1120×8	622	1 060	**H31/1120-HG**	HM31/1120	MS31/1000	1 120	1 360	151	$G^1/_4$	12	15
	Tr1120×8	805	1 170	**H241/1120-HG**	HM31/1120	MS31/1000	1 120	1 360	151	$G^1/_4$	13	15
1 120	Tr1180×8	394	576	**H39/1180-HG**	HM30/1180	MS30/1000	1 180	1 320	122	$G^1/_4$	12	15
	Tr1180×8	479	682	**H30/1180-HG**	HM30/1180	MS30/1000	1 180	1 320	122	$G^1/_4$	12	15
	Tr1180×8	625	782	**H240/1180-HG**	HM30/1180	MS30/1000	1 180	1 320	122	$G^1/_4$	12	15
	Tr1180×8	647	1 160	**H31/1180-HG**	HM31/1180	MS31/1000	1 180	1 420	151	$G^1/_4$	12	15
	Tr1180×8	845	1 290	**H241/1180-HG**	HM31/1180	MS31/1000	1 180	1 420	151	$G^1/_4$	13	15
1 180	Tr1250×8	407	708	**H39/1250-HG**	HM30/1250	MS30/1000	1 250	1 390	132	$G^1/_4$	14	15
	Tr1250×8	509	858	**H30/1250-HG**	HM30/1250	MS30/1000	1 250	1 390	132	$G^1/_4$	15	15
	Tr1250×8	660	988	**H240/1250-HG**	HM30/1250	MS30/1000	1 250	1 390	132	$G^1/_4$	14	15
	Tr1250×8	677	1 380	**H31/1250-HG**	HM31/1250	MS31/1000	1 250	1 490	151	$G^1/_4$	14	15
	Tr1250×8	885	1 549,6	**H241/1250-HG**	HM31/1250	MS31/1000	1 250	1 490	151	$G^1/_4$	14	15
1 250	Tr1320×8	430	781	**H39/1320-HG**	HM30/1320	MS30/1000	1 320	1 460	132	$G^1/_4$	14	15
	Tr1320×8	534	946	**H30/1320-HG**	HM30/1320	MS30/1000	1 320	1 460	132	$G^1/_4$	15	15
	Tr1320×8	690	1 080	**H240/1320-HG**	HM30/1320	MS30/1000	1 320	1 460	132	$G^1/_4$	14	15
	Tr1320×8	710	1 510	**H31/1320-HG**	HM31/1320	MS31/1000	1 320	1 560	151	$G^1/_4$	14	15
	Tr1320×8	935	1 700	**H241/1320-HG**	HM31/1320	MS31/1000	1 320	1 560	151	$G^1/_4$	14	15

medias ➤ *https://www.schaeffler.de/std/1EA5*

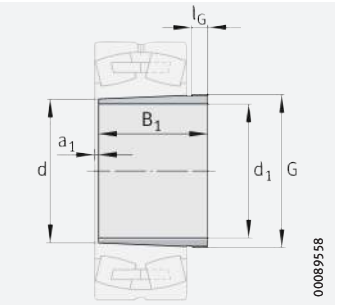
https://www.schaeffler.de/std/1D65

Main dimensions			Mass	Designation ➤*1698|1.4*			Dimensions			Mounting dimensions		
d_1	G	B_1	m ≈ kg	Adapter sleeve Complete	Locknut	Retainer	d	d_2	B_3 ≈	G_1	a	l_{G1}
1 320	Tr1400×8	445	924	**H39/1400-HG**	HM30/1400	MS30/1000	1 400	1 540	132	$G^1/_4$	15	15
	Tr1400×8	546	1 110	**H30/1400-HG**	HM30/1400	MS30/1000	1 400	1 540	132	$G^1/_4$	15	15
	Tr1400×8	705	1 290	**H240/1400-HG**	HM30/1400	MS30/1000	1 400	1 540	132	$G^1/_4$	14	15
	Tr1400×8	735	1 790	**H31/1400-HG**	HM31/1400	MS31/1000	1 400	1 640	156	$G^1/_4$	15	15
	Tr1400×8	965	2 030	**H241/1400-HG**	HM31/1400	MS31/1000	1 400	1 640	156	$G^1/_4$	15	15
1 400	Tr1500×8	465	1 210	**H39/1500-HG**	HM30/1500	MS30/1500	1 500	1 650	132	$G^1/_4$	15	15
	Tr1500×8	600	1 530	**H30/1500-HG**	HM30/1500	MS30/1500	1 500	1 650	132	$G^1/_4$	15	15
	Tr1500×8	775	1 790	**H240/1500-HG**	HM30/1500	MS30/1500	1 500	1 650	132	$G^1/_4$	14	15
	Tr1500×8	755	2 230	**H31/1500-HG**	HM31/1500	MS31/1000	1 500	1 740	156	$G^1/_4$	15	15
	Tr1500×8	990	2 560	**H241/1500-HG**	HM31/1500	MS31/1000	1 500	1 740	156	$G^1/_4$	15	15
1 500	Tr1600×8	465	2 480	**H39/1600-HG**	Z-195077.01.HM	MS30/850	1 600	1 730	112	$G^1/_4$	15	15
1 600	Tr1700×8	475	2 620	**H39/1700-HG**	Z-195078.01.HM	MS30/850	1 700	1 830	112	$G^1/_4$	15	15

medias ➤ *https://www.schaeffler.de/std/1EA6*

https://www.schaeffler.de/std/1D65

Withdrawal sleeves



Taper 1:12
(taper 1:30 for AH240, AH241)

d_1 = 35 – 95 mm

Main dimensions			Mass	Designation	Dimensions		
d_1	G	B_1	m ≈ kg	➤1698|1.4	d	a_1 ≈	l_G
35	M45×1,5	25	0,08	**AH208**	40	2	6
	M45×1,5	29	0,09	**AH308**	40	3	6
	M45×1,5	40	0,13	**AH2308**	40	3	7
	M45×1,5	44	0,15	**AH3308**	40	3	7
40	M50×1,5	26	0,09	**AH209**	45	3	6
	M50×1,5	31	0,11	**AH309**	45	3	6
	M50×1,5	44	0,17	**AH2309**	45	3	7
	M50×1,5	47	0,18	**AH3309**	45	3	7
45	M55×2	28	0,12	**AH210**	50	3	7
	M55×2	35	0,14	**AHX310**	50	3	7
	M55×2	50	0,22	**AHX2310**	50	3	9
	M55×2	54	0,24	**AH3310**	50	3	9
50	M60×2	29	0,13	**AH211**	55	3	7
	M60×2	37	0,17	**AHX311**	55	3	7
	M60×2	54	0,26	**AHX2311**	55	3	10
	M60×2	60	0,3	**AH3311**	55	3	10
55	M65×2	32	0,16	**AH212**	60	3	8
	M65×2	40	0,2	**AHX312**	60	3	8
	M65×2	58	0,32	**AHX2312**	60	3	11
	M70×2	65	0,41	**AH3312**	60	3	11
60	M75×2	33	0,21	**AH213**	65	4	8
	M70×2	33	0,18	**AH213G**	65	4	8
	M75×2	42	0,27	**AH313**	65	3	8
	M70×2	42	0,23	**AH313G**	65	3	8
	M75×2	61	0,42	**AH2313**	65	3	12
	M70×2	61	0,36	**AH2313G**	65	3	12
	M75×2	71	0,49	**AH3313**	65	3	12
65	M80×2	34	0,23	**AH214**	70	4	8
	M75×2	34	0,2	**AH214G**	70	4	8
	M80×2	43	0,29	**AH314**	70	4	8
	M75×2	43	0,26	**AH314G**	70	4	8
	M80×2	64	0,47	**AHX2314**	70	4	12
	M75×2	64	0,42	**AHX2314G**	70	4	12
	M80×2	76	0,57	**AH3314**	70	4	12

medias ➤ *https://www.schaeffler.de/std/1EA7*

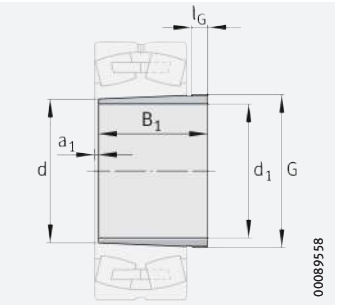
https://www.schaeffler.de/std/1D65

Main dimensions			Mass	Designation	Dimensions		
d_1	G	B_1	m ≈ kg	➤ *1698|1.4*	d	a_1 ≈	l_G
70	M85×2	35	0,26	**AH215**	75	4	8
	M80×2	35	0,22	**AH215G**	75	4	8
	M85×2	45	0,33	**AH315**	75	4	8
	M80×2	45	0,29	**AH315G**	75	4	8
	M85×2	68	0,54	**AHX2315**	75	4	12
	M80×2	68	0,48	**AHX2315G**	75	4	12
	M85×2	81	0,66	**AH3315**	75	4	12
75	M90×2	36	0,28	**AH216**	80	4	8
	M90×2	48	0,38	**AH316**	80	4	8
	M90×2	71	0,61	**AHX2316**	80	4	12
	M90×2	81	0,71	**AH3316**	80	4	12
80	M95×2	39	0,33	**AH217**	85	4	9
	M95×2	52	0,44	**AHX317**	85	4	9
	M95×2	60	0,52	**AH3217**	85	4	10
	M95×2	74	0,68	**AHX2317**	85	4	13
	M95×2	86	0,81	**AH3317**	85	4	13
85	M100×2	40	0,36	**AH218**	90	4	9
	M100×2	53	0,48	**AHX318**	90	4	9
	M100×2	63	0,58	**AHX3218**	90	4	10
	M100×2	79	0,78	**AHX2318**	90	4	14
	M100×2	87	0,88	**AH3318**	90	4	14
90	M105×2	43	0,42	**AH219**	95	4	10
	M105×2	57	0,55	**AHX319**	95	4	10
	M105×2	67	0,67	**AHX3219**	95	4	11
	M105×2	85	0,91	**AHX2319**	95	4	16
	M105×2	94	1,03	**AH3319**	95	4	16
95	M110×2	45	0,46	**AH220**	100	4	10
	M110×2	59	0,6	**AHX320**	100	4	10
	M105×2	62	0,5	**AH24020**	100	9	12
	M110×2	64	0,67	**AHX3120**	100	4	11
	M110×2	73	0,78	**AHX3220**	100	4	11
	M105×2	78	0,63	**AH24120**	100	9	13
	M110×2	90	1,03	**AHX2320**	100	4	16
	M110×2	99	1,16	**AH3320**	100	4	16

medias ➤ *https://www.schaeffler.de/std/1EA8*

https://www.schaeffler.de/std/1D65

Withdrawal sleeves



Taper 1:12
(taper 1:30 for AH240, AH241)

d_1 = 105 – 145 mm

Main dimensions			Mass	Designation	Dimensions		
d_1	G	B_1	m ≈ kg	➤ *1698|1.4*	d	a_1 ≈	l_G
105	M120×2	50	0,57	**AH222**	110	4	11
	M120×2	63	0,73	**AHX322**	110	4	12
	M120×2	68	0,79	**AHX3122**	110	4	11
	M115×2	73	0,65	**AH24022**	110	9	13
	M115×2	82	0,73	**AH24122**	110	9	13
	M120×2	82	0,98	**AHX3222A**	110	4	11
	M125×2	98	1,38	**AHX2322**	110	4	16
	M120×2	98	1,26	**AHX2322G**	110	4	16
	M125×2	108	1,54	**AH3322**	110	4	16
115	M130×2	53	0,67	**AH224**	120	4	12
	M130×2	60	0,77	**AHX3024**	120	4	13
	M130×2	69	0,89	**AHX324**	120	4	13
	M125×2	73	0,71	**AH24024**	120	9	13
	M130×2	75	0,97	**AHX3124**	120	4	12
	M130×2	90	1,22	**AHX3224A**	120	4	13
	M130×2	93	1,02	**AH24124**	120	9	13
	M135×2	105	1,64	**AHX2324**	120	4	17
	M130×2	105	1,5	**AHX2324G**	120	4	17
	M135×2	123	1,99	**AH3324**	120	4	17
125	M140×2	53	0,72	**AH226**	130	4	12
	M140×2	67	0,94	**AHX3026**	130	4	14
	M140×2	74	1,05	**AHX326**	130	4	14
	M140×2	78	1,1	**AHX3126**	130	4	12
	M135×2	83	0,89	**AH24026**	130	10	14
	M140×2	94	1,13	**AH24126**	130	10	14
	M145×2	98	1,61	**AHX3226**	130	4	15
	M140×2	98	1,48	**AHX3226G**	130	4	15
	M145×2	115	2	**AHX2326**	130	4	19
	M140×2	115	1,84	**AHX2326G**	130	4	19
	M145×2	131	2,36	**AH3326**	130	4	19

medias ➤ *https://www.schaeffler.de/std/1EA9*

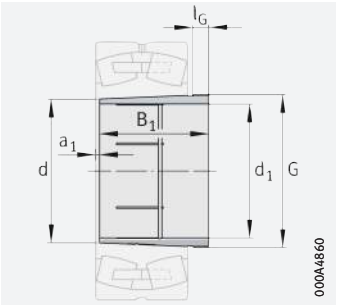
https://www.schaeffler.de/std/1D65

Main dimensions			Mass	Designation	Dimensions		
d_1	G	B_1	m ≈ kg	➤ *1698|1.4*	d	a_1 ≈	l_G
135	M150×2	56	0,83	**AH228**	140	5	13
	M150×2	68	1,03	**AHX3028**	140	5	14
	M150×2	77	1,18	**AHX328**	140	5	14
	M145×2	83	0,96	**AH24028**	140	10	14
	M150×2	83	1,29	**AHX3128**	140	5	14
	M150×2	99	1,29	**AH24128**	140	10	14
	M155×3	104	1,86	**AHX3228**	140	5	15
	M150×2	104	1,72	**AHX3228G**	140	5	15
	M155×3	125	2,4	**AHX2328**	140	5	20
	M150×2	125	2,21	**AHX2328G**	140	5	20
	M155×3	138	2,72	**AH3328**	140	5	20
145	M160×3	60	0,97	**AH230**	150	5	14
	M160×3	72	1,18	**AHX3030**	150	5	15
	M165×3	83	1,54	**AHX330**	150	5	15
	M160×3	83	1,39	**AHX330G**	150	5	15
	M155×3	90	1,12	**AH24030**	150	11	15
	M165×3	96	1,81	**AHX3130**	150	5	15
	M160×3	96	1,66	**AHX3130G**	150	5	15
	M165×3	114	2,25	**AHX3230**	150	5	17
	M160×3	114	2,09	**AHX3230G**	150	5	17
	M160×3	115	1,63	**AH24130**	150	11	15
	M165×3	135	2,88	**AHX2330**	150	5	24
	M160×3	135	2,64	**AHX2330G**	150	5	24
	M165×3	152	3,36	**AH3330**	150	5	24

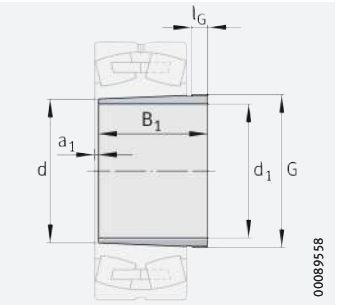
medias ➤ *https://www.schaeffler.de/std/1EAA*

https://www.schaeffler.de/std/1D65

Withdrawal sleeves



Hydraulic withdrawal sleeve
Taper 1:12
(taper 1:30 for AH240, AH241)



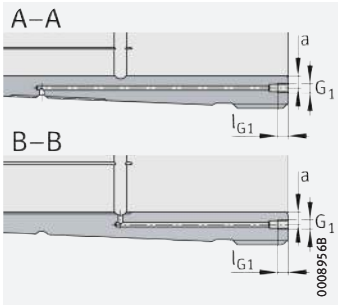
Taper 1:12
(taper 1:30 for AH240, AH241)

d_1 = 150 – 160 mm

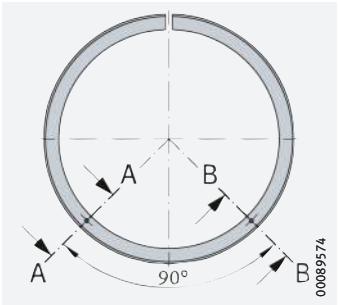
Main dimensions			Mass	Designation	Dimensions			Mounting dimensions		
d_1	G	B_1	m ≈ kg	➤ *1698|1.4*	d	a_1 ≈	l_G	G_1	a	l_{G1}
150	M170×3	64	1,71	**AH232**	160	5	15	–	–	–
	M170×3	77	2,09	**AH3032**	160	5	16	–	–	–
	M170×3	77	2,09	**AH3032-H**	160	5	16	M6	4,2	7
	M180×3	88	2,76	**AH332**	160	5	16	–	–	–
	M170×3	88	2,42	**AH332G**	160	5	16	–	–	–
	M170×3	95	2,31	**AH24032**	160	11	15	–	–	–
	M170×3	95	2,27	**AH24032-H**	160	11	15	M6	4,2	7
	M170×3	103	2,9	**AH3132A**	160	5	16	–	–	–
	M170×3	103	2,9	**AH3132A-H**	160	5	16	M6	4,5	7
	M170×3	124	3,04	**AH24132**	160	11	15	–	–	–
	M180×3	124	4,08	**AH3232**	160	6	20	–	–	–
	M180×3	124	4,08	**AH3232-H**	160	6	20	M6	4,5	7
	M170×3	124	3,65	**AH3232G**	160	6	20	–	–	–
	M170×3	124	3,65	**AH3232G-H**	160	6	20	M6	4,5	7
	M180×3	140	4,77	**AH2332**	160	6	24	–	–	–
	M180×3	140	4,77	**AH2332-H**	160	6	24	M6	4,5	7
	M170×3	140	4,26	**AH2332G**	160	6	24	–	–	–
	M170×3	140	4,26	**AH2332G-H**	160	6	24	M6	4,5	7
	M180×3	160	5,58	**AH3332**	160	6	24	–	–	–
	M180×3	160	5,58	**AH3332-H**	160	6	24	M6	4,5	7

medias ➤ *https://www.schaeffler.de/std/1EAB*

https://www.schaeffler.de/std/1D65



Hydraulic withdrawal sleeve (suffix H) Mounting dimensions



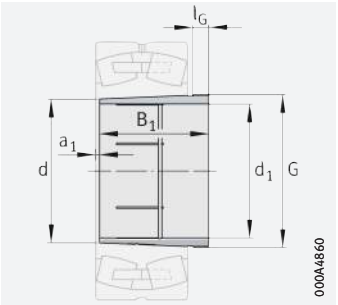
Oil connectors for hydraulic withdrawal sleeve

Main dimensions			Mass	Designation	Dimensions			Mounting dimensions		
d_1	G	B_1	m ≈ kg	➤ *1698|1.4*	d	a_1 ≈	l_G	G_1	a	l_{G1}
160	M180×3	59	1,65	**AH3934A**	170	5	13	–	–	–
	M180×3	69	1,98	**AH234**	170	5	16	–	–	–
	M180×3	85	2,48	**AH3034**	170	5	17	–	–	–
	M180×3	85	2,48	**AH3034-H**	170	5	17	M6	4,2	7
	M190×3	93	3,13	**AH334**	170	5	17	–	–	–
	M180×3	93	2,75	**AH334G**	170	5	17	–	–	–
	M190×3	104	3,4	**AH3134**	170	5	16	–	–	–
	M190×3	104	3,4	**AH3134-H**	170	5	16	M6	4,5	7
	M180×3	104	3,12	**AH3134A**	170	5	16	–	–	–
	M180×3	104	3,12	**AH3134A-H**	170	5	16	M6	4,5	7
	M180×3	106	2,76	**AH24034**	170	11	16	–	–	–
	M180×3	125	3,27	**AH24134**	170	11	16	–	–	–
	M190×3	134	4,83	**AH3234**	170	6	24	–	–	–
	M190×3	134	4,83	**AH3234-H**	170	6	24	M6	4,5	7
	M180×3	134	4,29	**AH3234G**	170	6	24	–	–	–
	M180×3	134	4,29	**AH3234G-H**	170	6	24	M6	4,5	7
	M190×3	146	5,32	**AH2334**	170	6	24	–	–	–
	M190×3	146	5,32	**AH2334-H**	170	6	24	M6	4,5	7
	M180×3	146	4,78	**AH2334G**	170	6	24	–	–	–
	M180×3	146	4,78	**AH2334G-H**	170	6	24	M6	4,5	7
	M190×3	164	6,11	**AH3334**	170	6	24	–	–	–
	M190×3	164	6,11	**AH3334-H**	170	6	24	M6	4,5	7

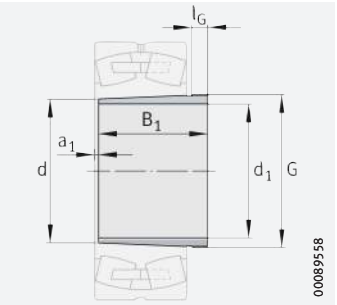
medias ➤ *https://www.schaeffler.de/std/1EAC*

https://www.schaeffler.de/std/1D65

Withdrawal sleeves



Hydraulic withdrawal sleeve
Taper 1:12
(taper 1:30 for AH240, AH241)



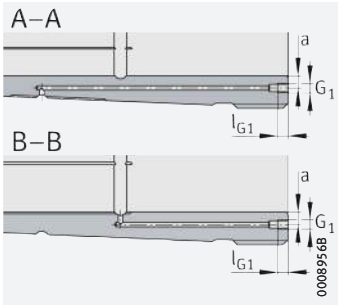
Taper 1:12
(taper 1:30 for AH240, AH241)

d_1 = 170 – 180 mm

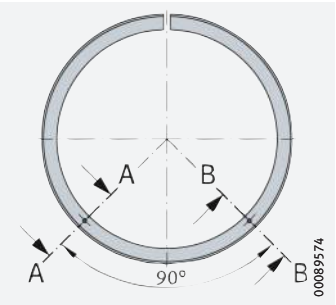
Main dimensions			Mass	Designation	Dimensions			Mounting dimensions		
d_1	G	B_1	m ≈ kg	➤ *1698|1.4*	d	a_1 ≈	l_G	G_1	a	l_{G1}
170	M190×3	66	1,96	**AH3936**	180	5	13	–	–	–
	M190×3	69	2,1	**AH236**	180	5	16	–	–	–
	M190×3	92	2,87	**AH3036**	180	6	17	–	–	–
	M190×3	92	2,87	**AH3036-H**	180	6	17	M6	4,2	7
	M200×3	105	3,76	**AH2236**	180	5	17	–	–	–
	M200×3	105	3,68	**AH2236-H**	180	5	17	M6	4,5	7
	M190×3	105	3,35	**AH2236G**	180	5	17	–	–	–
	M190×3	105	3,28	**AH2236G-H**	180	5	17	M6	4,5	7
	M190×3	116	3,21	**AH24036**	180	11	16	–	–	–
	M190×3	116	3,79	**AH3136A**	180	6	19	–	–	–
	M190×3	116	3,79	**AH3136A-H**	180	6	19	M6	4,5	7
	M190×3	134	3,74	**AH24136**	180	11	16	–	–	–
	M200×3	140	5,39	**AH3236**	180	6	25	–	–	–
	M200×3	140	5,39	**AH3236-H**	180	6	25	M6	4,5	7
	M190×3	140	4,8	**AH3236G**	180	6	25	–	–	–
	M190×3	140	4,8	**AH3236G-H**	180	6	25	M6	4,5	7
	M200×3	154	6,04	**AH2336**	180	6	26	–	–	–
	M200×3	154	6,04	**AH2336-H**	180	6	26	M6	4,5	7
	M190×3	154	5,42	**AH2336G**	180	6	26	–	–	–
	M190×3	154	5,42	**AH2336G-H**	180	6	26	M6	4,5	7
	M200×3	176	7,1	**AH3336**	180	6	26	–	–	–
	M200×3	176	7,1	**AH3336-H**	180	6	26	M6	4,5	7

medias ➤ *https://www.schaeffler.de/std/1EAD*

https://www.schaeffler.de/std/1D65



Hydraulic withdrawal sleeve (suffix H) Mounting dimensions



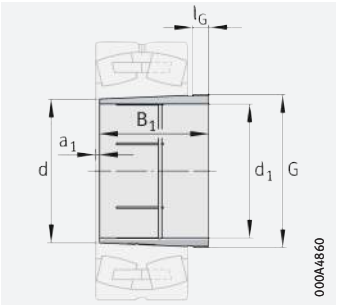
Oil connectors for hydraulic withdrawal sleeve

Main dimensions			Mass	Designation	Dimensions			Mounting dimensions		
d_1	G	B_1	m ≈ kg	➤ *1698|1.4*	d	a_1 ≈	l_G	G_1	a	l_{G1}
180	M200×3	66	2,07	**AH3938**	190	5	13	–	–	–
	Tr205×4	73	2,57	**AH238**	190	5	17	–	–	–
	M200×3	73	2,36	**AH238G**	190	5	17	–	–	–
	Tr205×4	96	3,42	**AH3038**	190	6	18	–	–	–
	Tr205×4	96	3,42	**AH3038-H**	190	6	18	M6	4,2	7
	M200×3	96	3,19	**AH3038G**	190	6	18	–	–	–
	M200×3	96	3,19	**AH3038G-H**	190	6	18	M6	4,2	7
	Tr210×4	112	4,28	**AH2238**	190	5	18	–	–	–
	Tr210×4	112	4,19	**AH2238-H**	190	5	18	M6	4,5	7
	M200×3	112	3,83	**AH2238G**	190	5	18	–	–	–
	M200×3	112	3,75	**AH2238G-H**	190	5	18	M6	4,5	7
	M200×3	118	3,48	**AH24038**	190	13	18	–	–	–
	Tr210×4	125	4,89	**AH3138**	190	6	20	–	–	–
	Tr210×4	125	4,89	**AH3138-H**	190	6	20	M6	4,5	7
	M200×3	125	4,39	**AH3138G**	190	6	20	–	–	–
	M200×3	125	4,39	**AH3138G-H**	190	6	20	M6	4,5	7
	Tr210×4	145	5,92	**AH3238**	190	7	25	–	–	–
	Tr210×4	145	5,92	**AH3238-H**	190	7	25	M6	4,5	7
	M200×3	145	5,3	**AH3238G**	190	7	25	–	–	–
	M200×3	145	5,3	**AH3238G-H**	190	7	25	M6	4,5	7
	M200×3	146	4,37	**AH24138**	190	13	18	–	–	–
	Tr210×4	160	6,67	**AH2338**	190	7	26	–	–	–
	Tr210×4	160	6,67	**AH2338-H**	190	7	26	M6	4,5	7
	M200×3	160	6,02	**AH2338G**	190	7	26	–	–	–
	M200×3	160	6,02	**AH2338G-H**	190	7	26	M6	4,5	7
	Tr210×4	181	7,76	**AH3338**	190	7	26	–	–	–
	Tr210×4	181	7,76	**AH3338-H**	190	7	26	M6	4,5	7

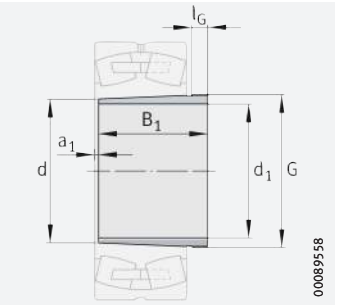
medias ➤ *https://www.schaeffler.de/std/1EAE*

https://www.schaeffler.de/std/1D65

Withdrawal sleeves



Hydraulic withdrawal sleeve
Taper 1:12
(taper 1:30 for AH240, AH241)



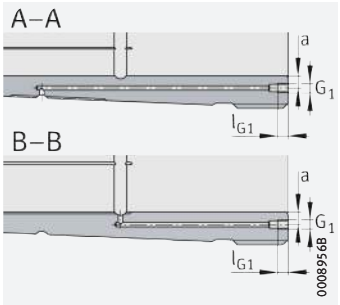
Taper 1:12
(taper 1:30 for AH240, AH241)

d_1 = 190 – 200 mm

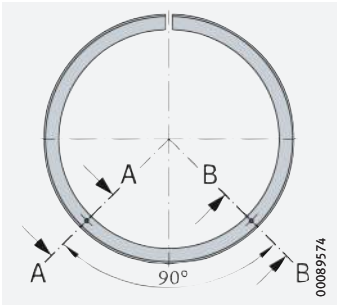
Main dimensions			Mass	Designation	Dimensions			Mounting dimensions		
d_1	G	B_1	m ≈ kg	➤ *1698|1.4*	d	a_1 ≈	l_G	G_1	a	l_{G1}
190	Tr215×4	77	2,88	**AH240**	200	5	18	–	–	–
	Tr210×4	77	2,43	**AH240G**	200	5	18	–	–	–
	Tr210×4	77	2,62	**AH3940**	200	6	16	–	–	–
	Tr215×4	102	3,86	**AH3040**	200	6	19	–	–	–
	Tr215×4	102	3,86	**AH3040-H**	200	6	19	M6	4,2	7
	Tr210×4	102	3,62	**AH3040G**	200	6	19	–	–	–
	Tr210×4	102	3,62	**AH3040G-H**	200	6	19	M6	4,2	7
	Tr220×4	118	4,8	**AH2240**	200	5	19	–	–	–
	Tr220×4	118	4,7	**AH2240-H**	200	5	19	M6	4,5	7
	Tr210×4	127	3,96	**AH24040**	200	13	18	–	–	–
	Tr210×4	127	3,93	**AH24040-H**	200	13	18	M6	8	7
	Tr220×4	134	5,6	**AH3140**	200	6	21	–	–	–
	Tr220×4	134	5,6	**AH3140-H**	200	6	21	M6	4,5	7
	Tr220×4	153	6,61	**AH3240**	200	7	24	–	–	–
	Tr220×4	153	6,61	**AH3240-H**	200	7	24	M6	4,5	7
	Tr210×4	158	5,02	**AH24140**	200	13	18	–	–	–
	Tr220×4	170	7,64	**AH2340**	200	7	30	–	–	–
	Tr220×4	170	7,64	**AH2340-H**	200	7	30	M6	4,5	7
	Tr220×4	195	9,04	**AH3340**	200	7	30	–	–	–
	Tr220×4	195	9,04	**AH3340-H**	200	7	30	M6	4,5	7

medias ➤ *https://www.schaeffler.de/std/1EAF*

https://www.schaeffler.de/std/1D65



Hydraulic withdrawal sleeve (suffix H) Mounting dimensions



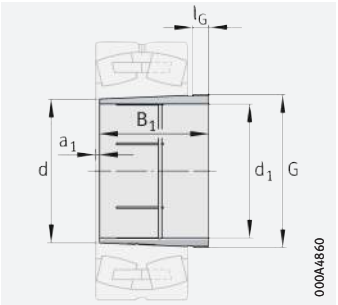
Oil connectors for hydraulic withdrawal sleeve

Main dimensions			Mass	Designation	Dimensions			Mounting dimensions		
d_1	G	B_1	m ≈ kg	➤*1698|1.4*	d	a_1 ≈	l_G	G_1	a	l_{G1}
200	Tr230×4	77	4,81	**AH3944**	220	6	16	–	–	–
	Tr230×4	77	4,81	**AH3944-H**	220	6	16	M8	7,5	12
	Tr235×4	85	5,62	**AH244**	220	6	18	–	–	–
	Tr230×4	85	5,36	**AH244G**	220	6	18	–	–	–
	Tr235×4	111	7,47	**AH3044**	220	6	20	–	–	–
	Tr235×4	111	7,47	**AH3044-H**	220	6	20	$G^1/_8$	8,5	12
	Tr230×4	111	7,18	**AH3044G**	220	6	20	–	–	–
	Tr230×4	111	7,18	**AH3044G-H**	220	6	20	$G^1/_8$	6,5	12
	Tr240×4	130	9,17	**AH2244**	220	6	20	–	–	–
	Tr240×4	130	8,99	**AH2244-H**	220	6	20	$G^1/_8$	8,5	12
	Tr230×4	138	8,22	**AH24044**	220	14	18	–	–	–
	Tr230×4	138	8,22	**AH24044-H**	220	14	18	M6	8	7
	Tr240×4	145	10,4	**AH3144**	220	6	23	–	–	–
	Tr240×4	145	10,4	**AH3144-H**	220	6	23	$G^1/_8$	8,5	12
	Tr230×4	170	10,3	**AH24144**	220	14	20	–	–	–
	Tr230×4	170	10,3	**AH24144-H**	220	14	20	M6	8	7
	Tr240×4	181	13,6	**AH2344**	220	8	30	–	–	–
	Tr240×4	181	13,6	**AH2344-H**	220	8	30	$G^1/_8$	8,5	12
	Tr240×4	210	16,2	**AH3344**	220	8	30	–	–	–
	Tr240×4	210	16,2	**AH3344-H**	220	8	30	$G^1/_8$	8,5	12

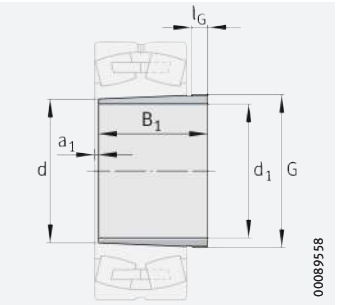
medias ➤ *https://www.schaeffler.de/std/1EB0*

https://www.schaeffler.de/std/1D65

Withdrawal sleeves



Hydraulic withdrawal sleeve
Taper 1:12
(taper 1:30 for AH240, AH241, AH248)



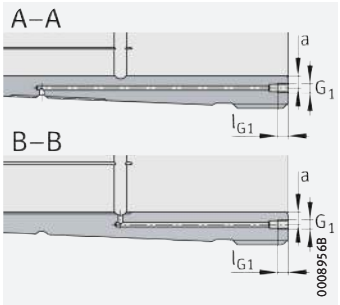
Taper 1:12
(taper 1:30 for AH240, AH241)

d_1 = 220 – 240 mm

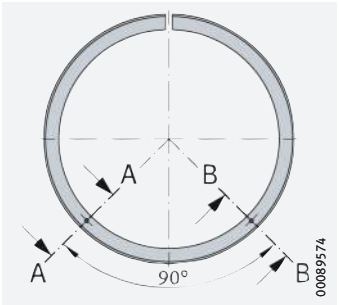
Main dimensions			Mass	Designation	Dimensions			Mounting dimensions		
d_1	G	B_1	m ≈ kg	➤*1698|1.4*	d	a_1 ≈	l_G	G_1	a	l_{G1}
220	Tr250×4	77	5,26	**AH3948**	240	6	16	–	–	–
	Tr250×4	77	5,26	**AH3948-H**	240	6	16	M8	8,5	12
	Tr260×4	96	7,41	**AH248**	240	6	22	–	–	–
	Tr260×4	116	8,92	**AH3048**	240	7	21	–	–	–
	Tr260×4	116	8,92	**AH3048-H**	240	7	21	$G^1/_8$	8,5	12
	Tr250×4	138	9,03	**AH24048**	240	15	20	–	–	–
	Tr250×4	138	9,03	**AH24048-H**	240	15	20	$G^1/_8$	8,5	12
	Tr260×4	144	11,3	**AH2248**	240	6	21	–	–	–
	Tr260×4	144	11	**AH2248-H**	240	6	21	$G^1/_8$	8,5	12
	Tr260×4	154	12,3	**AH3148**	240	7	25	–	–	–
	Tr260×4	154	12,3	**AH3148-H**	240	7	25	$G^1/_8$	8,5	12
	Tr260×4	180	12,6	**AH24148**	240	15	20	–	–	–
	Tr260×4	180	12,6	**AH24148-H**	240	15	20	$G^1/_8$	8,5	12
	Tr260×4	189	15,6	**AH2348**	240	8	30	–	–	–
	Tr260×4	189	15,6	**AH2348-H**	240	8	30	$G^1/_8$	8,5	12
	Tr260×4	225	19,3	**AH3348**	240	8	30	–	–	–
	Tr260×4	225	19,3	**AH3348-H**	240	8	30	$G^1/_8$	8,5	12

medias ➤ *https://www.schaeffler.de/std/1EB1*

https://www.schaeffler.de/std/1D65



Hydraulic withdrawal sleeve (suffix H) Mounting dimensions



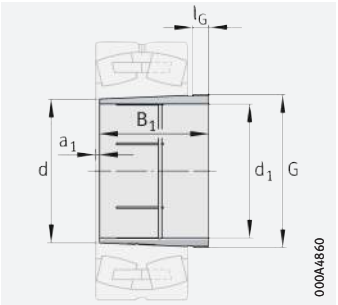
Oil connectors for hydraulic withdrawal sleeve

Main dimensions			Mass	Designation	Dimensions			Mounting dimensions		
d_1	G	B_1	m ≈ kg	➤ *1698|1.4*	d	a_1 ≈	l_G	G_1	a	l_{G1}
240	Tr275×4	94	7,39	**AH3952**	260	6	18	–	–	–
	Tr275×4	94	7,39	**AH3952-H**	260	6	18	M8	8,5	12
	Tr280×4	94	7,7	**AH3952G**	260	6	18	–	–	–
	Tr280×4	94	7,7	**AH3952G-H**	260	6	18	M8	8,5	12
	Tr280×4	105	8,83	**AH252**	260	6	23	–	–	–
	Tr280×4	128	10,8	**AH3052**	260	7	23	–	–	–
	Tr280×4	128	10,8	**AH3052-H**	260	7	23	$G^1/_8$	8,5	12
	Tr290×4	155	14,1	**AH2252**	260	6	23	–	–	–
	Tr290×4	155	13,8	**AH2252-H**	260	6	23	$G^1/_8$	8,5	12
	Tr280×4	155	13,3	**AH2252G**	260	6	23	–	–	–
	Tr280×4	155	13,1	**AH2252G-H**	260	6	23	$G^1/_8$	8,5	12
	Tr270×4	162	11,6	**AH24052**	260	16	20	–	–	–
	Tr270×4	162	11,6	**AH24052-H**	260	16	20	M6	8,5	7
	Tr280×4	162	12,3	**AH24052G**	260	16	20	–	–	–
	Tr280×4	162	12,3	**AH24052G-H**	260	16	20	M6	8,5	7
	Tr290×4	172	16	**AH3152**	260	7	26	–	–	–
	Tr290×4	172	16	**AH3152-H**	260	7	26	$G^1/_8$	8,5	12
	Tr280×4	172	15,1	**AH3152G**	260	7	26	–	–	–
	Tr280×4	172	15,1	**AH3152G-H**	260	7	26	$G^1/_8$	8,5	12
	Tr280×4	202	15,5	**AH24152**	260	16	22	–	–	–
	Tr280×4	202	15,5	**AH24152-H**	260	16	22	$G^1/_8$	8,5	12
	Tr290×4	205	19,7	**AH2352**	260	8	30	–	–	–
	Tr290×4	205	19,7	**AH2352-H**	260	8	30	$G^1/_8$	8,5	12
	Tr280×4	205	18,7	**AH2352G**	260	8	30	–	–	–
	Tr280×4	205	18,7	**AH2352G-H**	260	8	30	$G^1/_8$	8,5	12
	Tr290×4	236	23,2	**AH3352**	260	8	30	–	–	–
	Tr290×4	236	23,2	**AH3352-H**	260	8	30	$G^1/_8$	8,5	12

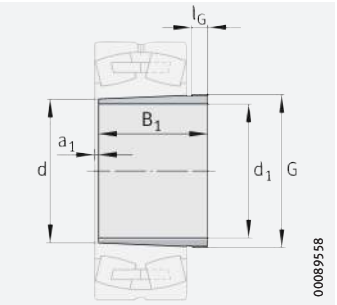
medias ➤ *https://www.schaeffler.de/std/1EB2*

https://www.schaeffler.de/std/1D65

Withdrawal sleeves



Hydraulic withdrawal sleeve
Taper 1:12
(taper 1:30 for AH240, AH241)



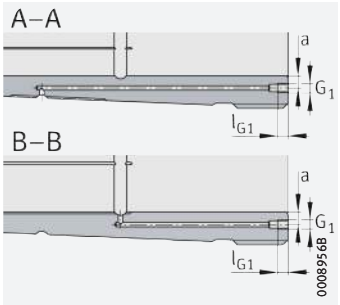
Taper 1:12
(taper 1:30 for AH240, AH241)

d_1 = 260 – 280 mm

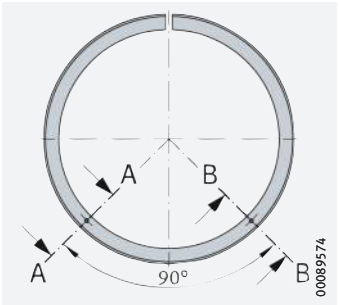
Main dimensions			Mass	Designation	Dimensions			Mounting dimensions		
d_1	G	B_1	m ≈ kg	➤ *1698|1.4*	d	a_1 ≈	l_G	G_1	a	l_{G1}
260	Tr295×4	94	7,98	**AH3956**	280	6	18	–	–	–
	Tr295×4	94	7,98	**AH3956-H**	280	6	18	M8	8,5	12
	Tr300×4	94	8,3	**AH3956G**	280	6	18	–	–	–
	Tr300×4	94	8,3	**AH3956G-H**	280	6	18	M8	8,5	12
	Tr300×4	105	9,52	**AH256**	280	8	23	–	–	–
	Tr300×4	131	12	**AH3056**	280	8	24	–	–	–
	Tr300×4	131	12	**AH3056-H**	280	8	24	$G^1/_8$	8,5	12
	Tr310×5	155	15,3	**AH2256**	280	8	24	–	–	–
	Tr310×5	155	15	**AH2256-H**	280	8	24	$G^1/_8$	8,5	12
	Tr300×4	155	14,4	**AH2256G**	280	8	24	–	–	–
	Tr300×4	155	14,1	**AH2256G-H**	280	8	24	$G^1/_8$	8,5	12
	Tr290×4	162	12,6	**AH24056**	280	17	22	–	–	–
	Tr290×4	162	12,6	**AH24056-H**	280	17	22	M6	8,5	7
	Tr300×4	162	13,4	**AH24056G**	280	17	22	–	–	–
	Tr300×4	162	13,4	**AH24056G-H**	280	17	22	M6	8,5	7
	Tr310×5	175	17,7	**AH3156**	280	8	28	–	–	–
	Tr310×5	175	17,7	**AH3156-H**	280	8	28	$G^1/_8$	8,5	12
	Tr300×4	175	16,7	**AH3156G**	280	8	28	–	–	–
	Tr300×4	175	16,7	**AH3156G-H**	280	8	28	$G^1/_8$	8,5	12
	Tr300×4	202	16,7	**AH24156**	280	17	22	–	–	–
	Tr300×4	202	16,7	**AH24156-H**	280	17	22	$G^1/_8$	8,5	12
	Tr310×5	212	22,1	**AH2356**	280	8	30	–	–	–
	Tr310×5	212	22,1	**AH2356-H**	280	8	30	$G^1/_8$	8,5	12
	Tr300×4	212	20,9	**AH2356G**	280	8	30	–	–	–
	Tr300×4	212	20,9	**AH2356G-H**	280	8	30	$G^1/_8$	8,5	12
	Tr310×5	254	27,4	**AH3356**	280	8	30	–	–	–
	Tr310×5	254	27,4	**AH3356-H**	280	8	30	$G^1/_8$	8,5	12

medias ➤ *https://www.schaeffler.de/std/1EB3*

https://www.schaeffler.de/std/1D65



Hydraulic withdrawal sleeve (suffix H)
Mounting dimensions



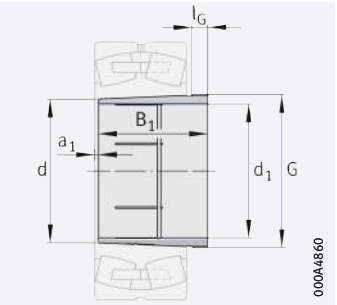
Oil connectors for hydraulic withdrawal sleeve

Main dimensions			Mass	Designation	Dimensions			Mounting dimensions		
d_1	G	B_1	m ≈ kg	➤ *1698|1.4*	d	a_1 ≈	l_G	G_1	a	l_{G1}
280	Tr315×5	112	10,4	**AH3960**	300	7	21	–	–	–
	Tr315×5	112	10,4	**AH3960-H**	300	7	21	M8	8,5	12
	Tr320×5	112	10,8	**AH3960G**	300	7	21	–	–	–
	Tr320×5	112	10,8	**AH3960G-H**	300	7	21	M8	8,5	12
	Tr320×5	145	14,4	**AH3060**	300	8	26	–	–	–
	Tr320×5	145	14,4	**AH3060-H**	300	8	26	$G^1/_8$	8,5	12
	Tr330×5	170	18,3	**AH2260**	300	8	26	–	–	–
	Tr330×5	170	17,9	**AH2260-H**	300	8	26	$G^1/_8$	8,5	12
	Tr320×5	170	17,2	**AH2260G**	300	8	26	–	–	–
	Tr320×5	170	16,9	**AH2260G-H**	300	8	26	$G^1/_8$	8,5	12
	Tr310×5	184	15,5	**AH24060**	300	18	24	–	–	–
	Tr310×5	184	15,5	**AH24060-H**	300	18	24	M6	8,5	7
	Tr320×5	184	16,4	**AH24060G**	300	18	24	–	–	–
	Tr320×5	184	16,4	**AH24060G-H**	300	18	24	M6	8,5	7
	Tr330×5	192	21,2	**AH3160**	300	8	30	–	–	–
	Tr330×5	192	21,2	**AH3160-H**	300	8	30	$G^1/_8$	8,5	12
	Tr320×5	192	20	**AH3160G**	300	8	30	–	–	–
	Tr320×5	192	20	**AH3160G-H**	300	8	30	$G^1/_8$	8,5	12
	Tr320×5	224	20,1	**AH24160**	300	18	24	–	–	–
	Tr320×5	224	20,1	**AH24160-H**	300	18	24	$G^1/_8$	8,5	12
	Tr330×5	228	26	**AH3260**	300	8	34	–	–	–
	Tr330×5	228	26	**AH3260-H**	300	8	34	$G^1/_8$	8,5	12
	Tr320×5	228	24,6	**AH3260G**	300	8	34	–	–	–
	Tr320×5	228	24,6	**AH3260G-H**	300	8	34	$G^1/_8$	8,5	12
	Tr330×5	270	31,8	**AH3360**	300	8	34	–	–	–
	Tr330×5	270	31,8	**AH3360-H**	300	8	34	$G^1/_8$	8,5	12

medias ➤ *https://www.schaeffler.de/std/1EB4*

https://www.schaeffler.de/std/1D65

Withdrawal sleeves



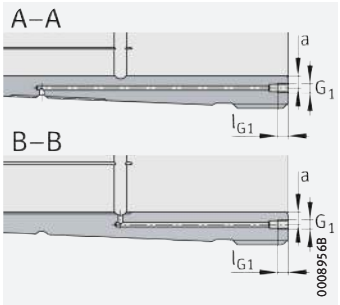
Hydraulic withdrawal sleeve
Taper 1:12
(taper 1:30 for AH240, AH241)

d_1 = 300 – 380 mm

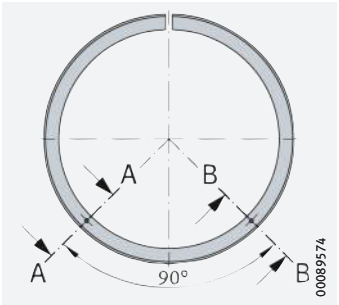
Main dimensions			Mass	Designation	Dimensions			Mounting dimensions		
d_1	G	B_1	m ≈ kg	➤ *1698|1.4*	d	a_1 ≈	l_G	G_1	a	l_{G1}
300	Tr335×5	112	11,1	**AH3964-H**	320	7	21	M8	8,5	12
	Tr340×5	112	11,5	**AH3964G-H**	320	7	21	M8	8,5	12
	Tr345×5	149	16,5	**AH3064-H**	320	8	27	$G^1/_8$	8,5	12
	Tr340×5	149	15,9	**AH3064G-H**	320	8	27	$G^1/_8$	8,5	12
	Tr350×5	180	20,6	**AH2264-H**	320	10	27	$G^1/_8$	8,5	12
	Tr340×5	180	19,6	**AH2264G-H**	320	10	27	$G^1/_8$	8,5	12
	Tr330×5	184	16,6	**AH24064-H**	320	18	24	M6	8,5	7
	Tr340×5	184	17,5	**AH24064G-H**	320	18	24	M6	8,5	7
	Tr350×5	209	24,9	**AH3164-H**	320	8	31	$G^1/_8$	8,5	12
	Tr340×5	209	23,6	**AH3164G-H**	320	8	31	$G^1/_8$	8,5	12
	Tr340×5	242	23,4	**AH24164-H**	320	18	24	$G^1/_8$	8,5	12
	Tr350×5	246	30,4	**AH3264-H**	320	8	36	$G^1/_8$	8,5	12
	Tr340×5	246	28,9	**AH3264G-H**	320	8	36	$G^1/_8$	8,5	12
	Tr350×5	294	37,9	**AH3364-H**	320	8	36	$G^1/_8$	8,5	12
320	Tr355×5	112	11,8	**AH3968-H**	340	7	21	M8	8,5	12
	Tr360×5	112	12,3	**AH3968G-H**	340	7	21	M8	8,5	12
	Tr365×5	162	19,2	**AH3068-H**	340	9	28	$G^1/_8$	8,5	12
	Tr360×5	162	18,6	**AH3068G-H**	340	9	28	$G^1/_8$	8,5	12
	Tr360×5	206	21,1	**AH24068-H**	340	19	26	$G^1/_8$	8,5	12
	Tr370×5	225	28,9	**AH3168-H**	340	9	33	$G^1/_8$	8,5	12
	Tr360×5	225	27,5	**AH3168G-H**	340	9	33	$G^1/_8$	8,5	12
	Tr370×5	264	35,3	**AH3268-H**	340	9	38	$G^1/_8$	8,5	12
	Tr360×5	264	33,6	**AH3268G-H**	340	9	38	$G^1/_8$	8,5	12
	Tr360×5	269	28	**AH24168-H**	340	19	26	$G^1/_8$	8,5	12
	Tr370×5	310	43,1	**AH3368-H**	340	9	38	$G^1/_8$	8,5	12

medias ➤ *https://www.schaeffler.de/std/1EB5*

https://www.schaeffler.de/std/1D65



Hydraulic withdrawal sleeve (suffix H) Mounting dimensions



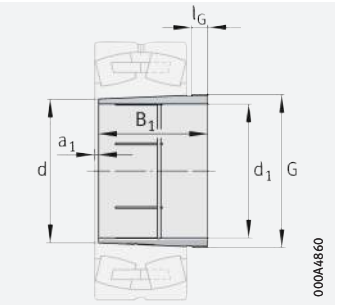
Oil connectors for hydraulic withdrawal sleeve

Main dimensions			Mass	Designation	Dimensions			Mounting dimensions		
d_1	G	B_1	m ≈ kg	➤*1698|1.4*	d	a_1 ≈	l_G	G_1	a	l_{G1}
340	Tr375×5	112	12,5	**AH3972-H**	360	7	21	M8	8,5	12
	Tr380×5	112	13	**AH3972G-H**	360	7	21	M8	8,5	12
	Tr385×5	167	21,2	**AH3072-H**	360	9	30	$G^1/_8$	8,5	12
	Tr380×5	167	20,5	**AH3072G-H**	360	9	30	$G^1/_8$	8,5	12
	Tr380×5	206	22,3	**AH24072-H**	360	20	26	$G^1/_8$	8,5	12
	Tr400×5	229	33,1	**AH3172-H**	360	9	35	$G^1/_8$	8,5	12
	Tr380×5	229	29,8	**AH3172G-H**	360	9	35	$G^1/_8$	8,5	12
	Tr380×5	269	29,7	**AH24172-H**	360	20	26	$G^1/_8$	8,5	12
	Tr400×5	274	41,1	**AH3272-H**	360	9	40	$G^1/_8$	8,5	12
	Tr380×5	274	37,3	**AH3272G-H**	360	9	40	$G^1/_8$	8,5	12
	Tr400×5	330	51,5	**AH3372-H**	360	9	40	$G^1/_8$	8,5	12
360	Tr395×5	130	15,6	**AH3976-H**	380	8	22	M8	8,5	12
	Tr400×5	130	16,1	**AH3976G-H**	380	8	22	M8	8,5	12
	Tr410×5	170	23,6	**AH3076-H**	380	10	31	$G^1/_8$	8,5	12
	Tr400×5	170	22,1	**AH3076G-H**	380	10	31	$G^1/_8$	8,5	12
	Tr400×5	208	24	**AH24076-H**	380	20	28	$G^1/_8$	8,5	12
	Tr420×5	232	35,6	**AH3176-H**	380	10	36	$G^1/_8$	8,5	12
	Tr400×5	232	32	**AH3176G-H**	380	10	36	$G^1/_8$	8,5	12
	Tr400×5	271	31,8	**AH24176-H**	380	20	28	$G^1/_8$	8,5	12
	Tr420×5	284	45,5	**AH3276-H**	380	10	42	$G^1/_8$	8,5	12
	Tr400×5	284	41,3	**AH3276G-H**	380	10	42	$G^1/_8$	8,5	12
	Tr420×5	342	57,1	**AH3376-H**	380	10	42	$G^1/_8$	8,5	12
380	Tr415×5	130	16,4	**AH3980-H**	400	8	22	M8	8,5	12
	Tr420×5	130	17	**AH3980G-H**	400	8	22	M8	8,5	12
	Tr430×5	183	27,1	**AH3080-H**	400	10	33	$G^1/_8$	8,5	12
	Tr420×5	183	25,4	**AH3080G-H**	400	10	33	$G^1/_8$	8,5	12
	Tr420×5	228	27,8	**AH24080-H**	400	20	28	$G^1/_8$	8,5	12
	Tr440×5	240	39,1	**AH3180-H**	400	10	38	$G^1/_8$	8,5	12
	Tr420×5	240	35,1	**AH3180G-H**	400	10	38	$G^1/_8$	8,5	12
	Tr420×5	278	34,4	**AH24180-H**	400	20	28	$G^1/_8$	8,5	12
	Tr440×5	302	51,7	**AH3280-H**	400	10	44	$G^1/_8$	8,5	12
	Tr420×5	302	47,1	**AH3280G-H**	400	10	44	$G^1/_8$	8,5	12
	Tr440×5	352	62,5	**AH3380-H**	400	10	44	$G^1/_8$	8,5	12

medias ➤ *https://www.schaeffler.de/std/1EB6*

https://www.schaeffler.de/std/1D65

Withdrawal sleeves



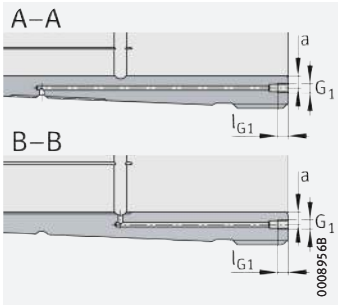
Hydraulic withdrawal sleeve
Taper 1:12
(taper 1:30 for AH240, AH241)

d_1 = 400 – 500 mm

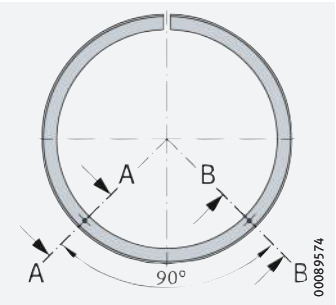
Main dimensions			Mass	Designation	Dimensions			Mounting dimensions		
d_1	G	B_1	m ≈ kg	➤*1698|1.4*	d	a_1 ≈	l_G	G_1	a	l_{G1}
400	Tr435×5	130	17,3	**AH3984-H**	420	8	22	M8	8,5	12
	Tr440×5	130	17,8	**AH3984G-H**	420	8	22	M8	8,5	12
	Tr450×5	186	29,1	**AH3084-H**	420	10	34	$G^1/_8$	8,5	12
	Tr440×5	186	27,2	**AH3084G-H**	420	10	34	$G^1/_8$	8,5	12
	Tr440×5	230	29,6	**AH24084-H**	420	22	30	$G^1/_8$	8,5	12
	Tr460×5	266	46,4	**AH3184-H**	420	10	40	$G^1/_8$	8,5	12
	Tr440×5	266	42	**AH3184G-H**	420	10	40	$G^1/_8$	8,5	12
	Tr440×5	310	41	**AH24184-H**	420	22	30	$G^1/_8$	8,5	12
	Tr460×5	321	58,6	**AH3284-H**	420	10	46	$G^1/_8$	8,5	12
	Tr440×5	321	53,6	**AH3284G-H**	420	10	46	$G^1/_8$	8,5	12
	Tr460×5	361	67,9	**AH3384-H**	420	10	46	$G^1/_8$	8,5	12
420	Tr460×5	145	21,2	**AH3988-H**	440	8	25	$G^1/_8$	8,5	12
	Tr470×5	194	31,9	**AHX3088-H**	440	11	35	$G^1/_8$	8,5	12
	Tr460×5	194	30	**AHX3088G-H**	440	11	35	$G^1/_8$	8,5	12
	Tr460×5	242	32,8	**AH24088-H**	440	22	30	$G^1/_8$	8,5	12
	Tr480×5	270	49,7	**AHX3188-H**	440	11	42	$G^1/_8$	8,5	12
	Tr460×5	270	44,9	**AHX3188G-H**	440	11	42	$G^1/_8$	8,5	12
	Tr460×5	310	42,9	**AH24188-H**	440	22	30	$G^1/_8$	8,5	12
	Tr480×5	330	63,7	**AHX3288-H**	440	11	48	$G^1/_8$	8,5	12
	Tr460×5	330	58,2	**AHX3288G-H**	440	11	48	$G^1/_8$	8,5	12
	Tr480×5	393	79,6	**AH3388-H**	440	11	48	$G^1/_8$	8,5	12
440	Tr480×5	145	22,2	**AH3992-H**	460	8	25	$G^1/_8$	8,5	12
	Tr490×5	202	35,1	**AHX3092-H**	460	11	37	$G^1/_8$	8,5	12
	Tr480×5	202	32,9	**AHX3092G-H**	460	11	37	$G^1/_8$	8,5	12
	Tr480×5	250	35,6	**AH24092-H**	460	23	32	$G^1/_8$	8,5	12
	Tr510×6	285	58	**AHX3192-H**	460	11	43	$G^1/_8$	8,5	12
	Tr480×5	285	50,3	**AHX3192G-H**	460	11	43	$G^1/_8$	8,5	12
	Tr480×5	332	48,7	**AH24192-H**	460	23	32	$G^1/_8$	8,5	12
	Tr510×6	349	74,6	**AHX3292-H**	460	11	50	$G^1/_8$	8,5	12
	Tr480×5	349	65,6	**AHX3292G-H**	460	11	50	$G^1/_8$	8,5	12
	Tr510×6	415	92,6	**AH3392-H**	460	11	50	$G^1/_8$	8,5	12

medias ➤ *https://www.schaeffler.de/std/1EB7*

https://www.schaeffler.de/std/1D65



Hydraulic withdrawal sleeve (suffix H) Mounting dimensions



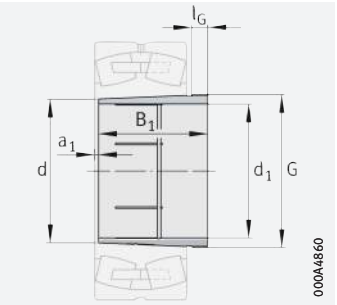
Oil connectors for hydraulic withdrawal sleeve

Main dimensions			Mass	Designation	Dimensions			Mounting dimensions		
d_1	G	B_1	m ≈ kg	➤ *1698|1.4*	d	a_1 ≈	l_G	G_1	a	l_{G1}
460	Tr500×5	158	25,7	**AH3996-H**	480	9	28	$G^1/_8$	8,5	12
	Tr520×6	205	39,7	**AHX3096-H**	480	12	38	$G^1/_8$	8,5	12
	Tr500×5	205	35	**AHX3096G-H**	480	12	38	$G^1/_8$	8,5	12
	Tr500×5	250	37,2	**AH24096-H**	480	23	32	$G^1/_8$	8,5	12
	Tr530×6	295	63,3	**AHX3196-H**	480	12	45	$G^1/_8$	8,5	12
	Tr500×5	295	54,8	**AHX3196G-H**	480	12	45	$G^1/_8$	8,5	12
	Tr500×5	340	52,2	**AH24196G-H**	480	23	32	$G^1/_8$	8,5	12
	Tr500×5	343	52,9	**AH24196-H**	480	25	35	$G^1/_8$	8,5	12
	Tr530×6	364	82,2	**AHX3296-H**	480	12	52	$G^1/_8$	8,5	12
	Tr500×5	364	72,4	**AHX3296G-H**	480	12	52	$G^1/_8$	8,5	12
	Tr530×6	427	100	**AH3396-H**	480	12	52	$G^1/_8$	8,5	12
480	Tr520×6	162	27,7	**AH39/500-H**	500	10	32	$G^1/_8$	8,5	12
	Tr530×6	162	29,8	**AH39/500G-H**	500	10	32	$G^1/_8$	8,5	12
	Tr540×6	209	42,5	**AHX30/500-H**	500	12	40	$G^1/_8$	8,5	12
	Tr530×6	209	39,9	**AHX30/500G-H**	500	12	40	$G^1/_8$	8,5	12
	Tr520×6	253	39,5	**AH240/500-H**	500	23	35	$G^1/_8$	8,5	12
	Tr530×6	253	41,7	**AH240/500G-H**	500	23	35	$G^1/_8$	8,5	12
	Tr550×6	313	70,9	**AHX31/500-H**	500	12	47	$G^1/_8$	8,5	12
	Tr530×6	313	64,7	**AHX31/500G-H**	500	12	47	$G^1/_8$	8,5	12
	Tr530×6	360	60,5	**AH241/500G-H**	500	23	35	$G^1/_8$	8,5	12
	Tr520×6	362	58,8	**AH241/500-H**	500	25	37	$G^1/_8$	8,5	12
	Tr550×6	393	94,4	**AHX32/500-H**	500	12	54	$G^1/_8$	8,5	12
	Tr530×6	393	87,3	**AHX32/500G-H**	500	12	54	$G^1/_8$	8,5	12
	Tr550×6	442	110	**AH33/500-H**	500	12	54	$G^1/_8$	8,5	12
500	Tr550×6	175	43,1	**AH39/530-H**	530	10	37	$G^1/_4$	10	15
	Tr560×6	175	45,6	**AH39/530G-H**	530	10	37	$G^1/_4$	10	15
	Tr560×6	230	61,7	**AH30/530A-H**	530	12	45	$G^1/_4$	10	15
	Tr560×6	285	67,5	**AH240/530G-H**	530	24	35	$G^1/_4$	10	15
	Tr550×6	290	66,8	**AH240/530-H**	530	25	40	$G^1/_4$	10	15
	Tr560×6	325	92,3	**AH31/530A-H**	530	12	53	$G^1/_4$	10	15
	Tr560×6	370	89	**AH241/530G-H**	530	24	35	$G^1/_4$	10	15
	Tr550×6	375	88,2	**AH241/530-H**	530	25	40	$G^1/_4$	10	15
	Tr580×6	412	132	**AH32/530A-H**	530	12	57	$G^1/_4$	10	15
	Tr560×6	412	124	**AH32/530AG-H**	530	12	57	$G^1/_4$	10	15
	Tr580×6	469	155	**AH33/530-H**	530	12	57	$G^1/_4$	10	15

medias ➤ *https://www.schaeffler.de/std/1EB8*

https://www.schaeffler.de/std/1D65

Withdrawal sleeves



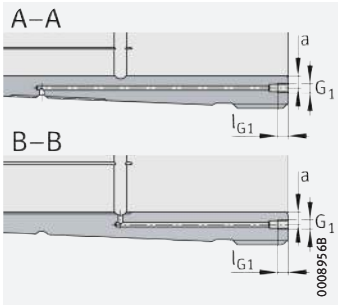
Hydraulic withdrawal sleeve
Taper 1:12
(taper 1:30 for AH240, AH241)

d_1 = 530 – 670 mm

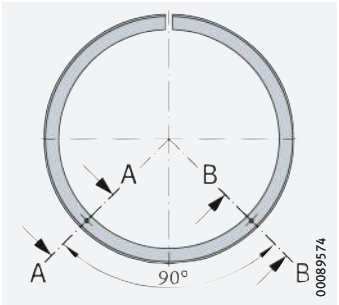
Main dimensions			Mass	Designation	Dimensions			Mounting dimensions		
d_1	G	B_1	m ≈ kg	➤*1698|1.4*	d	a_1 ≈	l_G	G_1	a	l_{G1}
530	Tr580×6	180	47	**AH39/560-H**	560	10	37	$G^1/_4$	12	15
	Tr600×6	180	52,3	**AH39/560G-H**	560	10	37	$G^1/_4$	12	15
	Tr590×6	240	68,4	**AH30/560A-H**	560	12	45	$G^1/_4$	12	15
	Tr600×6	240	71,6	**AH30/560AG-H**	560	12	45	$G^1/_4$	12	15
	Tr600×6	296	77,5	**AH240/560G-H**	560	24	38	$G^1/_4$	12	15
	Tr580×6	298	72,7	**AH240/560-H**	560	25	40	$G^1/_4$	12	15
	Tr590×6	335	101	**AH31/560A-H**	560	12	55	$G^1/_4$	12	15
	Tr600×6	335	105	**AH31/560AG-H**	560	12	55	$G^1/_4$	12	15
	Tr600×6	393	104	**AH241/560G-H**	560	24	38	$G^1/_4$	12	15
	Tr580×6	400	101	**AH241/560-H**	560	28	45	$G^1/_4$	12	15
	Tr610×6	422	144	**AH32/560A-H**	560	12	57	$G^1/_4$	12	15
	Tr600×6	422	139	**AH32/560AG-H**	560	12	57	$G^1/_4$	12	15
	Tr610×6	475	166	**AH33/560-H**	560	12	57	$G^1/_4$	12	15
570	Tr625×6	192	55,6	**AH39/600-H**	600	10	38	$G^1/_4$	12	15
	Tr630×6	192	57	**AH39/600G-H**	600	10	38	$G^1/_4$	12	15
	Tr630×6	245	75	**AH30/600A-H**	600	14	45	$G^1/_4$	12	15
	Tr630×6	310	84,1	**AH240/600G-H**	600	26	38	$G^1/_4$	12	15
	Tr625×6	317	85,4	**AH240/600-H**	600	30	45	$G^1/_4$	12	15
	Tr630×6	355	116	**AH31/600A-H**	600	14	55	$G^1/_4$	12	15
	Tr630×6	413	114	**AH241/600G-H**	600	26	38	$G^1/_4$	12	15
	Tr625×6	425	118	**AH241/600-H**	600	30	50	$G^1/_4$	12	15
	Tr650×6	445	164	**AH32/600A-H**	600	14	57	$G^1/_4$	12	15
	Tr630×6	445	155	**AH32/600AG-H**	600	14	57	$G^1/_4$	12	15
	Tr650×6	519	200	**AH33/600-H**	600	14	57	$G^1/_4$	12	15

medias ➤ *https://www.schaeffler.de/std/1EB9*

https://www.schaeffler.de/std/1D65



Hydraulic withdrawal sleeve (suffix H) Mounting dimensions



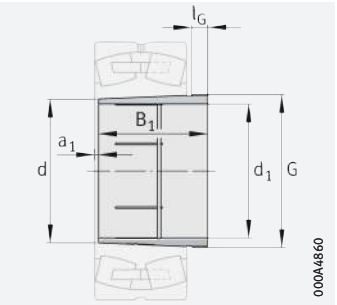
Oil connectors for hydraulic withdrawal sleeve

Main dimensions			Mass	Designation	Dimensions			Mounting dimensions		
d_1	G	B_1	m ≈ kg	➤1698|1.4	d	a_1 ≈	l_G	G_1	a	l_{G1}
600	Tr655×6	210	64,5	**AH39/630-H**	630	12	40	$G^1/_4$	12	15
	Tr670×6	210	69,4	**AH39/630G-H**	630	12	40	$G^1/_4$	12	15
	Tr670×6	258	87,3	**AH30/630A-H**	630	14	46	$G^1/_4$	12	15
	Tr670×6	330	97,9	**AH240/630G-H**	630	26	40	$G^1/_4$	12	15
	Tr655×6	335	95,1	**AH240/630-H**	630	30	45	$G^1/_4$	12	15
	Tr670×6	375	136	**AH31/630A-H**	630	14	60	$G^1/_4$	12	15
	Tr670×6	440	133	**AH241/630G-H**	630	26	40	$G^1/_4$	12	15
	Tr655×6	450	132	**AH241/630-H**	630	30	50	$G^1/_4$	12	15
	Tr680×6	475	188	**AH32/630A-H**	630	14	63	$G^1/_4$	12	15
	Tr670×6	475	183	**AH32/630AG-H**	630	14	63	$G^1/_4$	12	15
	Tr680×6	550	227	**AH33/630-H**	630	14	62	$G^1/_4$	12	15
630	Tr695×6	216	87,7	**AH39/670-H**	670	12	41	$G^1/_4$	12	15
	Tr710×7	216	92,9	**AH39/670G-H**	670	12	41	$G^1/_4$	12	15
	Tr710×7	280	124	**AH30/670A-H**	670	14	50	$G^1/_4$	12	15
	Tr710×7	348	137	**AH240/670G-H**	670	26	40	$G^1/_4$	12	15
	Tr695×6	358	137	**AH240/670-H**	670	30	50	$G^1/_4$	12	15
	Tr710×7	395	185	**AH31/670A-H**	670	14	60	$G^1/_4$	12	15
	Tr710×7	452	180	**AH241/670G-H**	670	26	40	$G^1/_4$	12	15
	Tr695×6	467	183	**AH241/670-H**	670	30	55	$G^1/_4$	12	15
	Tr720×7	500	252	**AH32/670A-H**	670	14	63	$G^1/_4$	12	15
	Tr710×7	500	247	**AH32/670AG-H**	670	14	63	$G^1/_4$	12	15
	Tr720×7	577	303	**AH33/670-H**	670	14	62	$G^1/_4$	12	15
670	Tr740×7	228	101	**AH39/710-H**	710	12	43	$G^1/_4$	15	15
	Tr750×7	228	105	**AH39/710G-H**	710	12	43	$G^1/_4$	15	15
	Tr750×7	286	135	**AH30/710A-H**	710	16	50	$G^1/_4$	15	15
	Tr750×7	360	152	**AH240/710G-H**	710	26	45	$G^1/_4$	15	15
	Tr740×7	365	151	**AH240/710-H**	710	33	50	$G^1/_4$	15	15
	Tr750×7	405	202	**AH31/710A-H**	710	16	60	$G^1/_4$	15	15
	Tr750×7	483	207	**AH241/710G-H**	710	26	45	$G^1/_4$	15	15
	Tr740×7	493	209	**AH241/710-H**	710	33	55	$G^1/_4$	15	15
	Tr760×7	515	278	**AH32/710A-H**	710	16	65	$G^1/_4$	15	15
	Tr750×7	515	272	**AH32/710AG-H**	710	16	65	$G^1/_4$	15	15
	Tr760×7	595	334	**AH33/710-H**	710	16	65	$G^1/_4$	15	15

medias ➤ *https://www.schaeffler.de/std/1EBA*

https://www.schaeffler.de/std/1D65

Withdrawal sleeves



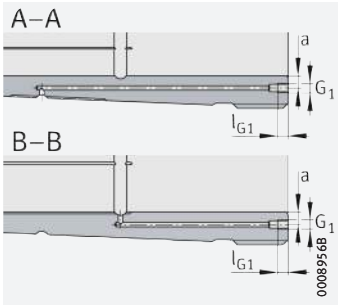
Hydraulic withdrawal sleeve
Taper 1:12
(taper 1:30 for AH240, AH241)

d_1 = 710 – 1 000 mm

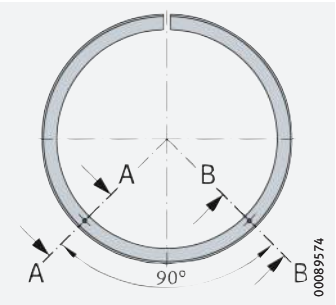
Main dimensions			Mass	Designation	Dimensions			Mounting dimensions		
d_1	G	B_1	m ≈ kg	➤ *1698|1.4*	d	a_1 ≈	l_G	G_1	a	l_{G1}
710	Tr780×7	234	110	**AH39/750-H**	750	12	44	$G^1/_4$	15	15
	Tr800×7	234	118	**AH39/750G-H**	750	12	44	$G^1/_4$	15	15
	Tr800×7	300	155	**AH30/750A-H**	750	16	50	$G^1/_4$	15	15
	Tr800×7	380	174	**AH240/750G-H**	750	28	45	$G^1/_4$	15	15
	Tr780×7	385	169	**AH240/750-H**	750	35	50	$G^1/_4$	15	15
	Tr800×7	425	232	**AH31/750A-H**	750	16	60	$G^1/_4$	15	15
	Tr800×7	520	241	**AH241/750G-H**	750	28	45	$G^1/_4$	15	15
	Tr780×7	530	239	**AH241/750-H**	750	35	55	$G^1/_4$	15	15
	Tr800×7	540	312	**AH32/750A-H**	750	16	65	$G^1/_4$	15	15
	Tr800×7	625	377	**AH33/750-H**	750	16	65	$G^1/_4$	15	15
750	Tr830×7	245	146	**AH39/800-H**	800	12	45	$G^1/_4$	15	15
	Tr850×7	245	155	**AH39/800G-H**	800	12	45	$G^1/_4$	15	15
	Tr850×7	308	198	**AH30/800A-H**	800	18	50	$G^1/_4$	15	15
	Tr830×7	395	221	**AH240/800-H**	800	40	50	$G^1/_4$	15	15
	Tr850×7	395	232	**AH240/800G-H**	800	28	50	$G^1/_4$	15	15
	Tr850×7	438	297	**AH31/800A-H**	800	18	63	$G^1/_4$	15	15
	Tr850×7	525	311	**AH241/800G-H**	800	28	50	$G^1/_4$	15	15
	Tr830×7	530	304	**AH241/800-H**	800	40	55	$G^1/_4$	15	15
	Tr850×7	550	391	**AH32/800AG-H**	800	18	62	$G^1/_4$	15	15
	Tr850×7	555	396	**AH32/800A-H**	800	18	67	$G^1/_4$	15	15
	Tr850×7	667	500	**AH33/800-H**	800	18	67	$G^1/_4$	15	15
800	Tr880×7	258	165	**AH39/850-H**	850	12	50	$G^1/_4$	15	15
	Tr900×7	258	176	**AH39/850G-H**	850	12	50	$G^1/_4$	15	15
	Tr900×7	325	224	**AH30/850A-H**	850	18	53	$G^1/_4$	15	15
	Tr900×7	415	259	**AH240/850G-H**	850	30	50	$G^1/_4$	15	15
	Tr880×7	418	250	**AH240/850-H**	850	40	53	$G^1/_4$	15	15
	Tr900×7	462	336	**AH31/850A-H**	850	18	63	$G^1/_4$	15	15
	Tr880×7	560	345	**AH241/850-H**	850	40	60	$G^1/_4$	15	15
	Tr900×7	560	358	**AH241/850G-H**	850	40	60	$G^1/_4$	15	15
	Tr900×7	585	450	**AH32/850A-H**	850	18	70	$G^1/_4$	15	15
	Tr900×7	700	567	**AH33/850-H**	850	18	70	$G^1/_4$	15	15

medias ➤ *https://www.schaeffler.de/std/1EBB*

https://www.schaeffler.de/std/1D65



Hydraulic withdrawal sleeve (suffix H) Mounting dimensions



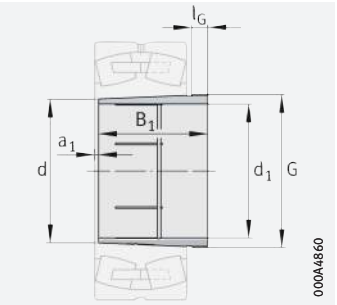
Oil connectors for hydraulic withdrawal sleeve

Main dimensions			Mass	Designation	Dimensions			Mounting dimensions		
d_1	G	B_1	m ≈ kg	➤ *1698|1.4*	d	a_1 ≈	l_G	G_1	a	l_{G1}
850	Tr930×8	265	180	**AH39/900-H**	900	12	51	$G^1/_4$	15	15
	Tr950×8	265	192	**AH39/900G-H**	900	12	51	$G^1/_4$	15	15
	Tr950×8	335	246	**AH30/900A-H**	900	20	55	$G^1/_4$	15	15
	Tr930×8	430	274	**AH240/900-H**	900	45	55	$G^1/_4$	15	15
	Tr950×8	430	287	**AH240/900G-H**	900	45	55	$G^1/_4$	15	15
	Tr950×8	475	368	**AH31/900A-H**	900	20	63	$G^1/_4$	15	15
	Tr930×8	575	376	**AH241/900-H**	900	45	60	$G^1/_4$	15	15
	Tr950×8	575	390	**AH241/900G-H**	900	45	60	$G^1/_4$	15	15
	Tr950×8	585	476	**AH32/900A-H**	900	20	70	$G^1/_4$	15	15
	Tr950×8	720	623	**AH33/900-H**	900	20	70	$G^1/_4$	15	15
900	Tr980×8	282	203	**AH39/950-H**	950	15	51	$G^1/_4$	15	15
	Tr1000×8	282	216	**AH39/950G-H**	950	15	51	$G^1/_4$	15	15
	Tr1000×8	355	277	**AH30/950A-H**	950	20	55	$G^1/_4$	15	15
	Tr980×8	467	316	**AH240/950-H**	950	45	55	$G^1/_4$	15	15
	Tr1000×8	467	329	**AH240/950G-H**	950	45	55	$G^1/_4$	15	15
	Tr1000×8	500	414	**AH31/950A-H**	950	20	63	$G^1/_4$	15	15
	Tr1000×8	600	519	**AH32/950A-H**	950	20	70	$G^1/_4$	15	15
	Tr980×8	605	421	**AH241/950-H**	950	45	60	$G^1/_4$	15	15
	Tr1000×8	605	435	**AH241/950G-H**	950	45	60	$G^1/_4$	15	15
	Tr1000×8	740	683	**AH33/950-H**	950	20	70	$G^1/_4$	15	15
950	Tr1035×8	296	229	**AH39/1000-H**	1 000	15	52	$G^1/_4$	15	15
	Tr1060×8	296	246	**AH39/1000G-H**	1 000	15	52	$G^1/_4$	15	15
	Tr1060×8	365	309	**AH30/1000A-H**	1 000	22	57	$G^1/_4$	15	15
	Tr1035×8	469	339	**AH240/1000-H**	1 000	50	57	$G^1/_4$	15	15
	Tr1060×8	469	357	**AH240/1000G-H**	1 000	50	57	$G^1/_4$	15	15
	Tr1060×8	525	471	**AH31/1000A-H**	1 000	22	63	$G^1/_4$	15	15
	Tr1060×8	630	591	**AH32/1000A-H**	1 000	22	70	$G^1/_4$	15	15
	Tr1060×8	645	502	**AH241/1000-H**	1 000	50	65	$G^1/_4$	15	15
	Tr1060×8	780	781	**AH33/1000-H**	1 000	22	70	$G^1/_4$	15	15
1 000	Tr1095×8	310	294	**AH39/1060-H**	1 060	15	52	$G^1/_4$	15	15
	Tr1120×8	310	312	**AH39/1060G-H**	1 060	15	52	$G^1/_4$	15	15
	Tr1120×8	385	396	**AH30/1060A-H**	1 060	22	60	$G^1/_4$	15	15
	Tr1095×8	498	445	**AH240/1060-H**	1 060	50	60	$G^1/_4$	15	15
	Tr1120×8	498	465	**AH240/1060G-H**	1 060	50	60	$G^1/_4$	15	15
	Tr1120×8	540	583	**AH31/1060A-H**	1 060	22	65	$G^1/_4$	15	15
	Tr1120×8	665	632	**AH241/1060-H**	1 060	50	65	$G^1/_4$	15	15

medias ➤ *https://www.schaeffler.de/std/1EBC*

https://www.schaeffler.de/std/1D65

Withdrawal sleeves



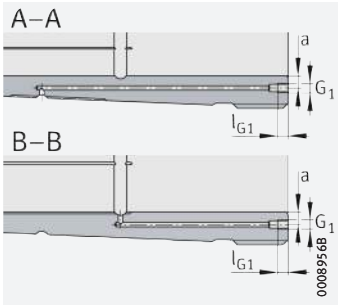
Hydraulic withdrawal sleeve
Taper 1:12
(taper 1:30 for AH240, AH241)

d_1 = 1 060 – 1 450 mm

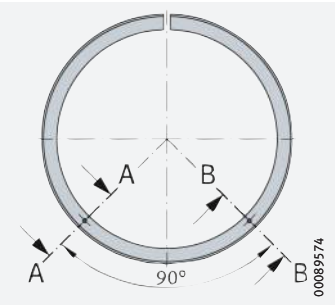
Main dimensions			Mass	Designation	Dimensions			Mounting dimensions		
d_1	G	B_1	m ≈ kg	➤*1698|1.4*	d	a_1 ≈	l_G	G_1	a	l_{G1}
1 060	Tr1180×8	410	451	**AH30/1120A-H**	1 120	22	65	$G^1/_4$	15	15
	Tr1155×8	527	501	**AH240/1120-H**	1 120	50	65	$G^1/_4$	15	15
	Tr1180×8	527	524	**AH240/1120G-H**	1 120	50	65	$G^1/_4$	15	15
	Tr1180×8	705	717	**AH241/1120-H**	1 120	50	75	$G^1/_4$	15	15
1 070	Tr1155×8	310	271	**AH39/1120-H**	1 120	15	52	$G^1/_4$	15	15
	Tr1180×8	310	289	**AH39/1120G-H**	1 120	15	52	$G^1/_4$	15	15
1 120	Tr1250×8	420	498	**AH30/1180A-H**	1 180	22	65	$G^1/_4$	15	15
	Tr1215×8	540	543	**AH240/1180-H**	1 180	50	65	$G^1/_4$	15	15
	Tr1250×8	540	577	**AH240/1180G-H**	1 180	50	65	$G^1/_4$	15	15
	Tr1250×8	750	824	**AH241/1180-H**	1 180	50	80	$G^1/_4$	15	15
1 130	Tr1215×8	330	307	**AH39/1180-H**	1 180	15	55	$G^1/_4$	15	15
	Tr1250×8	330	336	**AH39/1180G-H**	1 180	15	55	$G^1/_4$	15	15
1 180	Tr1320×8	445	629	**AH30/1250A-H**	1 250	22	70	$G^1/_4$	15	15
	Tr1285×8	570	694	**AH240/1250-H**	1 250	50	70	$G^1/_4$	15	15
	Tr1320×8	570	733	**AH240/1250G-H**	1 250	50	70	$G^1/_4$	15	15
	Tr1320×8	795	1 050	**AH241/1250-H**	1 250	50	85	$G^1/_4$	15	15
1 200	Tr1285×8	340	336	**AH39/1250-H**	1 250	18	55	$G^1/_4$	15	15
	Tr1320×8	340	367	**AH39/1250G-H**	1 250	18	55	$G^1/_4$	15	15

medias ➤ *https://www.schaeffler.de/std/1EBD*

https://www.schaeffler.de/std/1D65



Hydraulic withdrawal sleeve (suffix H) Mounting dimensions



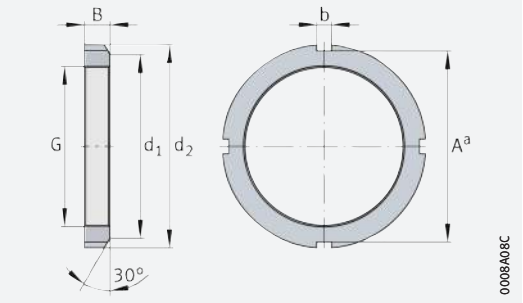
Oil connectors for hydraulic withdrawal sleeve

Main dimensions			Mass	Designation	Dimensions			Mounting dimensions		
d_1	G	B_1	m ≈ kg	➤*1698|1.4*	d	a_1 ≈	l_G	G_1	a	l_{G1}
1 250	Tr1400×8	470	718	**AH30/1320A-H**	1 320	22	70	$G1/4$	15	15
	Tr1355×8	600	775	**AH240/1320-H**	1 320	50	70	$G1/4$	15	15
	Tr1400×8	600	828	**AH240/1320G-H**	1 320	50	70	$G1/4$	15	15
	Tr1400×8	840	1 190	**AH241/1320-H**	1 320	50	90	$G1/4$	15	15
1 270	Tr1355×8	360	379	**AH39/1320-H**	1 320	18	55	$G1/4$	15	15
	Tr1400×8	360	421	**AH39/1320G-H**	1 320	18	55	$G1/4$	15	15
1 320	Tr1500×8	487	902	**AH30/1400A-H**	1 400	22	75	$G1/4$	15	15
	Tr1435×8	615	944	**AH240/1400-H**	1 400	50	70	$G1/4$	15	15
	Tr1500×8	615	1 030	**AH240/1400G-H**	1 400	50	70	$G1/4$	15	15
	Tr1500×8	870	1 500	**AH241/1400-H**	1 400	50	95	$G1/4$	15	15
1 350	Tr1435×8	380	429	**AH39/1400-H**	1 400	20	60	$G1/4$	15	15
	Tr1500×8	380	499	**AH39/1400G-H**	1 400	20	60	$G1/4$	15	15
1 400	Tr1600×8	537	1 260	**AH30/1500A-H**	1 500	22	75	$G1/4$	15	15
	Tr1600×8	895	1 960	**AH241/1500-H**	1 500	50	95	$G1/4$	15	15
1 450	Tr1540×8	400	494	**AH39/1500-H**	1 500	20	60	$G1/4$	15	15
	Tr1600×8	400	563	**AH39/1500G-H**	1 500	20	60	$G1/4$	15	15

medias ➤ *https://www.schaeffler.de/std/1EBE*

https://www.schaeffler.de/std/1D65

Locknuts



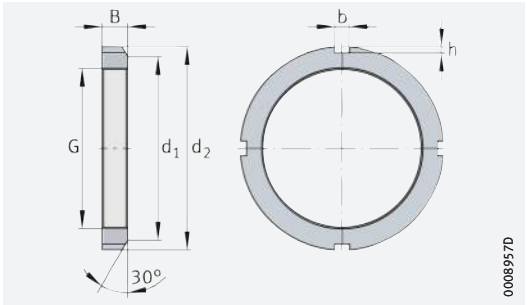
KM0 to KM20

G = M10×0,75 – Tr340×5

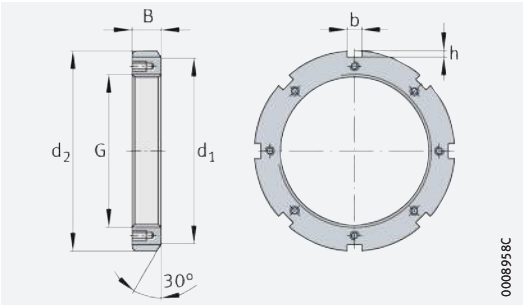
Main dimensions			Axial load carrying capacity Static	Mass	Designation ➤*1698|1.4*		Mounting dimensions			
G	d_2	B	F	m	Nut	Suitable retainer	d_1	b	A^a	h
			kN	≈ kg						
M10×0,75	18	4	6 000	0,005	**KM0**	MB0	13,5	3	14	–
M12×1	22	4	6 000	0,007	**KM1**	MB1	17	3	18	–
M15×1	25	5	10 000	0,01	**KM2**	MB2	21	4	21	–
M17×1	28	5	19 000	0,02	**KM3**	MB3	24	4	24	–
M20×1	32	6	12 000	0,019	**KM4**	MB4	26	4	28	–
M25×1,5	38	7	24 000	0,025	**KM5**	MB5	32	5	34	–
M30×1,5	45	7	29 000	0,043	**KM6**	MB6	38	5	41	–
M35×1,5	52	8	43 000	0,07	**KM7**	MB7	44	5	48	–
M40×1,5	58	9	58 000	0,085	**KM8**	MB8	50	6	53	–
M45×1,5	65	10	77 000	0,119	**KM9**	MB9	56	6	60	–
M50×1,5	70	11	93 000	0,148	**KM10**	MB10	61	6	65	–
M55×2	75	11	87 000	0,158	**KM11**	MB11	67	7	69	–
M60×2	80	11	90 000	0,18	**KM12**	MB12	73	7	74	–
M65×2	85	12	108 000	0,22	**KM13**	MB13	79	7	79	–
M70×2	92	12	118 000	0,26	**KM14**	MB14	85	8	85	–
M75×2	98	13	140 000	0,3	**KM15**	MB15	90	8	91	–
M80×2	105	15	190 000	0,4	**KM16**	MB16	95	8	98	–
M85×2	110	16	210 000	0,46	**KM17**	MB17	102	8	103	–
M90×2	120	16	240 000	0,6	**KM18**	MB18	108	10	112	–
M95×2	125	17	270 000	0,658	**KM19**	MB19	113	10	117	–
M100×2	130	18	290 000	0,73	**KM20**	MB20	120	10	122	–
M105×2	140	18	320 000	0,87	**KM21**	MB21	126	12	–	5
M110×2	145	19	350 000	0,965	**KM22**	MB22	133	12	–	5
M120×2	145	20	330 000	0,79	**KML24**	MBL24	135	12	–	5
M115×2	150	19	360 000	1,01	**KM23**	MB23	137	12	–	5
M120×2	155	20	400 000	1,08	**KM24**	MB24	138	12	–	5
M125×2	160	21	430 000	1,22	**KM25**	MB25	148	12	–	5
M130×2	155	21	370 000	0,9	**KML26**	MBL26	145	12	–	5
	165	21	440 000	1,24	**KM26**	MB26	149	12	–	5
M135×2	175	22	500 000	1,55	**KM27**	MB27	160	14	–	6
M140×2	165	22	410 000	1,01	**KML28**	MBL28	155	12	–	5
	180	22	510 000	1,56	**KM28**	MB28	160	14	–	6
M145×2	190	24	610 000	2,05	**KM29**	MB29	171	14	–	6

medias ➤ *https://www.schaeffler.de/std/1EBF*

https://www.schaeffler.de/std/1D65



KM21 to KM40, KML, HM..T



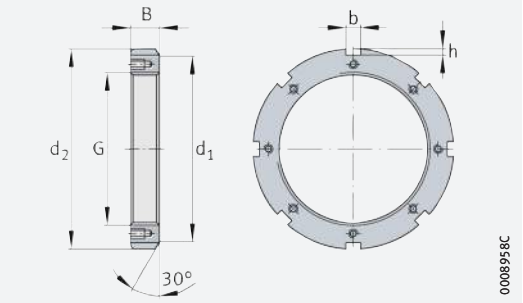
HM30, HM31

Main dimensions			Axial load carrying capacity Static	Mass	Designation ➤*1698|1.4*		Mounting dimensions		
G	d_2	B	F	m	Nut	Suitable retainer	d_1	b	h
			kN	≈ kg					
M150×2	180	24	510 000	1,44	**KML30**	MBL30	170	14	5
	195	24	620 000	2,06	**KM30**	MB30	171	14	6
M155×3	200	25	630 000	2,27	**KM31**	MB31	182	16	7
M160×3	190	25	520 000	1,62	**KML32**	MBL32	180	14	5
	210	25	670 000	2,52	**KM32**	MB32	182	16	7
M165×3	210	26	680 000	2,7	**KM33**	MB33	193	16	7
M170×3	200	26	560 000	1,72	**KML34**	MBL34	190	16	5
	220	26	730 000	2,8	**KM34**	MB34	193	16	7
M180×3	210	27	610 000	1,96	**KML36**	MBL36	200	16	5
	230	27	780 000	3,04	**KM36**	MB36	203	18	8
M190×3	220	28	650 000	2,13	**KML38**	MBL38	210	16	5
	240	28	830 000	3,34	**KM38**	MB38	214	18	8
M200×3	240	29	800 000	2,9	**KML40**	MBL40	220	18	8
	250	29	900 000	3,69	**KM40**	MB40	226	18	8
Tr220×4	260	30	1 800 000	3,21	**HM3044**	MS3044	242	20	9
	280	32	2 000 000	5,3	**HM44T**	MB44	250	20	10
	280	32	2 300 000	4,93	**HM3144**	MS3144	250	20	10
Tr240×4	290	34	2 400 000	5,12	**HM3048**	MS3048	270	20	10
	300	34	2 400 000	6,15	**HM48T**	MB48	270	20	10
	300	34	2 700 000	5,75	**HM3148**	MS3144	270	20	10
Tr260×4	310	34	2 600 000	5,54	**HM3052**	MS3048	290	20	10
	330	35	2 700 000	8,05	**HM52T**	MB52	300	24	12
	330	36	2 900 000	7,43	**HM3152**	MS3152	300	24	12
Tr280×4	330	38	3 100 000	6,61	**HM3056**	MS3056	310	24	10
	350	36	3 000 000	8,9	**HM56T**	MB56	320	24	12
	350	38	3 300 000	8,26	**HM3156**	MS3152	320	24	12
Tr300×4	360	42	4 000 000	9,48	**HM3060**	MS3060	336	24	12
	380	40	3 700 000	11,4	**HM3160**	MS3160	340	24	12
Tr320×5	380	42	3 400 000	10,1	**HM3064**	MS3064	356	24	12
	400	42	3 400 000	12,8	**HM3164**	MS3164	360	24	12
Tr340×5	400	45	4 000 000	11,5	**HM3068**	MS3064	376	24	12
	440	55	5 300 000	23	**HM3168**	MS3168	400	28	15

medias ➤ *https://www.schaeffler.de/std/1EC0*

https://www.schaeffler.de/std/1D65

Locknuts



HM30, HM31

G = Tr360×5 – Tr1600×8

Main dimensions			Axial load carrying capacity Static	Mass	Designation ➤*1698|1.4*		Mounting dimensions		
G	d_2	B	F	m	Nut	Suitable retainer	d_1	b	h
			kN	≈ kg					
Tr360×5	420	45	4 000	11,9	**HM3072**	MS3072	394	28	13
	460	58	6 000	25,7	**HM3172**	MS3168	420	28	15
Tr380×5	450	48	4 900	15,9	**HM3076**	MS3076	422	28	14
	490	60	6 500	30	**HM3176**	MS3176	440	32	18
Tr400×5	470	52	5 600	18,2	**HM3080**	MS3076	442	28	14
	520	62	7 200	35,7	**HM3180**	MS3180	460	32	18
Tr420×5	490	52	5 700	18,9	**HM3084**	MS3084	462	32	14
	540	70	8 800	43,4	**HM3184**	MS3180	490	32	18
Tr440×5	520	60	7 600	26,5	**HM3088**	MS3088	490	32	15
	560	70	9 200	44,3	**HM3188**	MS3188	510	36	20
Tr460×5	540	60	7 800	27,7	**HM3092**	MS3088	510	32	15
	580	75	10 500	53,8	**HM3192**	MS3188	540	36	20
Tr480×5	560	60	8 000	28,7	**HM3096**	MS3096	530	36	15
	620	75	10 800	62,2	**HM3196**	MS3196	560	36	20
Tr500×5	580	68	9 500	34	**HM30/500**	MS3096	550	36	15
	630	80	12 300	62,1	**HM31/500**	MS31/500	580	40	23
Tr530×6	630	68	10 200	44,7	**HM30/530**	MS30/530	590	40	20
	670	80	12 400	71,2	**HM31/530**	MS31/530	610	40	23
Tr560×6	650	75	11 300	46,2	**HM30/560**	MS30/560	610	40	20
	710	85	14 000	85,6	**HM31/560**	MS31/560	650	45	25
Tr600×6	700	75	12 400	55,9	**HM30/600**	MS30/530	660	40	20
	750	85	15 000	91,7	**HM31/600**	MS31/560	690	45	25
Tr630×6	730	75	12 700	58,3	**HM30/630**	MS30/630	690	45	20
	800	95	17 800	122	**HM31/630**	MS31/630	730	50	28
Tr670×6	780	80	15 000	73,8	**HM30/670**	MS30/670	740	45	20
	850	106	21 500	156	**HM31/670**	MS31/670	775	50	28
Tr710×7	830	90	17 800	94,8	**HM30/710**	MS30/710	780	50	25
	900	106	22 200	173	**HM31/710**	MS31/710	825	55	30
Tr750×7	870	90	18 200	99,5	**HM30/750**	MS30/750	820	55	25
	950	112	25 000	202	**HM31/750**	MS31/750	875	60	34
Tr800×7	920	90	19 000	106	**HM30/800**	MS30/750	870	55	25
	1 000	112	26 300	215	**HM31/800**	MS31/750	925	60	34

medias ➤ *https://www.schaeffler.de/std/1EC1*

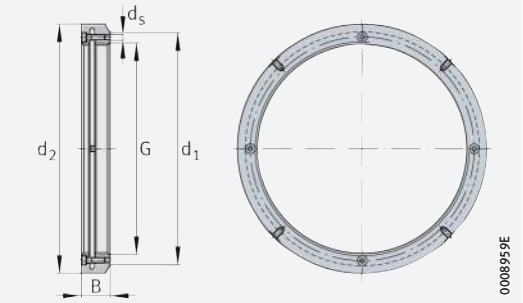
https://www.schaeffler.de/std/1D65

Main dimensions			Axial load carrying capacity Static	Mass	Designation ➤*1698|1.4*		Mounting dimensions		
G	d_2	B	F kN	m ≈ kg	Nut	Suitable retainer	d_1	b	h
Tr850×7	980	90	20 200	113	**HM30/850**	MS30/850	925	60	25
	1 060	118	29 600	246	**HM31/850**	MS31/850	975	70	38
Tr900×7	1 030	100	24 000	135	**HM30/900**	MS30/850	975	60	25
	1 120	125	33 500	293	**HM31/900**	MS31/900	1 030	70	38
Tr950×8	1 080	100	24 000	143	**HM30/950**	MS30/950	1 025	60	25
	1 170	125	34 500	310	**HM31/950**	MS31/950	1 080	70	38
Tr1000×8	1 140	100	25 500	165	**HM30/1000**	MS30/1000	1 085	60	25
	1 240	125	36 000	361	**HM31/1000**	MS31/1000	1 140	70	38
Tr1060×8	1 200	100	25 600	175	**HM30/1060**	MS30/1000	1 145	60	25
	1 300	125	38 000	386	**HM31/1060**	MS31/1000	1 210	70	38
Tr1120×8	1 260	100	27 000	185	**HM30/1120**	MS30/1000	1 205	60	25
	1 360	125	40 000	427	**HM31/1120**	MS31/1000	1 270	70	38
Tr1180×8	1 320	100	28 000	196	**HM30/1180**	MS30/1000	1 265	60	25
	1 420	125	42 000	459	**HM31/1180**	MS31/1000	1 330	70	38
Tr1250×8	1 390	110	33 000	233	**HM30/1250**	MS30/1000	1 335	60	25
	1 490	125	45 000	485	**HM31/1250**	MS31/1000	1 400	70	38
Tr1320×8	1 460	110	34 000	245	**HM30/1320**	MS30/1000	1 405	60	25
	1 560	125	47 000	511	**HM31/1320**	MS31/1000	1 470	70	38
Tr1400×8	1 540	110	35 000	259	**HM30/1400**	MS30/1000	1 485	60	25
	1 640	130	51 500	562	**HM31/1400**	MS31/1000	1 550	70	38
Tr1500×8	1 650	110	37 000	297	**HM30/1500**	MS30/1500	1 595	60	25
	1 740	130	53 000	601	**HM31/1500**	MS31/1000	1 650	70	38
Tr1600×8	1 730	100	33 000	273	**Z-195077.01.HM**	MS30/850	1 675	60	25

medias ➤ *https://www.schaeffler.de/std/1EC2*

https://www.schaeffler.de/std/1D65

Shaft nuts



HMZ, HMZ30

G = M90×2 – Tr1500×8

Main dimensions			Mass	Designation	Dimensions		Clamping screw	Maximum tightening torque per clamping screw
G	d_2	B	m ≈ kg		d_1	d_s	Quantity	M_{aL} Nm
M90×2	120	16	0,6	**HMZ18**	108	M5	4	6
M95×2	125	17	0,7	**HMZ19**	113	M5	4	6
M100×2	130	18	0,8	**HMZ20**	120	M6	4	11
M105×2	140	18	0,9	**HMZ21**	126	M6	4	11
M110×2	145	19	1	**HMZ22**	133	M6	4	11
M115×2	150	19	1,1	**HMZ23**	137	M6	4	11
M120×2	155	20	1,1	**HMZ24**	138	M6	4	11
M125×2	160	21	1,3	**HMZ25**	148	M6	4	11
M130×2	165	21	1,3	**HMZ26**	149	M6	4	11
M135×2	175	22	1,6	**HMZ27**	160	M6	4	11
M140×2	180	22	1,6	**HMZ28**	160	M6	4	11
M145×2	190	24	2,2	**HMZ29**	171	M6	4	11
M150×2	195	24	2,2	**HMZ30**	171	M6	4	11
M155×3	200	25	2,4	**HMZ31**	182	M6	4	11
M160×3	210	25	2,6	**HMZ32**	182	M6	4	11
M165×3	210	26	2,8	**HMZ33**	193	M8	4	27
M170×3	220	26	2,9	**HMZ34**	193	M8	4	27
M180×3	230	27	3,2	**HMZ36**	203	M8	4	27
M190×3	240	28	3,5	**HMZ38**	214	M8	4	27
M200×3	250	29	3,9	**HMZ40**	226	M8	4	27
Tr220×4	260	30	3,4	**HMZ3044**	242	M8	4	27
Tr240×4	290	34	5,4	**HMZ3048**	270	M10	4	54
Tr260×4	310	34	5,8	**HMZ3052**	290	M10	4	54
Tr280×4	330	38	6,9	**HMZ3056**	310	M10	4	54
Tr300×4	360	42	10	**HMZ3060**	336	M10	4	54
Tr320×5	380	42	10,6	**HMZ3064**	356	M10	4	54
Tr340×5	400	45	12,1	**HMZ3068**	376	M12	4	93
Tr360×5	420	45	12,5	**HMZ3072**	394	M12	4	93
Tr380×5	450	48	16,7	**HMZ3076**	422	M12	4	93
Tr400×5	470	52	19,1	**HMZ3080**	442	M16	4	230
Tr420×5	490	52	19,8	**HMZ3084**	462	M16	4	230

medias ➤ *https://www.schaeffler.de/std/1EC3*

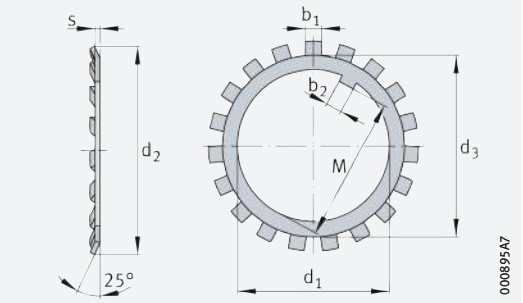
https://www.schaeffler.de/std/1D65

Main dimensions			Mass	Designation	Dimensions		Clamping screw	Maximum tightening torque per clamping screw
G	d_2	B	m ≈ kg		d_1	d_s	Quantity	M_{aL} Nm
Tr440×5	520	60	27,8	**HMZ3088**	490	M16	4	230
Tr460×5	540	60	29,1	**HMZ3092**	510	M16	4	230
Tr480×5	560	60	30,1	**HMZ3096**	530	M16	4	230
Tr500×5	580	68	35,7	**HMZ30/500**	550	M20	4	464
Tr530×6	630	68	46,9	**HMZ30/530**	590	M20	4	464
Tr560×6	650	75	48,5	**HMZ30/560**	610	M20	4	464
Tr600×6	700	75	58,7	**HMZ30/600**	660	M20	4	464
Tr630×6	730	75	61,2	**HMZ30/630**	690	M20	4	464
Tr670×6	780	80	77,5	**HMZ30/670**	740	M20	4	464
Tr710×7	830	90	99,5	**HMZ30/710**	780	M20	4	464
Tr750×7	870	90	105	**HMZ30/750**	820	M20	4	464
Tr800×7	920	90	111	**HMZ30/800**	870	M20	4	464
Tr850×7	980	90	119	**HMZ30/850**	925	M20	4	464
Tr900×7	1 030	100	142	**HMZ30/900**	975	M24	8	798
Tr950×8	1 080	100	150	**HMZ30/950**	1 025	M24	8	798
Tr1000×8	1 140	100	173	**HMZ30/1000**	1 085	M24	8	798
Tr1060×8	1 200	100	184	**HMZ30/1060**	1 145	M24	8	798
Tr1120×8	1 260	100	194	**HMZ30/1120**	1 205	M24	8	798
Tr1180×8	1 320	100	206	**HMZ30/1180**	1 265	M24	8	798
Tr1250×8	1 390	110	245	**HMZ30/1250**	1 335	M24	8	798
Tr1320×8	1 460	110	257	**HMZ30/1320**	1 405	M24	8	798
Tr1400×8	1 540	110	272	**HMZ30/1400**	1 485	M24	8	798
Tr1500×8	1 650	110	312	**HMZ30/1500**	1 595	M24	8	798

medias ➤ *https://www.schaeffler.de/std/1EC4*

https://www.schaeffler.de/std/1D65

Tab washers



MB, MBL

d_1 = 10 – 280 mm

Main dimensions			Mass	Designation	Mounting dimensions			
d_1	d_2 ≈	s	m 100 pieces ≈ kg		d_3	b_2 [1]	M	b_1
10	21	1	0,13	**MB0**	13,5	3	8,5	3
12	25	1	0,192	**MB1**	17	3	10,5	3
15	28	1	0,253	**MB2**	21	4	13,5	4
17	32	1	0,313	**MB3**	24	4	15,5	4
20	36	1	0,35	**MB4**	26	4	18,5	4
25	42	1,25	0,64	**MB5**	32	5	23	5
30	49	1,25	0,78	**MB6**	38	5	27,5	5
35	57	1,25	1,04	**MB7**	44	6	32,5	5
40	62	1,25	1,23	**MB8**	50	6	37,5	6
45	69	1,25	1,52	**MB9**	56	6	42,5	6
50	74	1,25	1,6	**MB10**	61	6	47,5	6
55	81	1,5	1,96	**MB11**	67	8	52,5	7
60	86	1,5	2,53	**MB12**	73	8	57,5	7
65	92	1,5	2,9	**MB13**	79	8	62,5	7
70	98	1,5	3,34	**MB14**	85	8	66,5	8
75	104	1,5	3,6	**MB15**	90	8	71,5	8
80	112	1,75	4,64	**MB16**	95	10	76,5	8
85	119	1,75	5,24	**MB17**	102	10	81,5	8
90	126	1,75	6,23	**MB18**	108	10	86,5	10
95	133	1,75	6,7	**MB19**	113	10	91,5	10
100	142	1,75	7,65	**MB20**	120	12	96,5	10
105	145	1,75	8,26	**MB21**	126	12	100,5	12
110	154	1,75	9,4	**MB22**	133	12	105,5	12
115	159	2	10,8	**MB23**	137	12	110,5	12
120	151	2	7,7	**MBL24**	135	14	115	12
	164	2	10,5	**MB24**	138	14	115	12
125	170	2	11,8	**MB25**	148	14	120	12
130	161	2	8,7	**MBL26**	145	14	125	12
	175	2	11,3	**MB26**	149	14	125	12
135	185	2	14,4	**MB27**	160	14	130	14

medias ➤ *https://www.schaeffler.de/std/1EC5*

[1] The dimension b_2 can be used as a minimum dimension for the slot width in shafts.

https://www.schaeffler.de/std/1D65

Main dimensions			Mass	Designation	Mounting dimensions			
d_1	d_2 ≈	s	m 100 pieces ≈ kg		d_3	b_2[1)]	M	b_1
140	171	2	10,9	**MBL28**	155	16	135	12
	192	2	14,2	**MB28**	160	16	135	14
145	202	2	16,8	**MB29**	171	16	140	14
150	188	2	11,3	**MBL30**	170	16	145	14
	205	2	15,5	**MB30**	171	16	145	14
155	212	2,5	20,9	**MB31**	182	16	147,5	16
160	199	2,5	16,2	**MBL32**	180	18	154	14
	217	2,5	22,2	**MB32**	182	18	154	16
165	222	2,5	24,1	**MB33**	193	18	157,5	16
170	211	2,5	17	**MBL34**	190	18	164	16
	232	2,5	24,7	**MB34**	193	18	164	16
180	221	2,5	18	**MBL36**	200	20	174	16
	242	2,5	26,8	**MB36**	203	20	174	18
190	231	2,5	20,5	**MBL38**	210	20	184	16
	252	2,5	27,8	**MB38**	214	20	184	18
200	248	2,5	21,4	**MBL40**	222	20	194	18
	262	2,5	29,3	**MB40**	226	20	194	18
220	292	3	40	**MB44**	250	24	213	20
240	312	3	40	**MB48**	270	24	233	20
260	342	3	60	**MB52**	300	28	253	24
280	362	3	62	**MB56**	320	28	273	24

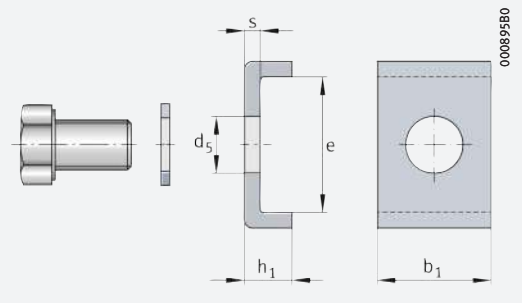
medias ➤ *https://www.schaeffler.de/std/1EC6*

[1)] The dimension b_2 can be used as a minimum dimension for the slot width in shafts.

https://www.schaeffler.de/std/1D65

Retaining brackets

With hexagon head cap screw



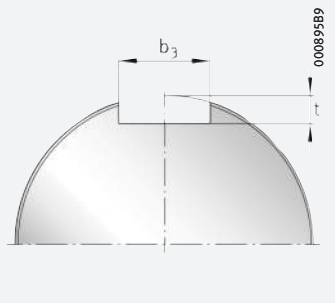
MS30, MS31

b_1 = 20 – 70 mm

Main dimensions			Hexagon head cap screw	Tightening torque	Mass	Designation	Dimensions		Mounting dimensions Shaft slot	
b_1	e	h_1			m	Complete retaining bracket	s	d_5	b_3	t
				Nm	≈ kg					
20	13,5	12	M6×10	10	0,026	**MS3044**	4	7	22	9
	22,5	12	M8×16	25	0,038	**MS3144**	4	9	22	9
	17,5	12	M8×16	25	0,035	**MS3048**	4	9	22	9
24	17,5	12	M8×16	25	0,04	**MS3056**	4	9	26	9
	20,5	12	M8×16	25	0,043	**MS3060**	4	9	26	9
	25,5	12	M10×20	51	0,056	**MS3152**	4	11	26	9
	30,5	12	M10×20	51	0,059	**MS3160**	4	12	26	9
	21	15	M8×16	25	0,057	**MS3064**	5	9	26	10
	31	15	M10×20	51	0,074	**MS3164**	5	12	26	10
28	20	15	M8×16	25	0,064	**MS3072**	5	9	30	10
	24	15	M10×20	51	0,076	**MS3076**	5	12	30	10
	38	15	M12×22	87	0,115	**MS3168**	5	14	30	10
32	24	15	M10×20	51	0,085	**MS3084**	5	12	34	10
	28	15	M12×22	87	0,1	**MS3088**	5	14	34	10
	40	15	M12×22	87	0,115	**MS3176**	5	14	34	10
	45	15	M16×25	215	0,154	**MS3180**	5	18	34	10
36	28	15	M12×22	87	0,109	**MS3096**	5	14	38	12
	43	15	M16×25	215	0,163	**MS3188**	5	18	38	10
	53	15	M16×25	215	0,177	**MS3196**	5	18	38	12
40	45	15	M16×25	215	0,178	**MS31/500**	5	18	42	12

medias ➤ *https://www.schaeffler.de/std/1EC7*

https://www.schaeffler.de/std/1D65



Shaft

Main dimensions			Hexagon head cap screw	Tightening torque	Mass	Designation	Dimensions		Mounting dimensions Shaft slot	
b_1	e	h_1			m	Complete retaining bracket	s	d_5	b_3	t
				Nm	≈ kg					
40	34	21	M16×25	215	0,223	**MS30/530**	7	18	42	14
	29	21	M16×25	215	0,212	**MS30/560**	7	18	42	14
	51	21	M20×40	430	0,347	**MS31/530**	7	22	42	14
45	34	21	M16×25	215	0,244	**MS30/630**	7	18	47	14
	39	21	M16×25	215	0,257	**MS30/670**	7	18	47	14
	54	21	M20×40	430	0,38	**MS31/560**	7	22	47	14
50	39	21	M16×25	215	0,279	**MS30/710**	7	18	52	15
	61	21	M20×40	430	0,426	**MS31/630**	7	22	52	14
	66	21	M20×40	430	0,439	**MS31/670**	7	22	52	15
55	39	21	M16×25	215	0,301	**MS30/750**	7	18	57	15
	69	21	M24×45	740	0,58	**MS31/710**	7	26	57	15
60	51	21	M20×40	430	0,449	**MS30/1000**	7	22	62	16
	56	21	M20×40	430	0,466	**MS30/1500**	7	22	62	16
	44	21	M20×40	430	0,426	**MS30/850**	7	22	62	15
	46	21	M20×40	430	0,433	**MS30/950**	7	22	62	16
	70	21	M24×45	740	0,614	**MS31/750**	7	26	62	15
70	88	21	M24×45	740	0,744	**MS31/1000**	7	26	72	16
	71	21	M24×45	740	0,679	**MS31/850**	7	26	72	16
	76	21	M24×45	740	0,698	**MS31/900**	7	26	72	16
	78	21	M24×45	740	0,706	**MS31/950**	7	26	72	16

medias ➤ *https://www.schaeffler.de/std/1EC8*

https://www.schaeffler.de/std/1D65

Rolling elements

https://www.schaeffler.de/std/1D65

https://www.schaeffler.de/std/1D65

1 Rolling elements

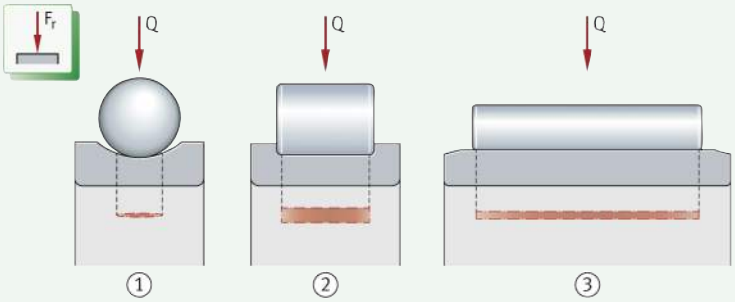
Rolling elements:

- are the connecting elements and contact elements between the stationary and the moving part of a rolling bearing
- essentially determine, due to their geometrical form, the characteristics of the rolling bearing and the bearing type
- are in contact – depending on their shape – with the raceways by means of point contact or line contact ➤*1750*|🗀*1*
- are available as steel balls, cylindrical rollers and needle rollers
  - steel balls are used where moderate to high speeds occur and moderate to high axial forces and radial forces must be supported ➤*1751*|🗀*2*
  - cylindrical rollers are used where bearing arrangements are subjected to radial and axial load ➤*1752*|🗀*3*
  - needle rollers are particularly suitable where the radial design envelope is restricted and the radial loads are lower than those in bearing arrangements with cylindrical rollers ➤*1753*|🗀*4*
- are used in the design of compact bearing arrangements with very high load carrying capacity with a full complement of balls, rollers or needle rollers ➤*1754*|🗀*5*.

🗀 ***1***
Point or line contact

Q = *rolling element load*

① *Ball (point contact)*
② *Cylindrical roller (line contact)*
③ *Needle roller (line contact)*



1.1 Product design

Always enquire about the possible supply of rolling elements

The description of the rolling elements in this chapter gives information about the fundamental characteristics and designs of the products.

A specific enquiry must always be placed on Schaeffler regarding the sale and possible supply of loose rolling elements for a specific application.

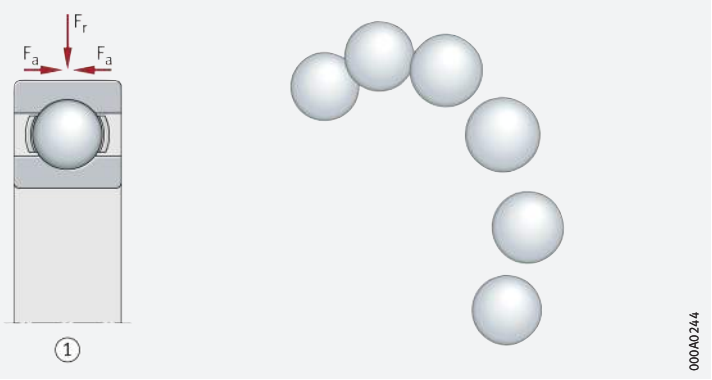
https://www.schaeffler.de/std/1D65

Steel balls

✎ *Basic elements of ball bearings*

Steel balls are made from through hardened rolling bearing steel in accordance with DIN EN ISO 683-17 and are the basic elements of ball bearings ➤*1751*|*2*.

2
Steel balls



F_r = *radial load*
F_a = *axial load*

① *Deep groove ball bearing*

✎ *Available grades*

Balls are available in the grades G10, G16, G20. The largest and smallest deviation and the geometrical tolerance are defined as a function of the diameter D_w.

✎ *Sorting by ball sorts and preferred sort pairs*

Balls manufactured under identical conditions (known as batches) are sorted within a class into ball sorts with a very small diameter tolerance according to the mean batch diameter D_{wmL}. Each sort is packed separately and the mean deviation is marked on the packaging.
One pack contains balls of one sort only. In a delivery of balls of the same nominal dimension and class comprising several packs, the sort may differ from one pack to another. Preferred sort range of grades G10 to G20: +6 to −6.

✎ *Designation of sorts*

The designation of the ball sort (N, P or M) is printed on the packaging:

- N for zero
- P for a positive value (stating the value)
- M for a negative value (stating the value).

Balls of only one sort should always be used in one bearing arrangement.

By agreement, balls made from other materials, such as special steels or ceramic, can be supplied.

Areas of application

Balls are used:

- in rolling bearings where moderate to high speeds occur and moderate to high axial forces and radial forces must be supported, for example in deep groove ball bearings, slewing rings, rotor bearings and linear guidance systems ➤*1751*|*2*
- for standard applications
- where the bearing position is required to operate with little noise.

https://www.schaeffler.de/std/1D65

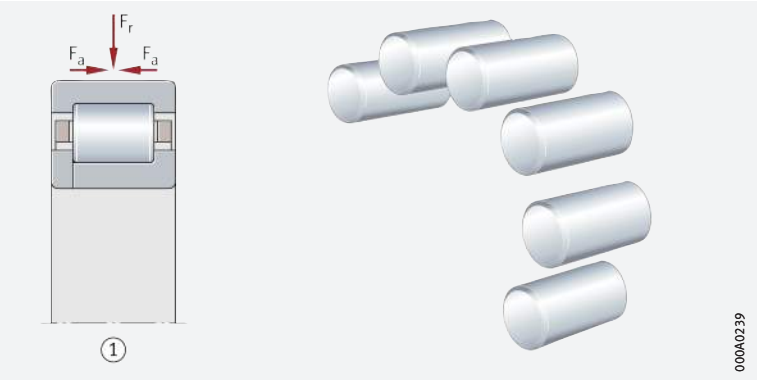
Cylindrical rollers

✎ *Basic elements of cylindrical roller bearings*

Cylindrical rollers are made from through hardened rolling bearing steel in accordance with DIN EN ISO 683-17 and are the basic elements of cylindrical roller bearings ➤*1752*|*3*. The profile has a logarithmic curve. In conjunction with the profiling of the raceways, this prevents edge stresses.

3
Cylindrical rollers

F_r = *radial load*
F_a = *axial load*
① *Cylindrical roller bearing*



✎ *Sorting by sorts*

Cylindrical rollers are divided into sorts with very small diameter and length tolerances. The sorting is indicated on the packaging. One pack contains cylindrical rollers of one sort only. In a delivery comprising several packs, the sort may differ from one pack to another.

✎ *Designation of sorts*

The designation of the sort (0, + or –) is printed on the packaging:

- 0 for zero
- + for a positive value (stating the value)
- – for a negative value (stating the value).

Cylindrical rollers of only one sort should always be used in one bearing arrangement.

For available sizes and possible special designs, please enquire with Schaeffler.

Areas of application

Cylindrical rollers are used:

- where bearing arrangements are subjected to very high radial loads ➤*1752*|*3*. In the case of a bearing arrangement under combined load (axial/radial), the transmission of moderate axial forces is possible taking account of the adjacent construction; axial load carrying capacity of cylindrical roller bearings ➤*417*|*1.2*
- in the automotive industry as well as in machine and gearbox building
- in linear guidance systems.

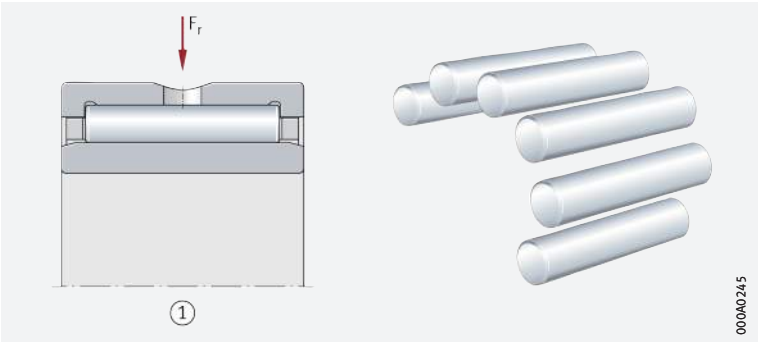
https://www.schaeffler.de/std/1D65

Needle rollers

✎ *Basic elements of needle roller bearings*

Needle rollers are made from through hardened rolling bearing steel 100Cr6 in accordance with DIN EN ISO 683-17 and are the basic elements of needle roller bearings ➤ *1753* | 4. The needle rollers have profiled ends with flat end faces (end faces = type B). Due to this profiling, the outside surfaces have a curved transition to the ends. This reduces the edge stresses at the ends of the rolling elements. Needle rollers can only support radial loads.

4
Needle rollers



F_r = *radial load*

① *Needle roller bearing*

✎ *Sorting by sorts*

Needle rollers are divided into sorts with very small diameter tolerances. The sorting is indicated on the packaging. One pack contains needle rollers of one sort only. In a delivery comprising several packs, the sort may differ from one pack to another.

Needle rollers of only one sort should always be used in one bearing arrangement.

For available sizes and possible special designs, please enquire with Schaeffler.

Areas of application

Needle rollers are used:

- for full complement needle roller bearing arrangements subjected to radial load (where the loads are not as high as those on cylindrical roller bearings).

1.2 Dimensions, tolerances

Steel balls

The dimensional and geometrical tolerances of steel balls correspond to DIN 5401/ISO 3290-1.

Cylindrical rollers

The standard grade of cylindrical rollers corresponds to GN in accordance with DIN 5402-1. The design of chamfer dimensions, length tolerances and diameter tolerances of cylindrical rollers is based on DIN 5402-1.

Needle rollers

The dimensional and geometrical accuracy of needle rollers corresponds to DIN 5402-3/ISO 3096.

https://www.schaeffler.de/std/1D65

1.3 Design of bearing arrangements

Design of full complement ball, roller and needle roller bearing arrangements

The rolling elements can be used in the design of full complement ball, roller and needle roller bearing arrangements ➤*1754*|*5*. Since these bearing arrangements completely fill the design envelope with rolling elements, they are particularly compact and have high load carrying capacity and high rigidity. Due to the kinematic conditions in the bearing, however, the speed suitability of such bearing arrangements is not as high as that of comparable bearings with cages. The rolling elements described here allow bearing arrangements with high radial runout accuracy and an adjustable internal clearance (depending on the geometrically accurate design of the raceways).

Areas of application

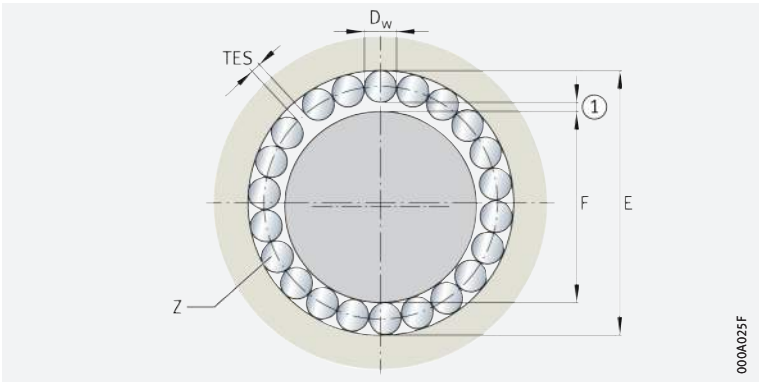
Such bearing arrangements are used in preference:

- in bearing positions with swivel motions
- where high to very high loads occur
- where only a small design envelope is available.

Bearing arrangements with a full complement of balls, rollers or needle rollers require a raceway on the shaft and in the housing that is hardened and ground (which can be used as a rolling element raceway).
Bearing arrangements with needle rollers can only be subjected to radial load ➤*1753*.

For information on the design of bearing arrangements and the permissible speeds, please contact Schaeffler.

5
Full complement needle roller bearing arrangement

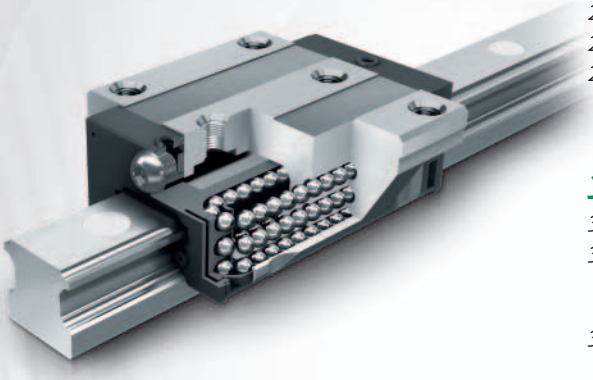


D_w = *rolling element diameter*
E = *raceway diameter of housing bore*
F = *raceway diameter of shaft*
TES = *circumferential clearance*
Z = *rolling element*
① *Radial operating clearance*

https://www.schaeffler.de/std/1D65

https://www.schaeffler.de/std/1D65

Other products



https://www.schaeffler.de/std/1D65

https://www.schaeffler.de/std/1D65

1 Modular sensor bearings

1.1 FAG VarioSense bearings

Newly developed product series

With the FAG VarioSense bearing, Schaeffler is now introducing a product series that, through the combination of standard rolling bearings and a modular sensor concept, facilitates a flexible, rapid and economical solution for the collection of measurement values such as speeds, displacements or temperatures. Due to the high precision of the rolling bearings and the accuracy of the adjacent construction, the bearing position is often the ideal location for collecting these data.

In a first stage, deep groove ball bearings and the measurement values of speed, bearing temperature and radial displacement are being offered, where the measurement of displacement allows a conclusion to be drawn as to the load on the bearing. The customer can then, depending on his requirements, select a configuration that contains precisely the sensor functions required.

Expansion of the product series

The modular concept of the sensor unit facilitates implementation in the future of further sensor functions, such as vibration measurement, or a variant with wireless signal transmission. Schaeffler is already working on the expansion of the FAG VarioSense bearing to include other bearing types and sizes as well as other sensor functions.

This catalogue describes the FAG VarioSense bearings available at the time of printing. We will be pleased to give you information about the expanded scope of the product range as a result of future developments.

Structure

Modular sensor concept

A fundamental feature of the FAG VarioSense bearing is its modular sensor concept ➤*1758*| *1*, which allows configuration of the sensors that is flexibly and ideally matched to the application.

1
Modular sensor concept

① *Rolling bearing*
② *Measurement ring*
③ *Sensor cluster*

The following sections describe the product portfolio available as standard. For requirements extending beyond these or where there is a need for customer-specific product configurations, please consult Schaeffler.

Components

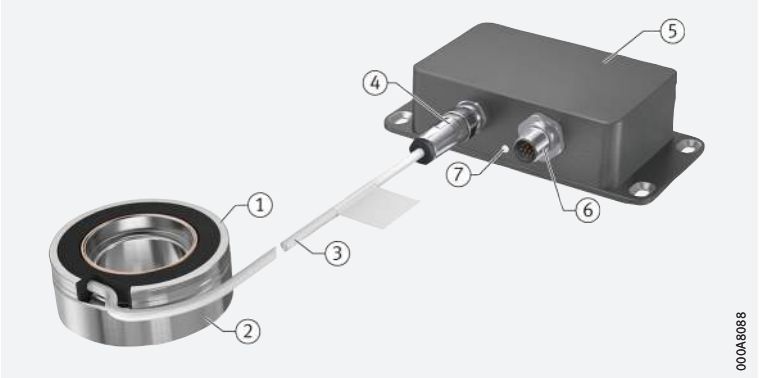
The sensors for the collection of measurement values are integrated in a sensor unit fitted on the side of the bearing ➤*1759*| *2*. This is connected via a cable by means of a detachable plug connection with an interface unit. This carries out conversion and preparation of the measurement signals resulting from the measurement of temperature, displacement and speed. The interface unit also has an LED for display of the operating mode and a flange plug for customer-side connection.

https://www.schaeffler.de/std/1D65

If a product configuration is selected that includes speed measurement as the only sensor function, the interface unit is not necessary and the plug connection is optional.

2 *Components*

① *Sensor unit*
② *Rolling bearing*
③ *Cable*
④ *Detachable plug connection*
⑤ *Interface unit*
⑥ *Customer-side connection*
⑦ *LED for operating mode*



Sensor functions

The FAG VarioSense bearing can be equipped with sensors for speed, temperature and displacement. All the sensors are integrated in the sensor unit.

Speed measurement

The speed sensor records the signals from a magnetic scale that is connected to the inner ring of the bearing. As an output signal, the sensor delivers two phase-offset signals. With the aid of the signals, speeds of up to 15 000 min^{-1} as well as the direction of rotation can be determined.

Temperature measurement

The temperature sensor records the temperature in the vicinity of the bearing outer ring. The resolution is 0,5 K.

Displacement measurement

In the measurement of displacement, the radial displacement between the inner ring and outer ring is recorded. From this, information can be derived about the load on the bearing and the adjacent construction.

The measurement of displacement is subject not only to the radial load but also to a series of other influences such as axial load, tilting and temperature. These influences must be taken into consideration in the interpretation of the measurement results.

In order to ensure correct interpretation of the displacement measurement in relation to the bearing load, we recommend comprehensive analysis of the application and advisory work by Schaeffler.

Product variants

Versatile combination of different sensors

The concept of the FAG VarioSense bearing allows the versatile combination of different sensors. Each combination of sensors is assigned a product configuration. The product configurations available as standard are shown below ➤ *1759* | *1*.

Further combinations of the available sensor functions are available by agreement.

1 *Product configurations*

● = *component of product configuration*

Product configuration	Sensor			Interface unit
	Speed	Temperature	Displacement	
001	●	–	–	Optional
002	●	●	–	●
003	●	●	●	●

Variation of other product characteristics

In addition to the combination of sensors, the selection of an FAG VarioSense bearing allows the variation of other product characteristics such as the sealing of the bearing or the internal clearance.

https://www.schaeffler.de/std/1D65

Interfaces

The interface unit forms the interface between the sensor unit fitted to the bearing on the one hand and the customer system for processing of the measurement results on the other hand.

✎ *Interfaces of interface unit*

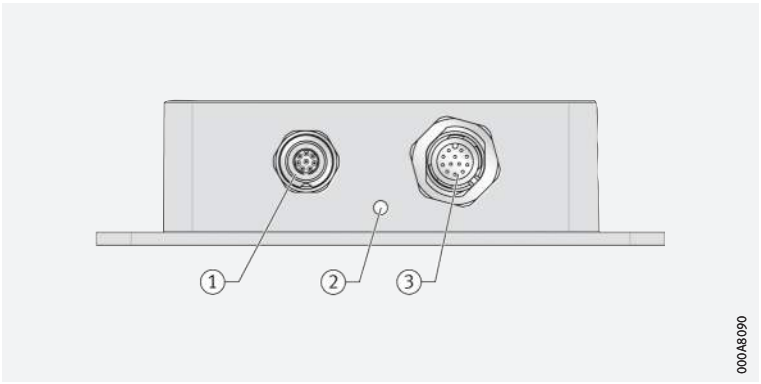
All product variants that have at least one more sensor function in addition to speed measurement are equipped with an interface unit.

The interface unit has the following interfaces ➤*1760*|*3*:

- flange socket for connection of the sensor unit.
- flange plug for the customer-side connection. This interface is used for the output of measurement signals and status as well as the supply of voltage.
- USB communication interface, integrated in the flange plug for customer-side connection. This interface is provided for installing new software versions and for reading out the error and status memory from service activities.
- RS485 interface, integrated in the flange plug for customer-side connection. This interface is used for the exchange of measurement values.
- LED for display of the operating and error status. Display is carried out by means of different colour and flashing modes.

3
End face of interface unit

① *Flange socket for connection of the sensor unit*
② *LED for operating mode*
③ *Flange plug for customer-side connection, with integrated USB communication interface and integrated RS485 interface*



Rolling bearings

The product series FAG VarioSense currently includes the following standard rolling bearings with integrated sensor technology:

- single row deep groove ball bearings of Generation C in the sizes 6205-C to 6210-C.

For the future, the intention is to expand the product series FAG VarioSense to include other rolling bearings.

✎ *Deep groove ball bearings of Generation C*

Deep groove ball bearings of Generation C correspond in their structure to single row standard deep groove ball bearings but are specially optimised in relation to:

- significantly quieter running
- even more effective sealing
- a further reduction in the already very low frictional torque.

These optimisations were achieved by means of design modifications such as new seals and cages, improvements in bearing kinematics and refined manufacturing processes.

✎ *Sealing of bearings*

Within the product series FAG VarioSense, deep groove ball bearings are available with the following seals:

- gap seal 2Z on both sides
- lip seal 2HRS on both sides.

https://www.schaeffler.de/std/1D65

✎ *Lubricating greases*

Within the product series FAG VarioSense, deep groove ball bearings can be supplied with various lubricating greases in accordance with customer requests. Selection of the lubricating grease is based on the information given in the Technical Product Information ➤ 🕮 *TPI 165*.

Upon customer request, other lubricating greases are also available, however these must be checked in advance in conjunction with the sensor unit. If necessary, please contact Schaeffler.

Detailed information on deep groove ball bearings of Generation C is given in the Technical Product Information ➤ 🕮 *TPI 165* and the Rolling Bearings Catalogue HR 1 ➤ *208*.

Temperature limits

The maximum storage and operating temperatures are dependent on the sensors used and therefore differ in accordance with the product configuration ➤ *1761* | ▦ *2*.

▦ **2**
Temperature limits of sensor and interface unit

Component		Temperature			
		Storage		Operation	
		min. °C	max. °C	min. °C	max. °C
Sensor unit of product configuration	001	+5	+40	–40	+125
	002	+5	+40	–40	+125
	003	+5	+40	–40	+105
Interface unit		+5	+40	–40	+80

In addition to the temperature limits of the sensor and interface unit, the permissible operating temperature of the bearing must always also be taken into consideration.

1.2 Further information

In the selection of an FAG VarioSense bearing for an application, in the design of the adjacent construction and incorporation in the overall system, not only the information in this chapter but also the information in the following publication must also be observed:

- Technical Product Information ➤ 🕮 *TPI 253*
- Download and ordering via ➤ *https://www.schaeffler.de/std/1D56*

https://www.schaeffler.de/std/1D65

2 Slewing rings

✎ *Design variants*

Slewing rings are available as:
- four point contact bearings ➤*1762*|🗀*1*
- crossed roller bearings ➤*1763*|🗀*2*.

2.1 General features

✎ *Suitable for radial, axial and tilting moment loads*

Schaeffler slewing rings are known worldwide as premium products in the field of rolling bearing technology. They have proved themselves in numerous ways, have high load carrying capacity, a versatile range of applications and are highly cost-effective. Due to their design, a single bearing position can reliably support radial, axial and tilting moment loads. As a result, bearing arrangements comprising a combination of radial and axial bearings can often be reduced to a single bearing position. This reduces, in some cases considerably, the costs and work required in the design of the adjacent construction and the fitting of bearings.

✎ *Sealed on both sides and greased*

Slewing rings are sealed on both sides, lubricated with a high quality grease, can be relubricated via lubrication nipples and are particularly easy to fit.

✎ *Rings with or without gear teeth*

The bearing rings are supplied without gear teeth or – in order to achieve simple drive solutions – are available with external or internal gear teeth.

2.2 Four point contact bearings

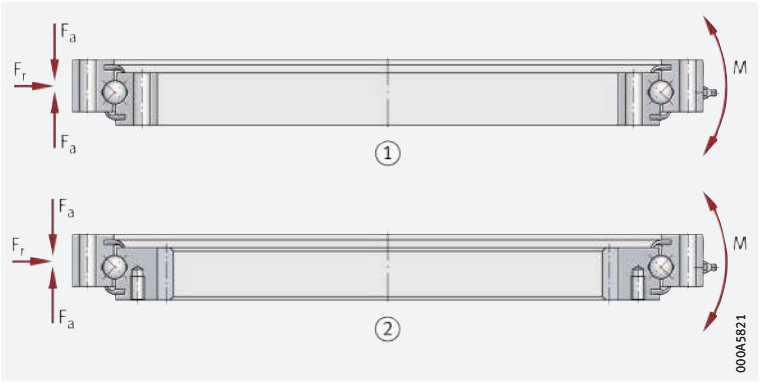
✎ *For lower requirements for load carrying capacity, accuracy and rigidity*

Four point contact bearings are available with external teeth, internal teeth or without teeth as well as in the light series 20 and in the standard series 20 and 25 ➤*1762*|🗀*1*. These slewing rings without preload are robust and proven under very demanding operation; they place only slight demands on the flatness and perpendicularity of the adjacent construction. They are suitable for applications with lower requirements for accuracy and rigidity of the bearing arrangement, for example in simple metalworking machines, wind turbines and construction machinery.

🗀 ***1***
Four point contact bearings

F_a = *axial load*
F_r = *radial load*
M = *tilting moment*

① *Bearing without gear teeth*
② *Bearing with internal gear teeth*



https://www.schaeffler.de/std/1D65

2.3 Crossed roller bearings

Higher load carrying capacity than four point contact bearings

Crossed roller bearings are available with external gear teeth, internal gear teeth and without gear teeth in the standard series 14, as well as in the series XA, XI and XU ➤*1763*| *2*. These preloaded slewing rings can support higher loads than four point contact bearings. They have proved themselves particularly effective where bearings are subjected to high radial forces, as well as to moderate axial and tilting moment loads.

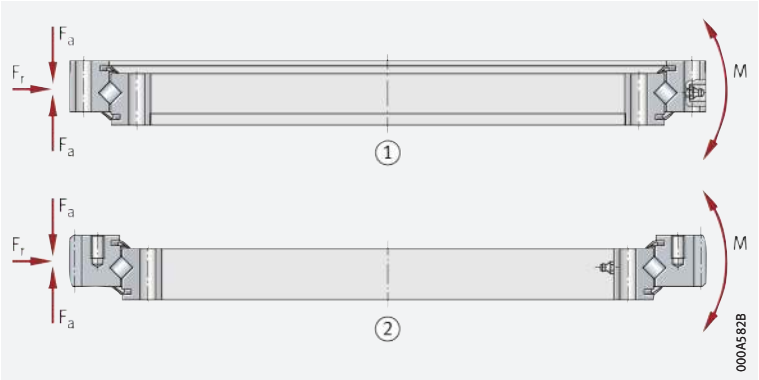
Designed for high precision applications

The bearings are suitable for applications with uniform running free from stick-slip, low rotational resistance and high requirements for axial and radial runout accuracy and rigidity, for example in robots, handling systems and machine tools.

2
Crossed roller bearings

F_a = *axial load*
F_r = *radial load*
M = *tilting moment*

① *Bearing without gear teeth*
② *Bearing with external gear teeth*



2.4 Printed and electronic product catalogue

The standard range of these four point contact and crossed roller bearings is described in detail in the catalogue Slewing Rings ➤ 🕮 *404* and in our electronic product catalogue ***medias*** *professional*. The printed catalogue can be requested from Schaeffler.

Link

The following link will take you to the electronic product catalogue:
➤ *https://medias.schaeffler.com*

https://www.schaeffler.de/std/1D65

3 Thin section bearings

✎ *Design variants*

Thin section bearings are available as:
- deep groove ball bearings (type C) ➤*1764*|*1*
- four point contact bearings (type X) ➤*1764*|*1*
- angular contact ball bearings (type E) ➤*1764*|*1*.

3.1 General features

✎ *Bearings with an extremely small cross-section for lightweight designs with reduced design envelope*

Thin section bearings are high precision products with very little running noise and very high load carrying capacity. These ball bearings are available in three different designs with an extremely small, predominantly square cross-section ➤*1764*|*1*. Within each series, the cross-section remains constant even in the case of larger shaft and housing bore diameters. The bearings are therefore also described as Constant Section (CS) bearings. This feature distinguishes thin section bearings from the conventional bearings that are described in standardised ISO series. In this way, a larger cross-section can be selected in a graduated way and thus a bearing with higher load carrying capacity can be used without the need to change the shaft diameter. Thin section bearings can thus be used to achieve extremely light and compact designs.

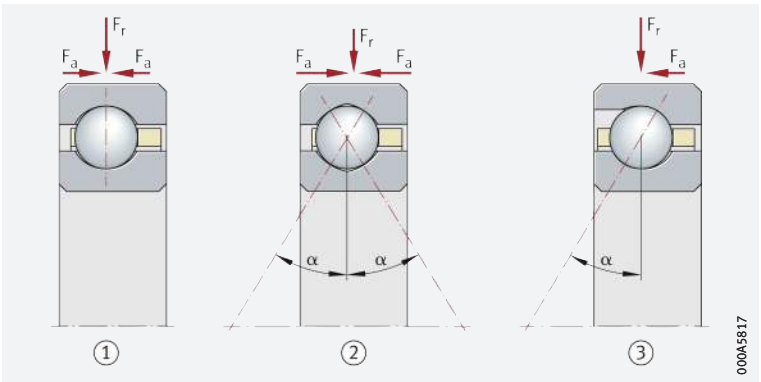
✎ *Available open or sealed, with cages made from brass or plastic*

Thin section bearings are available in designs that are either open or sealed on both sides. The seals are made from synthetic rubber (NBR) and have a steel insert. Sealed bearings are greased. For extreme operating conditions, special lubricants are available. Cages are made from brass or plastic.

✎ *Tolerance classes*

In addition to the standard tolerance class PL1, the classes PL3 and PL6 are available (with increasingly narrow tolerances).

1
Thin section bearings



F_a = *axial load*
F_r = *radial load*
α = *nominal contact angle*

① *Deep groove ball bearing*
② *Four point contact bearing*
③ *Angular contact ball bearing*

https://www.schaeffler.de/std/1D65

3.2 Deep groove ball bearings, four point contact bearings, angular contact ball bearings

Each of the designs is available in various series. The series correspond to the cross-section sizes. The balls are matched to the series.

Deep groove ball bearings

✎ *Suitable for radial and axial loads*

Deep groove ball bearings (type C) can support axial loads in both directions as well as radial loads; under axial load, a contact angle ($\alpha > 0°$) is adopted.

Four point contact bearings

✎ *Action similar to double row angular contact ball bearings*

Four point contact bearings (type X) can support axial loads in both directions as well as radial loads. As a result, they act in the same way as double row angular contact ball bearings.

Angular contact ball bearings

✎ *Suitable for high radial and axial loads*

Angular contact ball bearings (type E) can be filled with an increased number of balls and have a nominal contact angle of $\alpha = 30°$. They can support considerably higher radial loads than deep groove ball bearings or four point contact bearings and can support axial loads in one direction. For particular requirements, angular contact ball bearings are also available as matched pairs of bearings. These combinations then have a significantly higher rigidity and load carrying capacity than individual bearing solutions.

3.3 Product catalogue

The standard range of these bearings is described in detail in the product catalogue ➤ 🕮 *575*. The catalogue can be requested from Schaeffler.

https://www.schaeffler.de/std/1D65

4 Linear guidance systems and linear systems

✎ *Design variants*

Linear guidance systems and linear systems are available as:

- monorail guidance systems
  - linear recirculating roller bearing and guideway assemblies ➤ *1767* | 🗀 *1*
  - six-row linear recirculating ball bearing and guideway assemblies ➤ *1768* | 🗀 *2*
  - four-row linear recirculating ball bearing and guideway assemblies ➤ *1768* | 🗀 *3*
- hydrostatic compact guidance system ➤ *1769* | 🗀 *4*
- shaft and track roller guidance systems
  - shaft guidance systems ➤ *1771* | 🗀 *6*
  - track roller guidance systems ➤ *1772* | 🗀 *8*
- flat cage and recirculating roller guidance systems
  - flat cage guidance systems ➤ *1773* | 🗀 *9*
  - linear recirculating roller guidance systems ➤ *1773* | 🗀 *10*
- miniature guidance systems
  - two-row miniature linear recirculating ball bearing and guideway assemblies ➤ *1774* | 🗀 *11*
  - four-row miniature linear recirculating ball bearing and guideway assemblies ➤ *1774* | 🗀 *12*
  - miniature carriage units ➤ *1775* | 🗀 *13*
- screw drives
  - ball screw drives ➤ *1775* | 🗀 *14*
  - roller screw drives ➤ *1775* | 🗀 *14*
  - planetary screw drives ➤ *1775* | 🗀 *14* and ➤ *1777* | 🗀 *15*
- driven linear units
  - linear actuators ➤ *1778* | 🗀 *16*, ➤ *1778* | 🗀 *17*, ➤ *1778* | 🗀 *18*
  - linear tables ➤ *1779* | 🗀 *19*.

4.1 Monorail guidance systems

✎ *Features*

Monorail guidance systems from Schaeffler are compact linear guidance systems based on rollers or balls and have high rigidity and high load carrying capacity. These guidance systems can support forces from all directions, except for the direction of motion, and moments about all axes.

They are available in various accuracy and preload classes and are therefore also suitable for applications with high guidance and positioning requirements.

Monorail guidance systems are based on a modular concept; this means that, within one size, guideways can be combined with all carriage types. This gives more economical stockholding, simpler fitting and more rapid spare parts purchasing.

In order to reduce maintenance intervals and maintenance costs, monorail guidance systems have a lubricant reservoir. Sealing of the carriages on all sides protects the rolling element systems against contamination even under critical ambient conditions.

The complete standard range of monorail guidance systems is described in detail in the catalogue Monorail Guidance Systems ➤ 🕮 *PF 1* and in the online version ***medias*** *professional* ➤ *https://medias.schaeffler.com*.

https://www.schaeffler.de/std/1D65

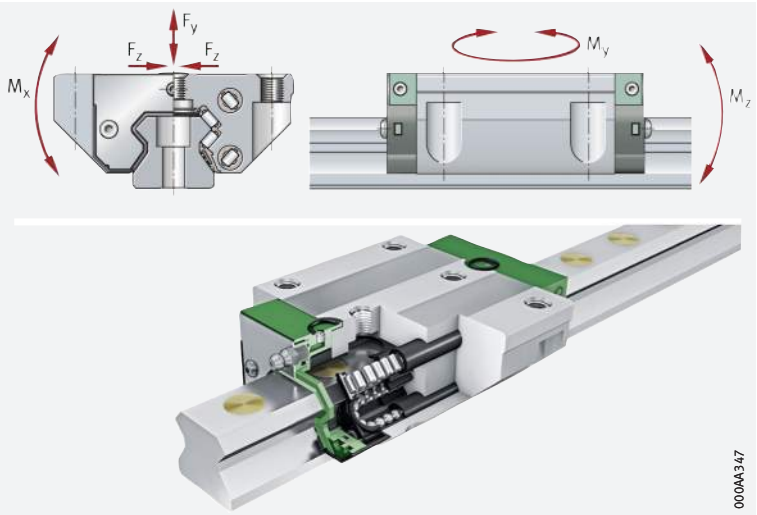
Linear recirculating roller bearing and guideway assemblies

Very high load carrying capacity, very high rigidity

Linear recirculating roller bearing and guideway assemblies RUE are, due to the cylindrical rollers, the monorail guidance systems with the highest load carrying capacity and rigidity from Schaeffler ➤*1767*|*1*. They comprise at least one carriage with a full complement roller system, a guideway, integral elastic wipers on the end faces of the carriage, sealing strips on the upper side and underside of the carriage and closing plugs to close off the fixing holes in the guideway.

1
Linear recirculating roller bearing and guideway assemblies RUE

F_y, F_z = *load-bearing component in y and z direction*
M_x, M_y, M_z = *moment about x, y and z axis*



The carriage and guideway of a linear recirculating roller bearing and guideway assembly are matched to each other due to their closely toleranced preload. It may be possible, after consultation, to use carriages and guideways in different combinations.

Suitability

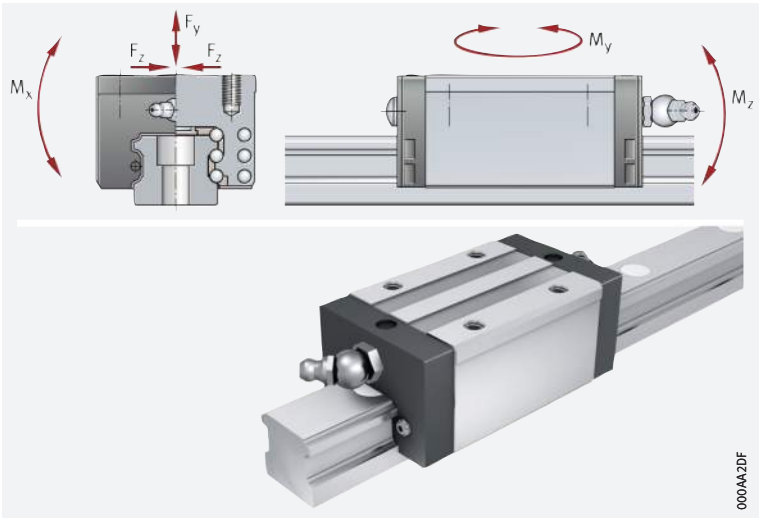
Linear recirculating roller bearing and guideway assemblies are suitable for accelerations up to 100 m/s^2, velocities up to 180 m/min and operating temperatures between –10 °C and +100 °C. They are used in applications with long unrestricted strokes, high and very high loads and high to very high rigidity.

Six-row linear recirculating ball bearing and guideway assemblies

Linear recirculating ball guidance systems with high load carrying capacity and high rigidity

Six-row linear recirculating ball bearing and guideway assemblies KUSE are the guidance systems based on balls with the highest load carrying capacity and rigidity ➤*1768*|*2*. They comprise at least one carriage with a full complement ball system, a guideway, integral elastic wipers on the end faces of the carriage, sealing strips on the underside of the carriage and plastic closing plugs.

https://www.schaeffler.de/std/1D65



2 Six-row linear recirculating ball bearing and guideway assemblies KUSE

F_y, F_z = *load-bearing component in y and z direction*
M_x, M_y, M_z = *moment about x, y and z axis*

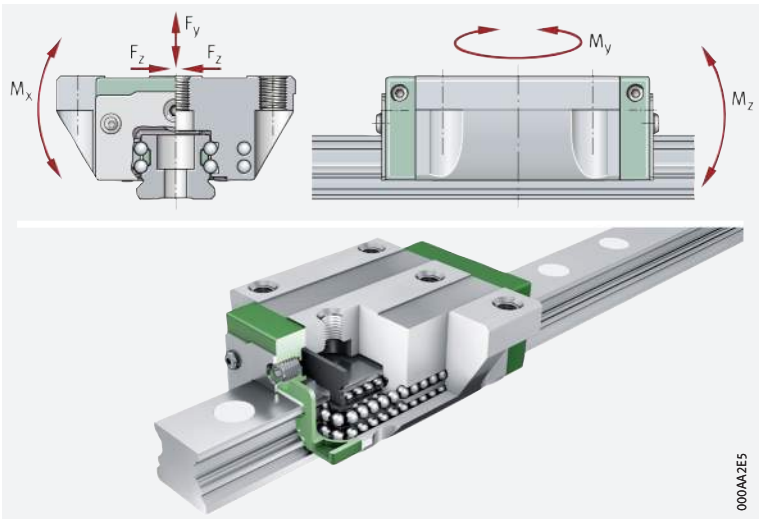
Suitability

Linear recirculating ball bearing and guideway assemblies KUSE are suitable for accelerations up to 150 m/s^2, velocities up to 300 m/min and operating temperatures between –10 °C and +100 °C. They are used in applications with long unrestricted strokes, high and very high loads and high to very high rigidity.

Four-row linear recirculating ball bearing and guideway assemblies

Very extensive range

Four-row linear recirculating ball bearing and guideway assemblies KUVE are the most versatile and most extensively developed range of monorail guidance systems available from Schaeffler ➤ *1768*| *3*. These units comprise at least one carriage with a full complement ball system, a guideway, integral elastic wipers on the end faces of the carriage, sealing strips on the upper and lower sides of the carriage and plastic closing plugs.



3 Four-row linear recirculating ball bearing and guideway assemblies KUVE

F_y, F_z = *load-bearing component in y and z direction*
M_x, M_y, M_z = *moment about x, y and z axis*

Suitability

Linear recirculating ball bearing and guideway assemblies KUVE are suitable for accelerations up to 150 m/s^2, velocities up to 300 m/min and operating temperatures between –10 °C and +100 °C. They are used in applications with long unrestricted strokes, high loads, high rigidity and low friction.

https://www.schaeffler.de/std/1D65

High-Speed for highly dynamic requirements

Four-row linear recirculating ball bearing and guideway assembly of High-Speed design

The four-row, full complement linear recirculating ball bearing and guideway assembly KUVE..-B-HS of the High-Speed design represents a further expansion of the extensive KUVE range in the field of highly dynamic applications. This variant is extremely robust and is one of the fastest four-row linear recirculating ball bearing and guideway assemblies on the market. Depending on the operating conditions, velocities of up to 10 m/s are possible.

Interchangeable with comparable KUVE units

In order to achieve these values, the end piece and ball return system in the High-Speed design were redesigned, as a result of which the total length of the carriage is slightly larger in comparison with the standard design. The design envelope corresponds to DIN 645-1.
The loads are supported by standard steel rolling elements. The linear recirculating ball bearing and guideway assembly of the High-Speed design is interchangeable with the comparable KUVE-B units.

X-life

The linear recirculating ball bearing and guideway assemblies are supplied in X-life premium quality. These bearings are characterised by improved technological features, increased robustness and longer operating life. Further information on X-life ➤*10*.

High dynamic characteristics

Linear recirculating ball bearing and guideway assemblies of the High-Speed design are used in applications with very high dynamic requirements. Since hybrid technology has not been used in this case, the full performance capacity of the rolling contact can be implemented – with the associated advantages in terms of load carrying capacity, rigidity, robustness and crash safety.

The High-Speed linear recirculating ball bearing and guideway assemblies are described in detail in the Technical Product Information ➤ 🕮 *TPI 145* and in the online version ***medias*** *professional*.

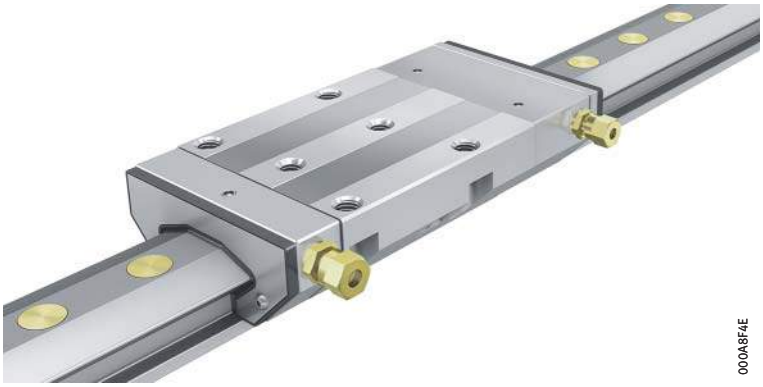
4.2 Hydrostatic compact guidance system

The carriages in monorail guidance systems cannot accommodate vibration damping. In order to allow appropriate damping of vibrations from the adjacent construction, additional elements such as the passive damping carriage RUDS-D for linear recirculating roller bearing and guideway assemblies RUE-E are necessary, which is positioned between the carriages. In order to have the greatest effect when bending vibrations occur, however, the damping element must be positioned at the point of largest deflection. A good knowledge of the vibration patterns is therefore required.

Hydrostatic vibration damping by means of oil cushion

For applications with very high demands on damping, dynamic rigidity and load carrying capacity, there is now a hydrostatic compact guidance system based on our proven linear recirculating roller bearing and guideway assemblies RUE..-E for size 45 ➤*1769*| 4.

4
Hydrostatic compact guidance system HLE45-A-XL



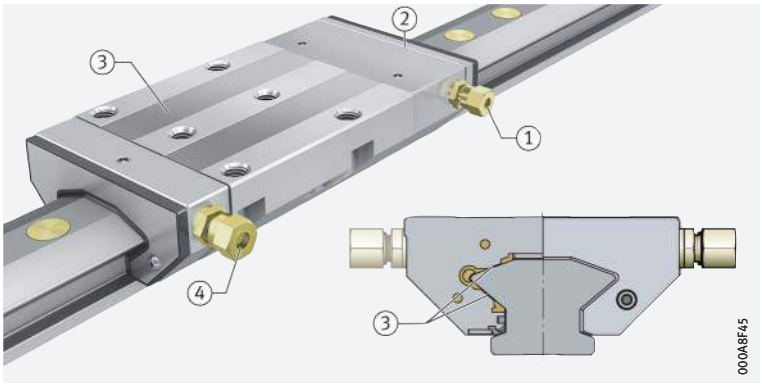
https://www.schaeffler.de/std/1D65

✎ *Functional principle*

A chamber system in the carriage is charged with hydraulic oil. The oil is fed to the pressure side under continuous pressure, thus filling the pressure pockets ➤ *1770*| 🗀 *5*. The integrated chokes are set such that the pressure pockets in the carriage are subjected uniformly to pressure. The unpressurised oil is extracted from the compact guidance system on the suction side and fed back to the oil circuit.

🗀 **5**
Functional parts

① *Pressure side*
② *Integrated choke*
③ *Pressure pockets*
④ *Extraction side (unpressurised area)*



X-life premium quality

X-life

Hydrostatic compact guidance systems HLE45-A-XL are supplied in X-life quality. Further information on X-life ➤ *10*.

✎ *Increased customer benefits due to X-life*

The guidance systems combine damping values of more than 470 000 kg/s with levels of tensile/compressive rigidity that are almost as high as the rigidity of the corresponding rolling element guidance systems. When used in machine tools, this gives higher cutting output, better surface quality and longer tool life.

A special bronze coating in the pressure pockets of the saddle plate gives excellent emergency running characteristics, which means that the guidance system is not damaged even when overloaded or during operation without hydraulic pressure.

✎ *Performance characteristics*

There is approximately zero friction between the guideway and the carriage. The compressive rigidity corresponds to the normal linear recirculating roller bearing and guideway assembly RUE-E. The operating load in machine tools is similar to the standard monorail guidance system. The guidance system can support loads from all directions, apart from the direction of motion, and moments about all axes. It is suitable for accelerations of 100 m/s^2 and velocities up to 120 m/min.

The hydrostatic compact guidance systems are described in detail in the Technical Product Information ➤ 🕮 *TPI 149*.

https://www.schaeffler.de/std/1D65

4.3 Shaft and track roller guidance systems

Shaft guidance systems

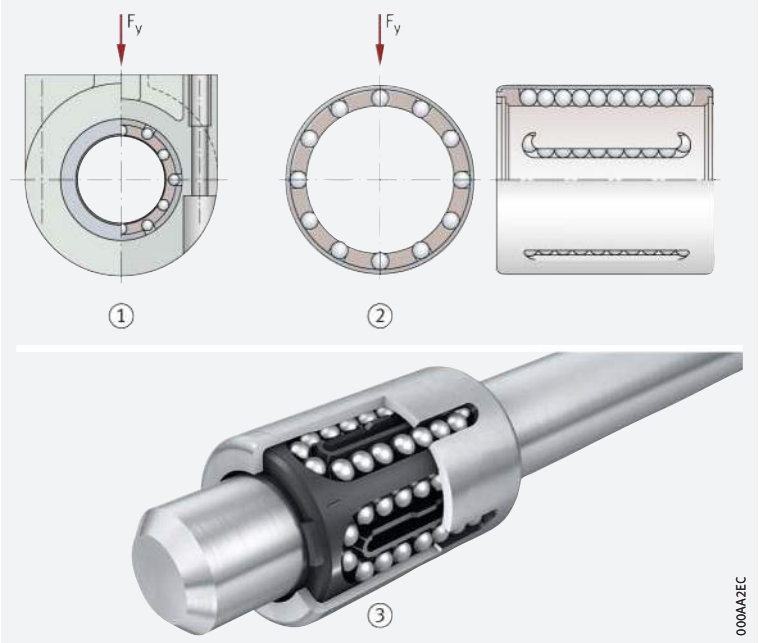
✎ *Linear guidance systems based on ball bearings or plain bearings*

Shaft guidance systems from Schaeffler are linear guidance systems based on ball bearings or plain bearings for various areas of use and applications. Linear ball bearings are available as a light range, compact range and machined range. The mating tracks may be in the form of solid shafts, hollow shafts or supported shaft and support rail units ➤ *1771* | 🗐 *6* and ➤ *1771* | 🗐 *7*.

🗐 *6*
Shaft guidance system WL, closed housing

F_y = *load-bearing component in y direction*

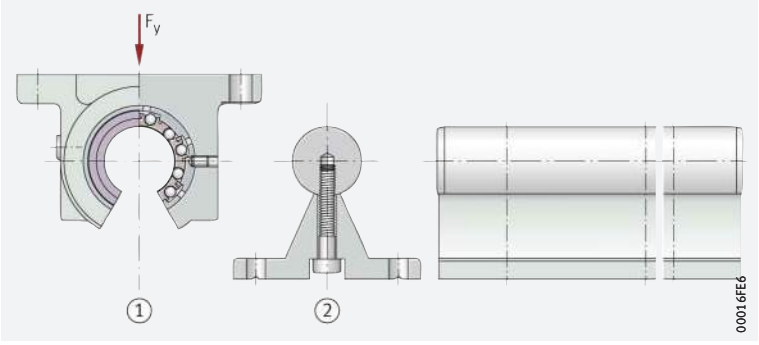
① *Linear ball bearing in closed housing*
② *Closed linear ball bearing*
③ *Shaft guidance system with linear ball bearing and solid shaft*



🗐 *7*
Shaft guidance system WL, housing with segment cutout, supported shaft and support rail unit

F_y = *load-bearing component in y direction*

① *Linear ball bearing in housing, segment cutout for supported shafts*
② *Shaft and support rail unit with solid shaft*



The range is rounded off by a large selection of linear ball bearing and housing units and linear plain bearing units. In this case, the linear ball bearings or linear plain bearings are already mounted in ready-to-fit housings.

A large number of shafts (with and without machined features), shaft and support rail units and a versatile range of accessories allow a wide spectrum of applications.

https://www.schaeffler.de/std/1D65

Track roller guidance systems

Linear guidance systems with a modular configuration facility

Track roller guidance systems from Schaeffler are linear guidance systems that can be configured on a modular basis for an extremely wide variety of applications. Due to their lightweight construction, they are highly suitable for use in handling systems. They are characterised in particular by quiet running, high traverse velocities, long travel distances and the modular concept.

Possible combinations

Track roller guidance systems comprise one or more carriages made from aluminium, profiled track rollers and a straight or curved guideway ➤*1772*|*8*. The carriages are available as hollow section carriages, open carriages, compact carriages and bogie carriages for curved, oval and circular guidance systems.

Guideways of various designs

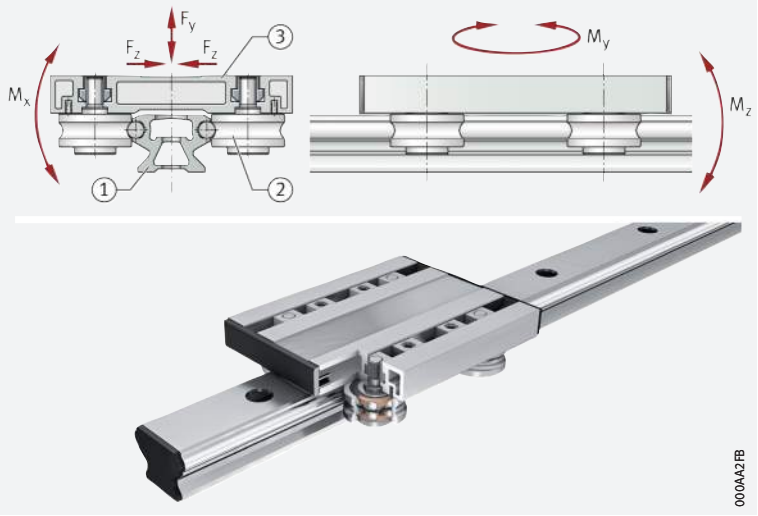
The guideways are made from aluminium with rolled-in raceway shafts made from rolling bearing steel. The guideways are available in numerous different designs, including a solid profile guideway, hollow section guideway, flat guideway, guideway with slot etc. They are selected as appropriate to the intended purpose of the track roller guidance system.

8
Track roller guidance systems LF

F_y, F_z = *load-bearing component in y and z direction*

M_x, M_y, M_z = *moment about x, y and z axis*

① *Guideway with hollow section profile*
② *Profiled track roller*
③ *Hollow section carriage*



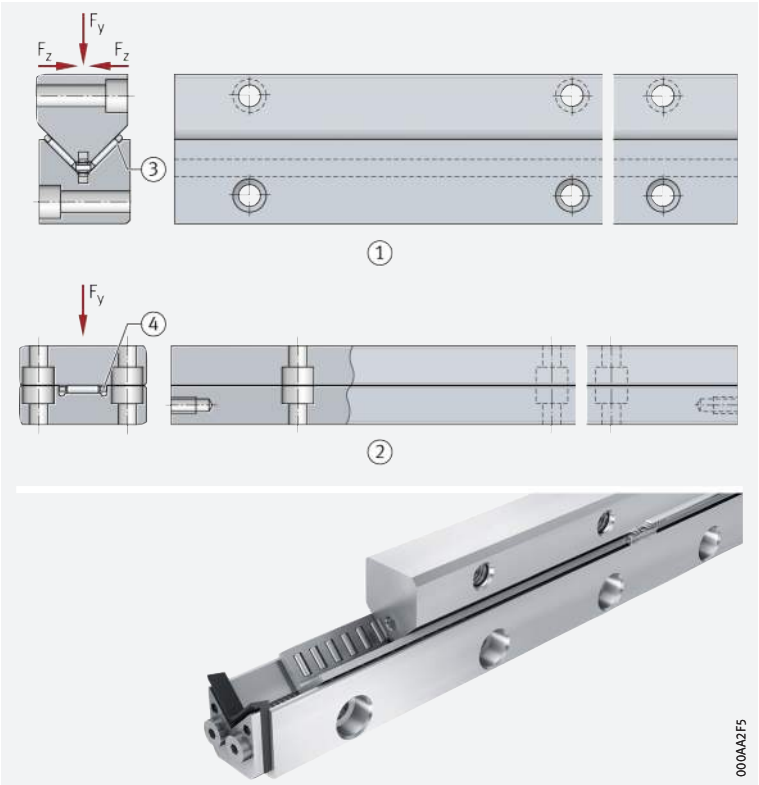
The standard range is described in detail in the catalogue Track Roller Guidance Systems ➤ *LF 1*, in the catalogue Shaft Guidance Systems ➤ *WF 1* and in the online version ***medias*** *professional* ➤ *https://medias.schaeffler.com*.

4.4 Flat cage and recirculating roller guidance systems

Flat cage guidance systems

Where linear locating or non-locating bearings with extremely high load carrying capacity, very smooth running and low, uniform friction are required for limited stroke lengths, for example, flat cage guidance systems are used ➤*1773*|*9*. These guidance systems comprise a guideway arrangement separated by needle or cylindrical roller flat cages. The guidance systems have particularly high rigidity, high accuracy and low friction and require significantly less space than other linear guidance systems.

https://www.schaeffler.de/std/1D65



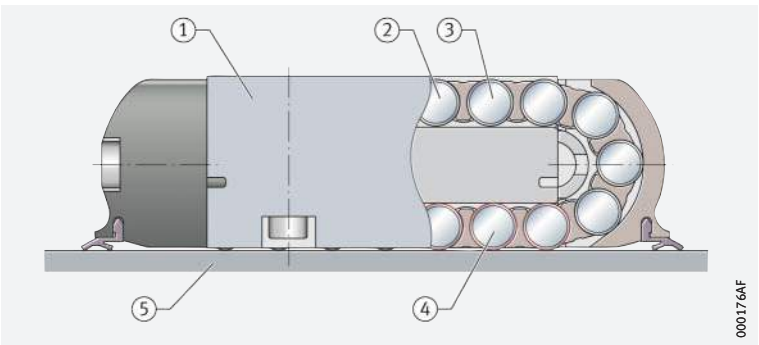
9
Flat cage guidance systems M/V, ML/V, MVZ, J/S

F_y, F_z = *load directions*

① *M/V guideways*
② *J/S guideways*
③ *Angled needle roller flat cage*
④ *Needle roller flat cage*

Linear recirculating roller guidance systems

Linear recirculating roller guidance systems comprise a bearing arrangement system for linear motion with unlimited stroke ➤*1773*|*10*. Since the guidance elements have a versatile range of possible arrangements, linear recirculating roller guidance systems are suitable for numerous applications in general machine building, especially for linear guidance systems in machine tools where high guidance and positioning accuracies are required over long traverse distances.



10
Linear recirculating roller guidance systems RUS, RUS..-KS, PR, RUSW

① *Carriage*
② *Rolling element*
③ *Return of rolling elements*
④ *Rolling element in load zone*
⑤ *Guideway*

The range of recirculating guidance systems is complemented by:

- adjusting gibs for precise setting of preload
- setting devices for measuring the deformation of the adjacent construction where preload forces must be supported
- adapters for the easy mounting of linear recirculating roller bearings in a 45° arrangement.

The standard range is described in detail in the catalogue Flat Cage Guidance Systems and Linear Recirculating Roller Guidance Systems ➤ 🕮 *FR 1* and in the online version ***medias*** *professional* ➤ *https://medias.schaeffler.com*.

https://www.schaeffler.de/std/1D65

4.5 Miniature guidance systems

Features

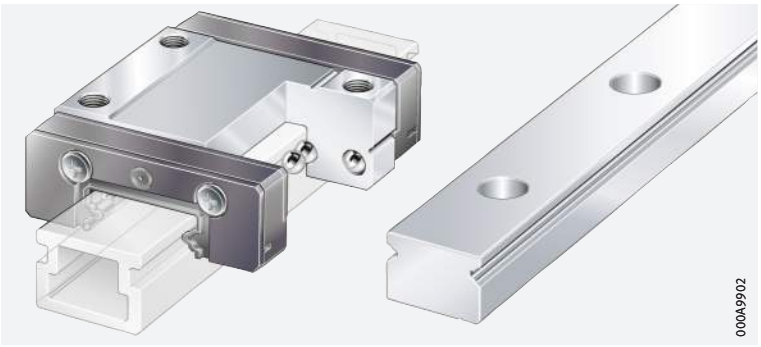
Miniature guidance systems from Schaeffler are not standard linear guidance systems that have simply been reduced in size, but were specially developed for very small design envelopes. Due to their compact design, they can often be used to replace bearing arrangements that require significantly more space. The guidance systems are preloaded linear locating bearings for limited and unlimited stroke lengths.

Two-row miniature linear recirculating ball bearing and guideway assemblies

Modular concept

These units have moderate load carrying capacity and moderate to high moment load carrying capacity. Due to their modular concept, guideways and carriages can be interchanged within each interchangeability and accuracy class. This simplifies the fitting of guidance systems, gives easier spare parts purchasing and allows very economical stockholding. The saddle plates and guideways are corrosion-resistant. Seals on the end faces of the carriages protect the rolling element system against contamination. The carriages are greased and can be relubricated. The guideways and carriages are also available in a wide version ➤ *1774* | *11*.

11
Two-row miniature linear recirculating ball bearing and guideway assemblies KWEM, TKDM

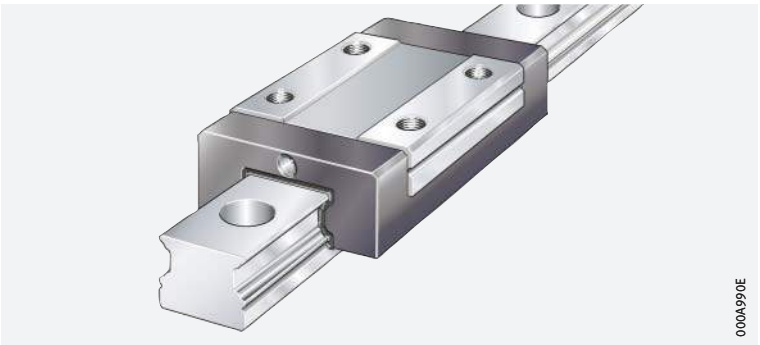


Information on the units is given in the Technical Product Information Corrosion-resistant Miniature Linear Recirculating Ball Bearing and Guideway Assemblies ➤ *TPI 163* as well as the online version ***medias*** *professional* ➤ *https://medias.schaeffler.com*.

Four-row miniature linear recirculating ball bearing and guideway assemblies

Four-row miniature linear recirculating ball bearing and guideway assemblies are ready-to-fit guidance systems for unlimited stroke lengths ➤ *1774* | *12*. They have high to very high load carrying capacity and rigidity. Due to the lubricant reservoir, the relubrication intervals can be extended. The saddle plates and guideways are corrosion-resistant. Seals on the end faces of the carriages protect the rolling element system against contamination. The carriages are greased and can be relubricated.

12
Four-row miniature linear recirculating ball bearing and guideway assemblies KUME..-C



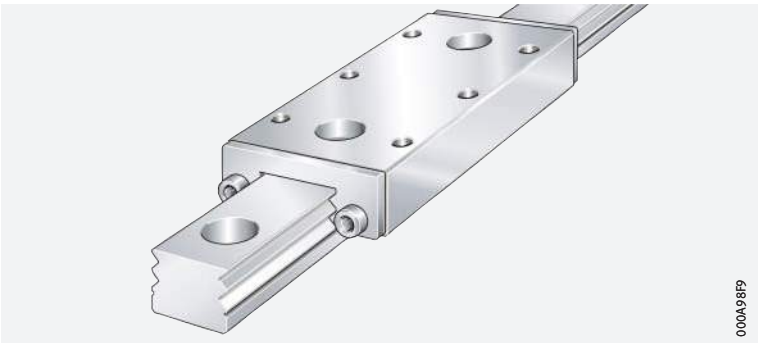
https://www.schaeffler.de/std/1D65

Information on the units is given in the Technical Product Information Corrosion-resistant Miniature Linear Recirculating Ball Bearing and Guideway Assemblies ➤ 🕮 *TPI 163* as well as the online version ***medias*** *professional* ➤ *https://medias.schaeffler.com*.

Miniature carriage units

Miniature carriage units with cylindrical roller flat cages are corrosion-resistant, ready-to-fit cage guidance systems for limited stroke lengths ➤ *1775* | 🗀 *13*. They have a high load carrying capacity, high rigidity and high accuracy whilst requiring very little space.

13
Miniature carriage units RMWE..-VA



Information on the units is given in the Technical Product Information Corrosion-resistant Miniature Carriage Units ➤ 🕮 *TPI 160* as well as the online version ***medias*** *professional* ➤ *https://medias.schaeffler.com*.

4.6 Screw drives

✎ *Ball screw, roller screw and planetary screw drives*

For a wide range of application areas in machine building and automotive engineering, as well as in handling and automation technology, Schaeffler offers a comprehensive portfolio of ball screw, roller screw and planetary screw drives ➤ *1775* | 🗀 *14*.

14
Screw drives

① *Ball screw drive KGT*
② *Roller screw drive RGT*
③ *Planetary screw drive PWG*

https://www.schaeffler.de/std/1D65

The function of screw drives

Screw drives comprise a threaded spindle and a threaded nut. Due to the rotation of the spindle, the nut moves in a translational manner on the spindle and thus converts the rotational motion of the drive into translational motion. It is rigidly connected to the adjacent construction and gives axial displacement or positioning of the component. The main load direction of screw drives is axial, radial load is not permissible. The screw drive can be subjected to high dynamic axial load.

Information on the Schaeffler screw drive range is given in the Product Data Sheet ➤ 🕮 *PDB 35*.

Ball screw drives

In ball screw drives KGT, the load is transmitted from the spindle by means of balls to the nut. The nut (cylindrical nut or flanged nut) has a return system for recirculating the rolling elements.

Characteristics

Ball screw drives are characterised by:

- high load carrying capacity due to the large number of balls
- quiet, uniform running
- reliable function and operational security due to the internal return and recirculation system
- easy-to-fit nut design
- sealed nuts (optional).

Roller screw screws

In roller screw drives RGT, force is transmitted via the thread flanks of the rollers. Since the number of contact surfaces here is significantly higher than in ball screw drives, roller screw drives have significantly higher load carrying capacity. Roller screw drives have significantly smaller pitch values than ball screw drives. Since there is no recirculation of balls, in contrast to KGT, very quiet running is achieved. In the case of preloaded double threaded nuts, the load carrying capacity is lower due to the load-bearing length of the threaded rollers – smaller pitch – than for single preloaded nuts.

Design of roller screw drives

Roller screw drives comprise, as in the case of ball screw drives, a threaded spindle and a threaded nut. However, the threaded nut contains threaded rollers arranged parallel to the axis. As the threaded spindle rotates, the threaded rollers rotate in planetary motion about the threaded spindle without axial displacement. The rotational motion of the nut and planets is synchronised by means of gear rings in order to prevent axial displacement. As a result, a high positional accuracy is achieved. Schaeffler roller screw drives are available, in various series and with corresponding bearing components, as ready-to-fit units. Roller screw drives differ essentially in terms of the threaded nut design.

Characteristics

Roller screw drives are characterised by:

- high axial load carrying capacity
- high axial rigidity
- small thread pitch values
- low running noise
- simple mounting and dismounting of the spindle nut
- high operational security
- high positional accuracy.

Areas of application

Due to their high rigidity and axial load carrying capacity, roller screw drives are used particularly in high precision machine tools, measuring machinery and industrial robots as well as in electronic component manufacture and precision engineering.

https://www.schaeffler.de/std/1D65

Planetary screw drives

Planetary screw drives PWG are characterised by a very high performance density. In these planetary screw drives, force is transmitted via the flanks of the rollers, spindle and nut ➤*1777*|*15*. Due to the large number of contact points, a very high axial load carrying capacity is achieved. Due to the very small pitch values, high axial operating forces can be achieved with small drive units (without a gearbox).

15
Planetary screw drive PWG, exploded view

✎ *Structure*

Planetary screw drives PWG comprise a threaded spindle and cylindrical nut or flanged nut. The cylindrical nut and flanged nut differ only in the method by which they are fixed to the table.

The nut contains planets arranged parallel to the axis. The planets roll uniformly on the threaded spindle and the nut. Planetary screw drives are designed for temperatures between –10 °C and +80 °C.

✎ *Characteristics*

Advantages of planetary screw drives:

- very economical drive
- very high load carrying capacity due to the large number of rolling contacts
- high axial rigidity
- preloaded clearance-free
- very small pitch values (< 1 mm)
- very quiet running (no rotating rolling elements)
- simple, robust design
- very high performance density
- high reliability and operational security.

Detailed information on planetary screw drives is given in the Technical Product Information Planetary Screw Drives ➤ *TPI 254*.

4.7 Driven linear units

✎ *Features*

Rapid progress in the automation of production and assembly processes has pushed forward the development of complete, driven assemblies. These comprise a high precision guidance system, a rigid support rail, a wear-free servomotor drive and a user-friendly control system.

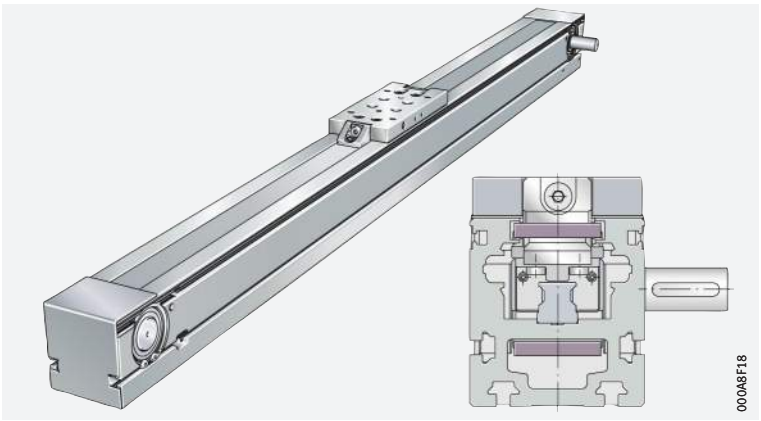
https://www.schaeffler.de/std/1D65

Linear actuators

Linear actuators from Schaeffler are integral modular systems containing all the components required for operation. The linear actuators are guided by linear recirculating ball bearing and guideway assemblies of series KUVE or by track roller guidance systems LF. The drive function is carried out by a ball screw drive, direct drive or toothed belt ➤*1778*|*16* to ➤*1778*|*18*.

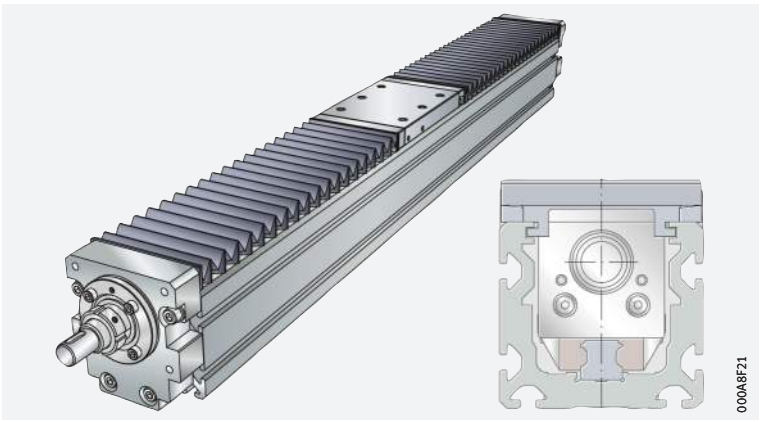
16
Linear actuators with linear recirculating ball bearing and guideway assemblies and toothed belt drive

MKU..-ZR



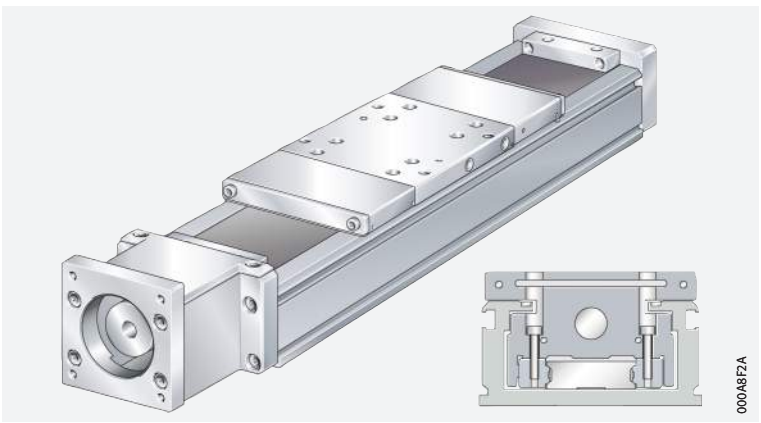
17
Linear actuators with linear recirculating ball bearing and guideway assemblies and ball screw drive

MKU..-KGT



18
Linear actuators with linear recirculating ball bearing and guideway assemblies and ball screw drive

MKUVS32-KGT



https://www.schaeffler.de/std/1D65

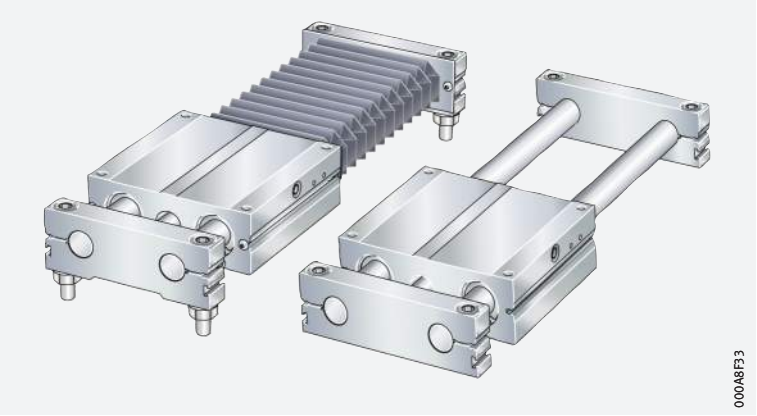
Linear tables

Linear tables from Schaeffler are used where larger masses are moved in one or more axes. Due to the large distances between support points, linear tables are also capable of supporting high torques. The guidance systems used are linear ball bearings or linear recirculating ball bearing and guideway assemblies.

Linear tables are available without a drive mechanism, with a ball screw drive, with a trapezoidal lead screw drive or a direct drive ➤ *1779* | *19* and ➤ *1779* | *20*. They are available with an open or closed shaft guidance system.

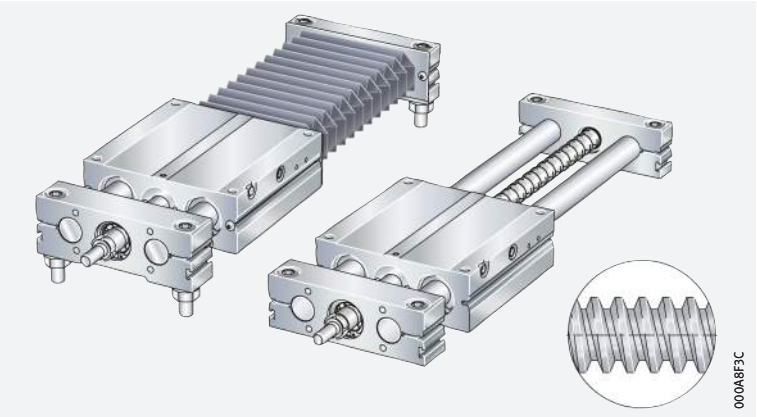
19
Linear tables without drive

LT



20
Linear tables with trapezoidal lead screw drive

LT



The INA range of driven linear units is complemented by suitable controllers, motors and gearboxes which are optimally matched to each other.

Detailed information on these units is given in the catalogue Driven Linear Units ➤ 🕮 *AL 1*.

https://www.schaeffler.de/std/1D65

5 Spherical plain bearings, rod ends

5.1 Spherical plain bearings, maintenance-free

Features

Maintenance-free spherical plain bearings are used where:

- there are particular requirements for operating life under maintenance-free operation
- for reasons of lubrication, bearings with a metallic sliding contact surface are not suitable, for example under unilateral load.

Spherical plain bearings allow spatial adjustment movements and, depending on the bearing type, are preferably used to support radial, combined or axial loads.

The complete range is described in the catalogue Plain Bearings ➤ 🕮 *HG 1* and in the online version ***medias*** *professional* ➤ *https://medias.schaeffler.com*.

Sliding layers

Maintenance-free spherical plain bearings have special sliding layers based on PTFE (polytetrafluoroethylene). In terms of performance capability, these are:

- ELGOGLIDE, the highest performance sliding layer
- ELGOGLIDE-W11, the sliding layer for low contact pressures and minimal friction
- PTFE-bronze film
- PTFE composite material.

These materials form the slideway of the outer ring or the housing locating washer. They transmit the forces occurring and perform the lubrication function. Maintenance-free bearings must not be lubricated.

ELGOGLIDE

The sliding layer comprises a 0,5 mm thick layer of ELGOGLIDE, is embedded in synthetic resin and is attached by a high strength bond to the support body. The flow behaviour of the sliding layer is, in conjunction with the support body, almost negligible even under very high load. The adhesive bond is resistant to moisture and swelling.

ELGOGLIDE is a registered trademark and product of Schaeffler.

ELGOGLIDE designs

For differing requirements, the following are available:

- ELGOGLIDE
  the standard material for very high dynamic contact pressures from 25 N/mm^2 to 300 N/mm^2 and a long operating life
- ELGOGLIDE-W11
  the material for dynamic contact pressures from 1 N/mm^2 to 100 N/mm^2 and with low coefficients of friction even at low contact pressures.

PTFE-bronze film

The PTFE-bronze film (metal lattice material) is fixed to the outer ring curved surface. The metal lattice is made from high strength bronze and acts as a stabiliser for the sintered PTFE composite material.

PTFE composite material

The PTFE composite material comprises sheet steel with bronze attached by sintering and an embedded plastic composite material made from PTFE. The composite material is embedded with form contact between the inner ring curved surface and the outer steel surface.

https://www.schaeffler.de/std/1D65

Radial spherical plain bearings, radial large spherical plain bearings

Radial spherical plain bearings comprise inner and outer rings with maintenance-free sliding layers made from ELGOGLIDE, PTFE composite material or PTFE-bronze film.

Sealed spherical plain bearings are protected by lip seals against contamination and water spray. These bearings have the suffix 2RS, 2TS or 2RS2.

1
Radial spherical plain bearings, maintenance-free

① *Sliding contact surface hard chromium/PTFE composite material, open: GE..-UK*
② *Sliding contact surface hard chromium/PTFE composite material, open: GE..-FW*
③ *Sliding contact surface hard chromium/ELGOGLIDE, with lip seal: GE..-UK-2RS*
④ *Sliding contact surface hard chromium/ELGOGLIDE, with high performance seal: GE..-UK-2TS*
⑤ *Sliding contact surface steel/PTFE-bronze film, open: GE..-PW*

2
Radial large spherical plain bearings, maintenance-free, X-life design

① *Sliding contact surface hard chromium/ELGOGLIDE, open: GE..-DW*
② *Sliding contact surface hard chromium/ELGOGLIDE, with lip seal: GE..-DW-2RS2*

✎ *X-life* Radial large spherical plain bearings from d = 320 mm are X-life bearings.

https://www.schaeffler.de/std/1D65

1 *Series and design*

Series	Sliding layer	DIN ISO	Dimension series	Shaft d mm	
				from	to
GE..-UK-2RS	ELGOGLIDE	12240-1	E	17	300
GE..-UK-2TS	ELGOGLIDE	12240-1	E	30	300
GE..-FW-2RS	ELGOGLIDE	12240-1	G	25	280
GE..-FW-2TS	ELGOGLIDE	12240-1	G	25	280
GE..-DW	ELGOGLIDE (X-life)	12240-1	C	320	1000
GE..-DW-2RS2	ELGOGLIDE (X-life)	12240-1	C	320	1000
GE..-UK	PTFE composite material	12240-1	E	6	30
GE..-FW	PTFE composite material	12240-1	G	6	25
GE..-PW	PTFE-bronze film	12240-1	K	6	30

Angular contact spherical plain bearings

Angular contact spherical plain bearings comprise inner and outer rings with ELGOGLIDE. In addition to radial forces, they can also support axial forces and are suitable for alternating dynamic loads.

3 *Angular contact spherical plain bearing, maintenance-free*

① *Sliding contact surface hard chromium/ELGOGLIDE, open: GE..-SW*

2 *Series and design*

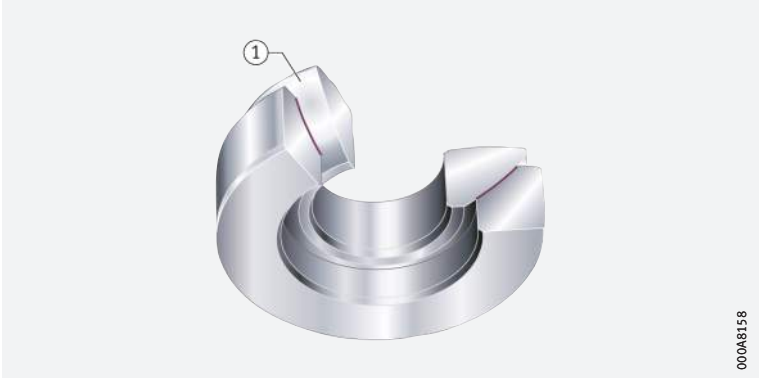
Series	Sliding layer	DIN ISO	Shaft d mm	
			from	to
GE..-SW	ELGOGLIDE	12240-2	25	200

Axial spherical plain bearings, axial large spherical plain bearings

Axial spherical plain bearings comprise shaft locating and housing locating washers with ELGOGLIDE. They are preferably used to support axial forces and are suitable as support or base bearings.

4 *Axial spherical plain bearing, maintenance-free*

① *Sliding contact surface hard chromium/ELGOGLIDE, open: GE..-AW*



https://www.schaeffler.de/std/1D65

✎*X-life*

Axial large spherical plain bearings from d = 220 mm are X-life bearings.

3 *Series and design*

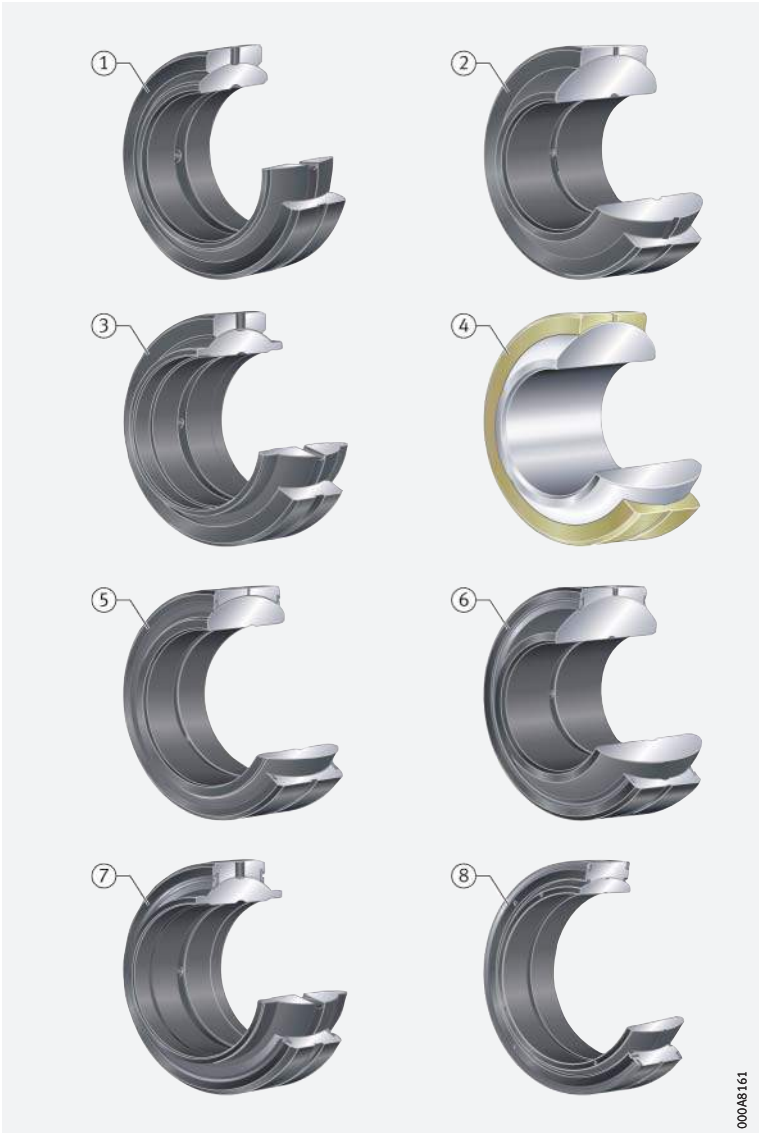
Series	Sliding layer	DIN ISO	Shaft d mm	
			from	to
GE..-AW	ELGOGLIDE	12240-3	10	360

5.2 Spherical plain bearings, requiring maintenance

Radial spherical plain bearings

Radial spherical plain bearings comprise inner and outer rings with steel/steel or steel/bronze sliding contact surfaces and are lubricated via the inner and outer ring. They can support radial forces, transmit motion and loads with low moment levels and thus keep bending stresses away from the construction elements.

5 *Radial spherical plain bearings, requiring maintenance*



① *Sliding contact surface steel/steel, metric or inch sizes, open: GE..-DO, GE..-ZO*
② *Sliding contact surface steel/steel, open: GE..-FO*
③ *Sliding contact surface steel/steel, cylindrical extensions on inner ring, open: GE..-LO*
④ *Sliding contact surface steel/bronze, open: GE..-PB*
⑤ *Sliding contact surface steel/steel, with lip seal or high performance seal: GE..-DO-2RS, GE..-DO-2TS*
⑥ *Sliding contact surface steel/steel, with lip seal or high performance seal: GE..-FO-2RS, GE..-FO-2TS*
⑦ *Sliding contact surface steel/steel, cylindrical extensions on inner ring, with lip seal: GE..-HO-2RS*
⑧ *Radial large spherical plain bearing, sliding contact surface steel/steel, with lip seal: GE..-DO-2RS4*

https://www.schaeffler.de/std/1D65

The bearings are particularly suitable for alternating loads with impact and shock type stresses and support axial loads in both directions.

Sealed spherical plain bearings are protected against contamination and water spray by lip seals and have the suffix 2RS, 2TS or 2RS4.

4 *Series and design*

Series[1)]	Sliding layer	DIN ISO	Dimension series	Shaft d mm	
				from	to
GE..-DO	Steel/steel	12240-1	E	6	300
			C	320	1000
GE..-DO-2RS			E	17	300
GE..-DO-2TS			E	30	140
GE..-DO-2RS4			C	320	1000
GE..-HO		–	–	20	120
GE..-HO-2RS		–	–	20	120
GE..-FO		12240-1	G	6	280
GE..-FO-2RS			G	15	280
GE..-FO-2TS			G	25	120
GE..-LO			W	12	320
GE..-PB	Steel/bronze		K	6	30

1) *Radial spherical plain bearings GE..-ZO are available in inch sizes and with a shaft diameter from 0,75 inch to 5 inch.*

Angular contact spherical plain bearings

Angular contact spherical plain bearings GE..-SX correspond to DIN ISO 12240-2. They have inner rings with a curved outer slideway and outer rings with a concave inner slideway, where a steel/steel sliding contact surface is present. The bearings are available for shaft diameters from 25 mm to 200 mm. Other sizes are available by agreement.

6 *Angular contact spherical plain bearing, requiring maintenance*

① *Sliding contact surface steel/steel, open: GE..-SX*

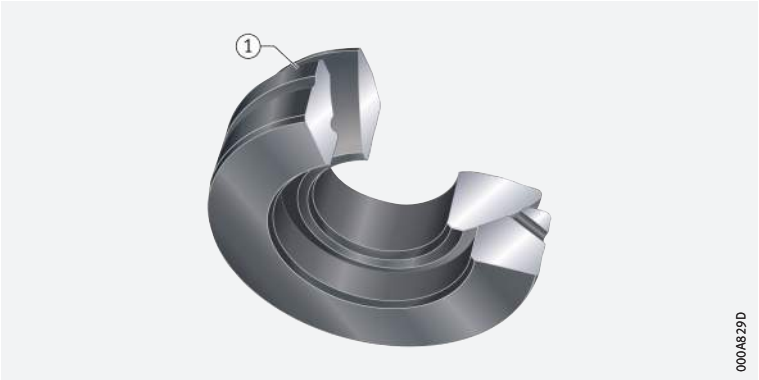
Angular contact spherical plain bearings can support axial forces as well as radial forces. As a result, they are suitable for alternating dynamic loads.

They transmit motion and loads with low moment levels, keep bending stresses away from the adjacent structure and are lubricated with grease via the outer ring.

Axial spherical plain bearings

Axial spherical plain bearings GE..-AX correspond to DIN ISO 12240-3. In these units, the shaft locating washer is supported in the ball socket-shaped sliding zone of the housing locating washer, where a steel/steel sliding contact surface is present. The bearings are available for shaft diameters from 10 mm to 200 mm. Other sizes are available by agreement.

https://www.schaeffler.de/std/1D65



7
Axial spherical plain bearing, requiring maintenance

① *Sliding contact surface steel/steel, open: GE..-AX*

The bearings can support axial forces and transmit support forces with low moment levels into the adjacent construction. In order to support radial forces, they can be combined with radial spherical plain bearings of dimension series E in accordance with DIN ISO 12240-1.

The bearings are lubricated via the housing locating washer.

5.3 Rod ends, maintenance-free

Features

Maintenance-free rod ends and maintenance-free corrosion-resistant rod ends comprise a housing with integral shank and a maintenance-free spherical plain bearing. The shank has an internal or external thread, the spherical plain bearing is firmly seated and located in the housing.

Depending on their type, the rod ends are available either open or sealed on both sides. The rod ends are protected against corrosion by a zinc coating.

The sliding layer between the inner ring and outer ring is PTFE composite material, ELGOGLIDE or PTFE-bronze film.

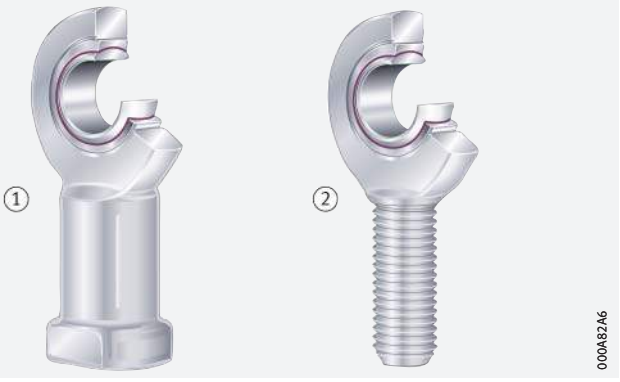
Area of application

Maintenance-free rod ends can support radial loads in a tensile or compressive direction. They are particularly suitable for slow movements with small to moderate swivel angles and unilateral loads. For alternating loads, rod ends with bearings of series GE..-UK-2RS(-2TS) and GE..-FW-2RS(-2TS) can be used.

Dimension series E

Rod ends to DIN ISO 12240-4, dimension series E, incorporate radial spherical plain bearings GE..-UK or GE..-UK-2RS(-2TS) and a right or left hand internal or external thread ➤ *1785* | *8*. The sliding contact surfaces are hard chromium/PTFE composite material or hard chromium/ELGOGLIDE. The thin walled design of the eye housing allows compact adjacent constructions.

These rod ends are also available by agreement with radial spherical plain bearings GE..-FW or GE..-FW-2RS(-2TS) of dimension series G.



8
Rod ends, maintenance-free, dimension series E

① *With internal thread*
② *With external thread*

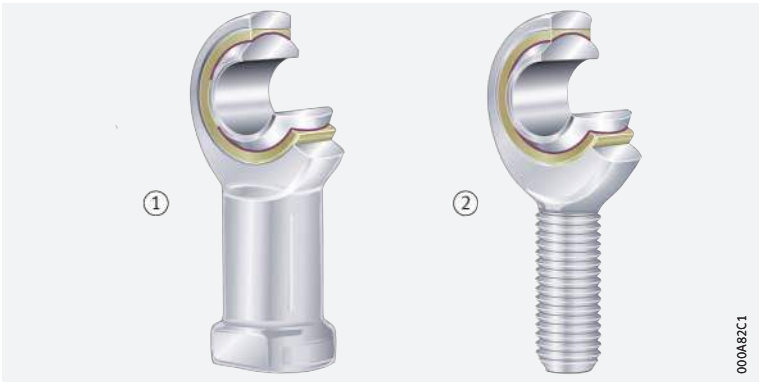
https://www.schaeffler.de/std/1D65

Dimension series K

Rod ends to DIN ISO 12240-4, dimension series K, incorporate radial spherical plain bearings GE..-PW and a right or left hand internal or external thread ➤*1786*|*9*. The sliding contact surface is steel/PTFE-bronze film.

9
Rod ends, maintenance-free, dimension series K

① *With internal thread*
② *With external thread*



Corrosion-resistant rod ends

Corrosion-resistant rod ends to DIN ISO 12240-4, dimension series K, incorporate radial spherical plain bearings GE..-PS and a right or left hand internal or external thread ➤*1786*|*10*. The sliding contact surface comprises corrosion-resistant steel and corrosion-resistant PTFE-bronze film which is attached to the curved outer ring surface.

The shank has a thread to DIN 13 and the diameter range extends from 5 mm to 30 mm. The bore tolerance of the spherical plain bearings is H7 Ⓔ.

Corrosion-resistant rod ends with an internal thread are also available with CETOP mounting dimensions to ISO 8139 for pneumatic cylinders. These are used in preference in control and automation engineering.

10
Corrosion-resistant rod ends, maintenance-free, dimension series K

① *With internal thread*
② *With external thread*

https://www.schaeffler.de/std/1D65

Series, sliding layer, standard

Maintenance-free rod ends are designed, according to their specific series, with different sliding layers ➤ *1787* | ▦ *5* and ➤ *1787* | ▦ *6*.

▦ *5*
Series and design for sliding layer ELGOGLIDE or PTFE composite material

Series	Thread	DIN ISO	Dimension series	Shaft d mm	
				from	to
GIR..-UK	Internal, right hand	12240-4	E, type F	6	30
GIR..-UK-2RS				17	80
GIR..-UK-2TS				30	80
GIL..-UK	Internal, left hand			6	30
GIL..-UK-2RS				17	80
GIL..-UK-2TS				30	80
GAR..-UK	External, right hand	12240-4	E, type M	6	30
GAR..-UK-2RS				17	80
GAR..-UK-2TS				30	80
GAL..-UK	External, left hand			6	30
GAL..-UK-2RS				17	80
GAL..-UK-2TS				30	80

▦ *6*
Series and design for sliding layer PTFE-bronze film

Series	Thread	DIN ISO	Dimension series	Shaft d mm	
				from	to
GIKR..-PW	Internal, right hand	12240-4	K, type F	6	30
GIKSR..-PS				5	30
GIKPR..-PW	Internal, right hand, fine pitch thread for standard pneumatic cylinders to DIN ISO 15552				
GIKPSR..-PS					
GIKL..-PW	Internal, left hand			6	30
GIKSL..-PS				5	30
GAKR..-PW	External, right hand	12240-4	K, type M	6	30
GAKSR..-PS				5	30
GAKL..-PW	External, left hand			6	30
GAKSL..-PS				5	30

5.4 Rod ends, requiring maintenance

Rod ends requiring maintenance comprise a housing with integral shank and a spherical plain bearing requiring maintenance. The shank has an internal or external thread, the spherical plain bearing is firmly seated and located in the housing.

Depending on their type, the rod ends are available either open or sealed on both sides. The rod ends are protected against corrosion by a zinc coating.

✎ *Area of application*

Rod ends requiring maintenance can support radial forces in a tensile or compressive direction and can transmit motions and forces with low moment levels. They are particularly suitable for alternating radial loads and, in certain circumstances, for unilateral loads. The thin walled design of the eye housing allows compact adjacent constructions.

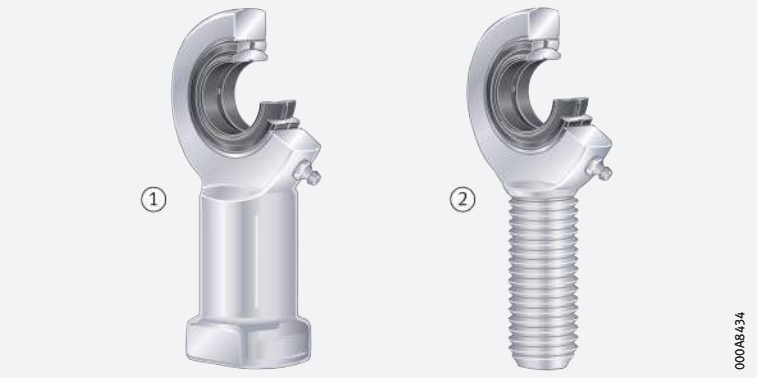
https://www.schaeffler.de/std/1D65

Dimension series E

Rod ends to DIN ISO 12240-4, dimension series E, incorporate radial spherical plain bearings GE..-DO or GE..-DO-2RS(-2TS) and a right or left hand internal or external thread. The sliding contact surface is formed by steel inner and outer rings ➤*1788*|*11*. They can be relubricated (with the exception of series d = 6 mm to d = 12 mm) via the lubrication nipple or the housing bore.

11
Rod ends requiring maintenance, dimension series E, sliding contact surface steel/steel

① *With internal thread*
② *With external thread*

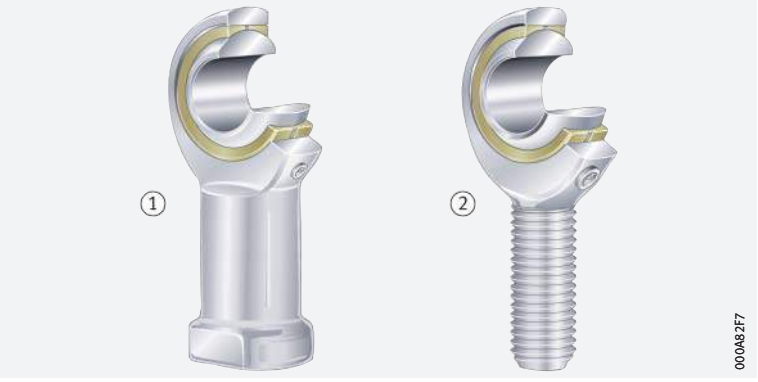


Dimension series K

Rod ends to DIN ISO 12240-4, dimension series K, incorporate radial spherical plain bearings GE..-PB and a right or left hand internal or external thread. The sliding contact surface is formed by steel inner rings and bronze outer rings ➤*1788*|*12*. They can be relubricated via funnel type lubrication nipples in accordance with DIN 3405 in the eye housing.

12
Rod ends requiring maintenance, dimension series K, sliding contact surface steel/bronze

① *With internal thread*
② *With external thread*



Sealing

Sealed rod ends have the suffix 2RS or 2TS. They are protected by lip seals on both sides against contaminants and water spray.
Rod ends GIR..-DO-2TS, GIL..-DO-2TS, GAR..-DO-2TS and GAL..-DO-2TS are sealed on both sides by means of integrated, triple lip high performance seals. Rod ends of dimension series K are not sealed.

https://www.schaeffler.de/std/1D65

Series, sliding contact surface, standard

Rod ends requiring maintenance are designed, according to their specific series, with different sliding contact surfaces ➤ *1789* | ▦ *7*.

▦ *7*
Series and design

Series	Sliding contact surface	Thread	DIN ISO	Dimension series	Shaft d mm	
					from	to
GIR..-DO	Steel/ steel	Internal, right hand	12240-4	E, type F	6	30
GIR..-DO-2RS					17	80
GIR..-DO-2TS					30	80
GIL..-DO		Internal, left hand			6	30
GIL..-DO-2RS					17	80
GIL..-DO-2TS					30	80
GAR..-DO		External, right hand		E, type M	6	30
GAR..-DO-2RS					17	80
GAR..-DO-2TS					30	80
GAL..-DO		External, left hand			6	30
GAL..-DO-2RS					17	80
GAL..-DO-2TS					30	80
GIKR..-PB	Steel/ bronze	Internal, right hand	12240-4	K, type F	6	30
GIKL..-PB		Internal, left hand				
GAKR..-PB		External, right hand		K, type M		
GAKL..-PB		External, left hand				

5.5 Hydraulic rod ends, requiring maintenance

✎ *Features*

Hydraulic rod ends are fitted with radial spherical plain bearings GE..-LO or GE..-DO. They have steel/steel sliding contact surfaces, can support radial forces in a tensile or compressive direction, transmit movements and forces at low moment levels and are suitable for alternating loads.

The rod ends can be screw mounted using a thread in the shank or welded in place by means of circular or rectangular welding faces.

Rod ends with a circular welding face have a 45° welding chamfer and a centring facility by means of a concentric locating pin.
They are particularly suitable for piston rods. Hydraulic rod ends with a rectangular cross-section are particularly suitable for cylinder bases.

The rod ends are slotted on both sides up to $d \leqq 50$ mm and on one side from $d > 50$ mm; they can be relubricated via taper type lubrication nipples.

https://www.schaeffler.de/std/1D65

Hydraulic rod ends with thread clamping device

Rod ends GIHNRK..-LO conform to DIN 24338, ISO 6982 for standard hydraulic cylinders in accordance with CETOP recommendation RP 58 H and to DIN 24333, DIN 24336, DIN ISO 6020-1 and DIN ISO 6022.

The spherical plain bearings are located in the rod end by means of retaining rings. The thread clamping device comprises two hexagonal socket head screws to DIN EN ISO 4762.

Rod ends GIHRK..-DO are particularly suitable for hydraulic cylinders. They have very small linkage distances with maximum stroke utilisation. These rod ends are also available with maintenance-free spherical plain bearings GE..-UK-2RS(-2TS) and GE..-FW-2RS(-2TS).

8 *Series, thread type, standard*

Series	Thread	DIN ISO	Shaft d mm	
			from	to
GIHNRK..-LO	Right hand	6982	12	250
GIHRK..-DO	Right hand	–	20	120

Hydraulic rod ends with welding face

Features

Rod ends GK..-DO are designed to DIN ISO 12240-4, dimension series E, type S, with a circular welding face, a centring pin on the shank base and a 45° welding chamfer. They are suitable for fixing to piston rod ends and cylinder bases.

The spherical plain bearings are located in the housing by staking on both sides.

Rod ends GF..-DO are available in a heavy-duty design with a rectangular welding face. The spherical plain bearings are located in the housing by retaining rings and can be dismantled. These rod ends are suitable for fixing to hydraulic cylinder bases.

By agreement, hydraulic rod ends GF and GK are also available with radial spherical plain bearings GE..-UK-2RS (-2TS) or alternatively with GE..-FW-2RS (-2TS).

9 *Series, thread type, standard*

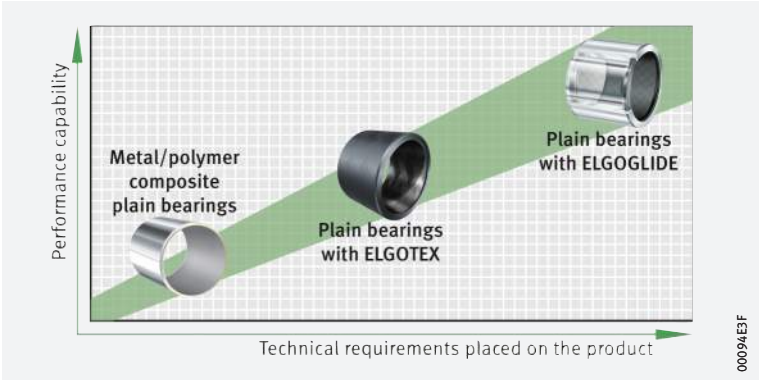
Series	Welding face	DIN ISO 12240-4	Shaft d mm	
			from	to
GK..-DO	Circular	Dimension series E, type S	10	80
GF..-DO	Rectangular	–	20	120

https://www.schaeffler.de/std/1D65

6 Composite plain bearings with plain bushes

✎ *Product range*

Schaeffler supplies plain bushes and metal/polymer composite plain bearings for diverse requirements ➤ *1800* | ▦ *9*.



6.1 Metal/polymer composite plain bearings

General features

These plain bearings are suitable for very small radial or axial design envelopes. They are available as bushes, flanged bushes, thrust washers and strips. The bushes are available in metric sizes and in inch sizes.

The bushes and flanged bushes are rolled from a cut section of strip and have a butt joint over the entire width of the bearing.

The plain bearings are supplied with either steel backing or bronze backing. Bearings with a bronze backing have high corrosion resistance and very good thermal conductivity and are antimagnetic.

There are different materials for metal/polymer composite plain bearings, the maintenance-free E40 and E40-B or the low-maintenance E50.

The maintenance-free and low-maintenance materials conform to the regulations for lead-free plain bearings.
They thus fulfil the Directive 2000/53/EC (End-Of-Life Vehicles Directive) and the Directive 2011/65/EU (RoHS-II) for the restriction of hazardous substances.

Further information:

- Catalogue Plain Bearings ➤ 🕮 *HG 1*
- Metal/polymer Composite Plain Bearings ➤ 🕮 *TPI 211*
- Product selection and information system ***medias*** *professional* ➤ *https://medias.schaeffler.com*
- Download and ordering via ➤ *https://www.schaeffler.de/std/1D64*.

Plain bearings – material E40, maintenance-free

The maintenance-free plain bearing material E40 is, due to the dry lubricant PTFE, intended for dry running. These bearings are thus particularly suitable where the bearing position must be maintenance-free, there is a risk of lubricant starvation or where lubricant is unacceptable or undesirable. The material E40 can be used not only for rotary and oscillating motion but also for short stroke linear motion.

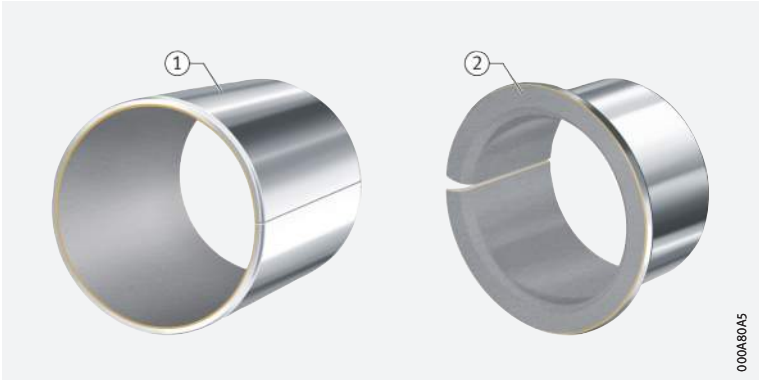
https://www.schaeffler.de/std/1D65

For maintenance-free metal/polymer composite plain bearings from Schaeffler, the sliding material E40 or E40-B is used. The basis of the dry lubricant is polytetrafluoroethylene PTFE with embedded chemically non-reactive additives.

The low-wear material has good sliding characteristics (no stick-slip), a low coefficient of friction and high resistance to chemicals. It does not absorb water (it is highly resistant to swelling), does not tend to weld to metal and is also suitable for hydrodynamic operation.

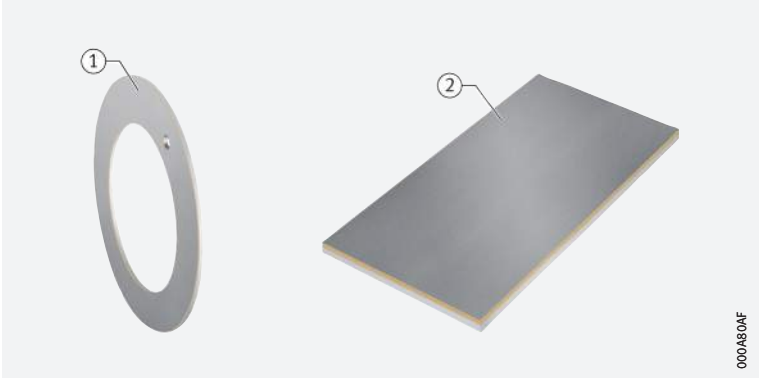
1
Bushes and flanged bushes – material E40

① *Bushes EGB..-E40, EGBZ..-E40, EGB..-E40-B*
② *Flanged bushes EGF..-E40, EGF..-E40-B*



2
Thrust washers and strips – material E40

① *Thrust washers EGW..-E40, EGW..-E40-B*
② *Strips EGS..-E40 EGS..-E40-B (available by agreement)*



✎ *Areas of application*

Typical areas of application can be found, for example, in fluid technology, in sports gear, in medical or electrical equipment as well as in automotive engineering.

Technical data

The maintenance-free plain bearing materials are available in the variants E40 and E40-B with the following mechanical and physical characteristics ➤ *1792* | *1*.

1
Characteristics of E40 and E40-B

Characteristic	Load		
Maximum pv value for dry running	Continuous operation	pv	1,8 N/mm² · m/s
	Short periods		3,6 N/mm² · m/s
Permissible specific bearing load	Static	p_{max}	250 N/mm²
	Rotary, oscillating		140 N/mm²
Permissible sliding velocity	Dry running	v_{max}	2,5 m/s
	Hydrodynamic operation		>2,5 m/s
Permissible operating temperature		ϑ	–200 °C to +280 °C
Coefficient of thermal expansion	Steel backing	α_{St}	$11 \cdot 10^{-6}$ K^{-1}
	Bronze backing	α_{Bz}	$17 \cdot 10^{-6}$ K^{-1}
Coefficient of thermal conductivity	Steel backing	λ_{St}	>42 Wm^{-1}K^{-1}
	Bronze backing	λ_{Bz}	>70 Wm^{-1}K^{-1}
Relative electrical resistance after running-in		$R_{rel\ min}$	>1 Ω · cm²

https://www.schaeffler.de/std/1D65

Available designs

Available standard dimension ranges for bushes, washers and strips with E40 material ➤*1793*|▦*2*.

▦*2*
Product and size range

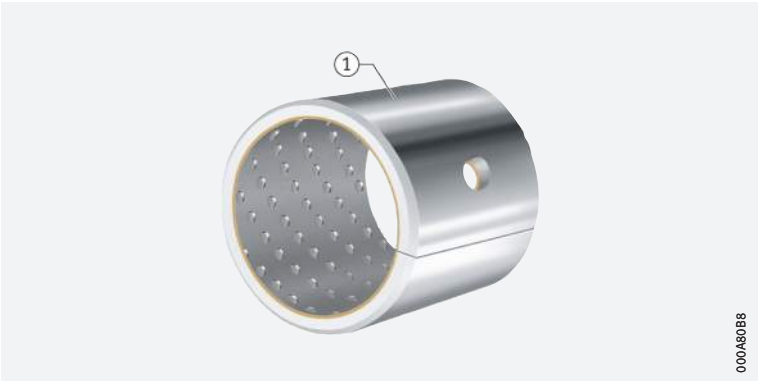
Plain bearings made from material E40	Designation	For shafts with the following dimensions
Bushes	EGB..-E40	3 mm to 300 mm
	EGBZ..-E40	$^{3}/_{16}$ inch to 2 inch
	EGB..-E40-B	4 mm to 100 mm
Flanged bushes	EGF..-E40	6 mm to 40 mm
	EGF..-E40-B	6 mm to 40 mm
Thrust washers	EGW..-E40	10 mm to 62 mm
	EGW..-E40-B	10 mm to 62 mm
Strips	EGS..-E40-S3E	Length 500 mm, width 260 mm, thicknesses from 1,5 mm to 3,06 mm

The plain bearings are not sealed, but can be protected against the ingress of contamination and moisture by the use of external seals.

Plain bearings – material E50, low-maintenance

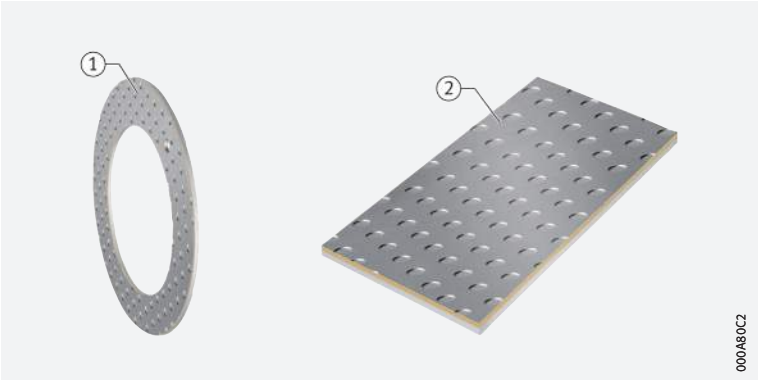
For low-maintenance metal/polymer composite plain bearings from Schaeffler, the sliding material E50 is used. The basis of the sliding layer is polyoxymethylene POM.

E50 is a low-wear material with good damping characteristics and long relubrication intervals. It can be used for rotary and oscillating motion and is recommended for long-stroke linear motions. E50 is only slightly sensitive to edge loads and is insensitive to shocks.



3
Bushes – material E50

① *Bushes EGB..-E50*



4
Thrust washers and strips – material E50

① *Thrust washers EGW..-E50*
② *Strips EGS..-E50*

✎*Areas of application*

Application examples can be found in particular in the area of production machinery, construction and agricultural equipment as well as commercial vehicles.

https://www.schaeffler.de/std/1D65

Technical data

Important mechanical and physical characteristics of the low-maintenance plain bearing material ➤*1794*|▦*3*.

▦**3**
Characteristics of E50

Characteristics	Load		
Maximum pv value		pv	3 N/mm² · m/s
Permissible specific bearing load	Static	p_{max}	140 N/mm²
	Rotary, oscillating		70 N/mm²
Permissible sliding velocity		v_{max}	2,5 m/s
Permissible operating temperature		ϑ	–40 °C to +110 °C
Coefficient of thermal expansion	Steel backing	α_{St}	$11 \cdot 10^{-6}$ K^{-1}
Coefficient of thermal conductivity	Steel backing	λ_{St}	<4 Wm^{-1}K^{-1}
Friction coefficient		μ	0,02 to 0,2

Available designs

Available standard dimension ranges for bushes, washers and strips with E50 material ➤*1794*|▦*4*.

▦**4**
Product and size range

Plain bearings made from material E50	Designation	For shafts with the following dimensions
Bushes	EGB..-E50	8 mm to 100 mm
Thrust washers	EGW..-E50	12 mm to 52 mm
Strips	EGS..-E50	Length up to 500 mm, width from 80 mm to 200 mm, thickness from 0,99 mm to 2,46 mm

Special designs

In addition to the catalogue range of metal/polymer composite plain bearings, there are numerous special designs which are run in either a predominantly rotary direction or a predominantly linear direction. Schaeffler can produce further special designs by agreement.

In addition to the materials named, there are further materials such as the sliding material E60 for film bearings.

For special designs or special materials, please contact the Schaeffler engineering service.

Examples

A small selection of special designs already produced is shown below ➤*1795*|⧉*5* to ➤*1795*|⧉*7*.

Special designs are possible:

- made from any plain bearing material
- with different dimensions from the catalogue products
- as combined components:
  - pressed into rings
  - with plastic moulded parts
- in different shapes:
  - bushes with windows and holes
  - bushes with stamped oil grooves
  - blanked components
  - ball cups
  - bearing shells
- with the sliding layer on the outside
- with different butt joint geometries.

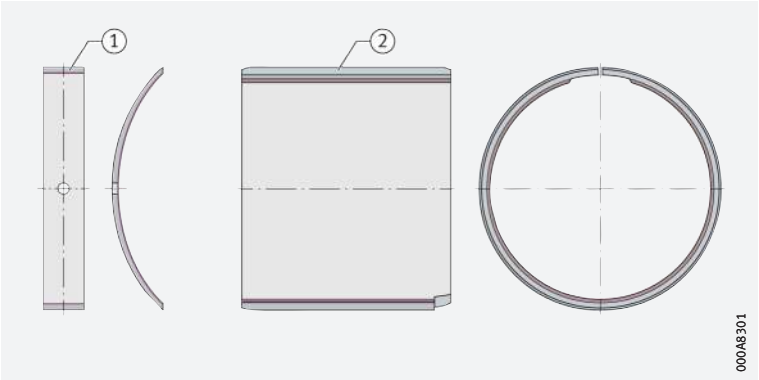
✎*Linear plain bearings*

- Linear plain bearings PAB comprising an outer ring with pressed-in plain bearing bushes EGB..-E50. In the design PABO, they have a segment cut out for supported shafts
- Linear plain bearing units PAGH and PAGBA comprising a housing and a pressed-in linear plain bearing PAB or PABO.

https://www.schaeffler.de/std/1D65

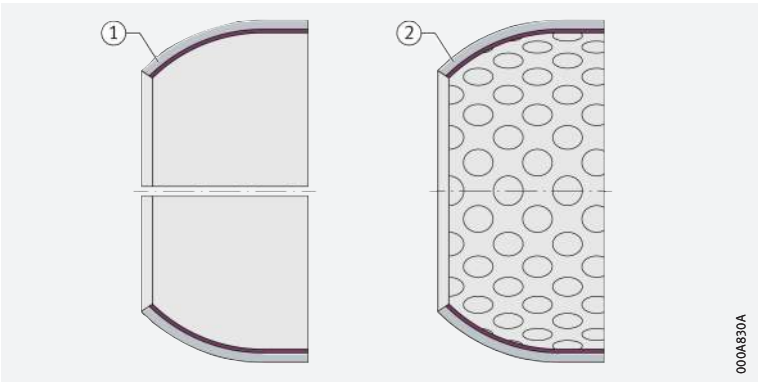
5
Plain bearings for swivel motion or rotation

① *Pivoting cradle bearing*
② *Plain bush with lubrication groove and recess*



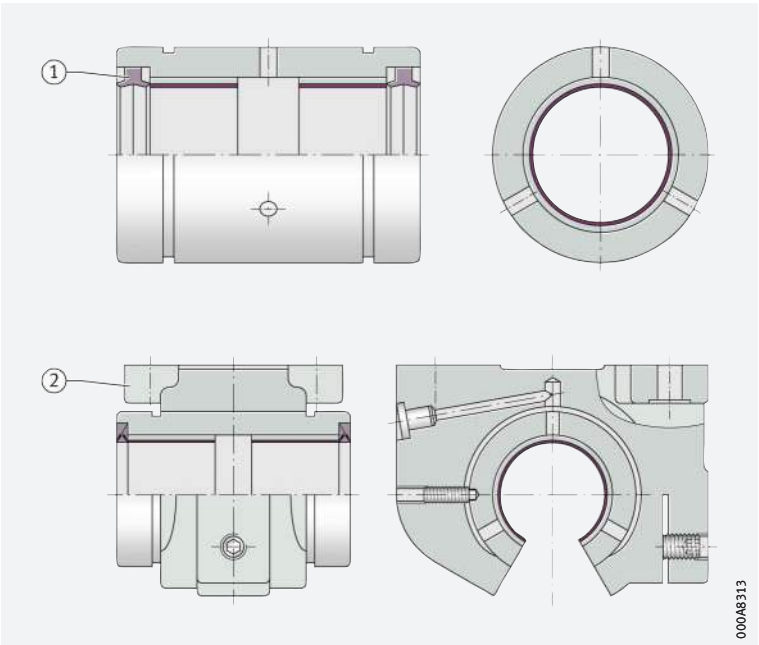
6
Ball cups

① *Maintenance-free*
② *Low-maintenance*



7
Linear plain bearings

① *Linear plain bearing PAB..-PP-AS*
② *Linear plain bearing unit PAGBAO..-PP-AS*



✎ *Check feasibility as early as possible*

The feasibility of special designs should be checked as early as possible. This applies to the geometry and also to the costs.

Special materials

By agreement, Schaeffler can supply film bearings with the material E60. This maintenance-free special material also conforms to the stated regulations for lead-free plain bearings ➤ *1791*.

https://www.schaeffler.de/std/1D65

✎ *Film bearings E60*

E60 is the plain bearing material from Schaeffler for maintenance-free film bearings. The metal/polymer composite comprises a bronze rib mesh that is filled with a dry lubricant made from polytetrafluoroethylene PTFE with embedded chemically non-reactive additives.

6.2 ELGOTEX filament wound bushes, maintenance-free or water-resistant

✎ *Features*

The maintenance-free wound bushes ZWB made from filament composite material are non-metallic and thus resistant to numerous media.
They have low mass, are resistant to shocks and vibration and have a low coefficient of friction.

In contrast to the standard design of ELGOTEX, ELGOTEX-WA is specially developed for use in water as well as salt water and sea water.

8
Filament wound bushes, open

① *ELGOTEX filament wound bush, open ZWB*
② *ELGOTEX-WA filament wound bush, open ZWB..-WA*

9
Filament wound bushes, sealed

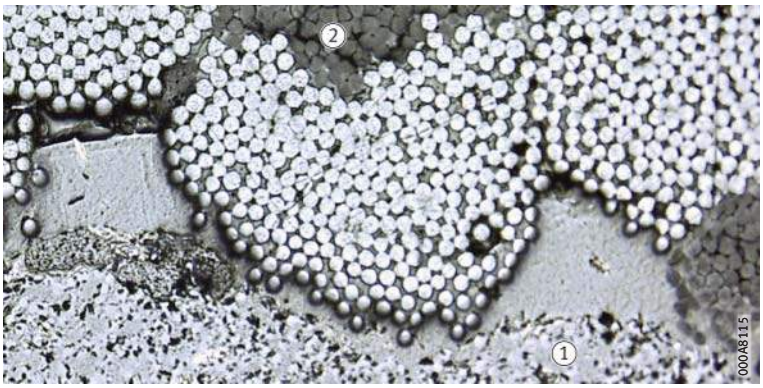
① *ELGOTEX filament wound bush, sealed ZWB-..-2RS*
② *ELGOTEX-WA filament wound bush, sealed ZWB-..-2RS-WA*

Further information:
- Catalogue Plain Bearings ➤ 🕮 *HG 1*
- Plain bearings with ELGOTEX ➤ 🕮 *TPI 194*
- Product selection and information system ***medias*** *professional* ➤ *https://medias.schaeffler.com*
- Download and ordering via ➤ *https://www.schaeffler.de/std/1D64*.

Maintenance-free plain bearing material

The radial dry plain bearings have a twin layer structure ➤ *1797* | *10*:
- The outer layer (the backing) ensures the strength of the bush. It comprises continuous glass fibres that are additionally stabilised by means of a specific winding angle, giving an increase in strength. The fibres are bound in epoxy resin
- The inner layer (sliding layer) contains a polymer/PTFE yarn that is embedded together with fillers and solid lubricants in a resin matrix.

https://www.schaeffler.de/std/1D65



10 Microsection of an ELGOTEX filament wound bush

① Backing
② Sliding layer

Water-resistant design ELGOTEX-WA

The specific characteristic of ELGOTEX-WA lies in the specific matching of fibre and matrix to the particular operating conditions. The inner sliding layer contains a polymer/PTFE sliding yarn that is embedded together with fillers and solid lubricants in a resin matrix. It is hydrophobic and dimensionally stable. The backing, which is reinforced by means of glass fibre, ensures the necessary strength of the bush. The thickness of the sliding layer and backing layer is specifically designed in accordance with the requirements of the application and thus of the wear limit.

Areas of application

✎ *ELGOTEX* ELGOTEX filament wound bushes are particularly suitable for use in construction machinery, conveying equipment, transportation vehicles, hydraulic applications and solar energy plant. They are also suitable as an environmentally-friendly and maintenance-free bearing type for replacing lubricated solid-section plain bearings.

✎ *ELGOTEX-WA* ELGOTEX-WA is used in shipbuilding, marine engineering, hydromechanical steel structures, water power generation as well as in turbines and waste water treatment.

Dimension range

Available standard dimension ranges ➤ *1797* | ▦ *5*. ELGOTEX filament wound bushes are available by agreement with integrated lip seals, on one side in design LS or on both sides in design 2RS. ELGOTEX-WA filament wound bushes have the suffix WA. ELGOTEX filament wound bushes with special dimensions up to an outside diameter D_0 = 1 200 mm, special tolerance classes or in the form of segment bearings, are possible and may be available by agreement from Schaeffler.

▦ 5 Dimension range

ELGOTEX filament wound bush	Dimensions mm	
	from	to
Inside diameter	20	200
Outside diameter	24	220
Width	15	250

Technical data for ELGOTEX

Maintenance-free ELGOTEX filament wound bushes have the following mechanical and physical characteristics ➤ *1798* | ▦ *6*.

In underwater use, there is a considerable reduction in the rating life. In this case, the coefficient of friction may increase significantly. In the production of ELGOTEX filament wound bushes, defects (pores) and fraying may occur in the PTFE due to the production process. These cannot be prevented by technological measures and do not represent any impairment of the function.

https://www.schaeffler.de/std/1D65

6
Characteristics of ELGOTEX

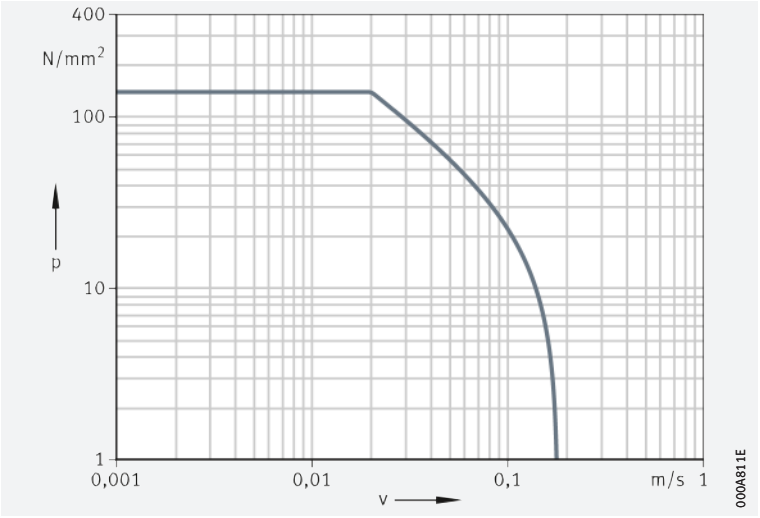
Characteristics +++ = very good + = adequate		Load	
Maximum pv value[1]		pv	2,8 N/mm² · m/s
Permissible specific bearing load[2]	Static	p_{max}	200 N/mm²
	Rotary, oscillating		140 N/mm²
Permissible sliding velocity		v_{max}	0,18 m/s
Permissible operating temperature		ϑ	−20 °C to +130 °C
Friction coefficient		μ	0,03 to 0,2
Operating life behaviour with:			
Dry running			+++
Grease and oil lubrication			+
Media lubrication, water lubrication			+

1) *Bearing load as a function of velocity ➤1798|11.*

2) *For static loads ≧ 180 N/mm², the design of ELGOTEX filament wound bushes must be checked by the Schaeffler engineering service. For values at or above this load range, we alternatively recommend ELGOGLIDE plain bushes ➤1798|6.3.*

11
pv diagram

p = *specific bearing load*
v = *sliding velocity*



6.3 ELGOGLIDE plain bushes, maintenance-free

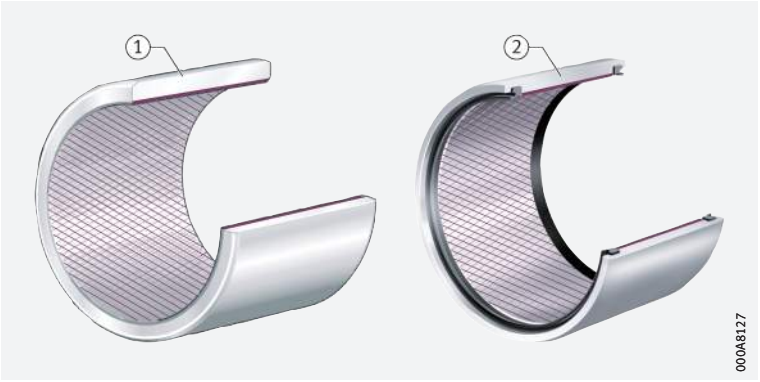
Features

Maintenance-free ELGOGLIDE plain bushes ZGB are radial dry plain bearings and comprise a cylindrical steel backing with a sliding layer with very long life and low friction made from ELGOGLIDE.

They can support very high radial loads with unilateral load direction and high static loads. In addition, they are highly suitable for high alternating loads and swivel motions.

12
ELGOGLIDE plain bushes, maintenance-free

① *ELGOGLIDE plain bush, with steel backing, open ZGB*
② *ELGOGLIDE plain bush, with steel backing, with seal lips ZGB..-2RS*



https://www.schaeffler.de/std/1D65

Further information:
- Catalogue Plain Bearings ➤ 🕮 *HG 1*
- Product selection and information system ***medias*** *professional* ➤ *https://medias.schaeffler.com*
- Download and ordering via ➤ *https://www.schaeffler.de/std/1D64*.

Maintenance-free plain bearing material

The sliding layer comprises a 0,5 mm thick layer of ELGOGLIDE, is embedded in synthetic resin and is attached by a high strength bond to the support body. The flow behaviour of the sliding layer can be, in conjunction with the supporting body, almost negligible even under very high load. The adhesive bond is resistant to moisture and swelling.

✎ *ELGOGLIDE designs*

For differing requirements, the following are available:
- ELGOGLIDE
  the standard material for very high dynamic contact pressures from 25 N/mm² to 300 N/mm² and a long operating life
- ELGOGLIDE-W11
  the material for dynamic contact pressures from 1 N/mm² to 150 N/mm² and with low coefficients of friction even at low contact pressures.

Areas of application

ELGOGLIDE plain bushes can support higher forces than conventional plain bushes and can therefore be used to replace steel, bronze and plastic plain bearings.

Typical areas of application include construction and agricultural machinery as well as conveying equipment, civil engineering and shipbuilding.

Available designs

Available standard dimension ranges ➤ *1799*| ▦ *7*. ELGOGLIDE filament wound bushes are available by agreement with integrated lip seals, on one side in design RS or on both sides in design 2RS.

ELGOGLIDE plain bushes with special dimensions or special tolerance classes are possible and may be available by agreement with Schaeffler.

▦ *7*
Dimension range

ELGOGLIDE plain bush	Dimensions mm	
	from	to
Inside diameter	30	200
Outside diameter	36	220
Width	30	180

Suffixes

Suffixes for available designs ➤ *1799*| ▦ *8*.

▦ *8*
Available designs

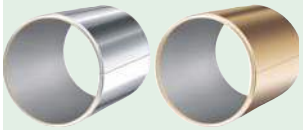
Suffix	Description	Design
W1	Support body made from corrosion-resistant steel	Special design, available by agreement
W11	By agreement, for low contact pressures (starting as low as 1 N/mm²) and minimal friction	
2RS	Standard lip seal on both sides	
RS	Standard lip seal on one side	

https://www.schaeffler.de/std/1D65

6.4 Plain bearings for diverse requirements

The table gives a compilation of the design features of plain bushes.

9
Composite plain bearings with plain bushes

Plain bearings			Metal/polymer composite plain bearings
■ Standard design ❑ Optional ✓ Suitable – Not suitable/not applicable			E40, E40-B 
detailed information			1791
Type of maintenance			
Maintenance-free			✓
Low-maintenance			–
Water-resistant			❑
Technical data			
Permissible specific bearing load	Static	N/mm²	250
	Dynamic	N/mm²	140
Permissible sliding velocity		m/s	2,5
Maximum permissible pv value in continuous operation		N/mm² · m/s	1,8
Permissible operating temperature[4]		°C	–200 to +280
Friction coefficient			0,03 to 0,25
Lubrication			
Dry running			✓
Grease and oil lubrication			–
Hydrodynamic operation			✓
Media lubrication			✓
Possible application			
Increased corrosion resistance			E40-B ■ E40 ❑
Use in water			E40-B ❑
Integrated sealing possible			–
Standard designs			EGB, EGF, EGW, EGS 

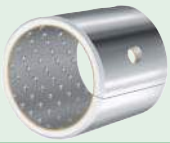
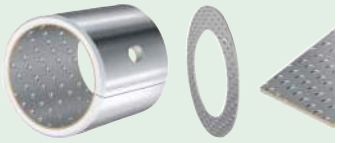
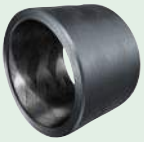
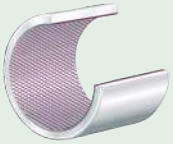
1) *For static loads of more than 180 N/mm², the design of ELGOTEX filament wound bushes must be checked by the Schaeffler engineering service.*

2) *Standard bushes have a static load carrying capacity of 300 N/mm². If a material of higher strength is used for the steel support body, this value can be increased to 500 N/mm².*

3) *Certified specific bearing load p_{max} = 15 N/mm² for use in rudder carrier bearings in accordance with MCM-0112 (Germanischer Lloyd).*

4) *Valid for open design (without seals).*

https://www.schaeffler.de/std/1D65

	Filament wound bushes		Plain bushes
E50	ELGOTEX	ELGOTEX-WA	ELGOGLIDE
			
1793	**1796**	**1797**	**1798**
–	✓	–	✓
✓	–	–	–
–	–	✓	–
140	200[1]	150	500[2]
70	140	50[3]	300
2,5	0,18	0,024	0,3
3	2,8	1,2	7
–40 to +110	–20 to +130	–20 to +130	–50 to +150
0,02 to 0,2	0,03 to 0,2	0,05 to 0,15	0,02 to 0,2
–	✓	✓	✓
✓	✓	✓	–
–	–	–	–
–	✓	✓	–
❑	■	■	❑
–	❑	■	–
–	❑	❑	❑
EGB, EGW, EGS	ZWB	ZWB..-WA	ZGB
			

https://www.schaeffler.de/std/1D65

Product index

https://www.schaeffler.de/std/1D65

https://www.schaeffler.de/std/1D65

https://www.schaeffler.de/std/1D65

https://www.schaeffler.de/std/1D65

https://www.schaeffler.de/std/1D65

https://www.schaeffler.de/std/1D65

https://www.schaeffler.de/std/1D65

https://www.schaeffler.de/std/1D65

https://www.schaeffler.de/std/1D65

https://www.schaeffler.de/std/1D65

https://www.schaeffler.de/std/1D65

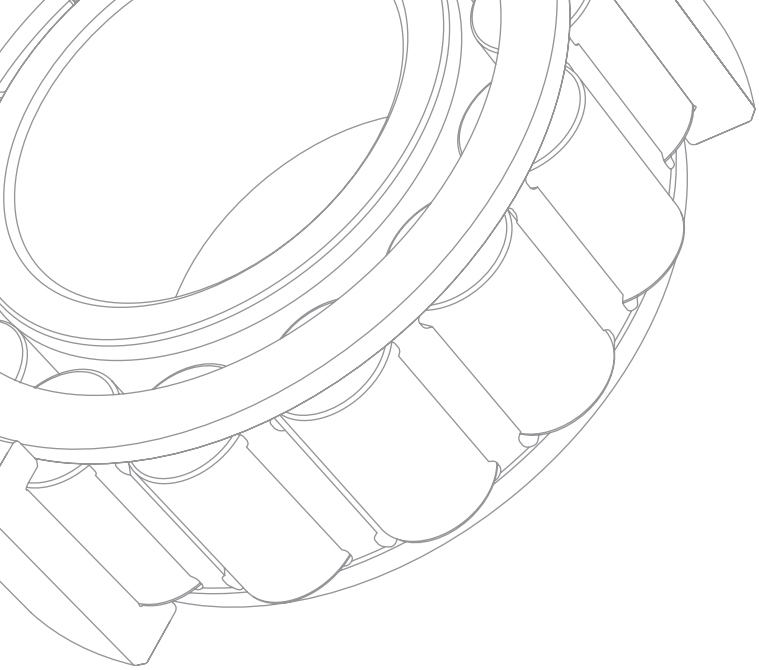
https://www.schaeffler.de/std/1D65

https://www.schaeffler.de/std/1D65

https://www.schaeffler.de/std/1D65

https://www.schaeffler.de/std/1D65

https://www.schaeffler.de/std/1D65



Schaeffler Technologies AG & Co. KG

Georg-Schäfer-Straße 30
97421 Schweinfurt
Germany
Internet www.schaeffler.de/en
E-mail info.de@schaeffler.com

In Germany:
Phone 0180 5003872
Fax 0180 5003873

From other countries:
Phone +49 9721 91-0
Fax +49 9721 91-3435

MATNR 029679141-0000 / HR 1 / 01 / GB-D / 201901 / PDF only