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BEARINX Bearing Calculation Software

FAG

Our BEARINX software is one of the leading programs for performing rolling bearing calculations. It enables rolling bearing supports to be analysed in detail – from single bearings to complex gear systems and linear guide systems. All calculations are performed in a consistent calculation model.

BEARINX version 10 now includes an expanded range of calculation tools for rolling bearings, including the option of taking gearing into detailed consideration. Input dialogs have also been reorganised for ease of use, and extensive developments have been made in terms of bearing selection.

The recently launched TORB range of toroidal roller bearings has also been integrated. These bearings combine the angular adjustment capabilities of a spherical roller bearing with the axial displacement of a cylindrical or needle roller bearing.

BEARINX is a high performance bearing design calculation tool, which Schaeffler also provides to its engineers worldwide for designing and configuring bearings for complex machines and systems. Since many customers wish to design their own applications, customer versions of BEARINX are also available. These comprise individual calculation modules taken from the full version of the software, which are made available to customers to allow them to have in-depth involvement in the early stages of the product development process.

The BEARINX range includes the BEARINX-online Easy modules, the BEARINX-online calculations for Schaeffler customers, sales partners and universities, and BEARINX-VIP as a local version for development partners.

The BEARINX customer versions utilise a bearing database in which all of the catalogue bearings from Schaeffler are stored. The bearings' internal component data are stored invisibly and taken into consideration during the rating life calculation. Calculation results are therefore significantly better than those of a bearing approximation, since the profile data of both the raceways and the rolling elements are taken into consideration.

Low cost BEARINX modules

The issue of cost also makes the customer versions very interesting. With more than 12,000 registered users, the BEARINX-online Easy series, which is currently available on the Internet, has the largest customer group.

The BEARINX-online modules that are subject to a user agreement have also been well received – Schaeffler customers only pay a one-off fee during their introduction to the program. However, universities can also use BEARINX-online free of charge in their teaching programmes.

BEARINX-online Easy for everybody

The calculation modules in the Easy series have the same structure as the assistants in the full version of the program and, after initial registration, are available free on the Internet. The increasing number of users is proof of their popularity. The BEARINX-online Easy series currently includes the following modules: BEARINX-online Easy Linear; BEARINX-online Easy Friction; BEARINX-online Easy Linear System; BEARINX-online Easy Ballscrew; BEARINX-online Easy RopeSheave; and BEARINX-online Easy EMachine.

BEARINX-online for customers, sales partners and universities

The BEARINX-online calculations are taken from the system level of the full version and provide selected customers with an additional range of calculation and analysis options: BEARINX-online Shaft Calculation; BEARINX-online Spindle Calculation; and BEARINX-online Linear Calculation. The use of these modules is contractually regulated and the introduction includes a training course and a one-off fee. There are no license or maintenance fees.

The calculations are carried out online. Customers receive their access data (login name and password) once the user agreement has been concluded, and can then develop their own calculation models for their shaft systems and analyse the different bearing supports that are possible.

medias® product catalogue

Using our product selection tool medias®, you can access product information and download CAD drawings from our range of rolling and plain bearings, and linear guidance systems.

medias® interchange

With medias® interchange, you can find the FAG designations corresponding to various rolling bearing designations from other manufacturers. A traffic light system will show you immediately whether and to what extent the FAG type is interchangeable. Green indicates fully interchangeable, yellow indicates interchangeable under certain conditions and red indicates not interchangeable.

X-Life Quality Spherical Roller Bearings

FAG

More Cost-Effectiveness and Operational Reliability:

Advantages of the E1 design

Higher performance bearing arrangements:

- **Longer rating life**
  Due to basic dynamic load ratings that are considerably higher than before
- **Higher static load safety factor**
  due to higher basic static load ratings.

This is made achievable by improved roller quality and optimised roller geometry. Under identical operating conditions, the lifetime of the bearing arrangements is significantly longer. Alternatively, the existing rating life can be achieved even with a considerable increase in load. In new designs, smaller bearings can achieve the performance of the previous larger bearings.

Through downsizing (smaller design envelope, reduced friction, lower lubricant requirement, higher speeds), more economical bearing arrangements can be realised.

Lower operating costs
Improved bearing kinematics and higher quality of the rollers and raceways give reduced friction and lower bearing temperatures. As a result, less strain is placed on the lubricant.

The range
The range of FAG spherical roller bearings E1 comprises eight series. The smallest bore diameter is 20 mm, the largest outside diameter is 1220 mm.

Narrow bearings with a low cross-section, for example of series 230, allow high speeds and require little mounting space.

In contrast, wide bearings with a high cross-section, for example of series 223, have a very high load carrying capacity.

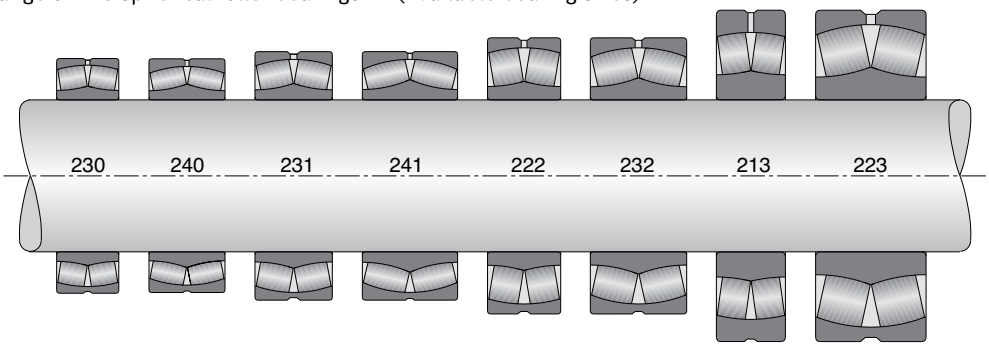
We supply spherical roller bearings E1 both with a cylindrical and with a tapered bore. As a result, there are several options for locating the bearings on the shaft.

For special operating conditions, we supply special designs of spherical roller bearings E1.

For oscillating loads, special spherical roller bearings of series 223..-E1 with restricted dimensional tolerances and increased radial internal clearance are used.

These bearings are indicated by the suffix T41A or T41D.

The range of FAG spherical roller bearings E1 (Available bearing sizes)



Bore diameter d mm	230	240	231	241	222	232	213	223
min.	110	120	100	110	25	90	20	40
max.	600	750	560	560	360	670	110	400

Cylindrical Roller Bearings

FAG

Bearings with higher load capacity, longer operating life and higher static safety factor

FAG X-life cylindrical roller bearing, single row Cage guided with plastic, brass or steel cages

- Bearings with higher load capacity, longer operating life and higher static safety factor
- Reduced friction and lower temperatures due to higher quality rollers and raceways
- Available in other dimension series
- Available in reduced or enlarged radial internal clearance classes
- Bearings with O/D over 120mm heat stabilised to +200°C
- FAG cylindrical roller bearings are also available in NJ, NUP & NJ+HJ
- Special bearings are made for traction motor and wind turbine applications along with many other specialist applications
- Electrically insulated bearings are available in most sizes

Cylindrical Roller Bearings – N200 Series

Product	Shaft	Outside Dia	Width
	(mm)		
N202	15	35	11
N203	17	40	12
N204	20	47	14
N205	25	52	15
N206	30	62	16
N207	35	72	17
N208	40	80	18
N209	45	85	19
N210	50	90	20
N211	55	100	21
N212	60	110	22
N215	75	130	25
N217	85	150	28
N218	90	160	30
N219	95	170	32
N220	100	180	34
N222	110	200	38
N224	120	215	40
N226	130	230	40
N228	140	250	42
N230	150	270	45
N236	180	320	52

Cylindrical Roller Bearings – NU200 Series

Product	Shaft	Outside Dia	Width
	(mm)		
NU202	15	35	11
NU203	17	40	12
NU204	20	47	14
NU205	25	52	15
NU206	30	62	16
NU207	35	72	17
NU208	40	80	18
NU209	45	85	19
NU210	50	90	20
NU211	55	100	21
NU212	60	110	22
NU215	75	130	25
NU217	85	150	28
NU218	90	160	30
NU219	95	170	32
NU220	100	180	34
NU222	110	200	38
NU224	120	215	40
NU226	130	230	40
NU228	140	250	42
NU230	150	270	45
NU236	180	320	52

Cylindrical Roller Bearings

FAG

Cylindrical Roller Bearings – N300 Series			
Product	Shaft	Outside Dia	Width
	(mm)		
N303	17	47	14
N304	20	52	15
N305	25	62	17
N306	30	72	19
N307	35	80	21
N308	40	90	23
N309	45	100	25
N310	50	110	27
N311	55	120	29
N312	60	130	31
N313	65	140	33
N314	70	150	35
N315	75	160	37
N316	80	170	39
N317	85	180	41
N318	90	190	43
N319	95	200	45
N320	100	215	47
N322	110	240	50
N324	120	260	55
N326	130	280	58
N328	140	30	62

Cylindrical Roller Bearings – NU300 Series			
Product	Shaft	Outside Dia	Width
	(mm)		
NU303	17	47	14
NU304	20	52	15
NU305	25	62	17
NU306	30	72	19
NU307	35	80	21
NU308	40	90	23
NU309	45	100	25
NU310	50	110	27
NU311	55	120	29
NU312	60	130	31
NU313	65	140	33
NU314	70	150	35
NU315	75	160	37
NU316	80	170	39
NU317	85	180	41
NU318	90	190	43
NU319	95	200	45
NU320	100	215	47
NU322	110	240	50
NU324	120	260	55
NU326	130	280	58
NU328	140	300	62

Tapered Roller Bearings

FAG

Reliable – energy efficient – suitable for high loads

Tapered roller bearings are characterized by high radial and axial load carrying capacity and by a large usable speed range. They are efficient at supporting forces and ensure a precise and rigid shaft guidance system due to the large effective distance between the bearings. They are adjustable, can be dismantled, and are easy to fit. However, the increasing productivity in industry means that rising demands are being made of tapered roller bearings as well. They should operate for longer, generate as little friction as possible, and of course be easy to maintain.

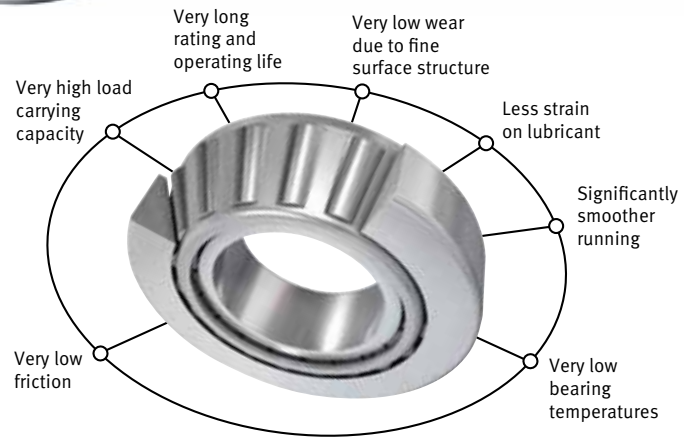
Schaeffler's response:
Tapered roller bearings in X-life quality.

X-life. Proven to be better

X-life is the seal of quality for high-performance products from the INA and FAG brands. X-life products are characterized by a high rating and operating life – the result of higher dynamic load ratings than those of current standard products. This increase in performance is down to the state-of-the-art manufacturing technologies and improved internal construction. This produces better and more even surfaces and contact surfaces, and thus optimized load distribution in the bearing.

X-life. What have we improved?

Higher dimensional and running accuracy
Significantly reduced dimensional and running tolerances compared with DIN 620 / ISO 492 tolerance class PN ensure optimum load distribution.



Stress peaks are prevented even more effectively and material loading is thus reduced even further. In operation, X-life bearings are therefore characterized by significantly smoother running and lower levels of noise generation.

Through hardened premium material
The specially heat treated material makes the surfaces of the inner and outer rings more resistant to solid particles and under mixed friction conditions.

This means a further considerable increase in the life of the tapered roller bearings. Bearings with an outside diameter of 220 mm and above are dimensionally stable up to operating temperatures of 200 °C.

Optimized surfaces
An elasto-hydrodynamic lubricant film is formed even at very low speeds due to the low surface roughness of the rings and the rollers. The bearings can be placed under very high loads directly after initial operation. Together with the increased geometrical and running accuracy of the X-life design, the improved surface topography reduces the generation of friction and heat to a large extent.

Improved geometry
The logarithmic profile for the raceways and the outside surfaces of the rollers was further optimized so that stress peaks under even higher loads and any possible skewing are compensated. The match between the contact geometry of the inner ring ribs and the roller end faces was improved again to further minimize friction.

Product Range - Bore Code 02 – 17

①	320			42	47	55	62	68	75	77	90	95	100	110	115	125	130
	322				52	62	72	80	85	90	100	110	120	125	130	140	150
	302	35	40	47	52	62	72	80	85	90	100	110	120	125	130	140	17
		02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17
		②															

Product Range - Bore Code 18 – 48

①	320	140	145	150	160	170	180	200	210	225	240	260	280	290	310	340	360
	322	160	170	180	190	200	215	230	250	270	290	310	320	340	360	400	440
	302	160	170	180	190	200	215	230	250	270	290	310	320	340	360	400	440
		18	19	20	21	22	24	26	28	30	32	34	36	38	40	44	48
		②															

1. Bearing series 2. Bore code

Generation C. Discover the Change.

FAG

Setting a New Standard for Deep Groove Ball Bearings

Single row deep groove ball bearings are versatile, self-retaining bearings with solid outer rings, inner rings and ball and cage assemblies. They are of a simple design, robust in operation and easy to maintain. They are available in open and sealed designs. Due to the raceway geometry and the use of balls, deep groove ball bearings can support axial forces in both directions as well as radial forces.

Deep groove ball bearings of Generation C were specially developed with a focus on low noise levels and low frictional torque. They are particularly suitable, for example, for use in electrical machinery, ventilators, washing machines and power tools.

Advantages
Thanks to design modifications such as improved bearing kinematics, new seals and cages as well as refined manufacturing processes, deep groove ball bearings of Generation C have numerous advantages.

Lower noise levels
The bearing is quieter in operation due to the better quality of the balls, the optimised surfaces, the higher stability of the cage and the modified internal construction.

Improved sealing
Efficient protection against the escape of grease or the ingress of dust is provided by the innovative gap seal design (suffix Z).

Even better sealing is achieved in the bearings with a lip seal running under axial contact, this is due to the seal design and the labyrinth function as a result of the matched undercuts in the outer ring and inner ring.

Lower friction
The friction in the bearing is reduced by modified osculation and optimisation of surfaces, waviness and roundness.

Higher cost-effectiveness
Due to the lower friction, energy costs for operation are reduced. oThe reduced grease loss, better protection against contamination and reduced strain on the lubricant extend the grease operating life and thus the rating life of the bearing.

Sealing
Open bearings are suitable for high to very high speeds. Due to the manufacturing process, they have turned recesses for sealing washers and sealing shields,

Bearings with the suffix 2Z have gap seals on both sides, These bearings are greased using a high quality grease, lubricated for life and suitable for high speeds.

In comparison with conventional gap seals, the inverted sealing shield design gives improved sealing action.

Bearings with the suffix 2HRS or 2ELS have lip seals on both sides made from nitrile butadiene rubber. They are greased using a high quality grease, lubricated for life and suitable for moderate speeds. In comparison with lip seals running under radial contact, higher speeds can be achieved. At the same time, the frictional torque and heat generation are lower.

Bearings with the suffix 2BRS have non-contact seals on both sides made from nitrile butadiene rubber. The operating temperature is restricted by the seal material, see section Operating temperature,

Their friction level is as low as with the gap seals. In addition, they offer better protection against the ingress of dust and the escape of lubricant. As lip seals, deep groove ball bearings of Generation C are supplied as standard with the seal HRS. The seal ELS is available by agreement.

Axial Deep Groove Ball Bearings

Axial deep groove ball bearings comprise shaft locating washers, housing locating washers and ball and cage assemblies.

The bearings are not self-retaining; the ball and cage assembly and bearing washers can therefore be fitted separately.

In addition to the series with flat washers, series are also available with spherical housing locating washers for the compensation of static angular misalignment.

These designs are normally used in conjunction with seating washers.

Axial deep groove ball bearings are available in single and double direction designs.

Both designs can support high axial forces but cannot be subjected to radial loads.

51100 Series			
Product	Shaft	Outside Dia	Width
	(mm)		
51100	10	24	9
51101	12	26	9
51102	15	28	9
51103	17	30	9
51104	20	35	10
51105	25	42	11
51106	30	47	11
51107	35	52	12
51108	40	60	13
51109	45	65	14
51110	50	70	14
51111	55	78	16
51112	60	85	17

51200 Series			
Product	Shaft	Outside Dia	Width
	(mm)		
51200	10	26	11
51201	12	28	11
51202	15	32	12
51203	17	35	12
51204	20	40	14
51205	25	47	15
51206	30	52	16
51207	35	62	18
51208	40	68	19
51209	45	73	20
51210	50	78	22
51211	55	90	25
51212	60	95	26

FAG

Generation C

Setting a New Standard for Deep Groove Ball Bearings

'Generation C' deep groove ball bearings from Schaeffler offer 35 per cent less friction and 50 per cent less noise than the existing designs. The novel HRS seal and a riveted steel cage deliver smoother running and less dust ingress.

Improved Energy Efficiency
35% less friction means less heat, so higher running speeds are possible along with greater stability provided by the new steel cage.

'Generation C' is ideal for applications in which low noise and smooth running are critical - such as ventilators, washing machines, electric motors and power tools.

Direct benefits include a reduction in operating costs, extended maintenance intervals, longer grease life and increased protection against dust contamination.

The dimensions of the new bearings correspond to the previous bearing types, enabling easy replacement.

BENEFITS

- 50% NOISE REDUCTION
- 35% LESS FRICTION
- HIGHER SPEEDS
- REDUCED ENERGY CONSUMPTION
- LONGER OPERATING LIFE
- LOWER OPERATING COSTS

DESIGN IMPROVEMENTS

- OPTIMISED OSCULATION
- IMPROVED RACEWAY SURFACES
- NEW HRS SEAL
- OPTIMISED DUST SHIELD
- LABYRINTH-TYPE SEAL FUNCTION
- NEW RIVETED STEEL CAGE
- –30°C to +50°C OPERATING RANGE

Schaeffler (UK) Ltd
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SCHAEFFLER

Deep Groove Ball Bearings

FAG

Deep groove design for radial and radial / axial loads

- Available with metal shields (2Z) or rubber seals (2HRS)
- Available with radial internal clearance CN, C3, C2 (etc)
- Available in corrosion resistant material (prefi x S...)
- Available in bore size 3mm up to 2000mm
- Available with steel, brass (M/Y) or plastic (TV) cages

6000 Series			
Product	Shaft	Outside Dia	Width
	(mm)		
6000	10	26	8
6001	12	28	8
6002	15	32	9
6003	17	35	10
6004	20	42	12
6005	25	47	12
6006	30	55	13
6007	35	62	14
6008	40	68	15
6009	45	75	16
6010	50	80	16
6011	55	90	18
6012	60	95	18
6013	65	100	18
6014	70	110	18
6015	75	115	20
6016	80	125	22
6017	85	130	22
6018	90	140	24
6019	95	145	24
6020	100	150	24
6021	105	160	26
6022	110	170	28
6024	120	180	28
6026	130	200	33
6028	140	210	33
6030	150	225	35
6032	160	240	38
6034	170	260	38
6036	180	280	46
6038	190	290	46

6200 Series			
Product	Shaft	Outside Dia	Width
	(mm)		
6200	10	30	9
6201	12	32	10
6202	15	35	11
6203	17	40	12
6204	20	47	14
6205	25	52	15
6206	30	62	16
6207	35	72	17
6208	40	80	18
6209	45	85	19
6210	50	90	20
6211	55	100	21
6212	60	110	22
6213	65	120	23
6214	70	125	24
6215	75	130	25
6216	80	140	26
6217	85	150	28
6218	90	160	30
6219	95	170	32
6220	100	180	34
6222	110	200	38
6224	120	215	40
6226	130	230	40
6228	140	250	42
6230	150	270	45
6232	160	290	48
6234	170	310	52
6236	180	320	52
6238	190	340	55

Schaeffler UK Training Courses

Schaeffler UK has developed comprehensive training programs that reflect the latest developments in rolling bearing technology and condition monitoring. From maintenance fitters to designers of complex rotating equipment, we have an effective training program to suit your needs.

What We Offer
Training is delivered by highly skilled engineers with many years' experience in the design, application and operation of rolling element bearings. We have specialists in vibration analysis and condition monitoring who can provide ongoing support.

Courses include:

- **Introduction to Rolling Bearings**
- **Rolling Bearing Technology**
- **Rolling Bearing Lubrication**
- **Rolling Bearing Failure Analysis**
- **Rolling Bearing Mounting**
- **Bearings for Electric Motors**
- **Introduction to Condition Monitoring**
- **Detector III**
- **Vibration Analysis Levels 1 and 2**

Heavy Series Deep Groove Ball Bearings

FAG

Heavy series deep groove design for radial & radial / axial loads
Available with radial internal clearance CN, C3,

6300 Series			
Product	Shaft	Outside Dia	Width
	(mm)		
6300	10	35	11
6301	12	37	12
6302	15	42	13
6303	17	47	14
6304	20	52	15
6305	25	62	17
6306	30	72	19
6307	35	80	21
6308	40	90	23
6309	45	100	25
6310	50	110	27
6311	55	120	29
6312	60	130	31
6313	65	140	33
6314	70	150	35
6315	75	160	37
6316	80	170	39
6317	85	180	41
6318	90	190	43
6319	95	200	45
6320	100	215	47
6322	110	240	50
6324	120	260	55
6326	13	280	58
6328	140	300	62
6330	150	320	65
6332	160	340	68
6334	170	360	72
6336	180	380	75
6338	190	400	78

6400 Series			
Product	Shaft	Outside Dia	Width
	(mm)		
6403	17	62	17
6404	20	72	19
6405	25	80	21
6406	30	90	23
6407	35	100	25
6408	40	110	27
6409	45	120	29
6410	50	130	31
6411	55	140	33
6412	60	150	35
6413	65	160	37
6414	70	180	42
6415	75	190	45
6416	80	200	48
6417	85	210	52
6418	90	225	54

Self-aligning Ball Bearings

Self-aligning ball bearings are double row, self-retaining units comprising outer rings with a concave raceway, inner rings with a cylindrical or tapered bore and ball and cage assemblies. The bearings are available in open and sealed designs.

1200 Series			
Product	Shaft	Outside Dia	Width
	(mm)		
1200	10	30	9
1201	12	32	10
1202	15	35	11
1203	17	40	12
1204	20	47	14
1205	25	52	15
1206	30	62	16
1207	35	72	17
1208	40	80	18
1209	45	85	19
1210	50	90	20
1211	55	100	21
1212	60	110	22
2200 Series			
2200	10	30	14
2201	12	32	14
2202	15	35	14
2203	17	40	16
2204	20	47	18
2205	25	52	18
2206	30	62	20
2207	35	72	23
2208	40	80	23
2209	45	85	23
2210	50	90	23
2211	55	100	25
2212	60	110	28

Narrow Series Deep Groove Ball Bearings

FAG

- Narrow series deep groove design for radial & radial / axial loads
- Available with metal shields (2Z) or rubber seals (2HRS)
- Available in corrosion resistant material (prefi x S...)

61800 Series			
Product	Shaft	Outside Dia	Width
	(mm)		
61800	10	19	5
61801	12	21	5
61802	15	24	5
61803	17	26	5
61804	20	32	7
61805	25	37	7
61806	30	42	7
61807	35	47	7
61808	40	52	7
61809	45	58	7
61810	50	65	7
61811	55	72	9
61812	60	78	10

61900 Series			
Product	Shaft	Outside Dia	Width
	(mm)		
61900	10	22	6
61901	12	24	6
61902	15	28	7
61903	17	30	7
61904	20	37	9
61905	25	42	9
61906	30	47	9
61907	35	55	10
61908	40	62	12
61909	45	68	12
61910	50	72	12
61911	55	80	13
61912	60	85	13

Wide Series Deep Groove Ball Bearings

- Wide series deep groove design for radial & radial / axial loads
- Available with rubber seals (2RSR)

62200 Series			
Product	Shaft	Outside Dia	Width
	(mm)		
62200-A-2RSR	10	30	14
62201-A-2RSR	12	32	14
62202-A-2RSR	15	35	14
62203-A-2RSR	17	40	16
62204-A-2RSR	20	47	18
62205-A-2RSR	25	52	18
62206-A-2RSR	30	62	20
62207-A-2RSR	35	72	23
62208-A-2RSR	40	80	23
62210-A-2RSR	50	90	23
62211-A-2RSR	55	100	25
62212-A-2RSR	60	110	28

62300 Series			
Product	Shaft	Outside Dia	Width
	(mm)		
62301-A-2RSR	12	37	17
62302-A-2RSR	15	42	17
62303-A-2RSR	17	47	19
62304-A-2RSR	20	52	21
62305-A-2RSR	25	62	24
62306-A-2RSR	30	72	27
62307-A-2RSR	35	80	31
62308-A-2RSR	40	90	33
62309-A-2RSR	45	100	36
62310-A-2RSR	50	110	40

Angular Contact Ball Bearings

FAG

Single Row Angular Contact Ball Bearings

Single row angular contact ball bearings are self-retaining units with solid inner and outer rings and ball and cage assemblies with polyamide, sheet steel or brass cages.

The raceways of the inner and outer rings are offset in relation to each other in the direction of the bearing axis. The bearings are available in open and sealed versions. Their self-alignment capacity is very small.

7200 Series			
Product	Shaft	Outside Dia	Width
	(mm)		
7200	10	30	9
7201	12	32	10
7202	15	35	11
7203	17	40	12
7204	20	47	14
7205	25	52	15
7206	30	62	16
7207	35	72	17
7208	40	80	18
7209	45	85	19
7210	50	90	20
7211	55	100	21
7212	60	110	22

7300 Series			
Product	Shaft	Outside Dia	Width
	(mm)		
7301	12	37	12
7302	15	42	13
7303	17	47	14
7304	20	52	15
7305	25	62	17
7306	30	72	19
7307	35	80	21
7308	40	90	23
7309	45	100	25
7310	50	110	27
7311	55	120	29
7312	60	130	31

Double Row Angular Contact Ball Bearings

Double row angular contact ball bearings are units with solid inner and outer rings and ball and cage assemblies with polyamide, sheet steel or brass cages. They correspond in design to single row angular contact ball bearings in pairs in an O arrangement but give a narrower design than these. They differ in the size of their contact angle and the design of the bearing rings.

The bearings are available in open and sealed versions. Due to the production technology used, open bearings can still have turned recesses on the outer ring for seals or shields. Sealed bearings are maintenance-free and, as a result, allow particularly economical bearing arrangements. The self-alignment capacity of angular contact ball bearings is very small.

3200 Series			
Product	Shaft	Outside Dia	Width
	(mm)		
3200	10	30	14
3201	12	32	15.9
3202	15	35	15.9
3203	17	40	17.5
3204	20	47	20.6
3205	25	52	20.6
3206	30	62	23.8
3207	35	72	27
3208	40	80	30.2
3209	45	85	30.2
3210	50	90	30.2
3211	55	100	33.3
3212	60	110	36.5

3300 Series			
Product	Shaft	Outside Dia	Width
	(mm)		
3302	15	42	19
3303	17	47	22.2
3304	20	52	22.2
3305	25	62	25.4
3306	30	72	30.2
3307	35	80	34.9
3308	40	90	36.5
3309	45	100	39.7
3310	50	110	44.4
3311	55	120	49.2
3312	60	130	54

Black Series Housed Units

FAG

The FAG Black Series has been created in response to increasing demand for Japanese Industrial Standard (JIS) radial insert ball bearings and housing units.

The Black Series complements Schaeffler's ISO-compliant INA X-life premium products.

FAG Black Series | Features

- Japanese Industry Standard JIS B 1559 dimensions
- Durotect® B coating on inner and outer rings, as well as flinger shields
- Cast iron housing with black 2-pack paint
- Radial insert ball bearings based on series 62.. deep groove ball bearings
- Metric or inch size dimensions
- Location by means of grub screws in inner ring or tapered adaptor sleeve
- Housing tolerances J7 and H7

Why offer extra JIS products, isn't it sufficient to have ISO housing units?

No, it's not as simple as that because:

The lubrication holes of radial insert ball bearings and housings are in different positions

Housing fixing holes are in different positions and have different diameters

The housing shapes and dimensions differ

Conclusion: In the aftermarket business it's not possible to directly replace JIS with ISO products and vice-versa.

Black Series Housed Units				
Bore Size	Pillow Block Unit	4 Bolt Flanged Unit	2 Bolt Flanged Unit	Bearing Insert
20mm	UCP204	UCF204	UCFL204	UC204
3/4"	UCP204-12	UCF204-12	UCFL204-12	UC204-12
25mm	UCP205	UCF205	UCFL205	UC205
1"	UCP205-16	UCF205-16	UCFL205-16	UC205-16
30mm	UCP206	UCF206	UCFL206	UC206
1 1/8"	UCP206-18	UCF206-18	UCFL206-18	UC206-18
35mm	UCP207	UCF207	UCFL207	UC207
1 1/4"	UCP207-20	UCF207-20	UCFL207-20	UC207-20
40mm	UCP208	UCF208	UCFL208	UC208
1 1/2"	UCP208-24	UCF208-24	UCFL208-24	UC208-24
45mm	UCP209	UCF209	UCFL209	UC209
1 3/4"	UCP209-28	UCF209-28	UCFL209-28	UC209-28
50mm	UCP210	UCF210	UCFL210	UC210
1 7/8"	UCP210-30	UCF210-30	UCFL210-30	UC210-30
55mm	UCP211	UCF211	UCFL211	UC211
2"	UCP211-32	UCF211-32	UCFL211-32	UC211-32
60mm	UCP212	UCF212	UCFL212	UC212
2 1/4"	UCP212-36	UCF212-36	UCFL212-36	UC212-36

SNS Plummer Block Housings

FAG

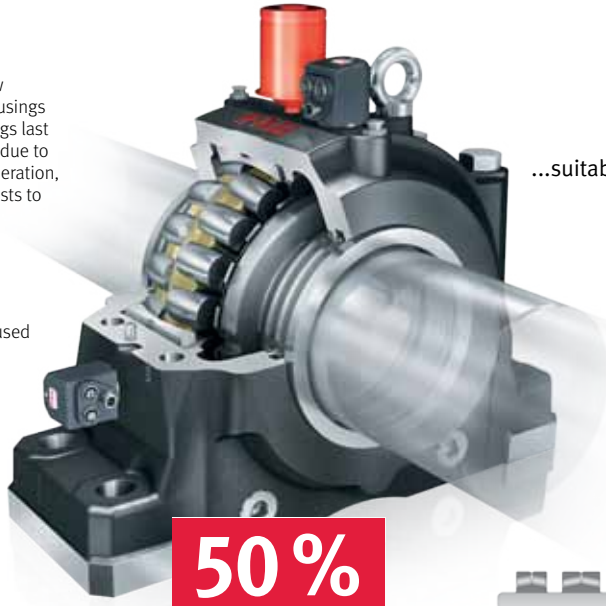
For shaft diameters of 115 to 530 mm and 4 7/16 to 19 ½ inch.

New: A proactive Housing...

This is the life! Product life in this new generation of SNS plummer block housings is so good that spherical roller bearings last up to 50 % longer than usual. This is due to a unique housing design: When in operation, the SNS housing proactively self-adjusts to the bearing.

Using this FAG housing generation will pay off for you in many respects

- Longer life of the rolling bearings used
- Easy to interchange due to dimensions in accordance with the market standard
- Reduced maintenance requirements and fewer downtimes
- Lower mounting costs
- Reduced use of materials
- Lower disposal costs



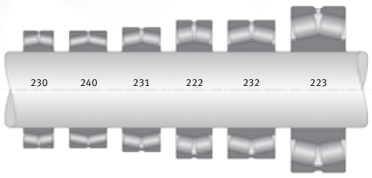
50 % increase in bearing life

1-to-1 replacement for conventional solutions

...suitable for a range of bearing types

- For spherical roller bearings from series 222.., 223.., 230.., 231.., 232.., and 240..
- For split spherical roller bearings
- For toroidal roller bearings (TORB)

SNS housings are suitable for shaft diameters of 115 to 530 mm and 4 7/16 to 19 ½ inch.



Product Overview: Split plummer block housings SNS

Plummer block housings
Split
For Labyrinth and Taconite seals

SNS..-H, SNS..-Z

For Bolt-on seals

SNS..-H, SNS..-Z

Accessories
Labyrinth seals
Taconite seals

NTS

NTC

Split Labyrinth seals
Bolt-on seals

NTSG

BTAC

Covers

NDK

BDK

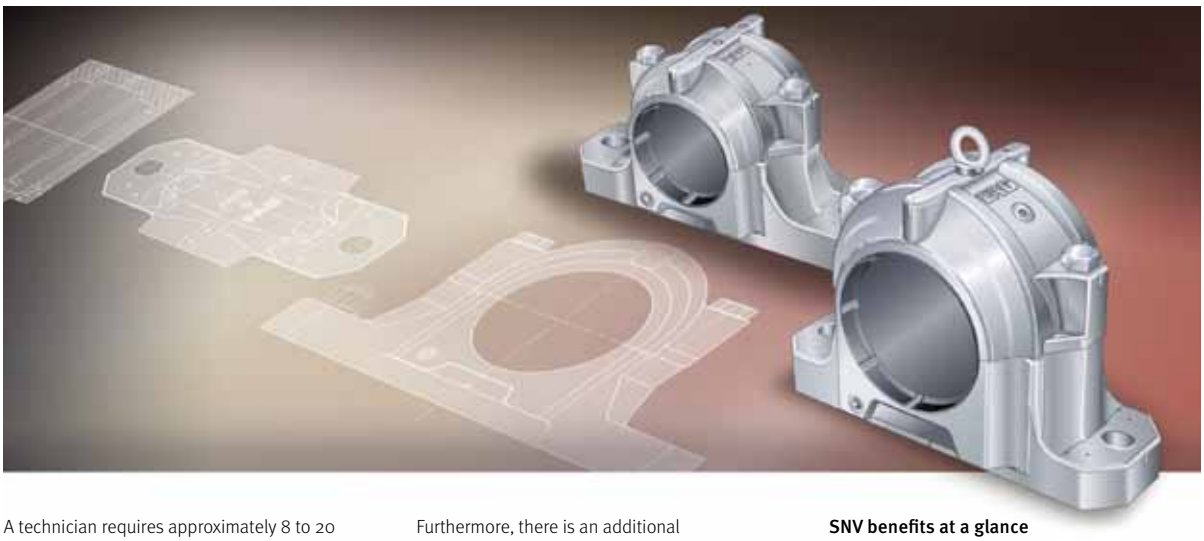
Locating rings

NFR

SNV Split Plummer Block Housings

FAG

For shaft diameters 20 mm to 160 mm and ¾ inches to 5½ inches – Quick to mount – easy to lubricate.



A technician requires approximately 8 to 20 minutes in order to drill just one of the center-punched lubrication holes. And he carries out the same procedure 10 or 100 times, depending on the application ...You can quickly calculate how much working time can be saved by using the new SNV housings from FAG. Because they are predrilled!

New: Overgreasing is prevented by grease outlet hole New generation split plummer block housings SNV have a total of three holes that are sealed with screw plugs during manufacture. The new grease outlet hole provided as standard on the bottom edge of the housing is an inconspicuous design change that can quickly secure a competitive advantage. Excess grease can escape from the bottom of the housing if excess pressure occurs and the bearing cannot be overgreased.

Furthermore, there is an additional lubrication hole that allows easier relubrication of, for example, ball bearings.

FAG has been replacing the old series SNV since the beginning of 2011

Old series SNV without additional lubrication holes is being replaced by the new housings SNV052-F to SNV340-F. As they are particularly easy to mount and maintain, special housing designs are no longer required for many standard applications.

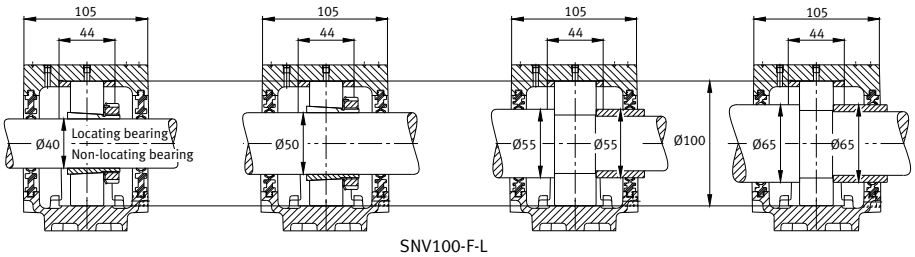
For more information see Schaeffler publications TPI 175 “Split plummer block housings SNV” and product data sheet PDB 1 “New generation of SNV housings”.

SNV benefits at a glance

- Overgreasing is prevented by grease outlet hole
- Simplified relubrication due to additional lubrication hole
- Minimized fitting work due to lubrication holes provided as standard
- Simplified stockholding as a result of modular concept
- The bearing housing units can support very high loads
- Optimized for fitting condition monitoring and relubrication systems
- Double lip seals, labyrinth seals, felt seals, V ring seals, combined seals or special seals can be used for additional protection

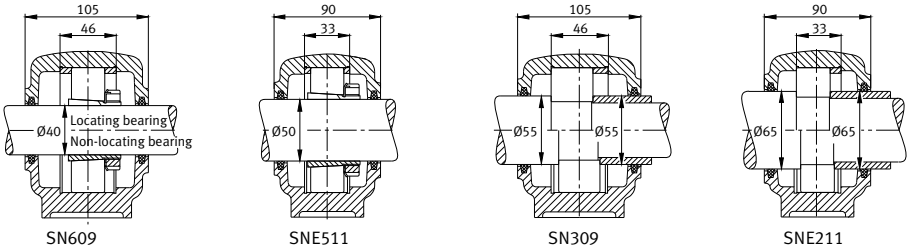
SNV housings are suitable for bearings of various diameter and width series, that have the same outside diameter, for example 100 mm for SNV100-F-L (a). Previously, the indicated shaft diameters required four different housing sizes (b).

a



SNV100-F-L

b

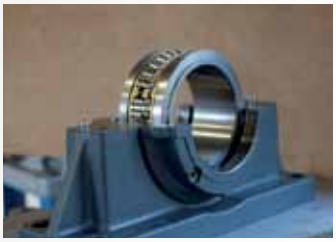


SN609 SNE511 SN309 SNE211

COOPER®

THE ORIGINAL SPLIT ROLLER BEARING

The inventor of the split to the shaft roller bearing, Cooper has unrivalled expertise gained in over 100 years manufacturing both the bearing and the housing at their site in King's Lynn (UK)



HIGHEST CAPACITY

Cooper's position as a leader in, the field has been recently re-affirmed with the introduction of the 01E/02E series. Equipped with a robust brass cage and larger rollers the new series ensures significant improvements in radial and axial capacity confirming Cooper as the highest capacity split bearing on the market.

WIDEST RANGE

With 4 series of split cylindrical roller bearings: 100 (light), 01 (medium), 02 (heavy) and 03 (extra heavy) as well as a range of split taper roller bearings, Cooper has a range unmatched by any manufacturer.

For all information please visit...

www.CooperBearings.com

ANAB BSI UKAS UKAS UKAS Lloyd's Register TYPE APPROVAL

THE EXPERTISE OF A MANUFACTURER, THE SCALE OF A LEADER

NTN SNR

With You

NTN-SNR ROULEMENTS, part of the 3rd largest bearing manufacturing group in the world, is a major force as a designer, developer and manufacturer.

Thanks to its strong brands, NTN-SNR is highly active in the automobile, industrial and aeronautics sectors. Each division meets the expectations of a global market and focuses on the business segments of its customers.

NTN-SNR offers top quality technical products and can provide specialist solutions.

With the widest range on the market, our teams work towards other requirements. Innovation is a decisive factor in our development: anticipating new solutions, enriching bearing functionalities, etc. More compact, lighter, more economical, more reliable, more effective, better for the environment... we are constantly innovating for and with our customers.

NTN-SNR is clearly focused on ecological solutions and is recognised as the partner and by developer of the companies of the future, ready to take up all market opportunities.

TAPERED ROLLER BEARINGS

These accept high radial loads and axial loads in one direction. They are generally fitted opposite a bearing of the same type. Load capacity depends on contact angle.

1 ROW OF TAPERED BEARINGS

Metric dimensions: ISO 355 and JIS B 1512 standards
Available with contact angles, spread from 10° to 30°
and a large contact angle 40° (suffix D by NTN)

Inch dimensions: ABMA standard (including J metric series)
Can be equipped with flanges

2 ROWS OF TAPERED BEARINGS

Appears in the same form as two single-row bearings
Fitted face-to-face or back-to-back, with metric or inch dimensions
One-piece outer or inner rings
Single-row assemblies with spacers also exist

4 ROWS OF TAPERED BEARINGS

Composed of two double cones, two single flanges and one double flange
Extended life cycle thanks to the use of case hardened steel, hollow rollers and pin-type cages
Very high load capacities, adapted to rolling type applications
Available in sealed version (-LL)

ECO-TOP RANGE

Series meeting the need to protect the environment
Optimised design, enhanced life cycle, more compact bearing and reduced energy consumption

NTN BOWER RANGE

Wide range of tapered roller bearings with inner diameters up to 16 inches

Steel

Through hardened bearing steel (ECO-H)
Vacuum degassed case hardened steel (4T, ET) and special heat treatment for a longer life cycle (ETA / ECO)

Cage

Generally equipped with a cage in pressed sheets
Solid or steel pin-type cages for large bearings
Fibre glass reinforced polyamide cage possible depending on the application for smaller bearings

Contact torque

Bearing identified with the suffix -ST:
- Reduced drag torque
- Reduced heating
- Improved seizure resistance
- Simplified adjustments at assembly

Sealing

Possible variant: sealing at the large shoulder (suffixe -LX)

METRIC

Part nº	Inside Diameter (mm)	Outside Diameter(mm)	Width (mm)
30202	15	35	11.75
30203	17	40	13,25
30204	20	47	15,25
30205	25	52	16,25
30206	30	62	17,25
30207	35	72	18,25
30208	40	80	19,75
30209	45	85	20,75
30210	50	90	21,75
30211	55	100	22,75
30212	60	110	23,75
30213	65	120	24,75
30214	70	125	26,25

Part n°	Inside Diameter (mm)	Outside Diameter(mm)	Width (mm)
30218	90	160	32,5
30302	15	42	14,25
30303	17	47	15,25
30304	20	52	16,25
30305	25	62	18,25
30306	30	72	20,75
30307	35	80	22,75
30308	40	90	25,25
31305	25	62	18,25
31308	40	90	25,25
31310	50	110	29,25
31311	55	120	31,5
31313	65	140	36

Part n°	Inside Diameter (mm)	Outside Diameter(mm)	Width (mm)
32004	20	42	15
32005	25	47	15
32006	30	55	17
32007	35	62	18
32008	40	68	19
32009	45	75	20
32010	50	80	20
32011	55	90	23
32012	60	95	23
32013	65	100	23
32014	70	110	25
32024	120	180	38

IMPERIAL

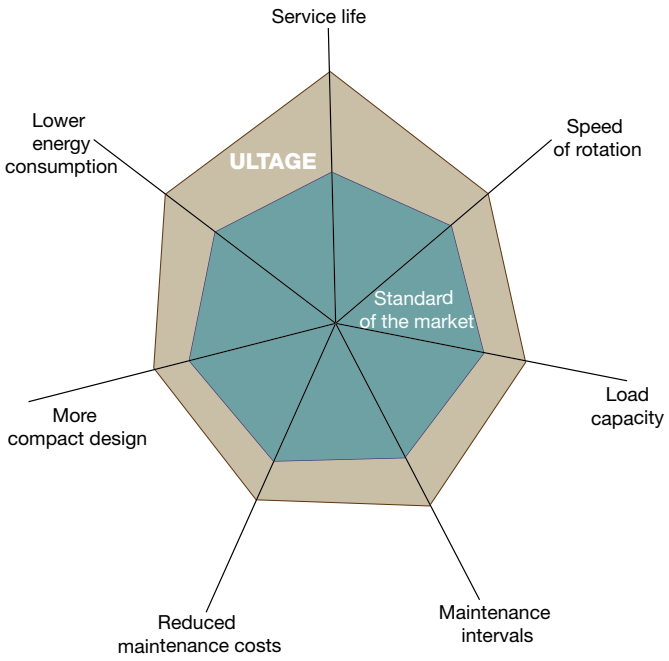
Part nº	Part nº	Part nº	Part nº	Part nº
4T-03062/03162	4T-3578/3525	4T-29585/29520	4T-559/552A	4T-JM205149/JM205110
4T-05079/05185S	4T-368A/362A	4T-29675/29620	4T-56418/56650	4T-JH211749/JH211710
4T-07087X/07210X	4T-3780/3720	4T-29685/29620	4T-M12648/M12610	4T-HM212047/HM212011
4T-07100S/07205	4T-387/382	4T-LM29749/LM29710	4T-M12649/M12610	4T-42690/42620
4T-07100S/07210X	4T-3877/3820	4T-JH307748/JH307710	4T-15123/15245	4T-44150/44348
4T-09067/09195	4T-387A/382	4T-3490/3420	4T-15590/15520	4T-L44643/L44610
4T-09074/09196	4T-387A/382A	4T-529/522	4T-16150/16283	4T-L44649/L44610
4T-LM102949/LM102910	4T-39590/39520	4T-529X/522	4T-18590/18520	4T-L45449/L45410
4T-JLM104948/JLM104948	4T-395A/394A	4T-535/532A	4T-18690/18620	4T-462/453X
4T-11590/11520	4T-3982/3920	4T-55175C/55437	4T-18790/18720	4T-46780/46720
4T-LM11749/LM11710	4T-3984/3920	4T-55200/55437	4T-19150/19268	4T-46790/46720
4T-LM11949/LM11910	4T-JH415647/JH415610	4T-5584/5535	4T-1986/1931	4T-47487/47420

Part nº	Part nº	Part nº	Part nº
4T-47686/47620	4T-LM603049/LM603011	4T-25590/25520	4T-64450/64700
4T-47896/47820	4T-A6075/A6162	4T-25877/25821	4T-645/632
4T-LM48548/LM48510	4T-L610549/L610510	4T-27687/27620	4T-65237/65500
4T-495/493	4T-JM612949/JM612910	4T-2788/2720	4T-LM67048/LM67010
4T-495A/493	4T-623/612	4T-28980/28921	4T-67388/67322
4T-56425/46650	4T-6379/6320	4T-LM501349/LM501310	4T-67390/67322
4T-566/563	4T-H212749/H212710	4T-JLM506849/JLM506810	4T-67790/67720
4T-567/563	4T-HM218248/HM218210	4T-JLM508748/JLM508710	4T-L68149/L68111
4T-575/572	4T-L225849/L225810	4T-JM511946/JM511910	4T-683/672
4T-593/592A	4T-M231649/M231610	4T-JM515649/JM515610	4T-JLM710949/JLM710910
4T-594/592A	4T-24780/24720	4T-JHM522649/JHM522610	
4T-594A/592A	4T-25580/25520	4T-52400/52618	

NTN-SNR ULTAGE : better performance for your applications

The ULTAGE name comes from a combination of the terms "ULTIMATE" and "STAGE". It is a name that provides you with optimised performance as standard, with respect to several technical criteria

PERFORMANCE COMPARISON

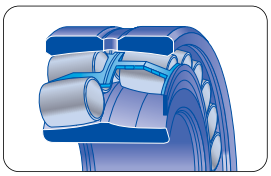


FROM 25 MM BORE UP TO 2180 MM EXTERNAL DIAMETER

NTN-SNR offers the widest range of spherical roller bearings on the market. They are available in a range of cage versions.

PRESSED STEEL CAGE (EA)

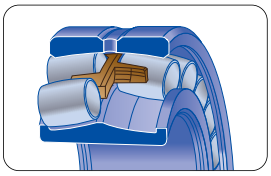
In two parts, centred on the inner ring



> Reduced wear and friction
> Optimum lubrication and high speeds

MACHINED SOLID BRASS CAGE (EM, L1)

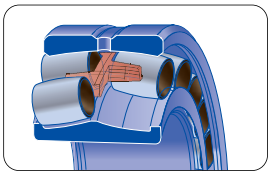
Single-piece cage, centred on the bearing housing or the inner ring



> Extrem robustness for longer life in the most demanding environments.

SPECIAL CAGE FOR «VIBRATION APPLICATIONS» (EF800)

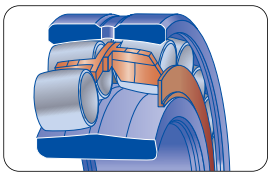
Single-piece cage with reduced bore, external diameter and radial clearance tolerances



> Extremely accurate roller guides for longer service life.

POLYAMIDE CAGE (EG15)

Two-part, centred on the inner ring.



> Performance and economy : elasticity and wrap-around profile for perfect guiding and reduced friction.
(Max. running temperature 150°C)

Overall dimensions mm			Ultage	Part n°
d	D	B		
40	80	23	*	22208EAW33
40	80	23	*	22208EG15W33
40	80	23	*	22208EMW33
40	90	23		21308V
40	90	33	*	22308EAW33
40	90	33	*	22308EG15W33
40	90	33	*	22308EMW33
40	90	33	*	22308EF800
45	85	23	*	22209EAW33
45	85	23	*	22209EG15W33
45	85	23	*	22209EMW33
45	100	25		21309V
45	100	36	*	22309EAW33
45	100	36	*	22309EG15W33
45	100	36	*	22309EMW33
45	100	36	*	22309EF800
50	90	23	*	22210EAW33
50	90	23	*	22210EG15W33
50	90	23	*	22210EMW33
50	110	27		21310V
50	110	40	*	22310EAW33
50	110	40	*	22310EG15W33
50	110	40	*	22310EMW33
50	110	40	*	22310EF800
55	100	25	*	22211EAW33
55	100	25	*	22211EG15W33
55	100	25	*	22211EMW33
55	120	29		21311V
55	120	43	*	22311EAW33
55	120	43	*	22311EG15W33
55	120	43	*	22311EMW33
55	120	43	*	22311EF800
60	110	28	*	22212EAW33
60	110	28	*	22212EG15W33
60	110	28	*	22212EMW33
60	130	31		21312V
60	130	46	*	22312EAW33
60	130	46	*	22312EG15W33
60	130	46	*	22312EMW33
60	130	46	*	22312EF800
240	320	60	*	23948EMD1
240	360	92	*	23024EMW33
240	360	118	*	24048EMW33
240	400	128	*	23148EMW33
240	400	160		24148VMW33
240	440	120	*	22248EMW33
240	440	160	*	23248EMW33
240	500	155		22348VMW33
260	360	75	*	23952EMD1
260	400	104	*	23052EMW33
260	400	140		24052VMW33
260	440	144	*	23152EMW33
260	440	180		24152VMW33
260	480	130		22252VMW33
260	480	174		23252VMW33
260	540	164		22352VMW33
300	420	90		23960
300	420	90		23960L1
300	460	118	*	23060EMW33
300	460	160	*	24060EMW33
300	500	160	*	23160EMW33
300	500	200		24160VMW33
300	540	140		22260B
300	540	140		22260BL1
300	540	192		23260VMW33
300	620	185		22360B

Bearings available with cylindrical or tapered bore (EAK,EMK,EG15K,BK and K30 for 240xx and 241xx series). Bearing with tapered bore are generally fitted with adaptor or withdrawal sleeeves. All types of clearances are available on stock or on request. Special clearances and special precisions are available on request.

*NTN-SNR ULTAGE Bearing.

NEEDLE BEARINGS

These bearings are mainly selected for constructions requiring reduced radial dimensions and maximum rigidity and load capacity. They have little resistance for axial forces (except thrusts and combined bearings).

NEEDLE ROLLER AND CAGE ASSEMBLIES

A needle cage comprises an inseparable cage and needles and can be used to design very compact, light, constructions with maximum capacity. The shaft and housing act as a raceway and must be machined in compliance with hardness, geometry and roughness characteristics. The needles are guided precisely, therefore the needle cage can absorb much higher speeds of rotation than contact needles.

Depending on the application, different types of materials and cages are available:

Types	Characteristics	Suffixes
K	Fibre glass reinforced polyamide	-T2
K or KJ	Welded pressed steel cage	-S
GK / GPK	In two parts	
K	Two rows	-ZW
KBK	For piston pins application	
KV	For piston pins application	-S
PK / GPK	For crank pins application	
KMJ	For crank pins application	-S

Inch solutions are also available (PCJ).

DRAWN CUP NEEDLE ROLLER BEARINGS

Compact and light, mainly used in applications with low loads, needle sockets represent a low-cost bearing solution; the outer ring is not machined, but is obtained using precision pressing processes. It must be noted that the geometry of the raceway depends on the geometry of the housing (the low thickness of the outer ring only provides the hardness and roughness necessary for the raceway).

Standard (HK) and heavy (HMK) series, available with or without sealing, with open or closed ends (BK, BMK)
Some dimensions are delivered with 2 rows of needles (-ZW)
Inches versions with cage (DCL, SCE) and contact needle versions (HCK).

NTN drawn cup needle roller bearing offer:
- simplified adapting thanks to an ideal geometry
- an improved life cycle: specific treatment of the cage and needles

NEEDLE ROLLER BEARINGS WITH SOLID RINGS

Needle roller bearings with solid rings are mainly used in applications with high loads.

- **Inseparable versions:** with or without an inner ring
  - Series 48, 49, 59 and 69. (Series 49 is also available with simple or double sealing)

  - NK series: also deliverable with the inner ring (NK+IR designation)

If the bearing is used without an inner ring, the shaft will act as a raceway and must be machined appropriately

Separable versions: RNAO and NAO
With these versions, the inner and outer rings and the cage can be separated, opening up more assembly options.

The inner rings are delivered separately.
Versions with plunge grinding for seal support surfaces are also available.

These solid rings and needle bearings are also available in inch dimensions. (MR,MI)

NEEDLE AND ROLLER THRUST BEARINGS

Needle or roller thrust bearings are designed to absorb axial forces in one direction only. Support surfaces used as raceways must be ground and hardened.

- Needle thrust bearings: type AXK11
- Roller thrust bearings: series 811, 812, 874 and 893
Available with Polyamide cage (-T2), Aluminium alloy cage (-: lightness and enhanced performance when lack of lubricant) or pressed steel cage.

Washers:
- type **AS11** washers are thin (1 mm), therefore their support surfaces must be flat and rigid enough
- types **WS** (centered on the shaft) and **GS** (centered on the housing) are more rigid

COMBINED BEARINGS

When the application requires resistance to forces combined with substantial rigidity or minimum room, the use of combined bearings can lead to benefits. Depending on the type of bearings, axial forces may be absorbed in one or two directions.

- **Uni-directional axial forces**
The thrust part may comprise, either:
- a radial contact (NKX) or angular contact (NKIA) ball bearing
- rollers for high axial loads (NKXR)
If the unit must be inseparable, a flange (-Z) is proposed

Two-way axial forces
Depending on the intensity of the forces, the trust part will consist of needles (AXN) or rollers (ARN)

CAM FOLLOWERS

Cam followers are used for applications requiring guidance with minimum contact with cam and the linear guidance systems.
Cam followers applications are very different to bearing applications. The cam followers is not fitted in a housing and its thicker outer ring rolls directly over a surface to provide guidance.

With or without a seal, with an outer ring with a convex or cylindrical profile, all cam followers are proposed:
- contact needle version (KRV-NATV) to accept significant loads
- cage version (KR-NATR) to accept higher speeds
Versions with two 2 rows of contact bearings also exist to increase capacity (NUTR, NUTW et NUKR)

- Stud Type: threaded shaft has a slot head or hex head screwdriver tightening system to simplify the attachment of the roller on the support surface. These rollers may be regreased by the shaft.
- Yoke Type: with or without lateral guidance

NEEDLE ROLLER CAGE ASSEMBLIES

K8X11X8T2	K9X12X10T2	K10X14X13	K12X15X20
K8X11X10T2	K9X12X13T2	K10X16X12	K12X16X13
K8X11X13	K10X13X10T2	K11X14X10	K12X17X13
K8X12X10T2	K10X13X13	K12X15X9	K12X18X12
K8X12X12	K10X14X8	K12X15X10	
K8X12X13	K10X14X10	K12X15X13	

DRAWN CUP NEEDLE ROLLER BEARINGS

Shaft Diameter	Part n° open end design	Part n° closed end design	Shaft Diameter	Part n° open end design	Part n° closed end design
8	HK0810C		9	HMK0916	
8		BK0810C	10	HK1010	
8	HMK0810		10		BK1010
8	HMK0815		10	HK1012	
8	HMK0820T2		10		BK1012
9	HK0910		10	HK1015	
9		BK0910	10		BK1015
9	HK0912		10	HMK1010	
9		BK0912	10	HMK1012	
9	HMK0912		10	HMK1015	
			10	HMK1020	

MACHINED RING NEEDLE ROLLER BEARINGS (WITHOUT INNER RING).

Shaft mm	Part n°	Shaft mm	Part n°	Shaft mm	Part n°
10	NK10/12T2	16	RNA4901R	20	NK20/16R
10	NK10/16	16	NK16/16R	20	RNA5902
10	RNA498	16	NK16/20R	20	NK20/20R
12	NK12/12	16	RNA4901R	20	RNA6902R
12	NK12/16	17	NK17/16R	21	NK21/16R
12	RNA499	17	NK17/20R	21	NK21/20R
14	RNA4900R	18	NK18/16R	22	NK22/16R
14	NK14/16R	18	NK18/20R	22	NK22/20R
14	NK14/20R	19	NK19/16R	22	RNA4903R
15	NK15/16R	19	NK19/20R	22	RNA5903
15	NK15/20R	20	RNA4902R	22	RNA6903R

THRUST NEEDLE ROLLER BEARINGS

Shaft mm	Thrust needle roller and cage assembly	washer	inner ring	outer ring
10	AXK1100	AS1100	WS81100	GS81100
12	AXK1101	AS1101	WS81101	GS81101
15	AXK1102	AS1102	WS81102	GS81102
17	AXK1103	AS1103	WS81103	GS81103
20	AXK1104	AS1104	WS81104	GS81104
25	AXK1105	AS1105	WS81105	GS81105
30	AXK1106	AS1106	WS81106	GS81106
35	AXK1107	AS1107	WS81107	GS81107
40	AXK1108	AS1108	WS81108	GS81108
45	AXK1109	AS1109	WS81109	GS81109
50	AXK1110	AS1110	WS81110	GS81110

CAM FOLLOWERS STUD TYPE TRUCK ROLLERS

with cage	sealed type with cage	cylindrical outer	sealed type with cylindrical outer	full compliment type	full compliment with seal	outside diameter
KR16	KR16LL	KR16X	KR16XLL	KRV16	KRV16LL	16mm
KR19	KR19LL	KR19X	KR19XLL	KRV19	KRV19LL	19mm
KR22	KR22LL	KR22X	KR22XLL	KRV22	KRV22LL	22mm
KR26	KR26LL	KR26X	KR26XLL	KRV26	KRV26LL	26mm
KR30	KR30LL	KR30X	KR30XLL	KRV30	KRV30LL	30mm
KR32	KR32LL	KR32X	KR32XLL	KRV32	KRV32LL	32mm
KR35	KR35LL	KR35X	KR35XLL	KRV35	KRV35LL	35mm
KR40	KR40LL	KR40X	KR40XLL	KRV40	KRV40LL	40mm

SELF-ALIGNING BEARING UNITS

Standard range with more than 25 000 solutions

- The most extensive range on the market
- Materials: grey cast iron, sheet steel, stainless steel and thermoplastic
- Forged inner and outer rings, steel cages
- Efficient protection against corrosion by chemical passivation (grey cast housings)
- Efficient dust protection by stainless steel covers (stainless steel / grey cast range) or in plastic (thermoplastic range)
- Compact and efficient bearing systems
- Different bearing inserts for high and low temperature applications
- Bearing inserts available with cylindrical outer diameter
- Bearing inserts available with common inch bore diameter

Bearings with solid grease (Spot Pack)

- Reduce lubricant leakage because the base oil is retained in a solid mixture
- Prevents contamination of the surrounding environment
- Ensures a constant flow of lubricant at the bearing / raceway contact point
- Low running torque characteristics
- Solid grease protects a bearing against ingress of foreign matters

Bearing units with EN-GJS grey cast housings (ductile)

- More economical, energy saving through weight reduction
- 40% lighter and more compact than standard grey cast units
- Approximately 30% stronger in comparison with standard grey cast housings
- Shock resistant material even at low temperature
- Available as relubricatable or non-relubricatable
- Flange and pillow block versions available
- Interchangeable with standard self-aligning bearing units

Bearing units with rolled steel housings

- Superior housing strength: more resistant than cast iron or steel sheets
- Reducing the risk of housing fracture, including under severe conditions
- Housing load 5 times higher than bearing insert dynamic capacity
- Suited for extreme applications: impact, high loads, vibrations
- Suited for steel and iron applications, extraction machines and equipment in contaminated environments

• Paliers auto-aligneurs en fonte grise • Grey cast iron self-aligning bearing units • Grauguss Gehäuselager
• Soportes auto-alineantes en fundición gris • Supporti autoallineanti in ghisa • Mancais auto-alinháveis em ferro fundido cinzento

SNR	UCPE	USPE	UKPE..H	EXPE	ESPE
INA	RASEY	PASEY	-	RASE..N	PASE..N
SKF	SY..TF	-	SYJ..KF	SY..WF	SY..FM
RHP	NP	NP..A	NP10..-..K	NP..DEC	NP..EC
SNR	**UCPLE**	**USPLE**	**UKPLE..H**	**EXPLE**	**ESPLE**
RHP	SL	-	-	-	SL..EC
NTN	**UCP..D1***	**ASP**	**UKP..D1,H23..X***	**UELP..D1W3****	**AELP..D1**
SNR	**UCP****	**USP**	**UKP..H****	**EXP****	**ESP**
NSK	UCP	-	UKP..+H23..	EWP	ENP
ASAHI	UCP	-	UKP..+H23..	-	-
INA	RASEY - JIS	-	-	-	-
KOYO/JTEKT	UCP	-	UKP	NAP..M	SAP..M
NTN	**UCHP..D1**	**-**	**-**	**UELHP..D1W3**	**-**
SNR	**UCPH**	**USPH**	**UKPH..H**	**EXPH**	**ESPH**
NSK	UCPH	-	UKPH..+H23..	-	-
ASAHI	UCPH	-	-	-	-
KOYO/JTEKT	UCPH	-	-	-	-
SNR	**UCPAE**	**USPAE**	**UKPAE..H**	**EXPAE**	**ESPAE**
INA	RSHEY	PSHEY	-	RSHE..N	PSHE..N
SKF	SYF..TF	-	-	-	SYF..FM
RHP	SNP	SNP..A	-	SNP..DEC	SNP..EC
NTN	**UCUP..D1**	**ASUP..**	**UKUP..D1,H23..X**	**UELUP..D1W3**	**AELUP..D1**
SNR	**UCPA/UCPG**	**USPA/USPG**	**UKPA..H/UKPG..H**	**EXPA/EXPG**	**ESPA/ESPG**
NSK	UCPA	UBPA	-	EWPA	-
ASAHI	UCPA	-	-	-	-
KOYO/JTEKT	UCPA	-	-	-	-
SNR	**UCFE**	**USFE**	**UKFE..H**	**EXFE**	**ESFE**
INA	RCJY	PCJY	-	RCJ..N	PCJ..N
SKF	FY..TF	-	FYJ..KF	FY..WF	FY..FM
RHP	SF	SF.. A	MSF..K	SF..DEC	SF..EC
NTN	**UCF..D1***	**ASF..D1**	**UKF..D1,H23..X***	**UELF..D1W3****	**AELF..D1**
SNR	**UCF****	**USF**	**UKF..H****	**EXF****	**ESF**
NSK	UCF	-	UKF..H23..	EWF	-
ASAHI	UCF	-	UKF..H23..	-	-
INA	RCJY.. -JIS	-	-	-	-
KOYO/JTEKT	UCF	-	UKF	-	SAF..FM
NTN	**UCFS..D1**	**-**	**UKFS..D1,H23..X**	**UELFS..D1W3**	**-**
SNR	**UCFS**	**-**	**UKFS..H**	**EXFS**	**-**
NSK	UCFS	-	UKFS..H23..	-	-
ASAHI	UCFS	-	-	-	-
KOYO/JTEKT	UCFS	-	UKFS	-	-
SNR	**UCFCE**	**USFCE**	**UKFCE..H**	**EXFCE**	**ESFCE**
INA	RMEY	PMEY	-	RME	PME
RHP	FC	FC..A	-	FC..DEC	FC..EC
NTN	**UCFC..D1*****	**ASFC..D1**	**UKFC..D1, H23..X*****	**UELFC..D1W3**	**AELFC..D1**
SNR	**UCFC**	**USFC**	**UKFC..H**	**EXFC**	**ESFC**
SKF	FYC..TF	-	-	FYC..WF	FYC..FM
NSK	UCFC	-	UKFC..+ H23..	EWFC	-
ASAHI	UCFC	-	UKFC.. +H	-	KHFC
KOYO/JTEKT	UCFC	-	UKFC	-	-
SNR	**-**	**USFEE**	**-**	**-**	**ESFEE**
INA	-	-	-	RFE	-
SNR	**-**	**USFTE**	**-**	**-**	**ESFTE**
INA	-	-	-	-	PCFTR

SNR	UCFLE	USFLE	UKFLE..H	EXFLE	ESFLE
INA	RCJTY	PCJTY	-	RCJT..N	PCJT..N
SKF	FYTB..TF	-	FYTJ..KF	FYTB..WF	FYTB..FM
RHP	SFT	SFT..A	MSFT..K	SFT..DEC	SFT..EC
NTN	**UCFL..D1***	**ASFL..D1**	**UKFL..D1; H23..X***	**UELFL..D1W3****	**AELFL..D1**
SNR	**UCFL****	**USFL**	**UKFL..H****	**EXFL****	**ESFL**
NSK	UCFL	UBFL	UKFL.. + H23..	EWFL	-
INA	RCJTY.. -JIS	-	-	-	-
ASAHI	UCFL	BFL	UKFL..+ H	-	KHFL
KOYO/JTEKT	UCFL	-	UKFL	-	SAFL..FM
SNR	**UCFLZ**	**USFLZ**	**UKFLZ..H**	**EXFLZ**	**ESFLZ**
INA	-	-	-	RCJTZ	-
NTN	**-**	**ASFD..D1**	**-**	**-**	**AELFD..D1**
SNR	**-**	**USFD**	**-**	**-**	**ESFD**
INA	-	FLCTEY	-	-	GLCTE
NSK	-	UBFD	-	-	ENFD
ASAHI	-	BLCTE	-	-	ENFD
RHP	-	LFTC..A	-	-	LFTC..EC
SNR	**-**	**USFAE**	**-**	**-**	**ESFAE**
INA	-	-	-	-	PSFT
NTN	**UCFA..D1**	**-**	**UKFA...; H23..X**	**-**	**AELFA..D1**
SNR	**UCFA**	**USFA**	**UKFA..H**	**EXFA**	**ESFA**
NSK	UCFA	-	-	-	-
ASAHI	UCFA	-	-	-	-
KOYO/JTEKT	UCFA	-	-	-	-
NTN	**UCT..D1***	**AST..D1**	**UKT..D1, H23..X***	**UELT..D1W3****	**AELT..D1**
SNR	**UCT****	**UST**	**UKT..H****	**EXT****	**EST**
INA	RTUEY	PTUEY	-	RTUE	PTUE
SKF	TUJ..TF	-	-	-	TU..FM
RHP	ST	ST..A	MST..K	ST..DEC	ST..EC
NSK	UCT	-	UKT.. + H23..	EWT	-
ASAHI	UCT	-	UKT.. + H	-	KHT
KOYO/JTEKT	UCT	-	UKT	-	-
NTN	**UCT..- .. D1**	**UKT..-..D1**			
SNR	**UCT+ WB**	**UST+ WB**	**UKT..H+WB**	**EXT+WB**	**EST+ WB**
NSK	UCT.. + WB	-	-	-	-
ASAHI	UCT.. + WB	-	-	-	-
NTN		**ASPT2..-10**			**AELPT2..-10**
SNR	**UCSP**	**USSP**	**UKSP..H**	**EXSP**	**ESSP**
RHP	BT	BT..A	-	-	BT..EC
SNR	**SPR 1**	**SPR 11 & 21**	**SPR 12 & 22**	**SPR 14 & 24**	
INA	-	HUSE..	-	-	
RHP	BT	-	-	-	
NTN	**UCHB..D1**	**-**	**-**	**-**	**-**
SNR	**UCEHE**	**USEHE**	**UKEHE..H**	**EXEHE**	**ESEHE**
RHP	SCH	-	-	-	-
INA	-	PHEY	-	RHE	PHE
NSK	UCEH	-	-	-	-
ASAHI	UCECH	-	-	-	-
NTN	**UCC..D1**	**ASC..**	**UKC..D1,H23..X***	**UELC..D1W3***	**AELC..D1**
SNR	**UCC**	**USC**	**UKC..H****	**EXC****	**ESC**
NSK	UCC	-	UKC.. + H23..	-	-
ASAHI	UCC	-	-	-	-
KOYO/JTEKT	UCC	-	UKC	-	-

(1)

*: Egalement disponible en Série 300 et X (taille moyenne) / **: Egalement disponible en Série 300 / ***: Egalement disponible en Série X (taille moyenne)
*: Also available in 300 and X-Series (medium size) / **: Also available in 300-Series / ***: Also available in X-Series (medium size)

(1) Pour SP, 4 versions de boîtier disponibles / For SP, 4 available boxes / Für SP, 4 verschiedene Einbaurahmen erhältlich / Para SP, 4 versiones de envolventes disponibles / Per prodotti speciali, 4 versioni di corpi disponibili / Para SP, 4 versões de embalagens disponíveis

• Roulements spécifiques: alésage carré, cylindrique et hexagonal / Special bearings: square, cylindrical and hexagonal bore

NTN	1AS..-.. (1)	3AS..-.. (1)
NBCA	DC..	DS..
NSK-BSC	W2..PPB../ GW2..PPB..	W2..PPB../ GW2..PPB..
INA	GVK..-KTT-B / VK..KTT-B (.AH..)	-
Fafnir	W2..PPB../ GW2..PPB..	W2..PPB../ GW2..PPB..

NTN	1AH..-..	2AH..-..
NBCA	HPC	HPS
NSK-BSC	..KRR..	..KRRB..
INA	-	SK..-KRR-B
Fafnir	..KRR..	..KRRB..

NTN	1AC..-.. (1)	3AC..-.. (1)
NBCA	DC2..	DS2..
NSK-BSC	W2..PPB../ GW2..PPB..	W2..PPB../ GW2..PPB..
Fafnir	W2..PPB../ GW2..PPB..	W2..PPB../ GW2..PPB..

(1) Autres designs sur demande / Other designs on request

• Roulement insert avec bague extérieure cylindrique / Bearing insert with cylindrical outer ring

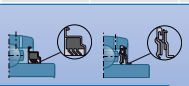
NTN	UCS2..D1**	UCS2..D1N	UELS2..D1**	UELS2..D1N	AELS2..NW3	AELS2..D1NW3	ASS2..N	ASS2..D1N
SNR	-	CUC2..	-	CEX2..	CES2..	-	CUS2..	-
NSK-RHP	-	UR2..	ENR2..	-	13..-..EC	13..-..ECG	13..-..	-
RHP	11..-..	11..-..CG	11..-..DEC	11..-..DECG	-	-	-	-
KOYO/JTEKT	RB..	ER..	-	-	-	-	-	-
ASAHI	-	SER2..	-	-	KHR2..	-	-	-
INA	-	-	E..KRR	-	RAE..NPP NR	-	-	-

**: également disponible en Série 300 / also available in 300-Series

• Temperature

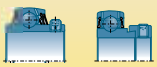
NTN	..HT2	..CT1
SNR	..T20	..T04
INA	..FA164.1	..FA101T
SKF	..VA201	..VA201
ASAHI	..HR 5	..CR 2A
RHP	-	..T1
NSK	..HT2	.CT1

• Etanchéités / Seals



NTN	..LLJ	-
SNR	..L3	..L4
INA	..KPP(B)-3	-
SKF	-	..2RF
ASAHI	-	-
RHP	T..-..	-
NSK	..LLJ	-
KOYO/JTEKT	..L3	-

• Paliers auto-aligneurs en acier inoxydable • Stainless steel self-aligning bearing units • Nichtrostende Gehäuselager • Soportes auto-alineantes en acero inoxidable • Supporti autoallineanti in acciaio inox • Mancais auto-alinháveis em aço inoxidável



NTN	F-UCPM../LP03	-
SNR	SUCP	SESP
ASAHI	MUCP	-
DODGE	P2B-SCEZ	-
NTN	F-UCFM../LP03	-
SNR	SUCFL	SESFL
ASAHI	MUCFL	-
DODGE	F2B-SCEZ	-
SNR	SUCPA	SESPA
ASAHI	MUCPA	-

SNR	SUCF	SESF
ASAHI	MUCF	-
DODGE	F4B-SCEZ	-
SNR	SUCT	SEST
ASAHI	MUCT	-

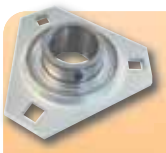
• Paliers auto-aligneurs thermoplastique • Thermoplastic self-aligning bearing units • Thermoplastik Gehäuselager • Soportes autoantes-aline termoplásticos • Supporti autoallineanti termoplastici • Mancais auto-alinháveis termoplásticos

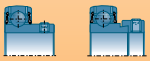
NTN	F-UCPR2../LP03**
SNR	GNP
SKF	SYK..TH/GFA
INA	RASEY..TN VA
NSK - RHP	PNP..CR
NTN	F-UCFR2../LP03*
SNR	GSF
SKF	FYK..TH/GFA
INA	RCJY..TN VA
NSK - RHP	PSF..CR

NTN	F-UCFLR2../LP03**
SNR	GSFT
SKF	FYTBK..TH/GFA
INA	RCJTY..TN VA
NSK - RHP	PSFT..CR

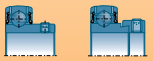
*: noir / black - **: blanc ou noir / white or black

• Paliers auto-aligneurs en tôle d'acier • Stamped steel self-aligning bearing units • Stahlblech Gehäuselager • Soportes auto-alineantes de chapa • Supporti autoallineanti in lamiera d'acciaio • Mancais auto-alinháveis em chapa de aço





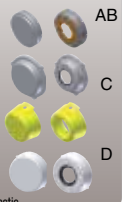
NTN	ASPP	AELPP..W3
SNR	USPP	ESPP
INA	PBY	PB
SKF	P..RM	P..FM
RHP	-	LPB..EC
ASAHI	BPP..-Z2	KHPP..-Z2
KOYO/JTEKT	SBPP	SAPP..FM
SNR	USPFT	ESPFT
INA	RATRY	RATR
SKF	PFD..RM	PFD..FM
RHP	SLFT..A	SLFT..EC
ASAHI	BPFT	-



NTN	ASPFL	AELPFL
SNR	USPFL	ESPFL
INA	RATY	RAT
SKF	PFT..RM	PFT..FM
RHP	SLFL..A	SLFL..EC
NSK	UBPFL	ENPFL
ASAHI	BPFL	KHPFL
KOYO/JTEKT	SBPFL	SAPFL..FM
SNR	USPFE	ESPFE
INA	-	MSTU
NTN	ASPF	AELPF..W3
SNR	USPF	ESPF
INA	RAY	RA
SKF	PF..RM	PF..FM
RHP	SLFE..A	SLFE..EC
NSK	UBPF	ENPF
ASAHI	PBF	KHPF
KOYO/JTEKT	SBPF	SAPF..FM

• Couvercles / Covers

Cover material		NTN	SNR	KOYO/JTEKT	ASAHI	RHP	INA	SKF
Couvercle acier (inox)	fermé/closed	SM-	SCC../SCCE..	D..	E	-	-	-
(Stainless) steel cover	ouvert/open	S-	SCO../SCOE..	C	C	-	-	-
Couvercle fonte	fermé/closed	CM-	-	FD	C	-	-	-
Cast iron cover	ouvert/open	C-	-	FC	CE	-	-	-
Couvercle tôle	fermé/closed	-	PCC..	-	-	..P	KASK	ECY..
Protector cover (sheet metal)	ouvert/open	-	PCO..	-	-	-	-	-
Couvercle thermoplastique	fermé/closed	-	CF..	-	-	-	-	ECL...
Thermoplastic cover	ouvert/open	-	CV..	-	-	-	-	ECYB..



Couvercles à uiliser pour palier en : / Covers suitable for units from:
A fonte - inox / cast iron - stainless steel B : fonte / cast iron C : fonte / cast iron D : thermoplastique / thermoplastic

• Roulements-inserts • Bearing inserts • Lagereinsätze • Rodamientos insertos • Cuscinetti "inserti" • Rolamentos insertos

	Series 200	Series 300	X-Series
NTN	UC2..D1	UC3..D1	UCX..D1
SNR	UC2..G2	UC3..G2	-
INA	GYE..KRRB / GYE -KRRB-FA107	-	-
SKF	YAR2..2F	-	-
RHP	10..G	-	10..-..G
NSK	UC2	UC3	UCX
ASAHI	UC2	UC3	UCX
KOYO/JTEKT	UC2	UC3	UCX
NTN	UEL2..D1W3	UEL3..D1W3	-
SNR	EX2..G2	EX3..G2	-
INA	GE..KRRB	-	-
SKF	YEL2..-2F	-	-
RHP	10..DECG	-	-
NSK	EW2	-	-
ASAHI	UG2..+ER	-	-
KOYO/JTEKT	NA2	-	-
NTN	UK2..D1, H23..X	UK3..D1, H23..X	UKX.. , H23..X
SNR	UK2..G2H	UK3..G2H	-
SKF	YSA2..-2FK, H23	-	-
RHP	10..KG, H3	-	-
NSK	UK2..+H23	UK3..,H23	UKX..,H23
ASAHI	UK2..+H23	UK3	UKX
KOYO/JTEKT	UK2.., H23..X	UK3.., H23..X	UKX.., H23X
NTN	AS2	-	-
SNR	US2..G2	-	-
INA	GAY..NPPB	-	-
SKF	YAT2	-	-
RHP	12..G	-	-
NSK	UB2	-	-
ASAHI	B	-	-
KOYO/JTEKT	SB2	-	-
NTN	AEL2..W3D1	-	-
SNR	ES2..G2	-	-
INA	GRAE..NPPB	-	-
SKF	YET2	-	-
RHP	12..ECG	-	-
NSK	EN2	-	-
ASAHI	KH2..AE	-	-
KOYO/JTEKT	SA2	-	-
NTN	F-UC2..D1/LP03	-	-
SNR	SUC2	-	-
DODGE	SCEZ	-	-
ASAHI	MUC2	-	-
KOYO/JTEKT	UC2..S6	-	-
NTN	-	-	-
SNR	SES2	-	-
ASAHI	-	-	-
DODGE	-	-	-
NTN	F-UC2..D1/LP03	-	-
SNR	MUC2..FD	-	-
SKF	YAR2..-2RF/HVGFA	-	-
INA	GYE..KRRB VA	-	-
NSK-RHP	J10..-..GCR	-	-
NTN	CS2..LLU	-	-
SNR	62..SEE	-	-
INA	2..NPPB	-	-
SKF	17262..2RS1	-	-
RHP	17262..2RS1	-	-
NSK	CS2..DDU	-	-
KOYO/JTEKT	CB2	-	-
FAG	762..2RSR	-	-

	Roulement insert bague caoutchouc Insert bearing with rubber liner	Roulement insert Bearing insert	Bague caoutchouc Rubber ring
SNR	ESR2..B	ES2..SRS	SRBB2
INA	RABR-B	RAE..NPPB	RABR
SKF	-	YET	RIS
NSK	-	AEL	T2066
SNR	CESR2..A	CES2..SRS	SRCA2,
INA	RCSM-B	RAE..NPP	RCSM

Adapté au corps en acier inoxydable
Suitable for stainless steel housings

Adapté au corps en fonte
Suitable for grey cast housings

Adapté au corps en tôle
Suitable for sheet metal housings

Adapté au corps en thermoplastique
Suitable for thermoplastic housings

Le tableau donne des informations sur des formes comparables. Il ne garantit pas l'interchangeabilité exacte sur le plan dimensionnel. / The tables give only information on comparable designs, review the critical dimensions for more precise interchanging or contact SNR customer service. / Die Tabelle gibt lediglich Auskunft über vergleichbare Bauformen, nicht jedoch über die exakte maßliche Austauschbarkeit. / La tabla da información únicamente sobre formas comparables, no garantiza una intercambiabilidad exacta en el aspecto dimensional. / La tabella fornisce unicamente informazioni sulle forme costruttive paragonabili, non sull'eventuale intercambiabilità dimensionale. / A tabela dá informações exclusivamente sobre desenhos funcionalmente equivalentes e não dimensionalmente idênticos.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PLUMMER BLOCK

Efficient, flexible and user friendly

NTN SNR

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More than Standard!

Extend the life duration with the SNC plummer block housing range!
The optimized design provides excellent rigidity and stability, a vibration dampening and improves strength and heat dissipation characteristics in order to provide reduced stress levels in the bearing and a cooler running temperature of its lubricant and thereby extending operating and service life.

The solution for higher loads
Large SNC plummer block housings (from the size 520) are now also available in ductile iron EN-GJS-400-18.
This SNCD designated housing features additional a factor 1.8 higher breaking loads.

The SNC plummer block housings are designed for installation of spherical roller bearings.

We recommend the use of our ULTAGE spherical roller bearings with higher increased load capacities and extended service life, to take advantage of the optimal characteristics of the SNC-Housings.
We complete our range with the tools and solutions of Experts & Tools.

Your benefits:

Circular reinforcement:
- excellent stability + rigidity
- optimal vibration behavior
- effective heat dissipation

Connection options:
- delivered with 2 lubrication holes
- 2 grease nipples (1x tapered, 1x flat headed nipple) added
- all bores sealed with screws
- drain hole

X-support:
- reinforced bearing seat
- uniform load distribution
- extended life in service

Larger diameter bolts:
- higher radial loads to be supported by the housing cap

Optional grease regulation disc:
- achieves the normal operating temperature more quickly
- at high rotational speeds: reduces the operating temperature
- extends the operating and service life of the bearing

Sealing options

A variety of sealing options is available, adapted to your application

SC..DS	SC..FS	SC..SV	SC..LA	SC..TA
Double lip seal	Felt strip seal	V-Ring seal	Labyrinth seal	Taconite seal
allround use	high rotation speed	low friction	high temperatures	large dust pollution

With our ULTAGE spherical roller bearings you will have a perfect combination for your application, like for ex.:
- Industrial ventilators
- Mining and quarry
- etc.
- Conveyor systems
- Steel industry

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Interchange list
Split plummer block units

Shaft outlet-Ø	Typ	SNC	SNL	SNR DS	SKF G	SNR FS	SKF C
20	505	SNC505	SNL505	SC505DS	TSN505G	SC505FS	TSN505C
20	605	SNC506-605	SNL506-605	SC605DS	TSN605G	SC605FS	TSN605C
25	506	SNC506-605	SNL506-605	SC506DS	TSN506G	SC506FS	TSN506C
25	606	SNC507-606	SNL507-606	SC606DS	TSN606G	SC606FS	TSN606C
30	205	SNC205	SNL205	SC205DS	TSN205G	SC205FS	-
30	305	SNC206-305	SNL206-305	SC507DS	TSN305G	SC305FS	-
30	507	SNC507-606	SNL507-606	SC507DS	TSN507G	SC507FS	TSN507C
30	607	SNC508-607	SNL508-607	SC607DS	TSN607G	SC607FS	TSN607C
35	206	SNC206-305	SNL206-305	SC206DS	TSN206G	SC206FS	-
35	306	SNC507-606	SNL507-606	SC206DS	TSN206G/306G	SC206FS	-
35	508	SNC508-607	SNL508-607	SC508DS	TSN508G	SC508FS	TSN508C
35	608	SNC510-608	SNL510-608	SC608DS	TSN608G	SC608FS	TSN608C
45	207	SNC207-306	SNL207	SC207DS	TSN207G	SC207FS	-
45	307	SNC208-307	SNL208-307	SC510DS	TSN307G	SC307FS	-
40	509	SNC509	SNL509	SC509DS	TSN509G	SC509FS	TSN509C
40	609	SNC511-609	SNL511-609	SC609DS	TSN609G	SC609FS	TSN609C
50	208	SNC208-307	SNL208-307	SC208DS	TSN208G	SC208FS	-
50	308	SNC510-608	SNL510-608	SC208DS	TSN208G/308G	SC208FS	-
45	510	SNC510-608	SNL510-608	SC510DS	TSN510G	SC510FS	TSN510C
45	610	SNC512-610	SNL512-610	SC610DS	TSN610G	SC610FS	TSN610C
55	209	SNC209	SNL209	SC209DS	TSN209G	SC209FS	-
55	309	SNC511-609	SNL511-609	SC209DS	TSN209G/309G	SC209FS	-
50	511	SNC511-609	SNL511-609	SC511DS	TSN511G	SC511FS	TSN511C
50	611	SNC513-611	SNL513-611	SC611DS	TSN611G	SC611FS	TSN611C
60	210	SNC210-308	SNL210	SC210DS	TSN210G	SC210FS	-
60	310	SNC512-610	SNL512-610	SC210DS	TSN210G/310G	SC210FS	-
55	512	SNC512-610	SNL512-610	SC512DS	TSN512G	SC512FS	TSN512C
55	612	SNC515-612	SNL515-612	SC612DS	TSN612G	SC612FS	TSN612C
65	211	SNC211-309	SNL211	SC211DS	TSN211G	SC211FS	-
65	311	SNL513-611	SC211DS	TSN211G/311G	SC211FS	-	SC211SV
60	513	SNC513-611	SNL513-611	SC513DS	TSN513G	SC513FS	TSN513C
60	613	SNC516-613	SNL516-613	SC613DS	TSN613G	SC613FS	TSN613C
70	212	SNC212-310	SNL212	SC212DS	TSN212G	SC212FS	-
70	312	SNC515-612	SNL515-612	SC212DS	TSN212G/312G	SC212FS	-
65	515	SNC515-612	SNL515-612	SC515DS	TSN515G	SC515FS	TSN515C
65	615	SNC518-615	SNL518-615	SC615DS	TSN615G	SC615FS	TSN615C
75	213	SNC213-311	SNL213	SC213DS	TSN213G	SC213FS	-
75	313	SNC516-613	SNL516-613	SC213DS	TSN213G/313G	SC213FS	-
70	516	SNC516-613	SNL516-613	SC516DS	TSN516G	SC516FS	TSN516C
70	616	SNC519-616	SNL519-616	SC616DS	TSN616G	SC616FS	TSN616C
80	214	SNC214	-	SC214DS	-	SC214FS	-
80	314	SNC517	SNL517	SC214DS	TSN314G	SC214FS	-
75	517	SNC517	SNL517	SC517DS	TSN517G	SC517FS	TSN517C
75	617	SNC520-617	SNL520-617	SC617DS	TSN617G	SC617FS	TSN617C
85	215	SNC215-312	SNL215	SC215DS	TSN215G	SC215FS	-
85	315	SNC518-615	SNL518-615	SC215DS	TSN215G/315G	SC215FS	-
80	518	SNC518-615	SNL518-615	SC518DS	TSN518G	SC518FS	TSN518C
80	618	SNC318-618	-	SC618DS	-	SC618FS	-
90	216	SNC216-313	SNL216	SC216DS	TSN216G	SC216FS	-
90	316	SNC219-316	SNL519-616	SC316DS	TSN316G	SC316FS	-
85	519	SNC519-616	SNL519-616	SC519DS	TSN519G	SC519FS	TSN519C
85	619	SNC522-619	SNL522-619	SC619DS	TSN619G	SC619FS	TSN619C
95	217	SNC217-314	SNL217	SC217DS	TSN217G	SC217FS	-
95	317	SNC220-317	SNL520-617	SC317DS	TSN317G	SC317FS	-
90	520	SNC520-617	SNL520-617	SC520DS	TSN520G	SC520FS	TSN520C
90	620	SNC524-620	SNL524-620	SC620DS	TSN620G	SC620FS	TSN620C
100	218	SNC218-315	SNL218	SC218DS	TSN218G	SC218FS	-
100	318	SNC318-618	-	SC318DS	-	SC318FS	-
110	319	SNC222-319	SNL522-619	SC319DS	-	SC319FS	-
110	219	SNC519-616	-	SC219DS	-	SC219FS	-
100	522	SNC522-619	SNL522-619	SC522DS	TSN522G	SC522FS	TSN522C
115	220	SNC520-617	SNL520-617	SC220DS	TSN220G	SC220FS	-
115	320	SNC224-320	SNL524-620	SC320DS	-	SC320FS	-
110	524	SNC524-620	SNL524-620	SC524DS	TSN524G	SC524FS	TSN524C
125	222	SNC522-619	SNL522-619	SC222DS	TSN222G	SC222FS	-
115	526	SNC226-526	SNL526	SC526DS	TSN526G	SC526FS	TSN526C
135	224	SNC524-620	SNL524-620	SC224DS	TSN224G	SC224FS	-
125	528	SNC228-528	SNL528	SC528DS	TSN528G	SC528FS	TSN528C
145	226	SNC226-526	SNL526	SC226DS	TSN226G	SC226FS	-
135	530	SNC230-530	SNL530	SC530DS	TSN530G	SC530FS	TSN530C
140	532	SNC232-532	SNL532	SC532DS	TSN532G	SC532FS	TSN532C
155	228	SNC228-528	SNL528	SC228DS	TSN228G	SC228FS	-
165	230	SNC230-530	SNL530	SC230DS	TSN230G	SC230FS	-
175	232	SNC232-532	SNL532	SC232DS	TSN232G	SC232FS	-

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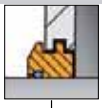
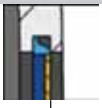
SNR SV	SKF A
SC505SV	TSN505A
SC605SV	TSN605A
SC506SV	TSN506A
SC606SV	TSN606A
-	-
SC305SV	TSN305A
SC507SV	TSN507A
SC607SV	TSN607A
SC206SV	TSN206A
SC206SV	TSN206A/306A
SC508SV	TSN508A
SC608SV	TSN608A
SC207SV	TSN207A
SC307SV	TSN307A
SC509SV	TSN509A
SC609SV	TSN609A
SC208SV	TSN208A
SC208SV	TSN208A/308A
SC510SV	TSN510A
SC610SV	TSN610A
SC209SV	TSN209A
SC209SV	TSN209A/309A
SC511SV	TSN511A
SC611SV	TSN611A
SC210SV	TSN210A
SC210SV	TSN210A/310A
SC512SV	TSN512A
SC612SV	TSN612A
SC211SV	TSN211A
TSN211A/311A	SC211LA
SC513SV	TSN513A
SC613SV	TSN613A
SC212SV	TSN212A
SC212SV	TSN212A/312A
SC515SV	TSN515A
SC615SV	TSN615A
SC213SV	TSN213A
SC213SV	TSN213A/313A
SC516SV	TSN516A
SC616SV	TSN616A
SC214SV	-
SC214SV	TSN314A
SC517SV	TSN517A
SC617SV	TSN617A
SC215SV	TSN215A
SC215SV	TSN215A/315A
SC518SV	TSN518A
SC618SV	-
SC216SV	TSN216A
SC316SV	TSN316A
SC519SV	TSN519A
SC619SV	TSN619A
SC217SV	TSN217A
SC317SV	TSN317A
SC520SV	TSN520A
SC620SV	TSN620A
SC218SV	TSN218A
SC318SV	-
SC319SV	TSN319A
SC219SV	-
SC522SV	TSN522A
SC220SV	TSN220A
SC320SV	TSN320A
SC524SV	TSN524A
SC222SV	TSN222A
SC526SV	TSN526A
SC224SV	TSN224A
SC528SV	TSN528A
SC226SV	TSN226A
SC530SV	TSN530A
SC532SV	TSN532A
SC228SV	TSN228A
SC230SV	TSN230A
SC232SV	TSN232A



SNR LA	SKF S
SC505LA	TSN505S
SC605LA	TSN605S
SC506LA	TSN506S
SC606LA	TSN606S
SC205LA	TSN205S
SC305LA	TSN305S
SC507LA	TSN507S
SC607LA	TSN607S
SC206LA	TSN206S
SC206LA	TSN206S/306S
SC508LA	TSN508S
SC608LA	TSN608S
SC207LA	TSN207S
SC307LA	TSN307S
SC509LA	TSN509S
SC609LA	TSN609S
SC208LA	TSN208S
SC208LA	TSN208S/308S
SC510LA	TSN510S
SC610LA	TSN610S
SC209LA	TSN209S
SC209LA	TSN209S/309S
SC511LA	TSN511S
SC611LA	TSN611S
SC210LA	TSN210S
SC310LA	TSN210S/310S
SC512LA	TSN512S
SC612LA	TSN612S
SC211LA	TSN211S
TSN211S/311S	SC211TA
SC513LA	TSN513S
SC613LA	TSN613S
SC212LA	TSN212S
SC212LA	TSN212S/312S
SC515LA	TSN515S
SC615LA	TSN615S
SC213LA	TSN213S
SC213LA	TSN213S/313S
SC516LA	TSN516S
SC616LA	TSN616S
SC214LA	-
SC214LA	TSN314A
SC517LA	TSN517S
SC617LA	TSN617S
SC215LA	TSN215S
SC215LA	TSN215S/315S
SC518LA	TSN518S
SC618LA	-
SC216LA	TSN216S
SC316LA	TSN316S
SC519LA	TSN519S
SC619LA	TSN619S
SC217LA	TSN217S
SC317LA	TSN317S
SC520LA	TSN520S
SC620LA	TSN620S
SC218LA	TSN218S
SC318LA	-
SC319LA	TSN319S
SC219LA	-
SC522LA	TSN522S
SC220LA	TSN220S
SC320LA	TSN320S
SC524LA	TSN524S
SC222LA	TSN222S
SC526LA	TSN526S
SC224LA	TSN224S
SC528LA	TSN528S
SC226LA	TSN226S
SC530LA	TSN530S
SC532LA	TSN532S
SC228LA	TSN228S
SC230LA	TSN230S
SC232LA	TSN232S

SNR TA	SKF ND
SC505TA	TSN505ND
SC605TA	TSN605ND
SC506TA	TSN506ND
SC606TA	TSN606ND
SC205TA	TSN205ND
SC305TA	TSN305ND
SC507TA	TSN507ND
SC607TA	TSN607ND
SC206TA	TSN206ND
SC206TA	TSN206ND/306ND
SC508TA	TSN508ND
SC608TA	TSN608ND
SC207TA	TSN207ND
SC307TA	TSN307ND
SC509TA	TSN509ND
SC609TA	TSN609ND
SC208TA	TSN208ND
SC208TA	TSN208ND/308ND
SC510TA	TSN510ND
SC610TA	TSN610ND
SC209TA	TSN209ND
SC209TA	TSN209ND/309ND
SC511TA	TSN511ND
SC611TA	TSN611ND
SC210TA	TSN210ND
SC210TA	TSN210ND/310ND
SC512TA	TSN512ND
SC612TA	TSN612ND
SC211TA	TSN211ND
TSN211ND/311ND	SC513-611EC
SC513TA	TSN513ND
SC613TA	TSN613ND
SC212TA	TSN212ND
SC212TA	TSN212ND/312ND
SC515TA	TSN515ND
SC615TA	TSN615ND
SC213TA	TSN213ND
SC213TA	TSN213ND/313ND
SC516TA	TSN516ND
SC616TA	TSN616ND
SC214TA	-
SC214TA	TSN314ND
SC517TA	TSN517ND
SC617TA	TSN617ND
SC215TA	TSN215ND
SC215TA	TSN215ND/315ND
SC518TA	TSN518ND
SC618TA	-
SC216TA	TSN216ND
SC316TA	TSN316ND
SC519TA	TSN519ND
SC619TA	TSN619ND
SC217TA	TSN217ND
SC317TA	TSN317ND
SC520TA	TSN520ND
SC620TA	TSN620ND
SC218TA	TSN218ND
SC318TA	-
SC319TA	TSN319ND
SC219TA	-
SC522TA	TSN522ND
SC220TA	TSN220ND
SC320TA	TSN320ND
SC524TA	TSN524ND
SC222TA	TSN222ND
SC526TA	TSN526ND
SC224TA	TSN224ND
SC528TA	TSN528ND
SC226TA	TSN226ND
SC530TA	TSN530ND
SC532TA	TSN532ND
SC228TA	TSN228ND
SC230TA	TSN230ND
SC232TA	TSN232ND



SNR EC	SKF ANSH
SC505EC	ASNH505
SC506-605EC	ASNH506-605
SC506-605EC	ASNH506-605
SC507-606EC	ASNH507-606
SC506-605EC	ASNH506-605
SC507-606EC	ASNH507-606
SC507-606EC	ASNH507-606
SC508-607EC	ASNH508-607
SC507-606EC	ASNH507-606
SC507-606EC	ASNH507-607
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SC510-608EC	ASNH510-608
SC509EC	ASNH509
SC510-608EC	ASNH510-608
SC509EC	ASNH509
SC511-609EC	ASNH511-609
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SC511-609EC	ASNH511-609
SC513-611EC	ASNH513-611
SC512-610EC	ASNH512-610
SC512-610EC	ASNH512-611
SC512-610EC	ASNH512-610
SC515-612EC	ASNH515-612
SC513-611EC	ASNH513-611
ASNH513-612	
SC513-611EC	ASNH513-611
SC516-613EC	ASNH516-613
SC515-612EC	ASNH515-612
SC515-612EC	ASNH515-613
SC515-612EC	ASNH515-612
SC518-615EC	ASNH518-615
SC516-613EC	ASNH516-613
SC516-613EC	ASNH516-614
SC516-613EC	ASNH516-613
SC519-616EC	ASNH519-616
SC517EC	-
SC517EC	ASNH516
SC517EC	ASNH517
SC520-617EC	ASNH520-617
SC518-615EC	ASNH518-615
SC518-615EC	ASNH518-614
SC518-615EC	ASNH518-615
SC318-618EC	-
SC216-313EC	ASNH216
SC519-616EC	ASNH519-616
SC519-616EC	ASNH519-616
SC522-619EC	ASNH522-619
SC217-314EC	ASNH217
SC520-617EC	ASNH520-617
SC520-617EC	ASNH520-617
SC524-620EC	ASNH524-620
SC218-315EC	ASNH218
SC318-618EC	-
SC522-619EC	ASNH522-619
SC519-616EC	-
SC522-619EC	ASNH522-619
SC520-617EC	ASNH520-617
SC524-620EC	ASNH524-620
SC524-620EC	ASNH524-620
SC522-619EC	ASNH522-619
SC226-526EC	ASNH526
SC524-620EC	ASNH524-620
SC228-528EC	ASNH528
SC226-526EC	ASNH526
SC230-530EC	ASNH530
SC232-532EC	ASNH532
SC228-528EC	ASNH528
SC230-530EC	ASNH530
SC232-532EC	ASNH532

BEARING BOX

BE MORE EFFICIENT, IMPROVE YOUR MAINTENANCE

Together with our Experts, improve the efficiency of your plant maintenance:

- Reduce your maintenance costs
- Improve the quality of your maintenance
- Optimize the life of your machines & equipment

www.ntn-snr.com

1 Practical training for maintenance

- Cold bearing assembly/disassembly (mechanical & hydraulic)
- Hot bearing assembly/disassembly
- Lubrication & Re-lubrication
- Basics of bearing maintenance : storage, handling, clearance, failures & solutions
- Assembly of bearing units

2 Technical assistance

Supervision of bearing mounting and dismounting

- Bearing diagnosis
- Lubricant analysis

3 Tools & Maintenance products

Reserve the Bearing Box straight away and train your technicians!

Contact your NTN-SNR distributor or our Experts & Tools service to talk to an adviser who:

- Will propose you training tailored to your requirements
- Will arrange a date for the training with you

With You

National **Power**
Local **Strength**

Supplying industrial products, services and solutions since 1998

BARDEN
Aerospace and Super Precision

Barden UK is a world leader in the design and manufacture of super precision ball and roller bearings for a wide range of industries. Our success has been built on a solid foundation of manufacturing and engineering design expertise.

Our bearings are produced using advanced technology to the highest standard available. Our bearings are used in virtually every sector of industry where there is a need to meet critical tolerances, high speeds and reliable performance under the most demanding conditions

Our product range covers thousands of bearing variations ranging in size from 5mm to over 700mm outside diameter. Our bearings can meet and will usually exceed ISO P2 (ABEC 9) standards.

BARDEN
Aerospace and Super Precision

Products available include:

Angular Contact Ball Bearings –

Available in P4, P4S and P2 precision grade with 15° and 25° contact angles. Steel balls as standard.

Universally ground for interchangeable mounting arrangements or in dedicated matched bearing sets.

Series available: **7000, 71800, 71900, 7200, 7300**

Also available in optional versions as detailed below :

a) Sealed Bearings –
Sealed and grease using non-contact seals these bearings offer optimum performance in challenging applications. Eliminating contamination and cost effective due to pre-greasing, leading to time saved in preparation.

b) Direct Lubrication Version –
Designed for maximum speed where radial oil lubrication systems are featured. As a rule the use of DLR (Direct Lube) bearings results in a reduction of running costs and proves more reliable than systems using axial oil supply.

c) Ceramic Ball (Hybrid) Bearings -
Designed for high-speed, high rigidity applications. As ceramic balls are considerably lighter and harder than steel balls, they can run at higher speeds and lower temperatures. This leads to less heat generation, less energy and longer lubricant life.

Ceramic Ball Features

60% lighter than steel balls
- Centrifugal forces reduced
- Lower vibration levels
- Less heat generation
- Reduced ball skidding

50% higher modulus of elasticity
- Improved bearing rigidity
- Naturally fracture resistant

Tribochemically inert
- Low adhesive wear
- Improved Lubricant life
- Superior corrosion resistance

Which gives the following benefits of Ceramic Hybrid Bearings
- Depending on application service life can be 5 years longer
- Running speeds up to 50% higher
- Overall accuracy and quality improves
- Lower operating costs
- High temperature capability
- Electrically non-conductive

d) X-Life Ultra -
These are Hybrid bearings using ceramic balls and Cronidur (High Nitrogen Steel) rings designed for maximum demands on speed and load. Because of the finer structure of the Cronidur steel the bearings ensure cooler running, higher contact pressures and superior corrosion resistance. This increases the material fatigue life and gives extended service life.

Single and Double Row Cylindrical Roller Bearings –

Available in 3 designs -
- N10 series, single row
- NN30 series, double row
- NNU49 series, double row

BARDEN
Aerospace and Super Precision

Manufactured to SP and UP precision class, with brass and PEEK cages in tapered and parallel bore versions.

This range of bearings are particularly suitable for high load, high rigidity and high speed applications. For efficient lubrication these bearings are available with an annular groove and lubrication holes in the outer ring. Ceramic rollers are available for ultra high speed applications.

Ballscrew Support Bearings –

Manufactured to P4 precision grade and suitable for all screw drive and screw drive support applications.

a) Metric and Imperial Support Bearings –
Available as single direction, universally matchable design as standard. Dedicated matched bearing sets and narrow series BSB designs are also available.

Metric series available, BSB, 7602 and 7603.

Also available in sealed versions - Sealed and grease using non-contact seals these bearings offer optimum performance in challenging applications. Eliminating contamination and cost effective due to pre-greasing, leading to time saved in preparation.

Double Directional Angular Contact Thrust Ball Bearings –

Designed to axially locate spindles in both directions and typically used in conjunction with cylindrical roller bearings (N and NN series) particularly suitable for heavy axial load applications.

Manufactured to SP and UP precision class with Brass cage.

2344 and 2347 series -
Available with 60° contact angle and large number of balls provides high axial stiffness for reasonably high speed applications.

Floating Displacement Bearings -

Series available FD10.

Designed for use in maximum speed and low load carrying capability applications. Using a combination of a ball bearing outer ring and a cylindrical roller bearing inner ring this ensures a free displacement of the outer ring relative to the inner ring during operation. Using ceramic balls and Cronidur (High Nitrogen Steel) inner rings as standard this enables high speed and adequate low carrying capacity.

Sealed and DLR (Direct Lube), Tapered and Parallel bore versions are also available.

Instrument and Miniature Bearings -

A wide range of very small metric and imperial ball bearings for use in a wide range of applications, from medical equipment, gyroscopes, measuring instruments and dental equipment.

Available with various cage materials, seals and shields and manufactured to P4 precision grade.

Typical Applications and Industries for Super Precision Bearings

- Machine Tools :
  - a) Grinding
  - b) Milling
  - c) Turning
  - d) Machining Centres
  - e) Ball Screw Supports
- Aerospace & Defence Industries
- Satellite Positioning Applications
- Automotive - Including Component Manufacture and Turbochargers
- Vacuum Pumps
- Textile Equipment
- Food Processing
- Robotics
- Medical & Dental Equipment
- High Speed Electric Motors
- Gas Turbines
- Spindle Repairers and Rebuilders
- Machine Tool Repairers and Rebuilders
- Specialist Applications

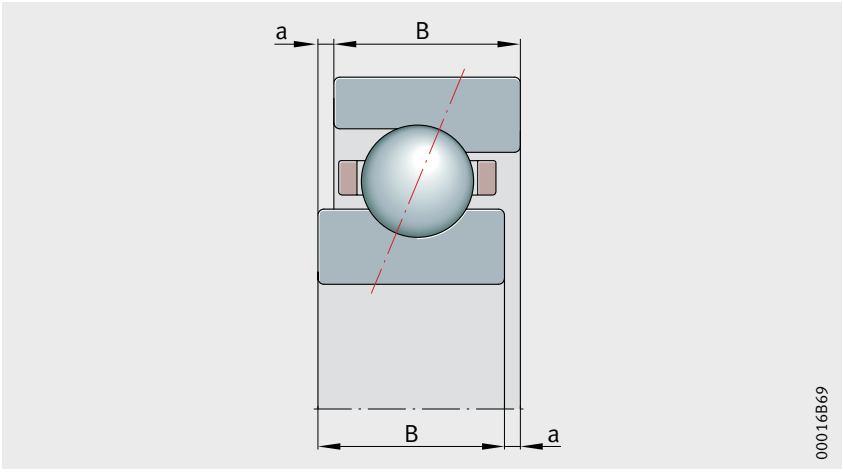
BARDEN
Aerospace and Super Precision

Spindle bearings

Universal bearings

FAG spindle bearings are always designed as universal bearings, which means that:

- the bearing rings are of the same width
- the projection on both sides of the bearing is of the same size, *Figure 2*.



B = bearing width
a = projection

Figure 2
Universal preload system

Advantages

Single bearings can be fitted in any arrangement required, such as a rigid X, O or tandem arrangement or with spring preloading, or can be combined in different sets.

In order to ensure uniform load-bearing in the tandem arrangement, the bearings used should have the same deviation in the inner ring bore and the outside diameter.

In an O arrangement and with rigid adjustment, sorting through checking of the interference between the shaft and bearing bore or the housing and bearing outside diameter can help to control the variations in the actual preload after mounting.

Arrangement of the bearings can be carried out in accordance with the arrow on the cylindrical surface of the outer ring. This provides logistical advantages for the customer, especially in spare parts procurement and stockholding of bearings.

BARDEN
Aerospace and Super Precision

Universal bearing sets

Bearing sets comprise universal bearings with the same deviation in the inner ring bore and the same deviation in the outside diameter.

The deviation stands, starting from the actual value code, for the inner ring bore or the outside diameter on the bearing ring.

The sets are of identical technical quality to single bearings with the same deviation in the inner ring bore and the outside diameter.

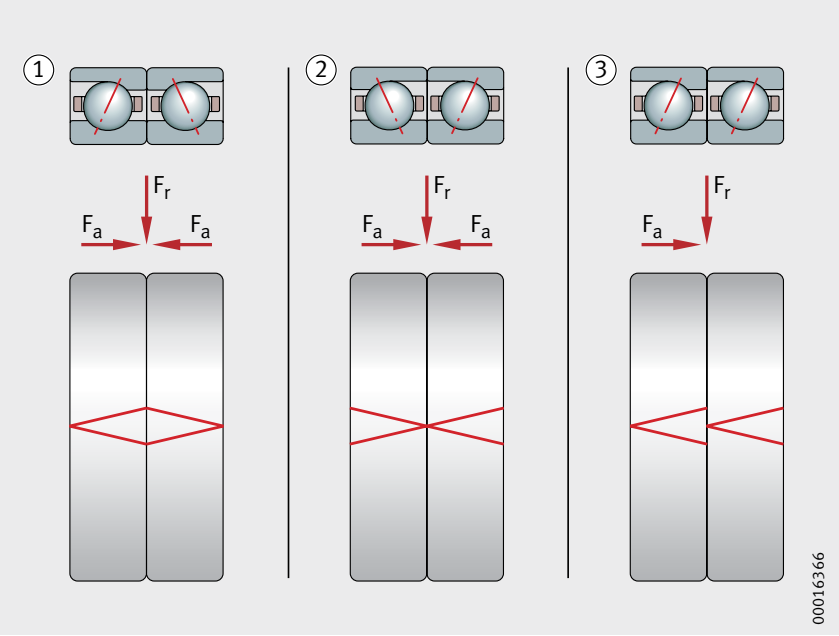
Marking of bearing sets

The first letter indicates the number of bearings in the set:

- D = 2 bearings (duplex)
- T = 3 bearings (triplex)
- Q = 4 bearings (quadruplex).

A "U" stands for "Universal", for example in DU. After these letters, the preload class is then indicated, for example "L" for light preload, in this case DUL.

Universal bearing sets can be fitted in any arrangement required. Possible bearing arrangements are shown in *Figure 3*.



F_r = radial load
F_a = axial load

① DU becomes DB,
2 bearing set in an O arrangement
② DU becomes DF,
2 bearing set in an X arrangement
③ DU becomes DT,
2 bearing set in a tandem arrangement

Figure 3
Bearing arrangements for a DU set

Ready-to-fit bearing sets

Ready-to-fit bearing sets are also available by agreement. In this case, the fitting sequence is indicated by a large arrow.

Ready-to-fit bearing sets correspond in technical terms to the universal bearing sets. However, the latter offer significant logistical advantages over the ready-to-fit sets, especially in spare parts procurement and stockholding.

BARDEN
Aerospace and Super Precision

Mounting and Handling of Super Precision bearings is essential for the full performance capacity to be achieved.

Common mistakes made when fitting any super precision bearings.

- Contamination of the bearing prior to fitting
- Assembling the bearing set in the wrong configuration
- Failing to correctly lubricate the bearings before mounting
- General fitting problems such as misalignment and incorrect pre-loading.

Mounting Procedure

- In preparation for mounting the bearing arrangement should be checked against a drawing or manual preferably, and the bearings must be arranged accordingly.
- The bearings are marked with the highest point of eccentricity and these marks should be aligned when mounting.
- Angular contact ball bearings may only be loaded in one axial direction, strict attention should be paid to their direction while mounting.
- When mounting Tapered bore cylindrical roller bearings the clearance or preload fit depends how far the bearing is driven up the tapered seat. The best method is to use ring gauges to set the clearance/preload quickly and accurately.
- Induction heating is advisable for the mounting of precision bearings via the inner ring as this expands making mounting much easier. When fitting the bearing rings you should ensure that these are fitted tightly to the contact surface to avoid settling or misalignment. Premature failure could occur if this is not the case as the bearings would be operating without any preload.

Once mounted a correct running in procedure should always be used which ensures even distribution of lubricant and stabilises bearing temperature.

Barden Recommended Running–in Procedure is as follows:

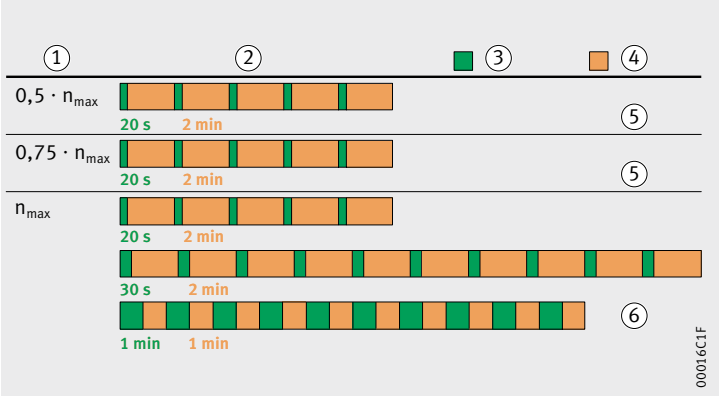
Running-in process

Grease distribution is completed once a stable bearing temperature has been achieved.

Recommendations for the grease distribution cycle of super precision bearings, *Figure 4*.

The running-in process comprises several cycles of start/stop operation at different speeds and for different running times, while the stationary times after each cycle are very important. The number of cycles required may vary according to the bearing size, the number of bearings, the maximum speed and the bearing environment.

Further cycles should be carried out for an increased running time and with a shortened stationary time until the equilibrium temperature is achieved.



① Speed
② Running and stationary times
③ Running time
④ Stationary time
⑤ Time 11 min, 40 s
⑥ Time 56 min, 40 s

Figure 4
Grease distribution cycle for open and sealed spindle bearings

The industry standard

Oilite® has been acknowledged as the undisputed market leader in self-lubricating bearings for more than 80 years, and today sets the standard for other products with its quality and reliability.

The extensive technical knowledge and manufacturing resources behind Oilite® have resulted in a vast array of sophisticated, high quality components that are supplied to a wide range of industries, throughout the world.

Widest range in Europe

As well as being the UK's number one choice, Oilite® bearings are also produced for other EU markets and offer the widest choice of self-lubricating bearings anywhere in Europe. Standard stock ranges are available in metric and inch. To ensure that customers have the benefit of fast delivery, a large range of European sizes are always stocked.

- 1000 European standard sizes
- Stock holding for fast delivery

There are now five standard stock ranges, ISO Metric, Inch, DIN 1850, French Metric and Scandinavian Metric.

Bespoke products

Where customer requirements are not met by stock items, our bespoke service enables us to produce both bronze and iron bearings and customer specified structural parts that are specifically designed to meet individual requirements.

Manufacturing quality and efficiency

Our manufacturing facilities are highly automated for maximum efficiency and competitiveness. Rigorous quality control procedures are adopted at all stages of manufacture.

Custom Machining

We also specialise in machining Oilite® self-lubricating bearings and plates to meet individual specifications and tolerances. This service provides, for example, one-off requirements in machine maintenance or limited production runs in the OEM design field or for prototype testing before commiting to tooling. Specialist tools and machining techniques are employed. This maintains the performance characteristics and physical properties which are the prerequisite of these components.

Certification

The company is certified to the Quality Management Systems requirement of ISO 9001:2008 by LRQA Certificate No. LRQ0960929 and is approved for use by:

- Augusta Westland
- Messier Dowty
- Hawker Beechcraft Corporation

Certificates of conformity & Certificates of material analysis are supplied by request.

Special Lubricants & Additives

The standard stock range of Oilite® bearings is impregnated with a mineral oil SAE 30 viscosity; all machined Oilite® bearings and plates are supplied fully impregnated after machining. A wide range of lubricants with varying temperature ranges are available to meet specific requirements. Lubricant additives are also available to impart anti-wear properties in marginal lubrication conditions such as stainless steel shaft applications.

Technical Advice

Extensive technical resources are available to resolve bearing problems. Engineers are always available to discuss projects in detail, without obligation.

Oilite® conforms to DIN 1850/ISO 2795

Oilite® metric bearings are manufactured to the tolerances set out in ISO 2795 - Plain Bearings from Sintered Material. The German stock range of bearings conform to DIN 1850.

Material Choice

Standard Oilite® - oil retaining tin bronze is the generally specified material. It gives a good balance between strength, wear resistance, conformability and durability in operation. Ideal in a wide variety of applications where "self lubricating" properties are required over a long period of time.

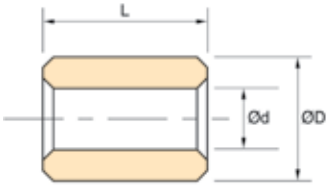
Super Oilite® – an iron copper material suited to high static loads and slow oscillatory motion.

Iron Oilite® – 100% iron oil-retaining bearings provide an ideal solution in high stress low revolution applications.

oilite® BEARINGS

Metric plain bearings to ISO 2795

Part Code	Inner Diameter Basic	Min.	Max.	Outer Diameter Basic	Min.	Max.	Basic L (js13)	Tolerances ID	OD
AS 0204*	2	2.014	2.024	4	4.015	4.027	4	E7	r7
AM 0205	2	2.002	2.012	5	5.019	5.031	2 4 3	G7	s7
AM 0305	3	3.002	3.012	5	5.019	5.031	3 4 6	G7	s7
AM 0306	3	3.002	3.012	6	6.019	6.031	3 4 6	G7	s7
AS 0308*	3	3.014	3.024	8	8.019	8.034	4	E7	r7
AM 0407	4	4.004	4.016	7	7.023	7.038	3 4 6	G7	s7
AM 0408	4	4.004	4.016	8	8.023	8.038	4 6 8 12	G7	s7
AS 0410*	4	4.020	4.032	10	10.019	10.034	8	E7	r7
AM 0508	5	5.004	5.016	8	8.023	8.038	4 5 8 10 12 16	G7	s7
AM 0509	5	5.004	5.016	9	9.023	9.038	4 5 8	G7	s7
AS 0510*	5	5.020	5.032	10	10.019	10.034	6 8 10	E7	r7
AS 0512*	5	5.020	5.032	12	12.023	12.041	10	E7	r7
AM 0609	6	6.004	6.016	9	9.023	9.038	4 6 10 12 16	G7	s7
AM 0610	6	6.004	6.016	10	10.023	10.038	4 6 10 12 16	G7	s7
AS 0612*	6	6.020	6.032	12	12.023	12.041	6 8 12	E7	r7
AS 0614*	6	6.020	6.032	14	14.023	14.041	12	E7	r7
AM 0710	7	7.005	7.020	10	10.023	10.038	5 8 10	G7	s7
AM 0711	7	7.005	7.020	11	11.028	11.046	8 10	G7	s7
AM 0811	8	8.005	8.020	11	11.028	11.046	6 8 12	G7	s7
AM 0812	8	8.005	8.020	12	12.028	12.046	6 8 12 16 20	G7	s7
AM 0814	8	8.005	8.020	14	14.028	14.046	8 12 16 20	G7	s7
AS 0818*	8	8.025	8.040	18	18.023	18.041	16	E7	r7
AM 0912	9	9.005	9.020	12	12.028	12.046	6 10 14	G7	s7
AM 0914	9	9.005	9.020	14	14.028	14.046	6 10 14	G7	s7
AM 1013	10	10.005	10.020	13	13.028	13.046	10 16	G7	s7
AM 1014	10	10.005	10.020	14	14.028	14.046	8 10 16 20 25	G7	s7
AM 1015	10	10.005	10.020	15	15.028	15.046	10 16 20 25	G7	s7
AM 1016	10	10.005	10.020	16	16.028	16.046	8 10 16 20 25	G7	s7
AS 1022*	10	10.025	10.040	22	22.028	22.046	20	E7	r7
AM 1215	12	12.006	12.024	15	15.028	15.046	12 16 20 25	G7	s7
AM 1216	12	12.006	12.024	16	16.028	16.046	8 12 16 20 25	G7	s7
AM 1218	12	12.006	12.024	18	18.028	18.046	8 12 16 20 25	G7	s7
AS 1225*	12	12.032	12.050	25	25.028	25.049	25	E7	r7
AM 1418	14	14.006	14.024	18	18.028	18.046	10 14 20	G7	s7
AM 1420	14	14.006	14.024	20	20.035	20.056	10 14 20 30	G7	s7
AS 1428*	14	14.032	14.050	28	28.028	28.049	30	E7	r7
AM 1519	15	15.006	15.024	19	19.035	19.056	10 15 20 25 30	G7	s7
AS 1520*	15	15.032	15.050	20	20.028	20.049	10 15 20 25 30	E7	r7
AM 1521	15	15.006	15.024	21	21.035	21.056	10 15 20 25	G7	s7
AM 1522	15	15.006	15.024	22	22.035	22.056	16 20 30	G7	s7
AS 1530*	15	15.032	15.050	30	30.028	30.049	30	E7	r7
AM 1620	16	16.006	16.024	20	20.035	20.056	10 12 16 20 25 30	G7	s7
AM 1622	16	16.006	16.024	22	22.035	22.056	12 16 20 25 30	G7	s7
AS 1632*	16	16.032	16.050	32	32.034	32.059	30	E7	r7
AM 1822	18	18.006	18.024	22	22.035	22.056	12 18 20 30	G7	s7
AM 1824	18	18.006	18.024	24	24.035	24.056	12 18 30	G7	s7
AM 1825	18	18.006	18.024	25	25.035	25.056	12 16 20 22 30	G7	s7
AS 1835*	18	18.032	18.050	35	35.034	35.059	30	E7	r7
AM 2024	20	20.007	20.028	24	24.035	24.056	16 20 25 32	G7	s7
AM 2025	20	20.007	20.028	25	25.035	25.056	15 20 25 30	G7	s7
AM 2026	20	20.007	20.028	26	26.035	26.056	15 20 25 30	G7	s7
AM 2028	20	20.007	20.028	28	28.035	28.056	20 25 30 40 50	G7	s7
AS 2040*	20	20.040	20.061	40	40.034	40.059	40	E7	r7
AM 2227	22	22.007	22.028	27	27.035	27.056	15 20 25 35	G7	s7
AM 2228	22	22.007	22.028	28	28.035	28.056	15 20 25 28 30	G7	s7
AM 2232	22	22.007	22.028	32	32.043	32.068	20 30 50	G7	s7
AM 2530	25	25.007	25.028	30	30.035	30.056	20 25 30 50	G7	s7



Concentricity
⩽ 50 = IT9
> 50 = IT10

Bearings marked * are not included in ISO 2795.

For ordering see following part code examples.
4 ID x 7 OD x 4 long = AM040704 or 12 ID x 15 OD x 25 long = AM121525.

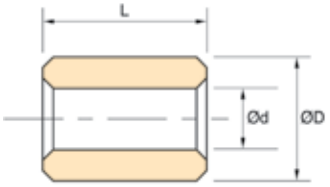
Non-standard lengths can be supplied. If the size you require is not listed please contact our sales dept. We also offer a specialised machining service for low volume non-standard sizes and tolerances.

oilite® BEARINGS

Metric plain bearings to ISO 2795 – continued

Part Code	Inner Diameter Basic	Min.	Max.	Outer Diameter Basic	Min.	Max.	Basic L (js13)	Tolerances ID	OD
AM 2532	25	25.007	25.028	32	32.043	32.068	20 25 30 35 40	G7	s7
AM 2535	25	25.007	25.028	35	35.043	35.068	25 35 50	G7	s7
AM 2545*	25	25.040	25.061	45	45.034	45.059	35	E7	r7
AM 2833	28	28.007	28.028	33	33.043	33.068	20 30	G7	s7
AM 2836	28	28.007	28.028	36	36.043	36.068	20 25 30 40	G7	s7
AM 3035	30	30.007	30.028	35	35.043	35.068	20 25 30	G7	s7
AM 3038	30	30.007	30.028	38	38.043	38.068	20 25 30 40	G7	s7
AM 3040	30	30.007	30.028	40	40.043	40.068	25 35 40 45 50 60	G7	s7
AM 3050*	30	30.05	30.075	50	50.034	50.059	60	E7	r7
AM 3238	32	32.009	32.034	38	38.043	38.068	20 25 30 40	G7	s7
AM 3240	32	32.009	32.034	40	40.043	40.068	20 25 30 40 50	G7	s7
AM 3541	35	35.009	35.034	41	41.043	41.068	25 35 40	G7	s7
AM 3544	35	35.009	35.034	44	44.043	44.068	22 28 35	G7	s7
AM 3545	35	35.009	35.034	45	45.043	45.068	25 35 40 50 70	G7	s7
AM 3642	36	36.009	36.034	42	42.043	42.068	22 28 36 45	G7	s7
AM 3645	36	36.009	36.034	45	45.043	45.068	22 28 36 45	G7	s7
AM 3844	38	38.009	38.034	44	44.043	44.068	25 35 45	G7	s7
AM 3848	38	38.009	38.034	48	48.043	48.068	35 45 55	G7	s7
AM 4046	40	40.009	40.034	46	46.043	46.068	30 40 50	G7	s7
AM 4050	40	40.009	40.034	50	50.043	50.068	25 30 32 35 40 50 60 80	G7	s7
AM 4248	42	42.009	42.034	48	48.043	48.068	40 50	G7	s7
AM 4252	42	42.009	42.048	52	52.053	52.099	40 50 60	G8	s8
AM 4551	45	45.009	45.048	51	51.053	51.099	35 45 55	G8	s8
AM 4555	45	45.009	45.048	55	55.053	55.099	35 45 55 65 75 80	G8	s8
AM 4556	45	45.009	45.048	56	56.053	56.099	28 36 45 56	G8	s8
AM 4565*	45	45.050	45.075	65	65.041	65.071	80	E7	r7
AM 4855	48	48.009	48.048	55	55.053	55.099	50	G8	s8
AM 4858	48	48.009	48.048	58	58.053	58.099	50	G8	s8
AM 5058	50	50.009	50.048	58	58.053	58.099	35 50	G8	s8
AM 5060	50	50.009	50.048	60	60.053	60.099	30 35 40 50 63 70 75 100	G8	s8
AM 5070*	50	50.050	50.089	70	70.043	70.089	70	E8	r8
AM 5563	55	55.010	55.056	63	63.053	63.099	40 55	G8	s8
AM 5570*	55	55.060	55.106	70	70.043	70.089	70	E8	r8
AM 5565	55	55.060	55.106	65	65.041	65.087	40 55 70	E8	r8
AM 6068	60	60.010	60.056	68	68.059	68.105	50 60 70	G8	s8
AM 6070	60	60.010	60.056	70	70.059	70.105	50 60 120	G8	s8
AM 6072	60	60.010	60.056	72	72.059	72.105	50 60 70	G8	s8
AM 6075*	60	60.060	60.106	75	75.043	75.089	60 90	E8	r8
AM 6080*	60	60.060	60.106	80	80.043	80.089	120	E8	r8
AM 6085*	60	60.060	60.106	85	85.051	85.105	90	E8	r8
AM 6370	63	63.010	63.056	70	70.059	70.105	40 50	G8	s8
AM 6575*	65	65.060	65.106	75	75.043	75.089	60 90	E8	r8
AM 6580*	65	65.060	65.106	80	75.043	75.089	60 90	E8	r8
AM 7080*	70	70.060	70.106	80	75.043	75.089	60 90 120	E8	r8
AM 7085*	70	70.060	70.106	85	85.051	85.105	60 90	E8	r8
AM 7585*	75	75.060	75.106	85	85.051	85.105	70 100	E8	r8
AM 7590*	75	75.060	75.106	90	90.051	90.105	70 100	E8	r8
AM 75100*	75	75.060	75.106	100	100.051	100.105	100	E8	r8
AM 8090*	80	80.060	80.106	90	90.051	90.105	70 100	E8	r8
AM 8095*	80	80.060	80.106	95	95.051	95.105	70 100	E8	r8
AM 80100*	80	80.060	80.106	100	100.051	100.105	120	E8	r8
AM 80105*	80	80.060	80.106	105	105.054	105.108	100	E8	r8
AM 8595*	85	85.072	85.125	95	95.051	95.105	100	E8	r8
AM 85100*	85	85.072	85.125	100	100.051	100.105	100	E8	r8
AM 90105*	90	90.072	90.125	105	105.054	105.089	80	E8	r8
AM 90110*	90	90.072	90.125	110	110.054	110.108	80	E8	r8
AM 100120*	100	100.072	100.125	120	120.054	120.108	80 100 120	E8	r8

Note
ISO Metric Bearing Standard is G7 s7



Concentricity
⩽ 50 = IT9
> 50 = IT10

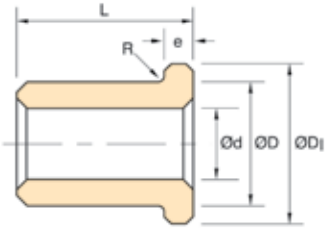
Bearings marked * are not included in ISO 2795.

Non-standard lengths can be supplied. If the size you require is not listed please contact our sales dept. We also offer a specialised machining service for low volume non-standard sizes and tolerances.

oilite® BEARINGS

Metric flanged bearings to ISO 2795

Part Code	Inner Diameter Basic	Min.	Max.	Outer Diameter Basic	Min.	Max.	ØD1	e	Basic L	Tolerances ID	OD
AL 0205	2	2.002	2.012	5	5.019	5.031	8	1.5	3	G7	s7
AT 0305*	3	3.020	3.032	5	5.015	5.027	8	1.5	4	E7	r7
AL 0306	3	3.004	3.016	6	6.019	6.031	9	1.5	3 4	G7	s7
AL 0408	4	4.004	4.016	8	8.023	8.038	12	2	4 6 8 12	G7	s7
AT 0408	4	4.020	4.032	8	8.019	8.034	10	1.5	6	E7	r7
AL 0509	5	5.004	5.016	9	9.023	9.038	13	2	4 5 8	G7	s7
AT 0510*	5	5.020	5.032	10	10.019	10.034	12	2	6	E7	r7
AL 0610	6	6.004	6.016	10	10.023	10.038	14	2	4 6 8 10 16	G7	s7
AT 0612*	6	6.020	6.032	12	12.023	12.041	14	2	6	E7	r7
AL 0711	7	7.005	7.020	11	11.028	11.046	15	2	5 8	G7	s7
AL 0812	8	8.005	8.020	12	12.028	12.046	16	2	6 8 12 16	G7	s7
AT 0814*	8	8.025	8.040	14	14.023	14.041	18	3	8	E7	r7
AT 0914*	9	9.025	9.040	14	14.023	14.041	19	2.5	6 10 14	E7	r7
AL 1013	10	10.005	10.020	13	13.028	13.046	17	2.5	8 10 16 20	G7	s7
AT 1014*	10	10.025	10.040	14	14.023	14.041	18	2	12	E7	r7
AL 1015	10	10.005	10.020	15	15.028	15.046	21	3	8 10 16 20	G7	s7
AL 1016	10	10.005	10.020	16	16.028	16.046	22	3	8 10 12 16	G7	s7
AT 1016*	10	10.025	10.040	16	16.023	16.041	20	3	8 10	E7	r7
AL 1215	12	12.006	12.024	15	15.028	15.046	21	3	12 16 20	G7	s7
AL 1217	12	12.006	12.024	17	17.028	17.046	23	3	12 16 20 25	G7	s7
AL 1218	12	12.006	12.024	18	18.023	18.041	24	3	8 12 20	G7	s7
AT 1218*	12	12.032	12.050	18	18.023	18.041	22	3	10 12	E7	r7
AL 1420	14	14.006	14.024	20	20.035	20.056	26	3	10 14 20	G7	s7
AL 1519	15	15.006	15.024	19	19.035	19.056	25	3	16 20 25	G7	s7
AL 1521	15	15.006	15.024	21	21.035	21.056	27	3	10 15 20 25	G7	s7
AT 1522*	15	15.032	15.050	22	22.028	22.049	28	3	12 16	E7	r7
AL 1620	16	16.006	16.024	20	20.035	20.056	27	3	16 20 25	G7	s7
AT 1620*	16	16.032	16.050	20	20.028	20.049	24	2	12	E7	r7
AL 1622	16	16.006	16.024	22	22.035	22.056	28	3	12 16 20 25	G7	s7
AT 1622*	16	16.032	16.050	22	22.028	22.049	28	4	12 16	E7	r7
AL 1824	18	18.006	18.024	24	24.035	24.056	30	3	12 18 22 30	G7	s7
AT 1825*	18	18.032	18.050	25	25.028	25.049	32	4	12 16	E7	r7
AL 2024	20	20.007	20.028	24	24.035	24.056	30	3	16 20 25	G7	s7
AL 2026	20	20.007	20.028	26	26.035	26.056	32	3	15 20 25 30	G7	s7
AT 2028*	20	20.040	20.061	28	28.028	28.049	35	4	16 20	E7	r7
AL 2228	22	22.007	22.028	28	28.035	28.056	34	3	15 20 25 30	G7	s7
AL 2530	25	25.007	25.028	30	30.035	30.056	39	3.5	20 25 32	G7	s7
AL 2532	25	25.007	25.028	32	32.043	32.068	39	3.5	20 25 30	G7	s7
AT 2535*	25	25.040	25.061	35	35.034	35.059	45	5	16 25	E7	r7
AL 2836	28	28.007	28.028	36	36.043	36.068	44	4	20 25 30	G7	s7
AL 3038	30	30.007	30.028	38	38.043	38.068	46	4	20 25 30	G7	s7
AT 3040*	30	30.040	30.061	40	40.034	40.059	50	5	20 30	E7	r7
AL 3238	32	32.009	32.034	38	38.043	38.068	46	4	20 25 32	G7	s7
AL 3240	32	32.009	32.034	40	40.043	40.068	48	4	20 25 30	G7	s7
AL 3545	35	35.009	35.034	45	45.043	45.068	55	5	20 25 35 40	G7	s7
AL 3848	38	38.009	38.034	48	48.043	48.068	58	5	25 35	G7	s7
AL 4046	40	40.009	40.034	46	46.043	46.068	56	5	25 32 40	G7	s7
AL 4050	40	40.009	40.034	50	50.043	50.068	60	5	25 30 40 50	G7	s7
AT 4050*	40	40.050	40.075	50	50.034	50.059	60	6	25 40	E7	r7
AL 4252	42	42.009	42.048	52	52.053	52.099	62	5	40 50	G8	s8
AL 4555	45	45.009	45.048	55	55.053	55.099	65	5	35 45 55	G8	s8
AT 4555*	45	45.050	45.075	55	55.041	55.071	65	6	30 45	E7	r7
AL 5060	50	50.009	50.048	60	60.053	60.099	70	5	32 35 40 50	G8	s8
AT 5060*	50	50.050	50.075	60	60.041	60.071	70	6	30 50	E7	r7
AT 6072	60	60.060	60.106	72	72.043	72.089	84	6	50 60	E8	r8
AT 6075	60	60.060	60.106	75	75.043	75.089	85	8	60	E8	r8
AT 7085	70	70.060	70.106	85	85.051	85.105	95	8	60	E8	r8
AT 8095	80	80.060	80.106	95	95.051	95.105	105	8	70	E8	r8
AT 90110	90	90.072	90.125	110	110.054	110.108	120	8	50	E8	r8
AT 100120	100	100.072	100.125	120	120.054	120.108	130	8	80	E8	r8



Bearings marked * are not included in ISO 2795.

For ordering see following part code examples. 4 ID x 8 OD x 6 long = AL040806 or 12 ID x 15 OD x 20 long = AL121520.

Non-standard lengths can be supplied. If the size you require is not listed please contact our sales dept. We also offer a specialised machining service for low volume non-standard sizes and tolerances.

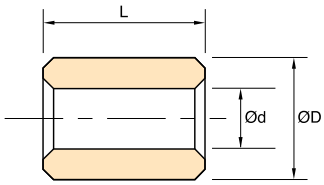
oilite® BEARINGS

Inch plain bearings

Part Code	Inner Diameter Ød Basic	Min.	Max.	Outer Diameter ØD Basic	Min.	Max.	Basic L
AI 0203	1/8	0.1255	0.1265	3/16	0.1885	0.1895	1/8
AI 0204	1/8	0.1270	0.1280	1/4	0.2520	0.2530	1/4
AI 0304	3/16	0.1865	0.1875	1/4	0.2510	0.2520	1/4 5/16 3/8 5/8
AI 0305	3/16	0.1883	0.1888	5/16	0.3137	0.3142	3/16 1/4 5/16 3/8 1/2 5/8 3/4
AI 0306	3/16	0.1885	0.1875	3/8	0.3770	0.3780	3/4
AI 0405	1/4	0.2495	0.2505	5/16	0.3135	0.3145	1/2
AI 0406	1/4	0.2508	0.2513	3/8	0.3767	0.3772	3/16 1/4 5/16 3/8 7/16 1/2 5/8 3/4 1
AI 0407	1/4	0.2501	0.2506	7/16	0.4385	0.4390	1/4 5/16 3/8 7/16 1/2 5/8 3/4
AI 0408	1/4	0.2507	0.2512	1/2	0.5020	0.5025	3/8 1/2 5/8 3/4 1
AI 0506	5/16	0.3125	0.3135	3/8	0.3760	0.3770	1/2 5/8
AI 0507	5/16	0.3132	0.3137	7/16	0.4390	0.4395	1/4 5/16 3/8 1/2 9/16 5/8 3/4 1 1 1/4 1 3/8
AI 0508	5/16	0.3132	0.3137	1/2	0.5017	0.5022	1/4 5/16 3/8 1/2 5/8 3/4 1
AI 0607	3/8	0.3755	0.3765	7/16	0.4390	0.4400	5/16 1/2 3/4
AI 0608	3/8	0.3757	0.3762	1/2	0.5020	0.5025	5/16 3/8 7/16 1/2 5/8 3/4 7/8 1 1 1/8 1 1/4
AI 0609	3/8	0.3755	0.3765	9/16	0.5645	0.5655	3/8 1
AI 0610	3/8	0.3754	0.3759	5/8	0.6260	0.6270	3/8 1/2 5/8 3/4 7/8 1 1 3/8
AI 0612	3/8	0.3760	0.3770	3/4	0.7520	0.7530	1/2 1
AI 0709	7/16	0.4382	0.4387	9/16	0.5637	0.5647	3/8 1/2 5/8 3/4 13/16 1
AI 0710	7/16	0.4380	0.4390	5/8	0.6260	0.6270	5/8 1
AI 0711	7/16	0.4383	0.4388	11/16	0.6890	0.6900	3/8 1/2 3/4 1 1 1/4
AI 0810	1/2	0.5008	0.5013	5/8	0.6265	0.6275	1/4 3/8 1/2 5/8 3/4 7/8 1 1 1/4 1 3/8 1 1/2
AI 0811	1/2	0.5015	0.5020	11/16	0.6895	0.6905	3/8 1/2 5/8 3/4 7/8 1 1 1/4
AI 0812	1/2	0.5015	0.5020	3/4	0.7525	0.7535	1/2 9/16 5/8 3/4 7/8 1 1 1/8 1 1/4 1 1/2 2
AI 0814	1/2	0.5020	0.5030	7/8	0.8780	0.8790	1/2 1 1/2
AI 0816	1/2	0.5010	0.5020	1	1.0030	1.0040	1
AI 0911	9/16	0.5628	0.5638	11/16	0.6890	0.6900	1/2 5/8 3/4 1 1 1/4
AI 0912	9/16	0.5640	0.5650	3/4	0.7520	0.7530	1
AI 0913	9/16	0.5620	0.5630	13/16	0.8140	0.8150	3/4 1
AI 1012	5/8	0.6255	0.6265	3/4	0.7515	0.7525	1/2 9/16 5/8 3/4 7/8 1 1 1/8 1 1/4 1 1/2
AI 1013	5/8	0.6265	0.6275	13/16	0.8145	0.8155	1/2 3/4 1 1 1/4 1 3/8
AI 1014	5/8	0.6255	0.6265	7/8	0.8770	0.8780	1/2 5/8 3/4 7/8 1 1 1/8 1 1/4 1 1/2
AI 1016	5/8	0.6270	0.6280	1	1.0025	1.0035	1
AI 1113	11/16	0.6875	0.6885	13/16	0.8140	0.8150	1
AI 1115	11/16	0.6881	0.6891	15/16	0.9393	0.9403	7/8 1 1 1/4
AI 1214	3/4	0.7505	0.7515	7/8	0.8765	0.8775	1/2 5/8 3/4 7/8 1 1 1/8 1 1/4 1 1/2
AI 1215	3/4	0.7535	0.7545	15/16	0.9405	0.9415	3/4 1
AI 1216	3/4	0.7508	0.7518	1	1.0020	1.0030	1/2 5/8 3/4 7/8 1 1 1/8 1 1/4 1 3/8 1 1/2 1 3/4 2 2 1/8 2 1/4
UI 1216	3/4	0.7522	0.7532	1	1.0025	1.0035	1 1/2 1 3/4 2
AI 1218	3/4	0.7525	0.7535	1 1/8	1.1280	1.1290	3/4 1 1 1/4
AI 1220	3/4	0.7525	0.7535	1 1/4	1.2535	1.2545	1 1/8 1 3/8 1 1/2 2
AI 1416	7/8	0.8755	0.8765	1	1.0017	1.0027	3/4 7/8 1 1 1/8 1 1/4 1 1/2
AI 1418	7/8	0.8757	0.8767	1 1/8	1.1270	1.1280	3/4 7/8 1 1 1/8 1 1/4 1 3/8 1 1/2
AI 1618	1	1.0008	1.0018	1 1/8	1.1270	1.1280	1/2 3/4 1 1 1/8 1 1/4 1 1/2
AI 1619	1	1.0010	1.0020	1 3/16	1.1885	1.1895	3/4 1 1/2
AI 1620	1	1.0010	1.0020	1 1/4	1.2526	1.2536	3/4 7/8 1 1 1/8 1 1/4 1 3/8 1 1/2 1 5/8 1 3/4 2
AI 1622	1	1.0020	1.0030	1 3/8	1.3780	1.3790	1
AI 1624	1	1.0025	1.0035	1 1/2	1.5040	1.5050	1 1 3/8 1 1/2 1 3/4 2
AI 1820	1 1/8	1.1235	1.1245	1 1/4	1.2525	1.2535	1 1 1/4
AI 1822	1 1/8	1.1258	1.1268	1 3/8	1.3770	1.3780	3/4 7/8 1 1 1/4 1 1/2 1 3/4 2 2 1/2
AI 2024	1 1/4	1.2515	1.2525	1 1/2	1.5030	1.5040	7/8 1 1 1/4 1 3/8 1 1/2 1 3/4 1 7/8 2 2 1/2
AI 2026	1 1/4	1.2525	1.2535	1 5/8	1.6287	1.6302	1 1 1/4 1 1/2 1 3/4 2 2 1/2
AI 2226	1 3/8	1.3762	1.3772	1 5/8	1.6275	1.6290	1 1 1/4 1 1/2 1 3/4 2
AI 2228	1 3/8	1.3775	1.3785	1 3/4	1.7545	1.7560	1 1/2 2 2 1/2
AI 2428	1 1/2	1.5013	1.5023	1 3/4	1.7527	1.7542	1 1 1/4 1 1/2 1 3/4 2 2 1/4 2 1/2 3
AI 2430	1 1/2	1.5025	1.5035	1 7/8	1.8790	1.8805	1 1 1/4 1 1/2 1 3/4 2 2 1/4 2 1/2
AI 2432	1 1/2	1.5025	1.5035	2	2.0030	2.0045	1 1/2 2 2 1/2 3 3 1/2
AI 2633	1 5/8	1.6285	1.6300	2 1/16	2.0675	2.0690	1 7/8 2 2 1/2
AI 2832	1 3/4	1.7510	1.7525	2	2.0030	2.0045	1 1/4 1 1/2 1 3/4 2 2 1/4 2 1/2
AI 2836	1 3/4	1.7510	1.7525	2 1/4	2.2530	2.2550	1 1/2 1 3/4 2 2 1/4 2 1/2
AI 3236	2	2.0010	2.0025	2 1/4	2.2530	2.2550	1/2 1 1 1/2 1 3/4 2 2 1/2
AI 3238	2	2.0015	2.0030	2 3/8	2.3775	2.3790	1 1/2 2 1/2 3
AI 3240	2	2.0010	2.0025	2 1/2	2.5035	2.5055	1 1/2 1 3/4 2 2 1/4 2 1/2 3
AI 3642	2 1/4	2.2530	2.2550	2 5/8	2.6285	2.6305	2 1/2 3
AI 3644	2 1/4	2.2510	2.2530	2 3/4	2.7540	2.7560	1 1/2 2 2 1/4 2 1/2 3
AI 4046	2 1/2	2.5030	2.5050	2 7/8	2.8795	2.8815	2 1/2 3
AI 4048	2 1/2	2.5015	2.5035	3	3.0045	3.0065	1 1/2 2 2 1/2 3
AI 4856*	3	2.9880	3.0000	3 1/2	3.5020	3.5040	2 1/2 3
AI 5664	3 1/2	3.5015	3.5035	4	4.0015	4.0040	3
AI 6472	4	4.001	4.0035	4 1/2	4.5015	4.5040	4

** Non standard chamfer (details on request).*

Non-standard lengths can be supplied. If the size you require is not listed please contact our sales dept. We also offer a specialised machining service for low volume non-standard sizes and tolerances.



Please use the following table for conversion from the fraction (length) to the two digit suffix of the part code. Example: AI030504 (¼ length)

03 = 3/16	04 = 1/4	05 = 5/16
06 = 3/8	08 = 1/2	09 = 9/16
10 = 5/8	12 = 3/4	14 = 7/8
16 = 1	18 = 1 1/8	20 = 1 1/4
22 = 1 3/8	24 = 1 1/2	26 = 1 5/8
28 = 1 3/4	30 = 1 7/8	32 = 2
36 = 2 1/4	40 = 2 1/2	48 = 3

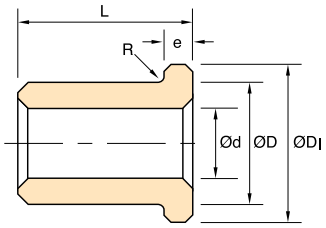
Some of the imperial sizes listed above can be supplied with different tolerance ranges. Before finalising designs or when ordering imperial bearings for repairs, please check with our sales department, the tolerance bands available, either from stock or for special orders.

oilite® BEARINGS

Inch flanged bearings

Part Code	Inner Diameter Ød Basic	Min.	Max.	Outer Diameter ØD Basic	Min.	Max.	ØD1	e	Basic L				
AJ 0305	3/16	0.1880	0.1885	5/16	0.3137	0.3142	0.3750	0.062	3/16	1/4	3/8	1/2	
AJ 0406	1/4	0.2505	0.2510	3/8	0.3767	0.3772	0.5000	0.062	3/16	1/4	3/8	1/2	3/4
UJ0406	1/4	0.2510	0.2520	3/8	0.3765	0.3775	0.4688	0.062	3/8				
AJ 0508	5/16	0.3130	0.3135	1/2	0.5020	0.5025	0.6250	0.062	1/4	3/8	1/2	3/4	
AJ 0509	5/16	0.3120	0.3125	9/16	0.5640	0.5650	0.6562	0.125	3/8	3/4			
AJ 0608	3/8	0.3755	0.3760	1/2	0.5015	0.5020	0.6250	0.062	1/4	5/16	1/2	3/4	3/8	7/8
UJ 0608	3/8	0.3755	0.3760	1/2	0.5020	0.5025	0.6250	0.140	1/2	3/4	7/8		
AJ 0609	3/8	0.3747	0.3752	9/16	0.5640	0.5650	0.7500	0.062	1/2				
UJ0609	3/8	0.3750	0.3760	9/16	0.5630	0.5640	0.7400	0.062	1/2				
AJ 0610	3/8	0.3757	0.3762	5/8	0.6265	0.6275	0.7500	0.125	3/8	1/2	5/8	3/4	
AJ 0709	7/16	0.4401	0.4406	9/16	0.5641	0.5651	0.7500	0.062	1/2	3/4	1		
AJ 0810	1/2	0.5000	0.5005	5/8	0.6265	0.6275	0.7500	0.098	1/2	5/8	1		
AJ 0812	1/2	0.5008	0.5013	3/4	0.7517	0.7527	1.0000	0.125	1/2	3/4	1	1 1/8	
AJ 1012	5/8	0.6275	0.6285	3/4	0.7525	0.7535	1.1250	0.094	1/2	1	1 1/8		
AJ 1014	5/8	0.6255	0.6265	7/8	0.8770	0.8780	1.2500	0.125	1/2	3/4	1	1 1/8	1 1/4
AJ 1216	3/4	0.7508	0.7518	1	1.0020	1.0030	1.3750	0.125	3/4	1	1 1/4	1 1/2	
UJ1216	3/4	0.7495	0.7505	1	1.0010	1.0020	1.4375	0.125	1/2				
AJ 1416	7/8	0.8755	0.8765	1	1.0017	1.0027	1.2500	0.125	1				
AJ 1418	7/8	0.8757	0.8767	1 1/8	1.1270	1.1280	1.6250	0.125	3/4	1	1 1/4	1 1/2	
AJ 1620	1	1.0010	1.0020	1 1/4	1.2526	1.2536	1.7500	0.125	1	1 1/4	1 1/2	1 3/4	2
UJ 1620	1	1.0010	1.0020	1 1/4	1.2520	1.2530	1.5000	0.125	3/4	1	1 1/8	1 1/2	
AJ 1822	1 1/8	1.1260	1.1270	1 3/8	1.3776	1.3786	1.8750	0.125	1	1 1/4	1 1/2	1 3/4	
AJ 2024	1 1/4	1.2510	1.2520	1 1/2	1.5030	1.5040	1.8750	0.125	3/4	1	1 1/4	1 1/2	
AJ 2026	1 1/4	1.2516	1.2526	1 5/8	1.6280	1.6295	2.0000	0.125	1	1 1/4	1 1/2	1 3/4	
AJ 2226	1 3/8	1.3745	1.3755	1 3/8	1.6270	1.6285	1.8750	0.125	3/4	1 1/4	2		
AJ 2428	1 1/2	1.5016	1.5026	1 3/4	1.7510	1.7525	1.8700	0.120	1 1/2	1 7/8			
UJ2428	1 1/2	1.5020	1.5030	1 3/4	1.7505	1.7520	2.0000	0.094	1/2				
AJ 2430	1 1/2	1.5016	1.5026	1 7/8	1.8780	1.8795	2.5000	0.188	1	1 1/4	1 1/2	1 3/4	2
AJ3236	2	2.0015	2.0030	2 1/4	2.2535	2.2540	2.5000	0.125	3/4	1	1 1/4		
AJ3240	2	2.0005	2.0020	2 1/2	2.4995	2.5010	3.0000	0.375	2 3/8				
AJ4452	2 3/4	2.7500	2.7520	3 1/4	3.2480	3.2500	4.0000	0.188	1 1/2				
AJ4856	3	3.0000	3.0020	3 1/2	3.5000	3.5020	4.0000	0.375	2 3/8				

Non-standard lengths can be supplied. If the size you require is not listed please contact our sales dept. We also offer a specialised machining service for low volume non-standard sizes and tolerances.



Please use the following table for conversion fi
the fraction (length) to the two digit suffix of th
part code. Example: AI030504 (1/4 length)

03 = 3/16	04 = 1/4	05 = 5/16
06 = 3/8	08 = 1/2	09 = 9/16
10 = 5/8	12 = 3/4	14 = 7/8
16 = 1	18 = 1 1/8	20 = 1 1/4
22 = 1 3/8	24 = 1 1/2	26 = 1 5/8
28 = 1 3/4	30 = 1 7/8	32 = 2
36 = 2 1/4	40 = 2 1/2	48 = 3

Inch thrust washers

Part Code	Inner Diameter Ød Basic	Min.	Max.	Outer Diameter ØD Basic	Min.	Max.	Basic	Length e Min.	Max.
AW 061002	3/8	0.3750	0.3800	5/8	0.6230	0.6280	1/8	0.122	0.1280
AW 081402	1/2	0.5050	0.5100	7/8	0.8750	0.8800	1/8	0.122	0.1280
AW 091801	17/32	0.5312	0.5412	1 1/8	1.1200	1.1250	1/16	0.059	0.0655
AW 112002	21/32	0.6562	0.6662	1 1/4	1.2450	1.2500	3/32	0.090	0.0968
AW 132402	25/32	0.7812	0.7912	1 1/2	1.4950	1.5000	1/8	0.122	0.1280
AW 142402	7/8	0.8750	0.8800	1 1/2	1.4950	1.5000	1/8	0.122	0.1280
AW 143002	7/8	0.8780	0.8830	1 55/64	1.8660	1.8710	1/8	0.122	0.1280
AW 162802	1	1.0100	1.0150	1 25/32	1.7710	1.7810	1/8	0.122	0.1280
AW 163202	1 1/32	1.0320	1.0420	2	1.9950	2.0000	1/8	0.120	0.1300
AW 203002	1 1/4	1.2490	1.2540	1 7/8	1.8750	1.8800	1/8	0.120	0.1300
AW 204802	1 1/4	1.2490	1.2540	3	2.9980	3.0030	1/8	0.120	0.1300
AW 204804	1 1/4	1.2490	1.2540	3	2.9980	3.0030	1/4	0.245	0.2550
AW 234002	1 13/32	1.4062	1.4162	2 1/2	2.4950	2.5000	5/32	0.151	0.1613
AW 263802	1 5/8	1.6240	1.6260	2 3/8	2.3740	2.3790	1/8	0.120	0.1300
AW 365602	2 1/4	2.2480	2.2520	3 1/2	3.4980	3.5030	1/8	0.120	0.1300

Non-standard lengths can be supplied. If the size you require is not listed please contact our sales dept. We also offer a specialised machining service for low volume non-standard sizes and tolerances.

Applications:

Provides self-lubricating thrust surfaces especially in applications where assembly does not lend itself to the use of a flanged bearing. Alternatively can provide a second thrust surface at the non-flanged end of a bearing.

In thrust applications PV should not exceed 0.36 N/mm2 x m/s. Surface velocity (m/s) calculated on mean diameter of thrust face and pressure (N/mm2) on total thrust area.

We also offer specialised machining service for special sizes of bearings according to customers specific requirements.

WMU® and W/MLF Self Lubricated Bearings

(Dimensions and tolerances to ISO 3547)

Stock range includes

- Metric plain
- Metric flanged
- Metric washers
- Metric strip
- Imperial plain
- Imperial washers
- Imperial strip*

Structure	Steel support strip S.A.E 1010. Sintered Bronze layer. PTFE.
Static load	250 N/mm²
Dynamic load	140 N/mm²
Maximum sliding speed	2.5 m/s dry 5.0 m/s with oil
Operating temperature	-200°C to +280°C
Thermal conductivity	46 W/mK
Coefficient of friction W/MU Dry W/MU Oiled W/MLF Dry W/MLF Oiled	 0.02 to 0.20 0.02 to 0.15 0.04 to 0.30 0.02 to 0.10
Recommended housing tolerance	4.5mm/5.5mm H6 7.0mm/305mm H7
Recommended shaft tolerance	3.0mm/4.0mm h6 5.0mm/75mm f7 80mm/300mm h8
Recommended shaft finish	Ra ≤ 0.4um (N5)
Recommended shaft hardness	HB > 200

W/MUB Bronze Support Strip instead of Steel

Has greater resistance to corrosion than standard W/MU product.

Range, dimensions and tolerances are as standard W/MU product.

WMX® Externally Lubricated Bearings

(Dimensions and tolerances to ISO 3547)

Stock range includes

- Metric plain
- Metric washers
- Metric strip
- Imperial plain*
- Imperial washers*
- Imperial strip*

Structure	Steel support strip S.A.E 1010. Sintered Bronze layer. Co-Acetal polymer.
Static load	140 N/mm²
Dynamic load	70 N/mm²
Maximum sliding speed	2.5 m/s with grease
Operating temperature	-40°C to +110°C
Intermittent maximum temperature	130°C
Thermal conductivity	2W/mK
Coefficient of friction	0.05 to 0.12 with grease
Recommended housing tolerance	H7
Recommended shaft tolerance	h8
Recommended shaft finish	HB > 200
Recommended shaft hardness	HB > 200

Fitting Guidelines

1. Always use a fitting pin and fitting collar. See our fitting data sheet.
2. Lubricate back of bearing prior to assembly.
3. Chamfer lead in on housing to assist with assembly.

WMU® Wrapped Metric Plain Bearings. PTFE U Type

	I.D.	O.D.	Recommended Tolerances						Bore		Standard Length Options (L)					
			Housing			Shaft					Tolerance +/- 0.25 mm					
Reference	(mm)		(mm)						(mm)		(mm)					
TFP03 x L	3	4.5	H6	0	+0.006	h6	0	-0.008	3.000	3.048	3	4	5	6		
TFP04 x L	4	5.5	H6	0	+0.008	h6	0	-0.008	4.000	4.048	3	4	6	10		
TFP05 x L	5	7	H7	0	+0.015	f7	-0.010	-0.022	4.990	5.055	5	8	10			
TFP06 x L	6	8	H7	0	+0.015	f7	-0.010	-0.022	5.990	6.055	6	8	10			
TFP07 x L	7	9	H7	0	+0.015	f7	-0.013	-0.028	6.990	7.055	10					
TFP08 x L	8	10	H7	0	+0.015	f7	-0.013	-0.028	7.990	8.055	8	12				
TFP10 x L	10	12	H7	0	+0.018	f7	-0.013	-0.028	9.990	10.058	8	10	12	15	20	
TFP12 x L	12	14	H7	0	+0.018	f7	-0.016	-0.034	11.990	12.058	12	15	20	25		
TFP13 x L	13	15	H7	0	+0.018	f7	-0.016	-0.034	12.990	13.058	10	20				
TFP14 x L	14	16	H7	0	+0.018	f7	-0.016	-0.034	13.990	14.058	10	12	15	20	25	
TFP15 x L	15	17	H7	0	+0.018	f7	-0.016	-0.034	14.990	15.058	10	12	15	20	20	25
TFP16 x L	16	18	H7	0	+0.018	f7	-0.016	-0.034	15.990	16.058	10	12	15	20	25	
TFP17 x L	17	19	H7	0	+0.018	f7	-0.016	-0.034	16.990	17.061	15	20				
TFP18 x L	18	20	H7	0	+0.018	f7	-0.016	-0.034	17.990	18.061	15	20	25			
TFP20 x L	20	22	H7	0	+0.021	f7	-0.025	-0.046	19.990	20.061	10					
TFP20 x L	20	23	H7	0	+0.021	f7	-0.025	-0.046	19.990	20.071	10	15	20	25	30	
TFP22 x L	22	25	H7	0	+0.021	f7	-0.025	-0.046	21.990	22.071	15	20	25	30		
TFP24 x L	24	27	H7	0	+0.021	f7	-0.025	-0.046	23.990	24.071	20	25	30			
TFP25 x L	25	28	H7	0	+0.021	f7	-0.025	-0.046	24.990	25.071	12	15	20	25	30	50
TFP28 x L	28	32	H7	0	+0.025	f7	-0.025	-0.050	27.990	28.085	20	25	30			
TFP30 x L	30	34	H7	0	+0.025	f7	-0.025	-0.050	29.990	30.085	15	20	25	30	40	
TFP32 x L	32	36	H7	0	+0.025	f7	-0.025	-0.050	31.990	32.085	20	30	40			
TFP35 x L	35	39	H7	0	+0.025	f7	-0.025	-0.050	34.990	35.085	20	30	35	40	50	
TFP36 x L	36	40	H7	0	+0.025	f7	-0.025	-0.050	35.990	36.085	15	35				
TFP40 x L	40	44	H7	0	+0.025	f7	-0.025	-0.050	39.990	40.085	20	30	40	50		
TFP45 x L	45	50	H7	0	+0.025	f7	-0.025	-0.050	44.990	45.105	20	30	40	45	50	
TFP50 x L	50	55	H7	0	+0.030	f7	-0.025	-0.050	49.990	50.110	20	30	40	50	60	
TFP55 x L	55	60	H7	0	+0.030	f7	-0.030	-0.060	54.990	55.110	20	25	30	40	50	60
TFP60 x L	60	65	H7	0	+0.030	f7	-0.030	-0.060	59.990	60.110	20	30	40	60	70	
TFP65 x L	65	70	H7	0	+0.030	f7	-0.030	-0.060	64.990	65.110	30	50	60	70		
TFP70 x L	70	75	H7	0	+0.030	f7	-0.030	-0.060	69.990	70.110	70					
TFP75 x L	75	80	H7	0	+0.030	f7	-0.030	-0.060	74.990	75.110	40	50	60	80		
TFP80 x L	80	85	H7	0	+0.035	h8	-0.030	-0.060	80.020	80.155	60	100				
TFP85 x L	85	90	H7	0	+0.035	h8	-0.036	-0.071	85.020	85.155	60	100				
TFP90 x L	90	95	H7	0	+0.035	h8	-0.036	-0.071	90.020	90.155	60	100				
TFP95 x L	95	100	H7	0	+0.035	h8	-0.036	-0.071	95.020	95.155	60	100				
TFP100 x L	100	105	H7	0	+0.035	h8	-0.036	-0.071	100.020	100.155	60	70	80	115		
TFP105 x L	105	110	H7	0	+0.035	h8	-0.036	-0.071	105.020	105.155	60	115				
TFP110 x L	110	115	H7	0	+0.035	h8	-0.036	-0.071	110.020	110.155	60	115				
TFP115 x L	115	120	H7	0	+0.035	h8	-0.036	-0.071	115.020	115.155	50	60	70			
TFP120 x L	120	125	H7	0	+0.040	h8	-0.036	-0.071	120.070	120.210	60	100				
TFP125 x L	125	130	H7	0	+0.040	h8	-0.043	-0.083	125.070	125.210	60	100				
TFP130 x L	130	135	H7	0	+0.040	h8	-0.043	-0.083	130.070	130.210	60	100				
TFP135 x L	135	140	H7	0	+0.040	h8	-0.043	-0.083	135.070	135.210	60	100				
TFP140 x L	140	145	H7	0	+0.040	h8	-0.043	-0.083	140.070	140.210	60	100				
TFP145 x L	145	150	H7	0	+0.040	h8	-0.043	-0.083	145.070	145.210	60	100				
TFP150 x L	150	155	H7	0	+0.040	h8	-0.043	-0.083	150.070	150.210	100					
TFP155 x L	155	160	H7	0	+0.040	h8	-0.043	-0.083	155.070	155.210	60	100				
TFP160 x L	160	165	H7	0	+0.040	h8	-0.043	-0.083	160.070	160.210	60	100				
TFP165 x L	165	170	H7	0	+0.040	h8	-0.043	-0.083	165.070	165.210	60	100				
TFP170 x L	170	175	H7	0	+0.040	h8	-0.043	-0.083	170.070	170.210	60	100				
TFP175 x L	175	180	H7	0	+0.040	h8	-0.043	-0.083	175.070	175.210	60	100				
TFP180 x L	180	185	H7	0	+0.046	h8	-0.043	-0.083	180.070	180.216	60	100				
TFP200 x L	200	205	H7	0	+0.046	h8	-0.050	-0.096	200.070	200.216	100					
TFP220 x L	220	225	H7	0	+0.046	h8	-0.050	-0.096	220.070	220.216	60	100				
TFP250 x L	250	255	H7	0	+0.052	h8	-0.050	-0.096	250.070	250.222	60	100				
TFP280 x L	280	285	H7	0	+0.052	h8	-0.056	-0.108	280.070	280.222	60	100				
TFP300 x L	300	305	H7	0	+0.052	h8	-0.056	-0.108	300.070	300.222	60	100				

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WMU® Wrapped Metric Flanged Bearings. PTFE U Type

Reference	I.D. (mm)	O.D. (mm)	Recommended Tolerances Housing		Shaft		Bearing Size when fitted Bore (mm)		Flange Diameter (mm)		Standard Length Options (L) Tolerance +/- 0.25mm (mm)			
TFF06 x L	6	8	0	+0.015	-0.010	-0.022	5.990	6.055	11.5	12.5	4	7	8	
TFF08 x L	8	10	0	+0.015	-0.013	-0.028	7.990	8.055	14.5	15.5	5.5	7.5	9.5	
TFF10 x L	10	12	0	+0.018	-0.013	-0.028	9.990	10.058	17.5	18.5	7	9	12	17
TFF12 x L	12	14	0	+0.018	-0.016	-0.034	11.990	12.058	19.5	20.5	7	9	12	17
TFF14 x L	14	16	0	+0.018	-0.016	-0.034	13.990	14.058	21.5	22.5	12	17		
TFF15 x L	15	17	0	+0.018	-0.016	-0.034	14.990	15.058	22.5	23.5	9	12	17	
TFF16 x L	16	18	0	+0.018	-0.016	-0.034	15.990	16.058	23.5	24.5	12	17		
TFF18 x L	18	20	0	+0.021	-0.016	-0.034	17.990	18.061	25.5	26.5	12	17	22	
TFF20 x L	20	23	0	+0.021	-0.020	-0.041	19.990	20.071	29.5	30.5	11.5	16.5	21.5	
TFF25 x L	25	28	0	+0.021	-0.020	-0.041	24.990	25.071	34.5	35.5	11.5	16.5	21.5	
TFF30 x L	30	34	0	+0.025	-0.020	-0.041	29.990	30.085	41.5	42.5	16	26		
TFF35 x L	35	39	0	+0.025	-0.025	-0.050	34.990	35.085	46.5	47.5	16	26		
TFF40 x L	40	44	0	+0.025	-0.025	-0.050	39.990	40.085	52.5	53.5	16	26		
TFF45 x L	45	50	0	+0.025	-0.025	-0.050	44.990	45.105	57.5	58.5	16	26		

Non-standard lengths can be supplied. If the size you require is not listed please contact our sales dept. We also offer a specialised machining service for low volume non-standard sizes and tolerances.

WMU® Strip. PTFE U Type

Reference	Strip Sizes Length (mm)	Width (mm)	Thickness (mm)	
TFS07150	500	150	0.704	0.744
TFS10200	500	215	0.950	0.990
TFS15240	500	245	1.470	1.510
TFS20240	500	245	1.960	2.000
TFS25240	500	245	2.460	2.500
TFS30240	500	245	3.020	3.060

Non-standard lengths can be supplied. If the size you require is not listed please contact our sales dept. We also offer a specialised machining service for low volume non-standard sizes and tolerances.

WMU® Washers. Metric. PTFE U Type

Reference	I.D. (mm)	O.D. (mm)	Washer Sizes Bore (mm)		O.D. (mm)		Thickness (mm)		Dowell hole Diameter (mm)		Dowell hole PCD (mm)	
TFW10	10	20	10.00	10.25	19.75	20.00	1.45	1.50	no hole		17.88	18.12
TFW12	12	24	12.00	12.25	23.75	24.00	1.45	1.50	1.625	1.875	17.88	18.12
TFW14	14	26	14.00	14.25	25.75	26.00	1.45	1.50	2.125	2.375	19.88	20.12
TFW16	16	30	16.00	16.25	29.75	30.00	1.45	1.50	2.125	2.375	21.88	22.12
TFW18	18	32	18.00	18.25	31.75	32.00	1.45	1.50	2.125	2.375	24.88	25.12
TFW20	20	36	20.00	20.25	35.75	36.00	1.45	1.50	3.125	3.375	27.88	28.12
TFW22	22	38	22.00	22.25	37.75	38.00	1.45	1.50	3.125	3.375	29.88	30.12
TFW24	24	42	24.00	24.25	41.75	42.00	1.45	1.50	3.125	3.375	32.88	33.12
TFW26	26	44	26.00	26.25	43.75	44.00	1.45	1.50	3.125	3.375	34.88	35.12
TFW28	28	48	28.00	28.25	47.75	48.00	1.45	1.50	4.125	4.375	37.88	38.12
TFW32	32	54	32.00	32.25	53.75	54.00	1.45	1.50	4.125	4.375	42.88	43.12
TFW38	38	62	38.00	38.25	61.75	62.00	1.45	1.50	4.125	4.375	49.88	50.12
TFW42	42	66	42.00	42.25	65.75	66.00	1.45	1.50	4.125	4.375	53.88	54.12
TFW48	48	74	48.00	48.25	73.75	74.00	1.95	2.00	4.125	4.375	60.88	61.12
TFW52	52	78	52.00	52.25	77.75	78.00	1.95	2.00	4.125	4.375	64.88	65.12
TFW62	62	90	62.00	62.25	90.75	90.00	1.95	2.00	4.125	4.375	64.88	65.12
TFW95	95	115	95.00	95.25	115.00	114.75	1.95	2.00	4.125	4.375	105.87	106.12

Non-standard lengths can be supplied. If the size you require is not listed please contact our sales dept. We also offer a specialised machining service for low volume non-standard sizes and tolerances.

WMU® Wrapped Imperial Plain Bearings. PTFE U Type

Reference	Bore (inch)	O.D. (inch)	Recommended Tolerances Housing (inch)		Shaft (inch)		Bearing Size when fitted Bore (inch)		Standard Length Options (L) Tolerance +/- 0.010" (inch)			
TFPI03TH x L	3/16	1/4	0.2497	0.2503	0.1858	0.1865	0.1867	0.1893	3/16	1/4	3/8	
TFPI04TH x L	1/4	5/16	0.3122	0.3128	0.2481	0.2490	0.2492	0.2518	1/4	3/8		
TFPI05TH x L	5/16	3/8	0.3747	0.3753	0.3106	0.3115	0.3117	0.3143	3/8	1/2		
TFPI06TH x L	3/8	15/32	0.4684	0.4691	0.3731	0.3740	0.3742	0.3769	3/8	1/2	5/8	3/4
TFPI07TH x L	7/16	17/32	0.5309	0.5316	0.4355	0.4365	0.4367	0.4394	1/2	3/4		
TFPI08TH x L	1/2	19/32	0.5934	0.5941	0.4980	0.4990	0.4992	0.5019	3/8	1/2	5/8	7/8
TFPI09TH x L	9/16	21/32	0.6559	0.6566	0.5605	0.5615	0.5617	0.5644	1/2	3/4		
TFPI10TH x L	5/8	23/32	0.7184	0.7192	0.6230	0.6240	0.6242	0.6270	1/2	5/8	3/4	7/8
TFPI11TH x L	11/16	25/32	0.7809	0.7817	0.6855	0.6865	0.6867	0.6895	7/8			
TFPI12TH x L	3/4	7/8	0.8747	0.8755	0.7479	0.7491	0.7493	0.7525	1/2	3/4	1	
TFPI14TH x L	7/8	1	0.9997	1.0005	0.8729	0.8741	0.8743	0.8775	3/4	7/8	1	
TFPI16TH x L	1	1 1/8	1.1246	1.1256	0.9979	0.9991	0.9992	1.0026	3/4	1	1 1/4	1 1/2
TFPI18TH x L	1 1/8	1 9/32	1.2808	1.2818	1.1226	1.1238	1.1240	1.1278	3/4	1		
TFPI20TH x L	1 1/4	1 13/32	1.4058	1.4068	1.2472	1.2488	1.2490	1.2528	3/4	1	1 1/4	1 3/4
TFPI22TH x L	1 3/8	1 17/32	1.5308	1.5318	1.3722	1.3738	1.3740	1.3778	1	1 3/8	1 3/4	
TFPI24TH x L	1 1/2	1 21/32	1.6558	1.6568	1.4972	1.4988	1.4990	1.5028	1	1 1/4	1 1/2	2
TFPI26TH x L	1 5/8	1 25/32	1.7808	1.7818	1.6222	1.6238	1.6240	1.6278	1	1 1/2		
TFPI28TH x L	1 3/4	1 15/16	1.9371	1.9381	1.7471	1.7487	1.7489	1.7535	1	1 1/2	1 3/4	2
TFPI30TH x L	1 7/8	2 1/16	2.0621	2.0633	1.8721	1.8737	1.8739	1.8787	1	1 7/8	2 1/4	
TFPI32TH x L	2	2 3/16	2.1871	2.1883	1.9969	1.9987	1.9989	2.0037	1	1 1/2	2	2 1/2
TFPI36TH x L	2 1/4	2 7/16	2.4365	2.4377	2.2489	2.5070	2.2509	2.2573	2	2 1/4	2 1/2	3
TFPI40TH x L	2 1/2	2 11/16	2.6869	2.6881	2.4993	2.5011	2.5013	2.5077	2	2 1/2	3	3 1/2
TFPI44TH x L	2 3/4	2 15/16	2.9358	2.9370	2.7482	2.7500	2.7502	2.7566	2	2 1/2	3	3 1/2
TFPI48TH x L	3	3 3/16	3.1858	3.1872	2.9982	3.0000	3.0002	3.0068	2	3	3 3/4	
TFPI56TH x L	3 1/2	3 11/16	3.6858	3.6872	3.4978	3.5000	3.5002	3.5068	2 1/2	3	3 3/4	
TFPI64TH x L	4	4 3/16	4.1858	4.1872	3.9978	4.0000	4.0002	4.0068	3	3 3/4	4 3/4	
TFPI80TH x L	5	5 3/16	5.1844	5.1860	4.9961	4.9986	4.9988	5.0056	3	3 3/4		
TFPI96TH x L	6	6 3/16	6.1858	6.1874	5.9975	6.0000	6.0002	6.0070	3	3 3/4		
TFPI112TH x L	7	7 3/16	7.1812	7.1830	6.9929	6.9954	6.9956	7.0026	3 3/4			

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WMU® Washers. Imperial. PTFE U Type

Reference	I.D. (inch)	O.D. (inch)	Washer Sizes Bore (inch)		O.D. (inch)		Thickness (inch)		Dowell hole Diameter (inch)		Dowell hole PCD (inch)	
TFWTH06	0.500	0.875	0.500	0.510	0.865	0.875	0.061	0.063	0.067	0.077	0.682	0.692
TFWTH07	0.562	1.000	0.562	0.572	0.990	1.000	0.061	0.063	0.067	0.077	0.776	0.786
TFWTH08	0.625	1.125	0.625	0.635	1.115	1.125	0.061	0.063	0.099	0.109	0.870	0.880
TFWTH09	0.687	1.187	0.687	0.697	1.177	1.187	0.061	0.063	0.099	0.109	0.932	0.942
TFWTH10	0.750	1.250	0.750	0.760	1.240	1.250	0.061	0.063	0.099	0.109	0.995	1.005
TFWTH11	0.812	1.375	0.812	0.822	1.365	1.375	0.061	0.063	0.099	0.109	1.089	1.099
TFWTH12	0.875	1.500	0.875	0.885	1.490	1.500	0.061	0.063	0.130	0.140	1.182	1.192
TFWTH14	1.000	1.750	1.000	1.010	1.740	1.750	0.061	0.063	0.130	0.140	1.370	1.380
TFWTH16	1.125	2.000	1.125	1.135	1.990	2.000	0.061	0.063	0.161	0.171	1.557	1.567
TFWTH18	1.250	2.125	1.250	1.260	2.115	2.125	0.061	0.063	0.161	0.171	1.682	1.692
TFWTH20	1.375	2.250	1.375	1.385	2.240	2.250	0.061	0.063	0.161	0.171	1.807	1.817
TFWTH22	1.500	2.500	1.500	1.510	2.490	2.500	0.061	0.063	0.192	0.202	1.995	2.005
TFWTH24	1.625	2.625	1.625	1.635	2.615	2.625	0.061	0.063	0.192	0.202	2.120	2.130
TFWTH26	1.750	2.750	1.750	1.760	2.740	2.750	0.061	0.063	0.192	0.202	2.245	2.255
TFWTH28	2.000	3.000	2.000	2.010	2.990	3.000	0.091	0.093	0.192	0.202	2.495	2.505
TFWTH30	2.125	3.125	2.125	2.135	3.115	3.125	0.091	0.093	0.192	0.202	2.620	2.630
TFWTH32	2.250	3.250	2.250	2.260	3.240	3.250	0.091	0.093	0.192	0.202	2.745	2.755

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WMX® Wrapped Metric Plain Bearings. Acetal X Type

	I.D.	O.D.	Recommended Tolerances				Bearing Size when fitted		Oil hole	Standard Length Options (L)					
			Housing		Shaft		Bore		Diameter	Tolerance +/- 0.25mm					
Reference	(mm)		(mm)				(mm)		(mm)	(mm)					
TPX08 x L	8	10	0	+0.015	0	-0.022	8.040	8.107	no hole	8	10	12			
TPX10 x L	10	12	0	+0.018	0	-0.022	10.040	10.110	4	10	12	15	20		
TPX12 x L	12	14	0	+0.018	0	-0.027	12.040	12.110	4	10	12	15	20	25	
TPX14 x L	14	16	0	+0.018	0	-0.027	14.040	14.110	4	15	20	25			
TPX15 x L	15	17	0	+0.018	0	-0.027	15.040	15.108	4	10	12	15	25		
TPX16 x L	16	18	0	+0.018	0	-0.027	16.040	16.110	4	15	20	25			
TPX18 x L	18	20	0	+0.021	0	-0.027	18.040	18.111	4	15	20	25			
TPX20 x L	20	23	0	+0.021	0	-0.033	20.050	20.131	4	10	15	20	25	30	
TPX22 x L	22	25	0	+0.021	0	-0.033	22.050	22.131	6	15	20	25	30		
TPX24 x L	24	27	0	+0.021	0	-0.033	24.050	24.131	6	15	20	25	30		
TPX25 x L	25	28	0	+0.021	0	-0.033	25.050	25.131	6	15	20	25	30		
TPX28 x L	28	32	0	+0.025	0	-0.033	28.060	28.155	6	20	25	30			
TPX30 x L	30	34	0	+0.025	0	-0.033	30.060	30.155	6	20	30	40			
TPX32 x L	32	36	0	+0.025	0	-0.039	32.060	32.155	6	20	30	35	40		
TPX35 x L	35	39	0	+0.025	0	-0.039	35.060	35.155	6	20	30	35	50		
TPX40 x L	40	44	0	+0.025	0	-0.039	40.060	40.155	8	20	30	40	50		
TPX45 x L	45	50	0	+0.025	0	-0.039	45.080	45.195	8	20	30	40	45	50	
TPX50 x L	50	55	0	+0.030	0	-0.039	50.080	50.200	8	40	50	60			
TPX55 x L	55	60	0	+0.030	0	-0.046	55.080	55.200	8	20	25	30	40	50	60
TPX60 x L	60	65	0	+0.030	0	-0.046	60.080	60.200	8	30	40	60	70		
TPX65 x L	65	70	0	+0.030	0	-0.046	65.100	65.262	8	40	50	60	70		
TPX70 x L	70	75	0	+0.030	0	-0.046	70.100	70.262	8	25	40	50	65	70	80
TPX75 x L	75	80	0	+0.030	0	-0.046	75.100	75.262	9.5	40	60	80			
TPX80 x L	80	85	0	+0.035	0	-0.046	80.100	80.267	9.5	40	60	80	100		
TPX85 x L	85	90	0	+0.035	0	-0.054	85.100	85.267	9.5	30	40	60	80	100	
TPX90 x L	90	95	0	+0.035	0	-0.054	90.100	90.267	9.5	25	40	60	80	90	100
TPX95 x L	95	100	0	+0.035	0	-0.054	95.100	95.267	9.5	60	100				
TPX100 x L	100	105	0	+0.035	0	-0.054	100.100	100.267	9.5	50	60	80	95	115	
TPX105 x L	105	110	0	+0.035	0	-0.054	105.100	105.267	9.5	60	115				
TPX110 x L	110	115	0	+0.035	0	-0.054	110.100	110.267	9.5	60	110	115			
TPX115 x L	115	120	0	+0.035	0	-0.054	115.100	115.267	9.5	50	70				
TPX120 x L	120	125	0	+0.040	0	-0.054	120.100	120.272	9.5	60	100	110			
TPX125 x L	125	130	0	+0.040	0	-0.063	125.100	125.272	9.5	60	100	110			
TPX130 x L	130	135	0	+0.040	0	-0.063	130.130	130.280	no hole	50	60	80	100		
TPX135 x L	135	140	0	+0.040	0	-0.063	135.130	135.280	no hole	60	80				
TPX140 x L	140	145	0	+0.040	0	-0.063	140.130	140.280	no hole	50	60	80	100		
TPX145 x L	145	150	0	+0.040	0	-0.063	145.130	145.280	no hole	100					
TPX150 x L	150	155	0	+0.040	0	-0.063	150.130	150.280	no hole	50	60	80	100		
TPX160 x L	160	165	0	+0.040	0	-0.063	160.130	160.280	no hole	50	60	80	100		
TPX170 x L	170	175	0	+0.040	0	-0.063	170.130	170.280	no hole	50	60	80	100		
TPX180 x L	180	185	0	+0.046	0	-0.063	180.130	180.286	no hole	50	60	80	100		
TPX190 x L	190	195	0	+0.046	0	-0.072	190.130	190.286	no hole	50	60	80	100	120	
TPX200 x L	200	205	0	+0.046	0	-0.072	200.130	200.286	no hole	50	60	80	100	120	
TPX220 x L	220	225	0	+0.046	0	-0.072	220.130	220.286	no hole	50	60	80	100	120	
TPX240 x L	240	245	0	+0.046	0	-0.072	240.130	240.286	no hole	50	60	80	100	120	
TPX250 x L	250	255	0	+0.052	0	-0.072	250.130	250.292	no hole	50	60	80	100	120	
TPX260 x L	260	265	0	+0.052	0	-0.081	260.130	260.292	no hole	50	60	80	100	120	
TPX280 x L	280	285	0	+0.052	0	-0.081	280.130	280.292	no hole	50	60	80	100	120	
TPX300 x L	300	305	0	+0.052	0	-0.081	300.130	300.292	no hole	60	80	100	120		

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WMX® Wrapped Imperial Plain. Acetal X Type

Reference	I.D. Nominal (inch)	O.D. Nominal (inch)	Recommended Tolerances Housing (inch)		Recommended Tolerances Shaft (inch)		Bearing Size when fitted Bore (inch)		Oil hole Diameter (inch)	Standard Length Options (L) Tolerance +/- 0.010" (inch)			
TFPI06TX x L	3/8	15/32	0.4694	0.4687	0.3648	0.3639	0.3694	0.3667	5/32	3/8	1/2	3/4	
TFPI07TX x L	7/16	17/32	0.5319	0.5312	0.4273	0.4263	0.4319	0.4292	5/32	1/2	3/4		
TFPI08TX x L	1/2	19/32	0.5944	0.5937	0.4897	0.4887	0.4944	0.4917	5/32	3/8	1/2	5/8	7/8
TFPI09TX x L	9/16	21/32	0.6569	0.6562	0.5522	0.5512	0.5569	0.5542	5/32	1/2	3/4		
TFPI10TX x L	5/8	23/32	0.7195	0.7187	0.6146	0.6136	0.6195	0.6167	5/32	1/2	5/8	3/4	7/8
TFPI11TX x L	11/16	25/32	0.7820	0.7812	0.6770	0.6760	0.6820	0.6792	5/32	7/8			
TFPI12TX x L	3/4	7/8	0.8758	0.8750	0.7390	0.7378	0.7444	0.7412	5/32	1/2	3/4	1	
TFPI14TX x L	7/8	1	1.0008	1.0000	0.8639	0.8627	0.8694	0.8662	1/4	3/4	7/8	1	
TFPI16TX x L	1	1 1/8	1.1258	1.1250	0.9888	0.9876	0.9944	0.9912	1/4	3/4	1	1 1/2	
TFPI18TX x L	1 1/8	1 9/32	1.2822	1.2812	1.1138	1.1126	1.1202	1.1164	1/4	3/4	1		
TFPI20TX x L	1 1/4	1 13/32	1.4072	1.4062	1.2387	1.2371	1.2452	1.2414	1/4	3/4	1	1 1/4	1 3/4
TFPI22TX x L	1 3/8	1 17/32	1.5322	1.5312	1.3635	1.3619	1.3702	1.3664	1/4	1	1 3/8	1 3/4	
TFPI24TX x L	1 1/2	1 21/32	1.6572	1.6562	1.4884	1.4868	1.4952	1.4914	5/16	1	1 1/4	1 1/2	2
TFPI26TX x L	1 5/8	1 25/32	1.7822	1.7812	1.6133	1.6117	1.6202	1.6164	5/16	1	1 1/2		
TFPI28TX x L	1 3/4	1 15/16	1.9385	1.9375	1.7393	1.7367	1.7461	1.7415	5/16	1	1 1/2	1 3/4	2
TFPI30TX x L	1 7/8	2 1/16	2.0637	2.0625	1.8632	1.8616	1.8713	1.8665	5/16	1	1 7/8	2 1/4	
TFPI32TX x L	2	2 3/16	2.1887	2.1875	1.9881	1.9863	1.9963	1.9915	5/16	1	1 1/2	2	2 1/2
TFPI36TX x L	2 1/4	2 7/16	2.4387	2.4375	2.2378	2.2360	2.2463	2.2415	5/16	2	2 1/4	2 1/2	
TFPI40TX x L	2 1/2	2 11/16	2.6887	2.6875	2.4875	2.4857	2.4963	2.4915	5/16	2	2 1/2		
TFPI44TX x L	2 3/4	2 15/16	2.9387	2.9395	2.7351	2.7333	2.7457	2.7393	5/16	2	2 1/2	3	3 1/2
TFPI48TX x L	3	3 3/16	3.1889	3.1875	3.9849	3.9831	2.9959	2.9893	3/8	2	3	3 3/4	
TFPI56TX x L	3 1/2	3 11/16	3.6889	3.6875	3.4844	3.4822	3.4959	3.4893	3/8	2 1/2	3	3 3/4	
TFPI64TX x L	4	4 3/16	4.1889	4.1872	4.9839	4.9817	3.9959	3.9893	3/8	3	3 3/4	4 3/4	

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WMX®
Lubricated Sliding Bearings

Oil or grease lubricated bearings. Carbon steel shell with sintered bronze layer with a co- acetal polymer layer. Available in metric and imperial sizes from stock.

WMU®
Dry Sliding Bearings

Self lubricated plain & flanged bearings & strip. Carbon steel shell with sintered bronze layer filled with PTFE. Available in metric and imperial sizes from stock.Also bronze shell versions can be supplied to order.

White Metal Bearings

White metal bearings can be manufactured to order in various material grades.

Plastic Bearings
Moulded & Machined

Available in metric sizes from stock. Can also be manufactured in many different types of plastic material to suit various applications. Machined for small quantities and moulded for large quantities.

Standard Wrapped Bearings

Oil or grease lubricated bearings. Carbon Steel shell with sintered bronze lining. Various metric and imperial sizes available from stock.

WM1® Ball Bearings

Ball bearings in chrome or stainless steel. ABEC 1, 3 or 5. With or without seals. Various ranges available from stock.

Machined Parts

Standard bearings modified. Custom shafts and bearings manufactured in cast bronze, plastic and other materials.

Cast Bronze Bearings with Solid Graphite Lubrication

Various material specifications are offered. Standard and special shapes are available.

WMO™

Cast bronze bearings with solid graphite lubrication

All these bearings are made to order. Other shapes can be offered.

Graphite loaded bearings can withstand very high temperatures up to 425 °C (800 °F) as well as cryogenic temperatures down to -200°C (-400 °F) depending on the bronze material and graphite selected. This makes them ideal where conventional lubricants would carbonise. Please contact our technical department to ascertain which would be the most suitable combination to suit your application.

Typical applications are ovens, kilns, dryers, injection moulding machines, dust collectors, louvers and hot conveyors.

These bearings are also ideal in dry environments where contamination is undesirable. Typical applications would be printing, textile, and food machinery, as well as machines for making pills and cosmetic products.

They are also used extensively for wet applications where there is high humidity, or in submersed pumps, textile finishing machinery, lock gates, water turbines, chemical processing and plating applications.

This type of bearing is also useful where the bearings are in an inaccessible location, as they are lubricated for life.

Technical Data

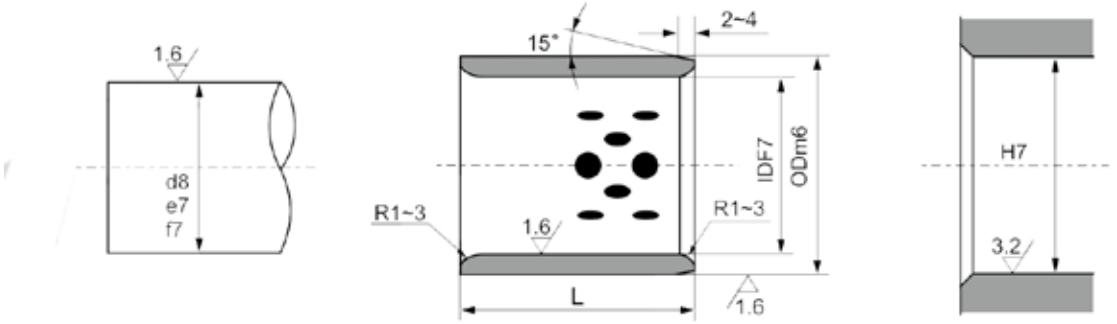
Standard Material	Cu 65%, Zn 25%, Ai 6%, Mn 4%
Density	8 g/cm^3
Hardness	> 210 HB
Tensile Strength	750 N/mm^2
Elongation	> 12%
Linear Expansion	1.9 – 10^{-5} / °C
Max Temp	300 °C (570 °F)
Static Load	100 N/mm^2
Max Speed	15 m/s
PV	200 N/mm^2 s m/s

Other cast bronze materials/specifications are available which can operate up to 425 °C.

Different shapes can be manufactured to suit customer requirements.

WMO™

Metric Plain cast bronze bearings with solid graphite lubrication



Shaft

Housing

Outside Diameter m6		Inside Diameter F7		8	10	12	15	16	20	25	30	35	40	50	60	70	80
				Standard Lengths -0.10/-0.30mm													
8	+0.028 +0.013	12	+0.018 +0.007	GRP 081208	GRP 081210	GRP 081212	GRP 081215										
10	+0.028 +0.013	14	+0.018 +0.007	GRP 101408	GRP 101410	GRP 101412	GRP 101415		GRP 101420								
12	+0.034 +0.016	18	+0.018 +0.007		GRP 121810	GRP 121812	GRP 121815	GRP 121816	GRP 121820	GRP 121825	GRP 121830						
13	+0.034 +0.016	19	+0.021 +0.008		GRP 131910		GRP 131915	GRP 131916									
14	+0.034 +0.016	20	+0.021 +0.008		GRP 142010	GRP 142012	GRP 142015		GRP 142020	GRP 142025	GRP 142030						
15	+0.034 +0.016	21	+0.021 +0.008		GRP 152110	GRP 152112	GRP 152115	GRP 152116	GRP 152120	GRP 152125	GRP 152130						
16	+0.034 +0.016	22	+0.021 +0.008		GRP 162210	GRP 162212	GRP 162215	GRP 162216	GRP 162220	GRP 162225	GRP 162230	GRP 162235	GRP 162240				
18	+0.034 +0.016	24	+0.021 +0.008			GRP 182412	GRP 182415	GRP 182416	GRP 182420	GRP 182425	GRP 182430	GRP 182435	GRP 182440				
20	+0.041 +0.020	28	+0.021 +0.008		GRP 202810	GRP 202812	GRP 202815	GRP 202816	GRP 202820	GRP 202825	GRP 202830	GRP 202835	GRP 202840	GRP 202850			
22	+0.041 +0.020	32	+0.025 +0.009			GRP 223212	GRP 223215		GRP 223220	GRP 223225							
25	+0.041 +0 020	33	+0.025 +0.009			GRP 253312	GRP 253315	GRP 253316	GRP 253320	GRP 253325	GRP 253330	GRP 253335	GRP 253340	GRP 253350	GRP 253360		
30	+0.041 +0.020	38	+0.025 +0.009			GRP 303812	GRP 303815		GRP 303820	GRP 303825	GRP 303830	GRP 303835	GRP 303840	GRP 303850	GRP 303860		
35	+0.050 +0.025	45	+0.025 +0.009						GRP 354520	GRP 354525	GRP 354530	GRP 354535	GRP 354540	GRP 354550	GRP 354560		
40	+0.050 +0.025	50	+0.025 +0.009						GRP 405020	GRP 405025	GRP 405030	GRP 405035	GRP 405040	GRP 405050	GRP 405060	GRP 405070	GRP 405080
45	+0.050 +0.025	55	+0.030 +0.011								GRP 455530	GRP 455535	GRP 455540	GRP 455550	GRP 455560		
50	+0.050 +0.025	60	+0.030 +0.011								GRP 506030	GRP 506035	GRP 506040	GRP 506050	GRP 506060	GRP 506070	GRP 506080
50	+0.050 +0.025	62	+0.030 +0.011								GRP 506230	GRP 506235	GRP 506240	GRP 506250	GRP 506260	GRP 506270	

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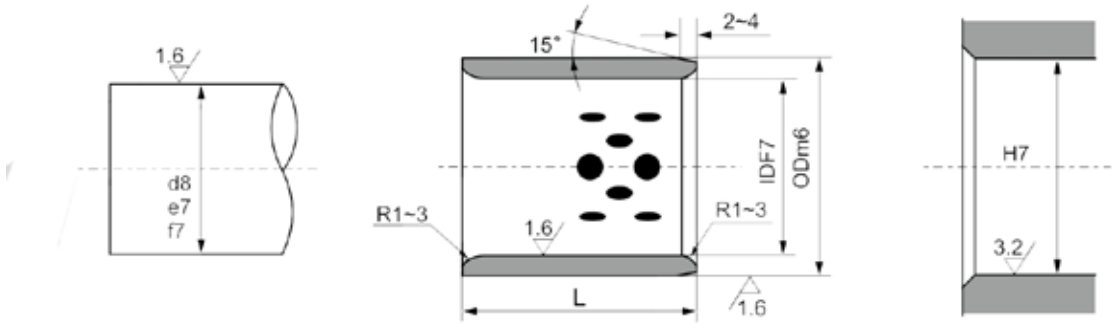
WMO™

Metric Plain cast bronze bearings with solid graphite lubrication



Shaft

Housing

Outside Diameter m6		Inside Diameter F7		30	35	40	50	60	70	80	100	120	130	140	150
				← Standard Lengths -0.10/-0.30mm →											
50	+0.050 +0.025	65	+0.030 +0.011	GRP 506530		GRP 506540	GRP 506550	GRP 506560	GRP 506570	GRP 506580					
55	+0.060 +0.030	70	+0.030 +0.011			GRP 557040	GRP 557050	GRP 557060	GRP 557070						
60	+0.060 +0.030	74	+0.030 +0.011	GRP 607430	GRP 607435	GRP 607440	GRP 607450	GRP 607460	GRP 607470	GRP 607480					
60	+0.060 +0.030	75	+0.030 +0.011	GRP 607530	GRP 607535	GRP 607540	GRP 607550	GRP 607560	GRP 607570	GRP 607580	GRP 6075100				
63	+0.060 +0.030	75	+0.030 +0.011					GRP 637560	GRP 637570	GRP 637580					
65	+0.060 +0.036	80	+0.030 +0.011				GRP 658050	GRP 658060	GRP 658070	GRP 658080					
70	+0.060 +0.030	85	+0.035 +0.013		GRP 708535	GRP 708540	GRP 708550	GRP 708560	GRP 708570	GRP 708580	GRP 7085100				
70	+0.060 +0.030	90	+0.035 +0.013				GRP 709050	GRP 709060	GRP 709070	GRP 709080					
75	+0.060 +0.030	90	+0.035 +0.013					GRP 759060	GRP 759070	GRP 759580	GRP 7590100				
75	+0.060 +0.030	95	+0.035 +0.013					GRP 759560	GRP 759570	GRP 759580	GRP 7595100				
80	+0.060 +0.030	96	+0.035 +0.013			GRP 809640	GRP 809650	GRP 809660	GRP 809670	GRP 809680	GRP 8096100	GRP 8096120			
80	+0.060 +0.030	100	+0.035 +0.013			GRP 8010040	GRP 8010050	GRP 8010060	GRP 8010070	GRP 8010080	GRP 80100100	GRP 80100120		GRP 80100140	
90	+0.071 +0.036	110	+0.035 +0.013	GRP 9011030			GRP 9011050	GRP 9011060	GRP 9011070	GRP 9011080	GRP 90110100	GRP 90110120			
100	+0.071 +0.036	120	+0.035 +0.013					GRP 10012060	GRP 10012070	GRP 10012080	GRP 100120100	GRP 100120120		GRP 100120140	
110	+0.071 +0.036	130	+0.040 +0.015							GRP 11013080	GRP 110130100	GRP 110130120			
120	+0.071 +0.036	140	+0.040 +0.015							GRP 12014080	GRP 120140100	GRP 120140120		GRP 120140140	
125	+0.083 +0.043	145	+0.040 +0.015								GRP 125145100	GRP 125145120			
130	+0.083 +0.043	150	+0.040 +0.015								GRP 130150100		GRP 130150130		
140	+0.083 +0.043	160	+0.040 +0.015								GRP 140160100			GRP 140160140	
150	+0.083 +0.043	170	+0.040 +0.015								GRP 150170100				GRP 150170150
160	+0.083 +0.043	180	+0.040 +0.015								GRP 160180100				GRP 160180150

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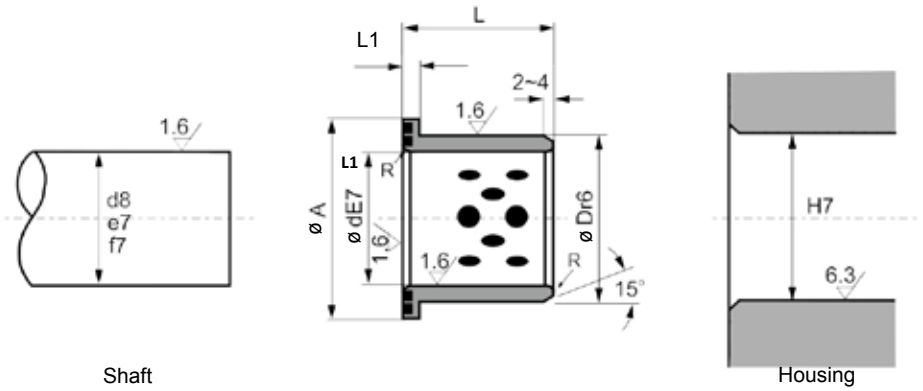
Metric Flanged cast bronze - with solid graphite lubrication



Shaft Housing

Inside Diameter E7		Outside Diameter r6		ø A	L1 -0.10	15	20	25	30	35	40	50	60	80	100
						← Standard Lengths -0.10/-0.30mm →									
10	+0.040 +0.025	14	+0.034 +0.023	22	2	GRF 101415	GRF 101420								
12	+0.050 +0.032	18	+0.034 +0.023	25	3	GRF 121815	GRF 121820								
13	+0.050 +0.032	19	+0.041 +0.028	26	3	GRF 131915	GRF 131920								
14	+0.050 +0.032	20	+0.041 +0.028	27	3	GRF 142015	GRF 142020								
15	+0.050 +0.032	21	+0.041 +0.028	28	3	GRF 152115	GRF 152120	GRF 152125	GRF 152130						
16	+0.050 +0.032	22	+0.041 +0.028	29	3	GRF 162215	GRF 162220	GRF 162225	GRF 162230						
20	+0.061 +0.040	30	+0.041 +0.028	40	5	GRF 203015	GRF 203020	GRF 203025	GRF 203030		GRF 203040				
25	+0.061 +0.040	35	+0.050 +0.034	45	5	GRF 253515	GRF 253520	GRF 253525	GRF 253530		GRF 253540				
30	+0.061 +0.040	40	+0.050 +0.034	50	5		GRF 304020	GRF 304025	GRF 304030	GRF 304035	GRF 304040	GRF 304050			
31.5	+0.075 +0.050	40	+0.050 +0.034	50	5		GRF 3154020			GRF 3154035					
35	+0.075 +0.050	45	+0.050 +0.034	60	5		GRF 354520		GRF 354530		GRF 354540	GRF 354550			
40	+0.075 +0.050	50	+0.050 +0.034	65	5		GRF 405020		GRF 405030		GRF 405040	GRF 405050			
45	+0.075 +0.050	55	+0.060 +0.041	70	5				GRF 455530		GRF 455040	GRF 455050	GRF 455060		
50	+0.075 +0.050	60	+0.060 +0.041	75	5				GRF 506030		GRF 506040	GRF 506050	GRF 506060		
55	+0.090 +0.060	65	+0.060 +0.041	80	5						GRF 556540		GRF 556560		
60	+0.090 +0.060	75	+0.062 +0.043	85	7.5						GRF 607540	GRF 607550		GRF 607580	
63	+0.090 +0.060	75	+0.062 +0.043	90	7.5									GRF 637580	
70	+0.090 +0.060	85	+0.073 +0.051	105	7.5							GRF 708550		GRF 708580	
80	+0.090 +0.060	100	+0.073 +0.051	120	10								GRF 8010060	GRF 8010080	GRF 80100100
90	+0.107 +0.072	110	+0.076 +0.054	130	10								GRF 9011060	GRF 9011080	
100	+0.107 +0.072	120	+0.076 +0.054	150	10									GRF 10012080	GRF 100120100
120	+0.107 +0.072	140	+0.088 +0.063	170	10									GRF 120814080	GRF 120140100

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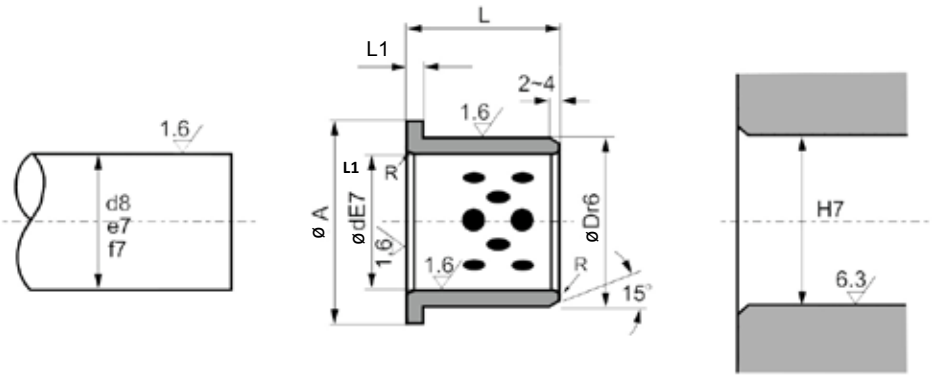
Metric Flanged cast bronze with solid graphite lubrication



Shaft

Housing

Inside Diameter E7		Outside Diameter r6		ø A	L1	15	20	25	30	35	45	55	65
						← Standard Lengths -0.10/-0.30mm →							
12	+0.050 +0.032	18	+0.034 +0.023	25	4	GRFP 121815							
16	+0.050 +0.032	22	+0.041 +0.028	30	5		GRFP 162220						
20	+0.061 +0.040	28	+0.041 +0.028	36	5			GRFP 202825					
25	+0.061 +0.040	33	+0.050 +0.034	43	5				GRFP 253330				
30	+0.061 +0.040	38	+0.050 +0.034	48	5					GRFP 303835			
40	+0.075 +0.050	50	+0.050 +0.034	60	5						GRFP 405045		
50	+0.075 +0.050	62	+0.060 +0.041	75	6							GRFP 506255	
60	+0.090 +0.060	75	+0.062 +0.043	90	7								GRFP 607565

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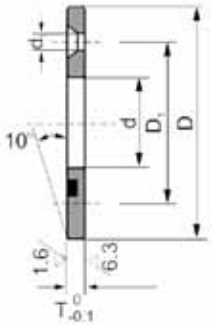
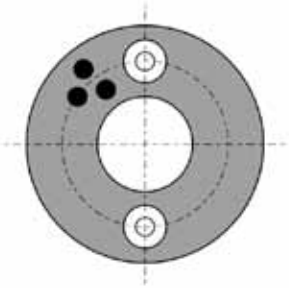
WMO™

Cast bronze thrust washers with solid graphite lubrication





Part Number	d	D	T	Bolt			
				D_1	Q'ty	Size	d_1
GRW 103003	10.2	30	3	-	-	-	-
GRW 124003	12.2	40	3	28	2	M3	3.5
GRW 134003	13.2	40	3	28	2	M3	3.5
GRW 144003	14.2	40	3	28	2	M3	3.5
GRW 155003	15.2	50	3	35	2	M3	3.5
GRW 165003	16.2	50	3	35	2	M3	3.5
GRW 165003N	16.2	50	3	-	-	-	-
GRW 185003	18.2	50	3	35	2	M3	3.5
GRW 205005	20.2	50	5	35	2	M5	6
GRW 205005N	20.2	50	5	-	-	-	-
GRW 255505	25.2	55	5	40	2	M5	6
GRW 255505N	25.2	55	5	-	-	-	-
GRW 306005	30.2	60	5	45	2	M5	6
GRW 357005	35.2	70	5	50	2	M5	6
GRW 408007	40.2	80	7	60	2	M6	7
GRW 459007	45.3	90	7	67.5	2	M6	7
GRW 5010008	50.3	100	8	75	4	M6	7
GRW 5511008	55.3	110	8	85	4	M6	7
GRW 6012008	60.3	120	8	90	4	M8	9
GRW 6512508	65.3	125	8	95	4	M8	9
GRW 7013010	70.3	130	10	100	4	M8	9
GRW 7514010	75.3	140	10	110	4	M8	9
GRW 8015010	80.3	150	10	120	4	M8	9
GRW 9017010	90.5	170	10	140	4	M10	11
GRW 10019010	100.5	190	10	160	4	M10	11
GRW 12020010	120.5	200	10	175	4	M10	11

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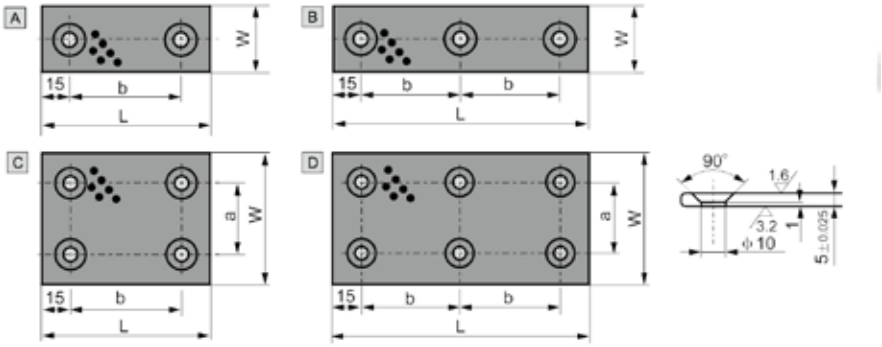
WMO™

Cast bronze wear strips with solid graphite lubrication



Part Number	W	L	a	b	Type
GRS 1850	18	50	–	20	A
GRS 1875	18	75	–	45	A
GRS 18100	18	100	–	70	A
GRS 18150	18	150	–	60	B
GRS 2850	28	50	–	20	A
GRS 2875	28	75	–	45	A
GRS 28100	28	100	–	70	A
GRS 28150	28	150	–	60	B
GRS 3850	38	50	–	20	A
GRS 3875	38	75	–	45	A
GRS 38100	38	100	–	70	A
GRS 38150	38	150	–	60	B
GRS 4875	48	75	–	45	A
GRS 48100	48	100	–	70	A
GRS 48125	48	125	–	95	A
GRS 48150	48	150	–	60	B
GRS 7575	75	75	45	45	C
GRS 75100	75	100	45	70	C
GRS 75125	75	125	45	95	C
GRS 75150	75	150	45	60	D
GRS 100100	100	100	70	70	C
GRS 100125	100	125	70	95	C
GRS 100150	100	150	70	60	D

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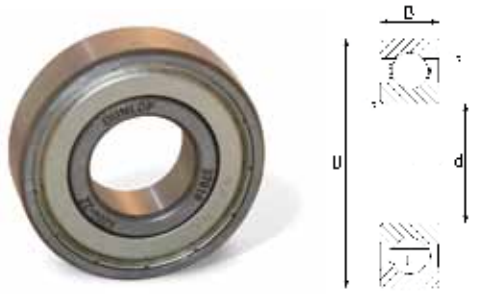
DUNLOP

BALL BEARINGS



MINIATURE SINGLE ROW DEEP GROOVE BALL BEARINGS

Description

Miniature single row deep groove ball bearings are available in a wide variety of basic designs as standard. They are rigid, non-separable radial bearings and are superior in speed ratings to any other type of rolling element bearings. They are by far the most popular rolling bearing type.

Variations of incorporating 2 seals -2RS, -2RSR and 2 shields -2Z are supplied grease filled during manufacture with approved high quality rolling bearing grease.

The standard amount of grease applied is 25% to 50% of the free space within the bearings. Miniature single row deep groove ball bearings are produced with normal clearance (CN) as standard along with (C3) also as standard.

MINITURE SINGLE ROW DEEP GROOVE BALL BEARINGS

Dimensions				Designation	Basic Load		Fatigue load limit	Limiting speed for lubrication with		Mass
					dynamic	Static				
d	D	B	r_{smin}		C_r	C_{or}	C_u	grease	oil	
mm					kN			min^{-1}		kg
	10	4	0.2	**623**	0.64	0.22	0.01	42,000	50,000	0.002
3	10	4	0.2	**623-2RS**	0.64	0.22	0.01	32,000		0.002
	10	4	0.2	**623-2Z**	0.64	0.22	0.01	42,000		0.002
	12	4	0.2	**604**	0.97	0.36	0.016	43,000	51,000	0.002
	12	4	0.2	**604-2RS**	0.97	0.36	0.016	34,000		0.002
	12	4	0.2	**604-2Z**	0.97	0.36	0.016	43,000		0.002
	13	5	0.2	**624**	1.31	0.49	0.022	36,000	45,000	0.003
4	13	5	0.2	**624-2RS**	1.31	0.49	0.022	27,000		0.003
	13	5	0.2	**624-2Z**	1.31	0.49	0.022	36,000		0.003
	16	5	0.3	**634**	1.34	0.52	0.023	36,000	43,000	0.005
	16	5	0.3	**634-2RS**	1.34	0.52	0.023	25,000		0.005
	16	5	0.3	**634-2Z**	1.34	0.52	0.023	36,000		0.005
	16	5	0.3	**625**	1.76	0.68	0.031	34,000	43,000	0.005
	16	5	0.3	**625-2RS**	1.76	0.68	0.031	22,000		0.005
5	16	5	0.3	**625-2Z**	1.76	0.68	0.031	34,000		0.005
	19	6	0.3	**635**	2.34	0.88	0.040	34,000	40,000	0.008
	19	6	0.3	**635-2RS**	2.34	0.88	0.040	22,000		0.008
	19	6	0.3	**635-2Z**	2.34	0.88	0.040	34,000		0.008
	19	6	0.3	**626**	2.34	0.88	0.040	28,000	36,000	0.008
6	19	6	0.3	**626-2RS**	2.34	0.88	0.040	19,000		0.008
	19	6	0.3	**626-2Z**	2.34	0.88	0.040	28,000		0.008
	19	6	0.3	**607**	2.24	0.91	0.041	28,000	36,000	0.008
7	19	6	0.3	**607-2RS**	2.24	0.91	0.041	19,000		0.008
	19	6	0.3	**607-2Z**	2.24	0.91	0.041	28,000		0.008
	22	7	0.3	**627**	3.35	1.40	0.064	26,000	34,000	0.013
7	22	7	0.3	**627-2RS**	3.35	1.40	0.064	18,000		0.013
	22	7	0.3	**607-2Z**	3.35	1.40	0.064	26,000		0.013
	22	7	0.3	**608**	3.35	1.40	0.064	26,000	34,000	0.012
8	22	7	0.3	**608-2RS**	3.35	1.40	0.064	18,000		0.012
	22	7	0.3	**608-2Z**	3.35	1.40	0.064	26,000		0.012
	24	7	0.3	**609**	3.40	1.45	0.066	22,000	30,000	0.014
9	24	7	0.3	**609-2RS**	3.40	1.45	0.066	15,000		0.014
	24	7	0.3	**609-2Z**	3.40	1.45	0.066	22,000		0.014

If you would like to view our full range, please refer to our Bearings Catalogue online at: **www.iadaltd.co.uk**

DUNLOP

SINGLE ROW BEARING

SINGLE ROW DEEP GROOVE BALL BEARING

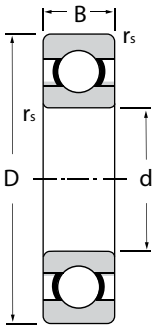
Description

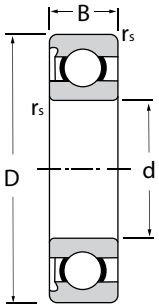
Dunlop single row deep groove ball bearings have relatively deep raceways on both rings without a filling slot and they are non-separable. High load ratings are achieved by optimum sizes of balls and by their conformity to the raceways.

They can carry axial and radial loads in both directions and are suitable even for high rotational speeds. These bearings are manufactured in a broad assortment and are the most common rolling bearing type. Shields and seals are firmly fixed in the groove of the outer ring and these are not removable.

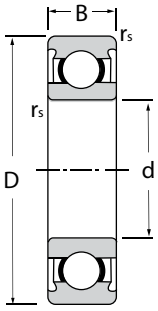
The limiting values of the dimensional and running accuracy deviation correspond to ISO 492. For arrangements with a higher opera-ting temperature than 120 °C, special heat treated stabilised single row deep groove ball bearings are supplied of which the form stability at operating temperature 150 °C up to 400 °C

SINGLE ROW DEEP GROOVE BALL BEARINGS WITHOUT OR WITH SHIELDS OR SEALS

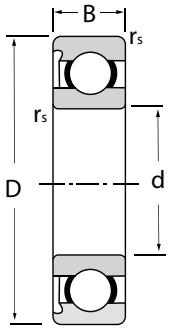




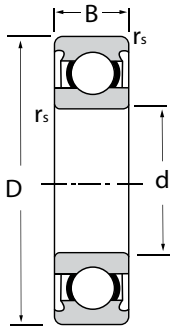
RSR



-2RSR



ZR



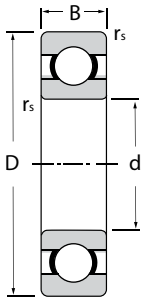
-2ZR

Dimensions				Bearing Designation	Basic Load		Fatigue load limit	Limiting speed for lubrication with		Weight
					Dynamic	Static				
d	D	B	r_{smin}		C_r	C_{or}	C_u	Grease	Oil	kg
mm					kN			min^{-1}		
10	26	8	0.3	**6000**	4.58	1.98	0.090	31000	36000	0.019
	26	8	0.3	**6000RSR**	4.58	1.98	0.090	19000		0.019
	26	8	0.3	**6000-2RSR**	4.58	1.98	0.090	19000		0.019
	26	8	0.3	**6000ZR**	4.58	1.98	0.090	31000	36000	0.019
	26	8	0.3	**6000-2ZR**	4.58	1.98	0.090	31000		0.019
	30	9	0.6	**6200**	5.10	2.38	0.108	24000	29000	0.031
	30	9	0.6	**6200RSR**	5.10	2.38	0.108	17000		0.031
	30	9	0.6	**6200-2RSR**	5.10	2.38	0.108	17000		0.031
	30	9	0.6	**6200ZR**	5.10	2.38	0.108	24000	30000	0.031
	30	9	0.6	**6200-2ZR**	5.10	2.38	0.108	24000		0.031
	35	11	0.6	**6300**	7.65	3.48	0.158	22000	27000	0.054
	35	11	0.6	**6300RSR**	7.65	3.48	0.158	15000		0.054
	35	11	0.6	**6300-2RSR**	7.65	3.48	0.158	15000		0.054
	35	11	0.6	**6300ZR**	7.65	3.48	0.158	22000	27000	0.054
	35	11	0.6	**6300-2ZR**	7.65	3.48	0.158	22000		0.054
12	28	8	0.3	**6001**	5.10	2.38	0.108	27000	32000	0.022
	28	8	0.3	**6001RSR**	5.10	2.38	0.108	17000		0.022
	28	8	0.3	**6001-2RSR**	5.10	2.38	0.108	17000		0.022
	28	8	0.3	**6001ZR**	5.10	2.38	0.108	27000	32000	0.022
	28	8	0.3	**6001-2ZR**	5.10	2.38	0.108	27000		0.022

If you would like to view our full range, please refer to our Bearings Catalogue online at: **www.iadaltd.co.uk**

DUNLOP

SINGLE ROW BEARING



SINGLE ROW DEEP GROOVE BALL BEARING

Description

Single row deep groove ball bearings are available in a wide variety of basic designs as standard.

They are rigid, non-separable radial bearings and are superior in speed ratings to any other type of rolling element bearings. They are by far the most popular rolling bearing type.

Variations of incorporating 2 seals -2RS, -2RSR and 2 shields -2Z are supplied grease filled during manufacture with approved high quality rolling bearing grease.

The standard amount of grease applied is 25% to 50% of the free space within the bearings.

Single row deep groove ball bearings are produced with normal clearance (CN) as standard along with (C3) also as standard.

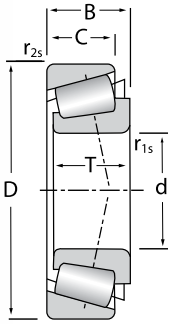
SINGLE ROW DEEP GROOVE BALL BEARINGS

Dimensions				Bearing Designation	Basic Load		Fatigue load limit	Limiting speed for lubrication with		Weight
					Dynamic	Static				
d	D	B	r_{smin}		C_r	C_{or}	C_u	Grease	Oil	kg
mm					kN			min^{-1}		
10	19	5	0.3	**61800**	1.40	0.75	0.034	36,000	42,000	0.005
	19	5	0.3	**61800-2RSR**	1.40	0.75	0.034	20,000		0.005
	19	5	0.3	**61800-2ZR**	1.40	0.75	0.034	36,000		0.005
	22	6	0.3	**61900**	3.30	1.40	0.064	34,000	40,000	0.009
	22	6	0.3	**61900-2RSR**	3.30	1.40	0.064	19,000		0.009
	22	6	0.3	**61900-2ZR**	3.30	1.40	0.064	34,000		0.009
12	21	5	0.3	**61801**	1.40	0.90	0.041	32,000	38,000	0.007
	21	5	0.3	**61801-2RSR**	1.40	0.90	0.041	19,000		0.007
	21	5	0.3	**61801-2ZR**	1.40	0.90	0.041	32,000		0.007
	24	6	0.3	**61901**	3.38	1.48	0.067	30,000	36,000	0.011
	24	6	0.3	**61901-2RSR**	3.38	1.48	0.067	18,000		0.011
	24	6	0.3	**61901-2ZR**	3.38	1.48	0.067	30,000		0.011
15	24	5	0.3	**61802**	1.92	1.18	0.054	28,000	34,000	0.008
	24	5	0.3	**61802-2RSR**	1.92	1.18	0.054	17,000		0.008
	24	5	0.3	**61802-2ZR**	1.92	1.18	0.054	28,000		0.008
	28	7	0.3	**61902**	4.00	2.02	0.092	24,000	30,000	0.016
	28	7	0.3	**61902-2RSR**	4.00	2.02	0.092	16,000		0.016
	28	7	0.3	**61902-2ZR**	4.00	2.02	0.092	24,000		0.016
17	26	5	0.3	**61803**	2.18	1.28	0.058	24,000	30,000	0.019
	26	5	0.3	**61803-2RSR**	2.18	1.28	0.058	16,000		0.019
	26	5	0.3	**61803-2ZR**	2.18	1.28	0.058	24,000		0.019
	30	7	0.3	**61903**	4.30	2.32	0.105	22,000	28,000	0.018
	30	7	0.3	**61903-2RSR**	4.30	2.32	0.105	14,000		0.018

If you would like to view our full range, please refer to our Bearings Catalogue online at: **www.iadaltd.co.uk**

DUNLOP

TAPERED ROLLER BEARINGS



TAPERED ROLLER BEARINGS

Description

Single row tapered roller bearings are seperable radial bearings. They consist of an inner ring with a roller set and cage assembly, the (cone), and a loose outer ring the (cup).

This bearing type can only accept thrust in one direction so they must always be mounted in pairs where one bearing is adjusted against the other.

Tapered roller bearings are suitable for both radial and thrust forces but also accept combined loads and tilting moments.

The ability of tapered roller bearings to accomodate axial loads depends on their contact angle, the larger the angle the better the thrust load capability.

TAPERED ROLLER BEARINGS

Dimensions							Bearing Designation	Basic Load		Fatigue load limit	Limiting speed for lubrication with		Mass
								Dynamic	Static				
d	D	B	C	T	r_{1s}	r_{2s}		C_r	C_{or}	C_u	Grease	Oil	kg
mm								kN			min^{-1}		
15	35	11	10	11.75	0.6	0.6	**30202**	16.6	15-May	1.9	10,000	14,000	0.053
	42	13	11	14.25	0.6	0.6	**30302**	20.7	21.5	2.6	9 500	12 000	0.094
17	40	12	11	13.25	1.0	1.0	**30203**	20.7	21.9	2.7	10 000	14 000	0.079
	47	14	12	15.25	1.0	1.0	**30303**	28.3	27.2	3.3	9 200	12 000	0.133
20	42	15	12	15.00	0.6	0.6	**32004X**	25.0	28.2	3.4	9 400	13 000	0.095
	47	14	12	15.25	1.0	1.0	**30204**	28.2	30.6	3.7	8 700	12 000	0.127
	47	18	15	19.25	1.0	1.0	**32204**	32.5	34.8	4.2	8 700	12 000	0.156
	52	15	13	16.25	1.5	1.5	**30304**	33.1	33.2	4.0	8 300	11 000	0.179
	52	21	18	22.25	1.5	1.5	**32304**	42.8	44.2	5.3	7 500	9 500	0.230
25	47	15	11.5	15.00	0.6	0.6	**32005X**	28.0	34.0	4.1	8 000	11 000	0.110
	52	15	13	16.25	1.0	1.0	**30205**	32.2	37.0	4.5	7 500	10 000	0.153
	52	18	16	19.25	1.0	1.0	**32205**	39.8	44.8	5.5	7 900	11 000	0.188
	52	22	18	22.00	1.0	1.0	**33205**	47.1	55.8	6.8	7 300	9 800	0.217
	62	17	15	18.25	1.5	1.5	**30305**	46.9	48.1	5.9	6 700	9 000	0.263
	62	17	13	18.25	1.5	1.5	**31305**	40.7	46.1	5.7	5 600	7 500	0.260
	62	24	20	25.25	1.5	1.5	**32305**	62.0	69.0	8.4	6 000	8 000	0.365
30	55	17	13	17.00	1.0	1.0	**32006X**	35.8	46.8	5.7	6 700	9 000	0.173
	62	16	14	17.25	1.0	1.0	**30206**	43.3	50.5	6.1	6 300	8 500	0.231
	62	20	17	21.25	1.0	1.0	**32206**	51.8	63.7	7.8	6 300	8 400	0.286
	62	25	19.5	25.00	1.0	1.0	**33206**	63.8	75.4	9.1	5 600	7 500	0.347
	72	19	16	20.75	1.5	1.5	**30306**	59.0	63.1	7.7	5 600	7 500	0.387
	72	19	14	20.75	1.5	1.5	**31306**	52.5	60.4	7.4	5 000	6 700	0.389
	72	27	23	28.75	1.5	1.5	**32306**	81.0	96.0	11.2	5 300	7 000	0.562

If you would like to view our full range, please refer to our Bearings Catalogue online at: **www.iadaltd.co.uk**

DUNLOP

PILLOW BLOCK BEARINGS

PLUMBER BLOCK BEARING UNITS

Description

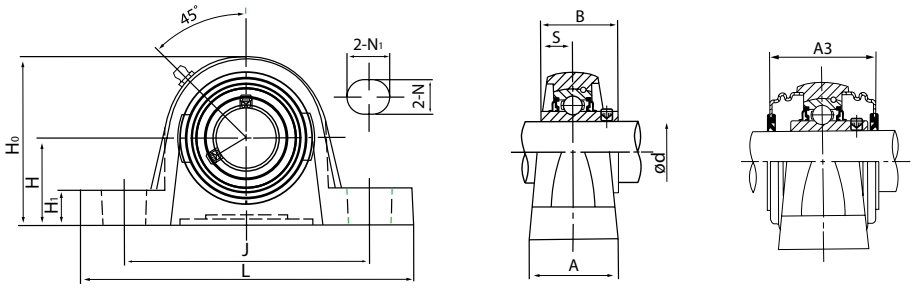
Plummer block bearing units offer simple effective and reliable solutions with the minimum design work requirements.

They consist of a housing which is made of cast iron or pressed steel and an insert bearing, they have self-aligning features due to their spherical outer diameter and the corresponding design in the bearing housing.

This feature allows for any static misalignment, which can occur in other parts of its applications.

Bearing inserts are produced in several different designs to meet various technical demands incorporating 2 seals -2RS and 2 shields -2Z and are supplied grease filled during manufacture.

PLUMBER BLOCK BEARING UNITS



Unit No.	Shaft Dia		Dimensions (mm)											Bolt Size		Weight (kg)
	w		H	L	J	A	N	N_1	H_1	H_0	B	S	A_3	(in)	(mm)	
	(in)	(mm)														
UCP201		12	30.2	124	95	31	11	15	14	57.1	26	10		M8	5/6	0.57
UCP201-8	1/2															
UCP202		15														
UCP202-9	9/6															
UCP203-10	5/8															
UCP203		17														
UCP203-11	11/16															
UCP204		20	33.3	127	95	38	13	16	15	65	31	12.7	46.4	M10	3/8	0.82
UCP204-12	3/4															
UCP205		25	36.5	140	105	38	13	16	16	70	34.1	14.3	48	M10	3/8	0.94
UCP205-14	7/8															
UCP205-15	15/16															
UCP205-16	1															
UCP206		30	42.9	160	121	48	17	21	18	83	38.1	15.6	52	M14	1/2	1.46
UCP206-17	1-1/16															
UCP206-18	1-1/8															
UCP206-19	1-3/16															
UCP206-20	1-1/4															
UCP207		35	47.6	167	127	48	17	21	19	94	42.9	17.5	59	M14	1/2	1.76
UCP207-20	1-1/4															
UCP207-21	1-5/6															
UCP207-22	1-3/8															
UCP207-23	1-7/16															
UCP208		40	49.2	180	137	54	17	25	19	101	49.2	19.0	68.2	M14	1/2	2.13
UCP208-24	1-1/2															
UCP208-25	1-9/16															

If you would like to view our full range, please refer to our Bearings Catalogue online at: **www.iadaltd.co.uk**

DUNLOP

UCF BEARINGS

UCF PILLOW BLOCK BEARINGS

Description

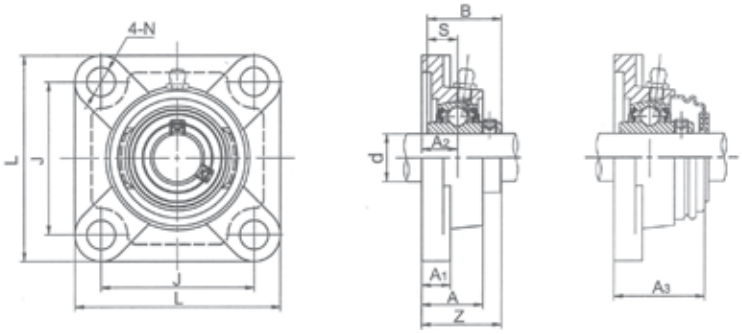
4-bolt flanged block bearing units offer simple effective and reliable solutions with the minimum design work requirements.

They consist of a housing which is made of cast iron or pressed steel and an insert bearing, they have self-aligning features due to their spherical outer diameter and the corresponding design in the bearing housing.

This feature allows for any static misalignment, which can occur in other parts of its applications.

Bearing inserts are produced in several different designs to meet various technical demands incorporating 2 seals -2RS and 2 shields -2Z and are supplied grease filled during manufacture.

UCF PILLOW BLOCK BEARINGS



Unit No.	Shaft Dia		Dimensions (mm)										Bolt Size (mm)	Weight (kg)
	w		L	J	A_2	A_1	A	N	B	S	Z	A_3		
	(in)	(mm)												
UCF201		12	86	64	15	12	25.5	12	31	12.7	33.3		M10	0.61
UCF201-8	1/2													
UCF202		15	86	64	15	12	25.5	12	31	12.7	33.3		M10	0.61
UCF202-9	9/16													
UCF202-10	5/8													
UCF203		17	86	64	15	12	25.5	12	31	12.7	33.3		M10	0.61
UCF203-11	11/16													
UCF204			86	64	15	12	25.5	12	31	12.7	33.3	38.2	M10	0.61
UCF204-12	3/4													
UCF205		25	95	70	16	14	27	12	34.1	14.3	35.8	40	M10	0.80
UCF205-14	7/8													
UCF205-15	15/16													
UCF205-16	1													
UCF206		30	108	83	18	14	31	12	38.1	15.9	40.2	44	M10	1.00
UCF206-17	1-1/16													
UCF206-18	1-1/8													
UCF206-19	1-3/16													
UCF206-20	1-1/4													
UCF207		35	117	92	19	16	34	14	42.9	17.5	44.4	48.5	M12	1.40
UCF207-20	1-1/4													
UCF207-21	1-5/16													
UCF207-22	1-3/8													
UCF207-23	1-7/16													
UCF208		40	130	102	21	16	36	16	49.2	19	51.2	55.1	M14	1.80
UCF208-24	1-1/2													

If you would like to view our full range, please refer to our Bearings Catalogue online at: **www.iadaltd.co.uk**

DUNLOP

UCFL BEARINGS

UCFL PILLOW BLOCK BEARINGS

Description

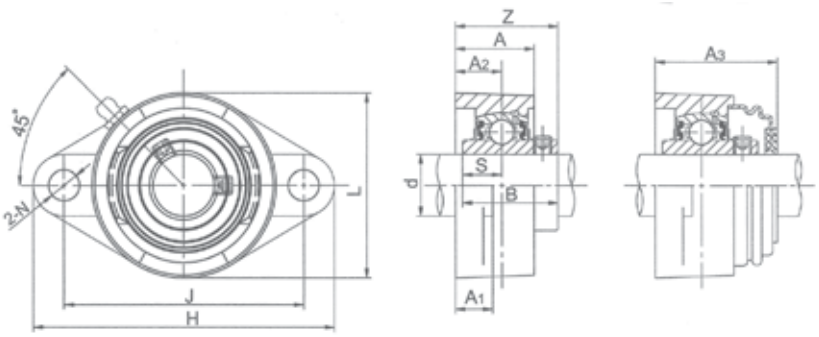
2-bolt flanged block bearing units offer simple effective and reliable solutions with the minimum design work requirements.

They consist of a housing which is made of cast iron or pressed steel and an insert bearing, they have self-aligning features due to their spherical outer diameter and the corresponding design in the bearing housing.

This feature allows for any static misalignment, which can occur in other parts of its applications.

Bearing inserts are produced in several different designs to meet various technical demands incorporating 2 seals -2RS and 2 shields -2Z and are supplied grease filled during manufacture.

UCFL PILLOW BLOCK BEARINGS

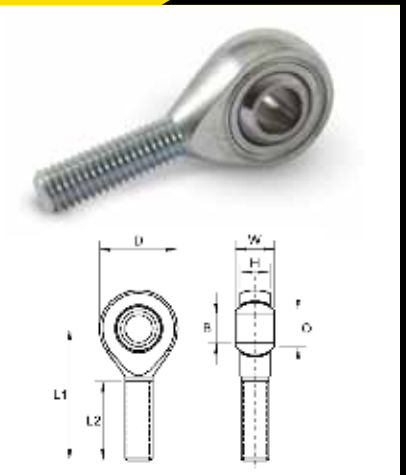


Unit No.	Shaft Dia		Dimensions (mm)										Bolt Size (mm)	Weight (kg)
	w		H	J	A_2	A_1	A	N	L	B	S	Z	A_3	
	(in)	(mm)												
UCFl201		12	113	90	15	11	25.5	12	60	31	12.7	33.3		M10	0.51
UCF201-8	1/2														
UCF202		15	113	90	15	11	25.5	12	60	31	12.7	33.3		M10	0.51
UCF202-9	9/16														
UCF202-10	5/8														
UCF203		17	113	90	15	11	25.5	12	60	31	12.7	33.3		M10	0.51
UCF203-11	11/16														
UCF204		20	113	90	15	11	25.5	12	60	31	12.7	33.3	38.2	M10	0.51
UCF204-12	3/4														
UCF205		25	130	99	16	13	27	16	68	34.1	14.3	35.8	40	M14	0.6
UCF205-14	7/8														
UCF205-15	15/16														
UCF205-16	1														
UCF206		30	148	117	18	13	31	16	80	38.1	15.9	40.2	44	M14	0.9
UCF206-17	1-1/16														
UCF206-18	1-1/8														
UCF206-19	1-3/16														
UCF206-20	1-1/4														
UCF207		35	160	130	19	15	34	16	90	42.9	17.5	44.4	48.5	M14	1.2
UCF207-20	1-1/4														
UCF207-21	1-5/16														
UCF207-22	1-3/8														
UCF207-23	1-7/16														
UCF208		40	175	144	21	15	36	16	100	49.2	19	51.2	55.1	M14	1.5
UCF208-24	1-1/2														

If you would like to view our full range, please refer to our Bearings Catalogue online at: **www.iadaltd.co.uk**

DUNLOP

MALE ROD ENDS



MS SERIES: MS – MSS – MS SS

Description:
MS Series is our 3-piece steel on steel range of male rod ends incorporating a high strength PTFE bronze mesh between the ball and the liner material, suitable for high shock loads and medium to heavy mechanical load applications requiring low friction, available in both metric and imperial bore thread sizes, they do not require maintenance.

Material Specifications:
Housing: Steel 230M07Pb and forged 080M46, zinc plated and clear trivalent passivated and stainless steel 303L and forged 304. Inner Ring: Steel 070M20 zinc plated and clear trivalent passivated. Liner. High strength PTFE bronze mesh composite. Ball: Bearing steel 100Cr6, heat treated, polished & electroless nickel plated and stainless steel 440C

Features:
Metric & imperial thread & bore sizes, low friction, high shock loads.
Extended wear life
No maintenance
Studded and stainless steel options.

Possible Applications:
Medium/heavy industrial/ mechanical applications
Construction equipment
Agricultural equipment
Motor sport and recreational vehicles requiring high precision motion control.

Temperature Range:
-200°C to + 260°C

Specification:
ELV & RoHS compliant

Interchange table

Dunlop	Rose	Aurora	Askubal
MS-M (metric)	MMC	MM-M-T and MB-M-T	KA-P
MS (imperial)	RMC	MM-T and MB-T	-

Dunlop	SKF	ASAHI	IKO	Fluro
MS-M (metric)	SAKB-F	JAM-EC	POS-EC	GASW
MS (imperial)	-		POSB-EC	

Note: Manufacturers part numbers are used for descriptive purposes only and may not be direct equivalent products.

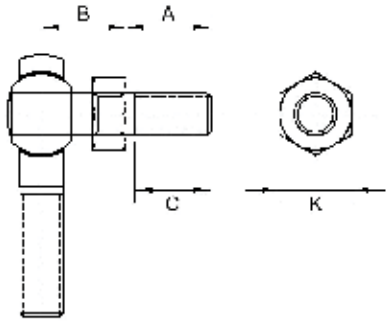
Part No. Right Hand	Part No. Left Hand	Bore Size	Thread	W	H	D	L1	L2	O	Static Load Rating (Newtons) Radial
MS-M05	MSL-M05	5	M5x0.80	8	6.00	18	33	20	7.70	4,300
MS-M06-5	MSL-M06-5	5	M6X1.00	9	6.75	20	36	22	8.90	6,000
MS-M06	MSL-M06	6	M6X1.00	9	6.75	20	36	22	8.90	6,000
MS-M08-6	MSL-M08-6	6	M8X1.25	12	9.00	24	42	25	10.40	11,100
MS-M08-6C	MSL-M08-6C	6	M8X1.00	12	9.00	24	42	25	10.40	11,100
MS-M08	MSL-M08	8	M8X1.25	12	9.00	24	42	25	10.40	11,100
MS-M08C	MSL-M08C	8	M8X1.00	12	9.00	24	42	25	10.40	11,100
MS-M10-8	MSL-M10-8	8	M10X1.50	14	10.50	28	48	29	12.90	17,500
MS-M10-8C	MSL-M10-8C	8	M10X1.25	14	10.50	28	48	29	12.90	17,500
MS-M10	MSL-M10	10	M10X1.50	14	10.50	28	48	29	12.90	17,500
MS-M10C	MSL-M10C	10	M10X1.25	14	10.50	28	48	29	12.90	17,500
MS-M12-10	MSL-M12-10	10	M12X1.75	16	12.00	32	54	33	15.40	23,600
MS-M12-10C	MSL-M12-10C	10	M12X1.25	16	12.00	32	54	33	15.40	23,600
MS-M12	MSL-M12	12	M12X1.75	16	12.00	32	54	33	15.40	23,600
MS-M12C	MSL-M12C	12	M12X1.25	16	12.00	32	54	33	15.40	23,600
MS-M14-12	MSL-M14-12	12	M14X2.00	19	13.50	36	60	38	16.80	29,200
MS-M14-12C	MSL-M14-12C	12	M14X1.50	19	13.50	36	60	38	16.80	29,200
MS-M14	MSL-M14	14	M14X2.00	19	13.50	36	60	38	16.80	29,200
MS-M14C	MSL-M14C	14	M14X1.50	19	13.50	36	60	38	16.80	29,200
MS-M16-14	MSL-M16-14	14	M16X2.00	21	15.00	42	66	40	19.30	32,100
MS-M16-14C	MSL-M16-14C	14	M16X1.50	21	15.00	42	66	40	19.30	32,100
MS-M16	MSL-M16	16	M16X2.00	21	15.00	42	66	40	19.30	32,100

If you would like to view our full range, please refer to our Linkages Catalogue online at: **www.iadaltd.co.uk**

MALE ROD ENDS

DUNLOP

MSS SERIES: STUDDED MALE ROD ENDS (METRIC)



Housing: Steel 230M07Pb (Sizes M05 – M12)
Forged 080M46 (Sizes M14 – M16)
Zinc Plated and Clear Trivalent Passivate

Inner Ring: Steel 070M20, Zinc Plated and Clear Trivalent Passivate

Ball: Bearing Steel 100Cr6, Hardened and Electro-less Nickel Plated

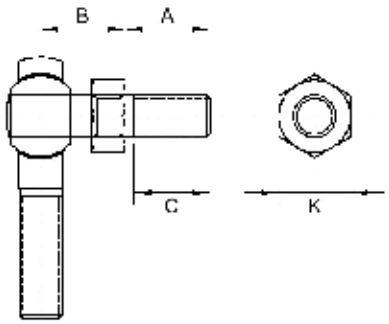
Stud: Steel 230M07Pb, Zinc Plated and Clear Trivalent Passivate

Liner: High Strength PTFE Composite

Specification: ELV and RoHS Compliant

Part No. Right Hand	Part No. Left Hand	Stud Size	Thread	A	B	C	K	Static Load Rating (Newtons) Radial
MS-M05S	MSL-M05S	M5X0.80	M5x0.80	10	10	8	9	1,200
MS-M06S	MSL-M06S	M6X1.00	M6X1.00	12	12	10	10	1,930
MS-M08S	MSL-M08S	M8X1.25	M8X1.25	16	16	14	13	3,190
MS-M10S	MSL-M10S	M10X1.50	M10X1.50	20	20	18	17	4,240
MS-M12S	MSL-M12S	M12X1.75	M12X1.75	24	24	21	19	5,720
MS-M14S	MSL-M14S	M14X2.00	M14X2.00	28	28	25	22	7,200
MS-M16S	MSL-M16S	M16X2.00	M16X2.00	29	29	24	24	9,000

MSS SERIES: STUDDED MALE ROD ENDS (IMPERIAL)



Housing: Steel 230M07Pb (Sizes 04 - 07)
Forged 080M46 (Sizes 08 - 10)
Zinc Plated and Clear Trivalent Passivate

Inner Ring: Steel 070M20, Zinc Plated and Clear Trivalent Passivate

Ball: Bearing Steel 100Cr6, Hardened and Electro-less Nickel Plated

Stud: Steel 230M07Pb, Zinc Plated and Clear Trivalent Passivate

Liner: High Strength PTFE Composite

Specification: ELV and RoHS Compliant

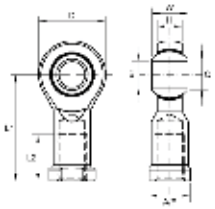
Part No. Right Hand	Part No. Left Hand	Stud Size	Thread	A	B	C	K	Static Load Rating (Newtons) Radial
MS-04S	MSL-04S	1/4 UNF	1/4 UNF	0.562	0.485	0.500	0.375	1,200
MS-05S	MSL-05S	5/16 UNF	5/16 UNF	0.687	0.547	0.594	0.437	3,190
MS-06S	MSL-06S	3/8 UNF	3/8 UNF	0.906	0.562	0.812	0.500	4,240
MS-07S	MSL-07S	7/16 UNF	7/16 UNF	1.125	0.843	1.000	0.625	5,720
MS-08S	MSL-08S	1/2 UNF	1/2 UNF	1.125	0.875	1.000	0.625	7,200
MS-10S	MSL-10S	5/8 UNF	5/8 UNF	1.125	1.000	1.000	0.750	9,000

For stainless steel add 'SS' to part no. For example 'MS-M05S SS'

If you would like to view our full range, please refer to our Linkages Catalogue online at: **www.iadaltd.co.uk**

DUNLOP

FEMALE ROD ENDS



FS SERIES: FS – FSS – FS SS

Description:
FS Series is our 3-piece steel on steel range of male rod ends incorporating a high strength PTFE bronze mesh between the ball and the liner material, suitable for high shock loads and medium to heavy mechanical load applications requiring low friction, available in both metric and imperial bore thread sizes, they do not require maintenance.

Material Specifications:
Housing: Steel 230M07Pb and forged 080M46, zinc plated and clear trivalent passivated and stainless steel 303L and forged 304. Inner Ring: Steel 070M20 zinc plated and clear trivalent passivated. Liner. High strength PTFE bronze mesh composite. Ball: Bearing steel 100Cr6, heat treated, polished & electroless nickel plated and stainless steel 440C

Features:
Metric & imperial thread & bore sizes, low friction, high shock loads.
Extended wear life
No maintenance
Studded and stainless steel options.

Possible Applications:
Medium/heavy industrial/ mechanical applications
Construction equipment
Agricultural equipment
Motor sport and recreational vehicles requiring high precision motion control.

Temperature Range:
-200°C to + 260°C

Specification:
ELV & RoHS compliant

Interchange table

Dunlop	Rose	Aurora	Askubal
FS-M (metric)	MFC	MW-M-T and MG-M-T	KI-P
FS (imperial)	RFC	MW-T and MG-T	-

Dunlop	SKF	ASAHI	IKO	Fluro
FS-M (metric)	SIKB-F	JAF-EC	PHS-EC	GISW
FS (imperial)	-	PHSB-EC	-	

Note: Manufacturers part numbers are used for descriptive purposes only and may not be direct equivalent products.

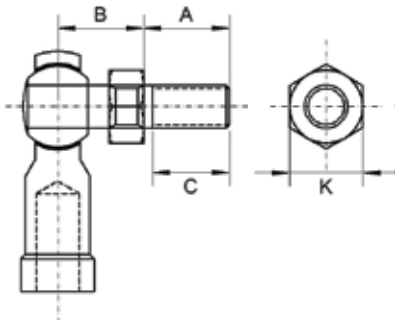
Part No. Right Hand	Part No. Left Hand	Bore Size	Thread	W	H	D	L1	L2	O	AF	Static Load Rating (Newtons) Radial
FS-M05	FSL-M05	5	M8X0.80	8	6.00	18	27	10	7.70	9	8000
FS-M06-5	FSL-M06-5	5	M6X1.00	9	6.75	20	30	12	8.90	11	8900
FS-M06	FSL-M06	6	M6X1.00	9	6.75	20	30	12	8.90	11	8900
FS-M08-6	FSL-M08-6	6	M8X1.25	12	9.00	24	36	16	10.40	13	14,100
FS-M08-6C	FSL-M08-6C	6	M8X1.00	12	9.00	24	36	16	10.40	13	14,100
FS-M08	FSL-M08	8	M8X1.25	12	9.00	24	36	16	10.40	13	14,100
FS-M08C	FSL-M08C	8	M8X1.00	12	9.00	24	36	16	10.40	13	14,100
FS-M10-8	FSL-M10-8	8	M10X1.50	14	10.50	28	43	20	12.90	17	19,300
FS-M10-8C	FSL-M10-8C	8	M10X1.25	14	10.50	28	43	20	12.90	17	19,300
FS-M10	FSL-M10	10	M10X1.50	14	10.50	28	43	20	12.90	17	19,300
FS-M10C	FSL-M10C	10	M10X1.25	14	10.50	28	43	20	12.90	17	19,300
FS-M12-10	FSL-M12-10	10	M12X1.75	16	12.00	32	50	22	15.40	19	23,600
FS-M12-10C	FSL-M12-10C	10	M12X1.25	16	12.00	32	50	22	15.40	19	23,600
FS-M12	FSL-M12	12	M12X1.75	16	12.00	32	50	22	15.40	19	23,600
FS-M12C	FSL-M12C	12	M12X1.25	16	12.00	32	50	22	15.40	19	23,600
FS-M14-12	FSL-M14-12	12	M14X2.00	19	13.50	36	57	25	16.80	22	29,200
FS-M14-12C	FSL-M14-12C	12	M14X1.50	19	13.50	36	57	25	16.80	22	29,200
FS-M14	FSL-M14	14	M14X2.00	19	13.50	36	57	25	16.80	22	29,200
FS-M14C	FSL-M14C	14	M14X1.50	19	13.50	36	57	25	16.80	22	29,200
FS-M16-14	FSL-M16-14	14	M16X2.00	21	15.00	42	64	28	19.30	22	32,100
FS-M16-14C	FSL-M16-14C	14	M16X1.50	21	15.00	42	64	28	19.30	22	32,100
FS-M16	FSL-M16	16	M16X2.00	21	15.00	42	64	28	19.30	22	32,100

If you would like to view our full range, please refer to our Linkages Catalogue online at: **www.iadaltd.co.uk**

FEMALE ROD ENDS

DUNLOP

FSS SERIES: STUDDED FEMALE ROD ENDS (METRIC)



Housing: Steel 230M07Pb (Sizes M05 – M12)
Forged 080M46 (Sizes M14 – M16)
Zinc Plated and Clear Trivalent Passivate

Inner Ring: Steel 070M20, Zinc Plated and Clear Trivalent Passivate

Ball: Bearing Steel 100Cr6, Hardened and Electro-less Nickel Plated

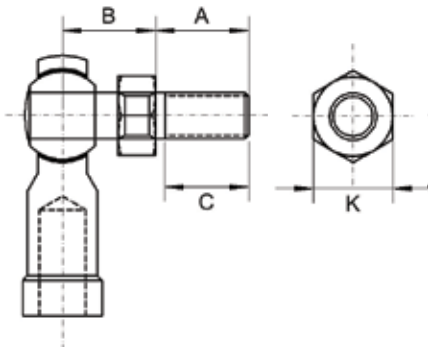
Stud: Steel 230M07Pb, Zinc Plated and Clear Trivalent Passivate

Liner: High Strength PTFE Composite

Specification: ELV and RoHS Compliant

Part No. Right Hand	Part No. Left Hand	Stud Size	Housing Thread	A	B	C	K	Static Load Rating (Newtons) Radial
FS-M05S	FSL-M05S	M5X0.80	M5x0.80	10	10	8	9	1,200
FS-M06S	FSL-M06S	M6X1.00	M6X1.00	12	12	10	10	1,930
FS-M08S	FSL-M08S	M8X1.25	M8X1.25	16	16	14	13	3,190
FS-M10S	FSL-M10S	M10X1.50	M10X1.50	20	20	18	17	4,240
FS-M12S	FSL-M12S	M12X1.75	M12X1.75	24	24	21	19	5,720
FS-M14S	FSL-M14S	M14X2.00	M14X2.00	28	28	25	22	7,200
FS-M16S	FSL-M16S	M16X2.00	M16X2.00	29	29	24	24	9,000

FSS SERIES: STUDDED FEMALE ROD ENDS (IMPERIAL)



Housing: Steel 230M07Pb (Sizes 04 - 07)
Forged 080M46 (Sizes 08 - 10)
Zinc Plated and Clear Trivalent Passivate

Inner Ring: Steel 070M20, Zinc Plated and Clear Trivalent Passivate

Ball: Bearing Steel 100Cr6, Hardened and Electro-less Nickel Plated

Stud: Steel 230M07Pb, Zinc Plated and Clear Trivalent Passivate

Liner: High Strength PTFE Composite

Specification: ELV and RoHS Compliant

Part No. Right Hand	Part No. Left Hand	Stud Size	Housing Thread	A	B	C	K	Static Load Rating (Newtons) Radial
FS-04S	FSL-04S	1/4 UNF	1/4 UNF	0.562	0.485	0.500	0.375	1,500
FS-05S	FSL-05S	5/16 UNF	5/16 UNF	0.687	0.547	0.594	0.437	3,190
FS-06S	FSL-06S	3/8 UNF	3/8 UNF	0.906	0.562	0.812	0.500	4,240
FS-07S	FSL-07S	7/16 UNF	7/16 UNF	1.125	0.843	1.000	0.625	5,720
FS-08S	FSL-08S	1/2 UNF	1/2 UNF	1.125	0.875	1.000	0.625	7,200
FS-10S	FSL-10S	5/8 UNF	5/8 UNF	1.125	1.000	1.000	0.750	9,000

For stainless steel add 'SS' to part no. For example 'FS-M05S SS'

If you would like to view our full range, please refer to our Linkages Catalogue online at: **www.iadaltd.co.uk**

DUNLOP

SPHERICAL BEARINGS

GXSW SERIES

Description:
GXSW Series is our 2-piece metric range of general purpose spherical plain bearings incorporating a thin PTFE fabric between the ball and the outer ring, suitable for high shock loads and medium to heavy industrial/mechanical load applications requiring low friction. They do not require maintenance.

Material Specifications:
Outer ring: Steel 070M20, zinc plated and clear trivalent passivated.
Ball: Bearing steel 100Cr6, hardened and electro-less nickel plated.
Liner: High temperature PTFE composite.

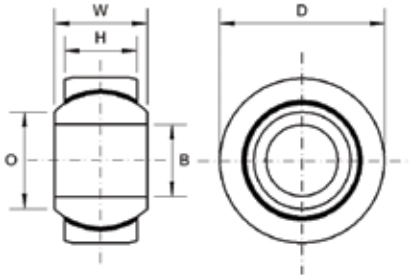
Features
Metric bore sizes
Low friction
High shock loads
Extended wear life
No maintenance

Possible Applications
Medium/heavy industrial/ mechanical
Construction equipment
Agricultural equipment
Recreational vehicles
High precision motion control

Temperature Range
-200°C to +260°C

Specification
ELV & RoHS compliant

GXSW SERIES: MAINTENANCE FREE SPHERICAL BEARING (METRIC)



Outer Ring: Steel 070M20, Zinc Plated and Clear Trivalent Passivate

Ball: Bearing Steel 100Cr6, Hardened, and Electro-less Nickel Plated

Liner: High Temperature PTFE Composite

Specification: ELV and RoHS Compliant

Part No.	Bore Size	W	H	D	C	Static Load Rating (Newtons) Radial
GXSW-M05	5	8	6.00	13	1x15°	12,500
GXSW-M06	6	9	6.75	15	1x15°	15,500
GXSW-M08	8	12	9	18	1.2x15°	27,800
GXSW-M10	10	14	10.5	21	1.2x15°	39,000
GXSW-M12	12	16	12	24.5	1.2x15°	53,500
GXSW-M14	14	19	13.5	28	1.5x15°	70,000
GXSW-M16	16	21	15	31.5	1.5x15°	88,000
GXSW-M18	18	23	16.5	34.5	1.5x15°	106,500
GXSW-M20	20	25	18	38	1.5x15°	130,000
GXSW-M22	22	28	20	41	1.5x15°	162,000
GXSW-M25	25	31	22	46	1.5x15°	204,000

GXSW SERIES: MAINTENANCE FREE SPHERICAL BEARING (IMPERIAL)

Part No.	Bore Size	W	H	D	C	Static Load Rating (Newtons) Radial
GXSW-04	1/4	0.375	0.281	0.6094	0.039x15°	15,500
GXSW-05	5/16	0.437	0.344	0.7500	0.047x15°	27,800
GXSW-06	3/8	0.500	0.406	0.8437	0.047x15°	39,000
GXSW-07	7/16	0.562	0.437	1.000	0.047x15°	44,000
GXSW-08	1/2	0.625	0.500	1.0937	0.059x15°	53,500
GXSW-10	5/8	0.750	0.562	1.3125	0.059x15°	88,000
GXSW-12	3/4	0.875	0.687	1.500	0.059x15°	130,000

If you would like to view our full range, please refer to our Linkages Catalogue online at: **www.iadaltd.co.uk**

DUNLOP

BALL JOINTS

BL SERIES

Description:
BL-Series is our 4-piece standard range of die cast zinc alloy ball joints suitable for medium industrial/mechanical load applications requiring smooth action and good wear resistance. The body is die cast around the ball giving an ultra smooth surface contact area, the ball stud is hardened and friction welded to the ball. The neoprene gaiter helps resist dirt contamination.

Material Specifications:
Body: Die cast zinc alloy. Ball: 100Cr6 bearing steel. Ball stud: Steel S35C hardened zinc plated and clear trivalent passivated. Gaiter: Neoprene.

Features
Metric thread sizes Ultra smooth action
Strong & cost effective
High pull out load axial & radial. Good wear resistance. Lubricated

Possible Applications
Industrial equipment
Construction equipment
Agricultural equipment
Lawn & garden equipment

Temperature Range
-30°C to +120°C

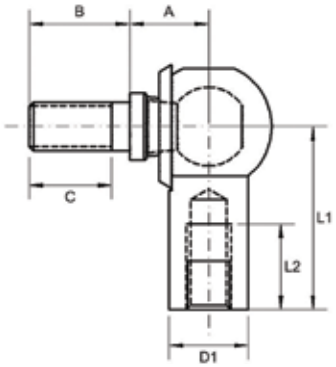
Specification
ELV & RoHS compliant

Interchange table

Dunlop	IKO	THK	Alinabal	SKF	Asahi	Rose
BL (metric)	LHSA	BL-D	-	-	-	-

Note: Manufacturers part numbers are used for descriptive purposes only and may not be direct equivalent products.

BL SERIES: DIE CAST BALL JOINTS (METRIC)



Body: Die Cast Zinc Alloy

Ball: Bearing Steel 100Cr6

Ball Stud: S35C, Hardened, Zinc Plated and Clear Trivalent Passivate

Dust Seal: Neoprene Rubber

Specification: ELV and RoHS Compliant

Part No. Right Hand	Part No. Left Hand	Body Thread	Stud Thread	Ball Dia	L1	L2 Min	Stud A/F	A	B	C Min	D1
BL6D	BL6DL	M6X1.00	M10X1.25	8	30	16	10	11.0	15.0	11.0	11
BL8D	BL8DL	M8X1.25	M8X1.25	8	36	19	12	14.0	17.0	12.0	14
BL10BD	BL10BDL	M10X1.50	M10X1.50	10	43	23	14	17.0	26.0	21.0	17
BL10D	BL10DL	M10X1.25	M10X1.25	13	43	23	14	17.0	20.0	15.0	17
BL12BD	BL12BDL	M12X1.75	M12X1.75	13	50	26	17	19.0	30.0	24.0	19
BL12D	BL12DL	M12X1.25	M12X1.25	13	50	26	17	19.0	23.0	17.0	19
BL14BD	BL14BDL	M14X2.00	M14X2.00	13	57	30	19	21.5	40.5	28.0	22
BL14D	BL14DL	M14X1.50	M14X1.50	13	57	30	19	21.5	34.5	22.0	22
BL16BD	BL16BDL	M16X2.00	M16X2.00	13	64	34	22	23.5	42.5	29.0	24
BL16D	BL16DL	M16X1.50	M16X1.50	13	64	34	22	23.5	36.5	23.0	24

If you would like to view our full range, please refer to our Linkages Catalogue online at: **www.iadaltd.co.uk**

DUNLOP

BALL JOINTS

C SERIES: CMG

Description:
C-Series is our 5-piece range of spring retained and lockable ball joints suitable for medium industrial/mechanical load applications, inner ring retains the ball stud while the safety clip prevents the ball stud from being removed. CMG/1-Series ball joints are also available without the ball stud allowing for assembly on to a pre-positioned stud, please refer to compatible ball stud options in our miscellaneous product section.

Material Specifications:
Body: Steel 230M07PB zinc plated and clear trivalent passivated. Ball stud: Steel 212A42 hardened and zinc plated and clear trivalent passivated. Inner ring and safety clip: Spring steel to BS5216. Gaiter: Neoprene.

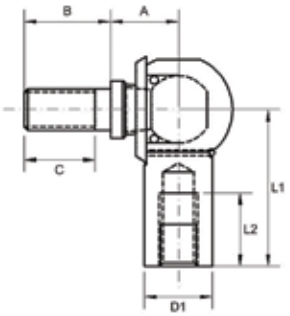
Features
Metric thread sizes
Lubricated
Can be assembled in situ
Good wear resistance
Medium duty
Safety features

Possible Applications
Industrial equipment
Construction equipment
Agricultural equipment
Lawn & garden equipment

Temperature Range
-30°C to +90°C

Specification
ELV & RoHS compliant

CMG SERIES: DIN STANDARD BALL JOINTS (METRIC)



Body: Steel 230M07Pb, Zinc Plated and Clear Trivalent Passivate

Ball Stud: Steel 212A42, Hardened, Zinc Plated and Clear Trivalent Passivate

Safety Clip: Spring Steel

Outer Clip: Spring Steel

Dust Seal: Neoprene Rubber

Specification: ELV and RoHS Compliant

Part No. Right Hand	Part No. Left Hand	Body Thread	Stud Thread	Ball Dia	Body Flats	L1	L2 Min	Stud A/F	A	B	C Min	D1
CM5/1	CM5/1LH	M5X0.80	M5X0.80	8	7	22	10	7	9.0	10.2	7.7	8.0
CMG5/1	CMG5/1LH	M5X0.80	M5X0.80	8	7	22	10	7	9.0	10.2	7.7	8.0
CM6/1	CM6/1LH	M6X1.00	M6X1.00	10	9	25	11.5	8	11.0	12.5	10.0	10.0
CMG6/1	CMG6/1LH	M6X1.00	M6X1.00	10	9	25	11.5	8	11.0	12.5	10.0	10.0
CM8/1	CM8/1LH	M8X1.25	M8X1.25	13	11	30	14	11	13.0	16.5	14.0	13.0
CMG8/1	CMG8/1LH	M8X1.25	M8X1.25	13	11	30	14	11	13.0	16.5	14.0	13.0
CM10/1	CM10/1LH	M10X1.50	M10X1.50	16	13	35	15	13	16.0	20.0	17.5	16.0
CMG10/1	CMG10/1LH	M10X1.50	M10X1.50	16	13	35	15	13	16.0	20.0	17.5	16.0
CM12/1	CM12/1LH	M12x1.75	M12x1.75	16	14	35	15	13	16.0	20.0	17.5	16.0
CMG12/1	CMG12/1LH	M12x1.75	M12x1.75	16	14	35	15	13	16.0	20.0	17.5	16.0
CM14/1	CM14/1LH	M14X2.00	M14X2.00	19	19	45	21	16	20.0	28.0	22.0	22.0
CMG14/1	CMG14/1LH	M14X2.00	M14X2.00	19	19	45	21	16	20.0	28.0	22.0	22.0
CM14C/1	CM14C/1LH	M14X1.50	M14X1.50	19	19	45	21	16	20.0	28.0	22.0	22.0
CMG14C/1	CMG14C/1LH	M14X1.50	M14X1.50	19	19	45	21	16	20.0	28.0	22.0	22.0
CM16/1	CM16/1LH	M16X2.00	M16X2.00	19	-	45	21	16	20.0	28.0	22.0	22.0
CMG16/1	CMG16/1LH	M16X2.00	M16X2.00	19	-	45	21	16	20.0	28.0	22.0	22.0

If you would like to view our full range, please refer to our Linkages Catalogue online at: **www.iadaltd.co.uk**

DUNLOP

LINKAGES

LINKAGES

Description:
We specialise in the supply of custom rod-based linkages, ready to fit and quality guaranteed, from end-to-end. Major manufacturers of construction, navigation and hospital equipment, through to farm tractors, food processing machinery and beer pumps depend on Dunlop resources for complete linkages, cost reductions and improved efficiency.

Rod Based Linkages:
Aluminium 6082 T 6. Brass CW 609 N (CZ 121). Carbon steel strip CS 70. Plastics Nylon 6, nylon 66 with molybdenum disulphide and nylon 66 30% glass-filled polyurethane. Steel: Rods 040 A 10 and 080 A 42, turned parts 230 M 07 pb, stainless 303 S 31.

Features
Reduced part numbers
Reduced suppliers
Eliminates stock imbalance
Cost savings
Bespoke designs available

Possible Applications
Light to heavy industrial/ mechanical applications
Construction equipment
Agricultural equipment
Industrial equipment

Temperature Range
-200°C to +260°C

Specification
ELV & RoHS compliant

Custom rod-based linkages

In addition to our standard range of ball joints, rod ends, clevises and spring pins, we specialise in the supply of custom rod-based linkages, ready to fit and quality guaranteed, from end-to-end.

Besides the savings on your own in-house costs, there are invisible savings to be made from reduction in part numbers, suppliers and inventory variety, as well as stock imbalance elimination.

Cost reductions & improved efficiency

Major manufacturers of construction, navigation and hospital equipment, through to farm tractors, food processing machinery and beer pumps depend on Dunlop resources for complete linkages, cost reductions and improved efficiency.

Why not join them?

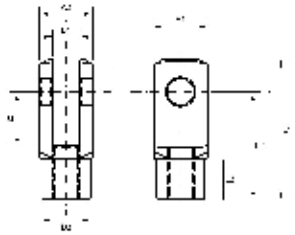
Bespoke design service

Take advantage of our design co-operation service from initial application appraisal, through costings and prototypes to I.S.I.R approval and production supply.

If you would like to view our full range, please refer to our Linkages Catalogue online at: **www.iadaltd.co.uk**

DUNLOP

CLEVIS JOINTS



G SERIES: GM - GI - GM SS

Description:
G-Series is our standard range of metric and imperial clevises also known as 'yoke' and 'fork' ends. In addition to our catalogue range, we have produced over 2,000 special clevises to suit individual customer applications, therefore please enquire for any item not shown. Imperial sizes are easily identified by a groove on the tail. Stainless steel clevis assemblies are also available.

Metric sizes up to GML16 are used with ESM folding spring pins on page 97 or with NBM clevis pins on page 98. GM18 - GM30 are used with DEM clevis pins on page 99, size GM20 may also be used with ESM20 on page 97. Imperial sizes up to GIL625 are used with ESI folding spring pins on page 97 or with NBI clevis pins on page 98. GI750 - GI1000 are used with DEI clevis pins on page 99.

Material Specifications:
Clevis: Steel 230M07PB zinc plated white and blue passivated (silver/clear) and stainless steel 303L.

Features
Metric & imperial thread & bore sizes
Standard & long series
Course & fine threads
No maintenance

Possible Applications
Light to heavy industrial/ mechanical applications
Construction equipment
Agricultural equipment
Industrial equipment

Temperature Range
-40°C to +170°C

Specification
ELV & RoHS compliant

Material: Steel 230M07Pb, Zinc Plated and Clear Trivalent Passivated

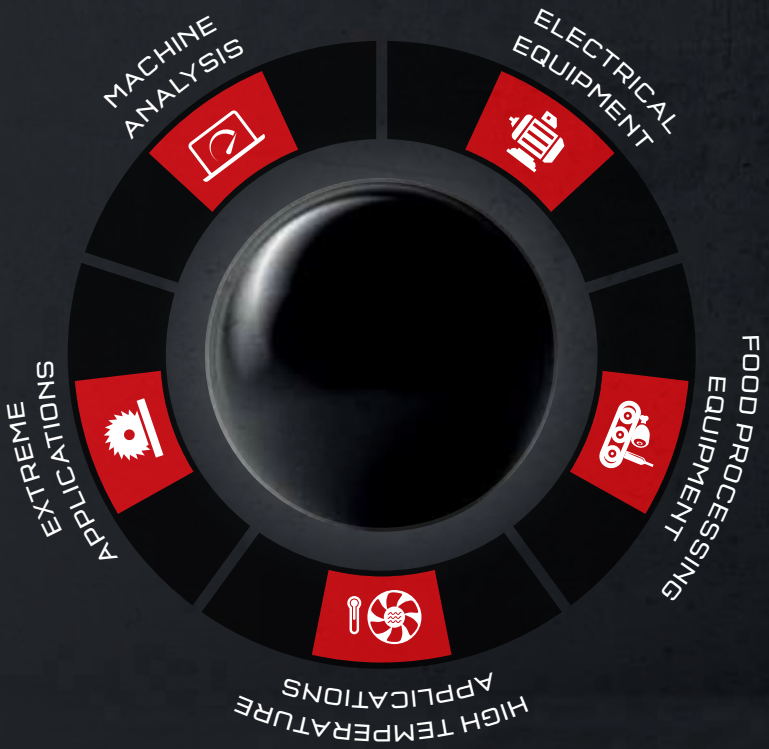
Specification: ELV and RoHS Compliant

Part No. Right Hand	Part No. Left Hand	Bore Size*	Thread	G	A1	A2	B1	D3	L1	L2	L3
GM4	GM4LH	4	M4X0.70	8	8	8	4	8	21	16	6.0
GML4	GML4LH	4	M4X0.70	16	8	8	4	8	29	24	6.0
GM5	GM5LH	5	M5X0.80	10	10	10	5	9	26	20	7.5
GML5	GML5LH	5	M5X0.80	20	10	10	5	9	36	30	7.5
GM6	GM6LH	6	M6X1.00	12	12	12	6	10	31	24	9.0
GML6	GML6LH	6	M6X1.00	24	12	12	6	10	43	36	9.0
GM8	GM8LH	8	M8X1.25	16	16	16	8	14	42	32	12.0
GML8	GML8LH	8	M8X1.25	32	16	16	8	14	58	48	12.0
GM8C	GM8CLH	8	M8X1.00	16	16	16	8	14	42	32	12.0
GML8C	GML8CLH	8	M8X1.00	32	16	16	8	14	58	48	12.0
GM10	GM10LH	10	M10X1.50	20	20	20	10	18	52	40	15.0
GML10	GML10LH	10	M10X1.50	40	20	20	10	18	72	60	15.0
GM10C	GM10CLH	10	M10X1.25	20	20	20	10	18	52	40	15.0
GML10C	GML10CLH	10	M10X1.25	40	20	20	10	18	72	60	15.0
GM12	GM12LH	12	M12X1.75	24	24	24	12	20	62	48	18.0
GML12	GML12LH	12	M12X1.75	48	24	24	12	20	86	72	18.0
GM12C	GM12CLH	12	M12X1.25	24	24	24	12	20	62	48	18.0
GML12C	GML12CLH	12	M12X1.25	48	24	24	12	20	86	72	18.0
GM14	GM14LH	14	M14X2.00	28	27	27	14	24	72	56	22.5
GML14	GML14LH	14	M14X2.00	57	27	27	14	24	101	85	22.5
GM14C	GM14CLH	14	M14X1.50	28	27	27	14	24	72	56	22.5
GML14C	GML14CLH	14	M14X1.50	57	27	27	14	24	101	85	22.5
GM16	GM16LH	16	M16X2.00	32	32	32	16	26	83	64	24.0
GM16C	GM16LHC	16	M16X1.50	32	32	32	16	26	83	64	24.0

**Cross hole tolerance: +0.06 -0.00 mm*

If you would like to view our full range, please refer to our Linkages Catalogue online at: **www.iadaltd.co.uk**

Saving operating costs by optimising with bearings



Simplified maintenance and improved competitiveness

4 times longer **service life**

Stable during the entire operating period

Bearings with long service life provide the opportunity to systematically remove the bearings, which disrupt production and constrain the production capacity. Instead of regular bearing replacement, the CeramicSpeed Bearings allow you to carefully plan for few larger maintenance programmes. By using CeramicSpeed OptimiZe, a solution that monitors the machinery, it is possible to act in before the damage occurs. Hence, maintenance can be planned when it least interferes with the production, avoiding additional costs.

The uptime is crucial for the production economy and thus competitiveness. Bearings manufactured with a focus on the function of the machine contribute to a better and more precise use of the production equipment. This provides a stable operation for the entire bearing service life, and leads to a reduced need for adjustments and corrections in pace with the natural wear of the equipment.

FOOD PROCESSING EQUIPMENT

LongLife Corrotec/CorroCoat

The CeramicSpeed LongLife Corrotec Bearing series is specially designed for humid environments. This type of bearings take over and continue to function, where the bearings made of clean stainless steel materials usually fail and break down.

The combination of stainless steel races, ceramic balls, ball cages from synthetic material and the right lubricant, provides a unique bearing in terms of resistance and thus service life. All LongLife Corrotec Bearings use food safety approved grease. If needed, besides ball bearings, the use of CorroCoat is possible, which provides extremely high corrosion resistant and friction-suppressant properties.

With the CeramicSpeed LongLife Corrotec Bearing series, it is possible to make use of bearings that are FDA/EC 1935 approved for use in the food industry. What makes these bearings unique is the fact that both the bearings' components and lubricant are food safety approved, meaning that they can come in direct contact with food. In addition to being FDA approved, several bearing components are also approved in accordance with EC 1935.

The lubricant used is NSF-H1 registered, in other words approved for use in contact with food and suitable for both sealed bearings and bearings that are continuously lubricated within the production process. A specification of the authorisations for CeramicSpeed Corrotec product series can be seen in the following table:

LongLife Corrotec product series

Corrotec	Silicium Nitrid balls	Grease	Bracket	Inner and outer ring	Seals		Coatings	
					Stainless	Rubber	CorroCoat	WearCoat HardCoat
EC 1935	X	X	X	X	X	X	X	X
FDA+	X	X	X	X	X	X	X	X

ELECTRICAL EQUIPMENT

LongLife Insulate

The CeramicSpeed LongLife HighTemp Bearings feature ceramic balls and high-tech components that offer a unique HighTemp-program of up to 260 ^{0}C and 350 ^{0}C respectively. Amongst other things, the reason why this is possible is that the CeramicSpeed Balls expand 70 % less than steel balls.

- 4-8 times longer bearing life actived
- Typically earned back by the first saved replacement
- The operating temperature is 14-47 ^{0}C lower than the temperature in the steel bearings
- Up to 70 % less energy consumption in the bearing
- Higher insulating power
- Higher RPM
  - typically 50 % over steel bearings
- Can run under low lubrication conditions
- Extremely resistant to contamination
- Reduced operating costs thanks to the bearings' longer service life
- Better uptime of machinery which ensures higher competitiveness

Bearings that last!

www.ceramicspeed.com/industry/en/

ceramicspeed

HIGH TEMPERATURE APPLICATIONS

LongLife HighTemp

The CeramicSpeed LongLife HighTemp Bearings feature ceramic balls and high-tech components that offer a unique HighTemp-program of up to 260 ^{0}C and 350 ^{0}C respectively. Amongst other things, the reason why this is possible is that the CeramicSpeed Balls expand 70 % less than steel balls.

- 4-8 times longer bearing life actived
- Lower energy consumption
- Extreme resistance to contamination
- Lower friction – the friction coefficient between the CeramicSpeed Balls and the races is reduced by 75 %
- Reduced wear and tear – fewer seizures on the bearing races
- Lower operating temperature – 10-20 ^{0}C lower than steel bearings
- Higher RPM (open bearings) – typically 50 % over steel bearings
- Reduced need for lubrication
- Grease type and quantity optimised for the specific application
- Reduced operating costs due to the bearings' longer service life
- Better machinery uptime that ensures higher competitiveness

Bearings that last!

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ceramicspeed

ELECTRICAL EQUIPMENT

LongLife Insulate

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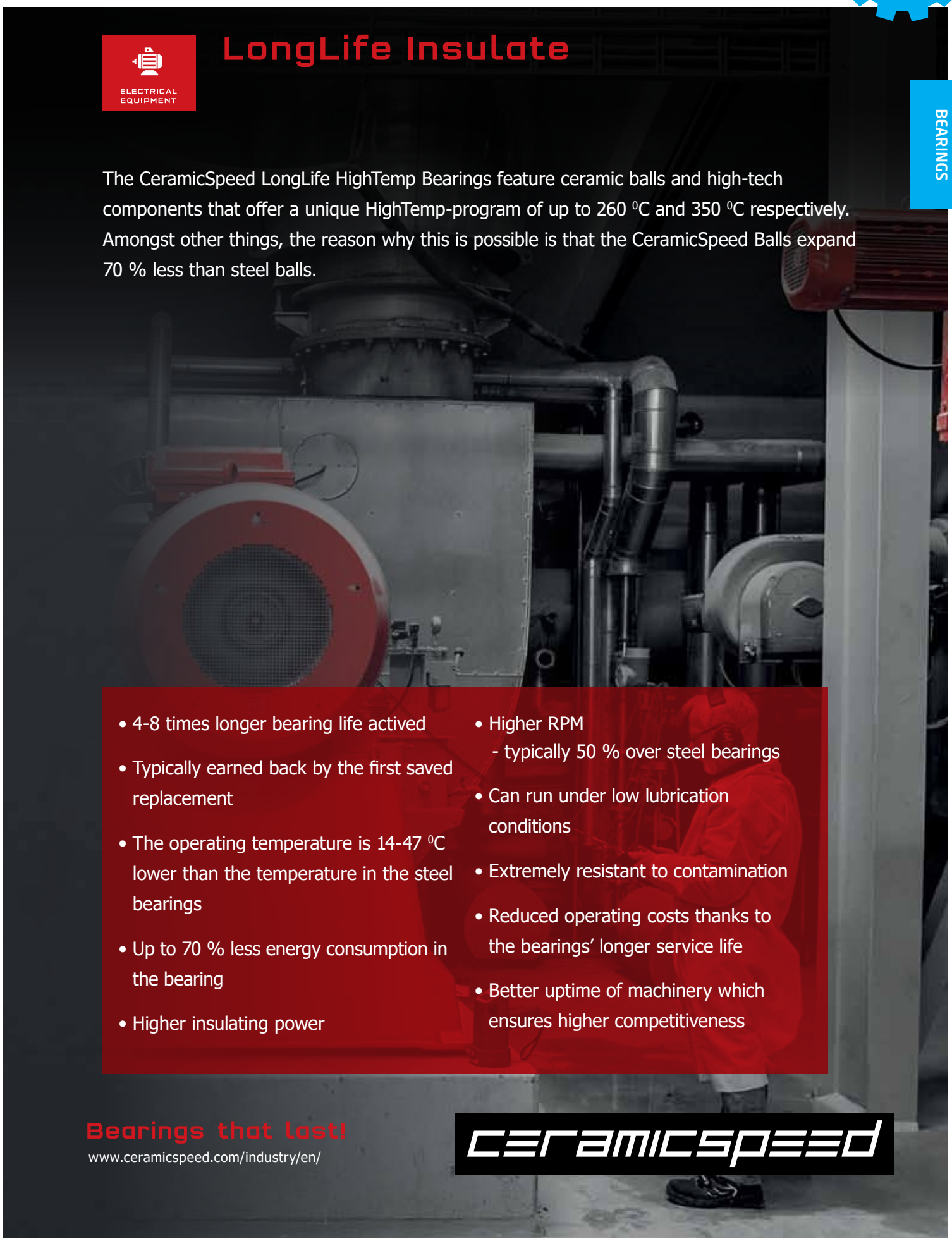

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