Agricultural bearings and cardan shafts

Factory of Rolling Bearings and Cardan Shafts - FKL

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1. Product information

1.1 INTRODUCTION

This catalog is prepared in order to present all important information about the products and their characteristics in “easy to find“ manner.
Whether looking for the particular product, or solution to the specific problem. This catalog represents the choice of most frequent FKL ball bearings and cardan shafts. This is selection of products that have steady demand and are used in a wide range of applications. Our users are familiar with benefits of FKL products. This catalog is primarily designed for end users, so the technical data are reduced to a minimum.

The catalog of rolling bearings and cardan shafts includes designations and principal dimensions for all types of bearings and cardan shafts that are used to a greater or lesser extent. The catalog also includes an overview of basic production program with comparative designation. The basic designation defines the type of the bearing, size series and the diameter of the bore by the defined order. Suffixes that appear in this catalog and ones that are frequently used are listed and explained in a specified table. Designations of housings follow similar designation system and can be found in the catalog as well. Other European and worldwide producers that are not included in this catalog have similar comparative designations. Additional designations are also specified as well as other necessary explanations.

Technology utilized for the production of the bearings and cardan shafts provides significant advantages to customers due to minimal maintenance costs. Each bearing should have longer life span and
should operate without any problems during the exploitation. However, it should be noted that certain external factors affect the quality of bearings as well. They should not be exposed to excessive heat and must be protected from ingress of foreign matter. Also, bearings must be properly lubricated.

This catalog presents bearings designed for agricultural equipment like combine harvesters, harrows, mowers, sugar beet harvesters... Development of the agricultural industry is followed by development of the cultivation and harvesting machinery. Each stage of cultivation requires special machinery that is either self-propelled or tractor driven, depending on operating conditions. Earlier generations of the machines were equipped with bearings that worked at lower speeds and supported lighter loads.

Modern ball bearings stand up to growing demands of operation in difficult conditions with increased productivity. Further development trends set demands for longer exploitation life under harsh conditions and more cost-effective design for agricultural machinery. Y-bearings provide cost-effective solutions and are extensively applied in agricultural machinery production. These bearings are quick and easy to mount. Wide inner ring can be mounted on the shaft by the eccentric ring, screws or adapter sleeves. Seals are specially designed and fitted to the outer ring. The advantages of these bearings have led to their rapid adoption by manufacturers of agricultural machinery. Each FKL bearing is produced in accordance with strict premium quality standards.

1.2 Sealing

It is an economic and space-saving solution. Bearings can have shields or seals at one or both sides, those which are sealed at both sides are supplied with grease and are generally maintenance-free.
Sealed bearings are generally in application where a sufficiently effective external seal cannot be provided, due to inadequate space or cost effectiveness. Bearings fitted with shields are applied where the possibility of foreign matter ingression is low and no danger of water, steam etc. coming in contact with the bearing, or where the freedom of friction of these non-contact seals is important because of the speed or operating temperature of the bearing. Bearing fitted with contact seals are preferred in application where contamination is moderate and where dampness, water, steam etc. may occur, or where a long exploitation life without maintenance is required.

1.2.1 Bearing sealing

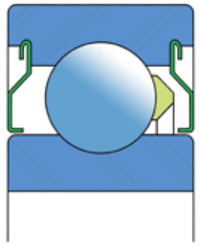


Fig. 1 Sealing 2Z
Non-contact sealing with Steel sheet shield of simple and cheap make. Grease prevents penetration of rough impurities. Allows the highest speeds. It is used with the deep groove ball bearings.

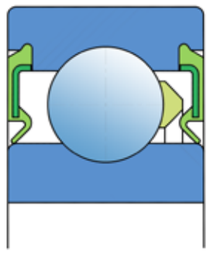


Fig. 3 Sealing 2RS
The older type of the single seal. Prevents penetration of soil, dust and water and since exposed to the impact of abrasive particles is expendable more than some new types of seals. Due to extended friction, the permitted speeds are lower. It was gradually replaced with the improved versions of (2S). Because of the traditional reasons Y bearings with this kind of seal do not have the additional sealing mark. It is used with the Y-bearings and deep groove ball bearings.

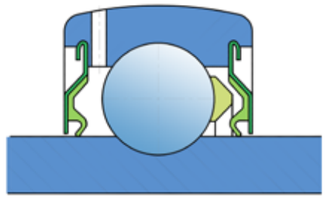


Fig. 2 Sealing 2S
Single seal with the labyrinth between the sheet part and the rubber lip which conducts the contact sealing. The friction and speeds are the same as with 2RS but provides much better protection against the rough impurity particles. This is very good sealing system: the sheet part protects the seal from the soil, dust and rough particles. At the same time makes the labyrinth with the rubber part. The rubber part provides contact sealing which prevents penetration of finer impurities, water, moisture, steam etc. Suitable for neutral conditions because of the presence of the foreign materials. It is used with the Y bearing (standard) and deep groove ball bearings.

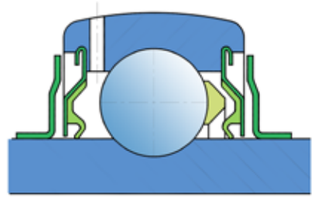


Fig. 4 Sealing 2F
Dual sealing; protection cover placed on the inner ring protects against rough impurity particles and makes the labyrinth with the sheet part of the seal; then the sealing 2S type, with the labyrinth between the sheet part and the rubber lip that conducts the contact sealing. The friction and speeds are the same as with 2S but has much better protection against rough impurity particles. It is very good sealing system: the sheet part protects the seal from the soil, dust and rough particles. At the same time makes the labyrinth with the rubber part. The rubber part provides the contact sealing that prevents the penetration of the finer impurities, water, moisture, steam etc. Suitable for heavier conditions due to better protection against foreign matters. It is used with the Y bearings (standard).

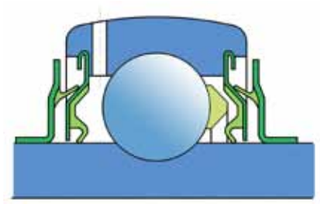


Fig. 6 Sealing 2B
Dual contact sealing, design similar to 2F but protection cover has rubber lip resting on the sheet part of the inner contact seal providing an additional protection against the penetration of the finer impurities, water, moisture, steam etc. The friction is larger than with 2F and permitted speeds are about 50% lower. It is used with the Y bearings (delivery is made according to special request).

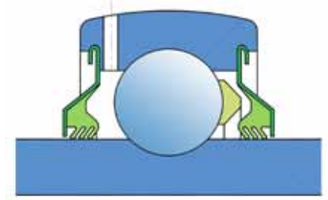


Fig. 5 Sealing 2T
By construction is the same as 2S, except rubber lip is tripled. Therefore, it seals better but has even larger friction. The permitted speeds are much lower, up to 500. It emerges out of external ring width and is applied only with special bearings for the agricultural machines (practically standard sealing for the disc harrow bearings) and to the less extent, Y - bearing program (delivery is made according to special request).

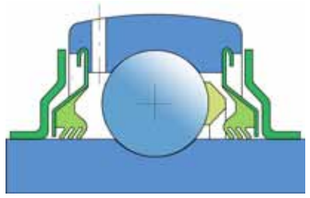


Fig. 7 Sealing 2TB
Dual sealing, combination 2T and stronger protection steel. Friction and speeds are the same as 2T, but considerably better protection against rough dirt. This type of sealing is applied in agricultural machinery. Protection steel protects from soil, dust, rough dirt and mechanical impact on the seal. Triple-lips seal performs contact sealing that prevents penetration of finer dirt, water, damp etc. Suitable for difficult working conditions with aggressive presence of foreign matter. Used with Y bearing units 2TB.

1.3 Lubrication

FKL bearings and bearing units with integral seals and shields at both sides are sufficiently greased for the lifetime and should not be lubricated, except when used in very harsh working conditions. Standard greases used by FKL in those products have optimal temperature range and other characteristics suitable for the intended application areas. Filling grades correspond to the bearing size. Relubrication is possible with Y bearings and bearing units supplied with lubricators and corresponding grease channels. FKL sealed bearings are filled with lithium-grease consistency 2 and cinematic viscosity of basic, mineral oil around 90 mm^2/s; temperature range of application ranges from -30 up to +120°C.

1.3.1 Grease lubrication

About 90% of all bearing arrangements are lubricated with grease. Grease has certain advantage comparing to oil because it is easier to retain in the bearing arrangement, particularly with inclined or vertical shafts, and also improves sealing the arrangement against contaminants, moisture or water. However, the shortcoming is lower speeds comparing to oil lubrication. With higher speed bearings, the excess lubricant would cause rapid rise of operating temperature. As a general rule, therefore only the bearing should be completely filled, whilst the free space in the housing should be greased between 30 and 50%. Where the bearings are to operate at very low speed and must be well protected against corrosion, it is advisable to completely fill the housing with grease.

1.3.1.1 Lubricating greases

Lubricating greases consist of mineral or synthetic oil combined with a thickener. The thickeners are usually metallic soaps. Additives can also be included to enhance certain characteristics of the grease. The consistency of the grease depends largely on the type and concentration of used thickener. When selecting grease, the viscosity of the base oil, the consistency, operating temperature range and the load carrying ability are the most important factors to be considered.

Base oil viscosity

The base oil viscosity of the greases normally used for rolling bearings lies between 15 and 500 mm^2/s at 40°C. Greases based on oils having higher viscosities than 1000 mm^2/s at 40°C bleed oil so slowly that the bearing will not be adequately lubricated. Therefore, if a very high viscosity is required because of low speeds, oil lubrication will generally be found more reliable. The base oil viscosity also governs the maximum permissible speed at which given grease can be used for bearing lubrication. For applications operating at very high speeds, the most suitable greases are those incorporating diester oils of low viscosity. The permissible operating speed for grease is also influenced by the shear strength of the grease, which is determined by the thickener.
A is speed factor $A=n \times d_m$ is often quoted by grease manufacturers to indicate the speed capability; n is the rotational speed and dm is the bearing mean diameter - $d_m=0, 5(d+D)$.

Consistency

Greases are divided into various consistency classes (DIN 51 818), according to the National Lubricating Grease Institute (NLGI) Scale. The consistency of greases used for bearing lubrication should not change unduly according to temperature within the operating temperature range or due to mechanical operation. Greases that soften at elevated temperatures may leak from the bearing arrangement. Those that stiffen at low temperatures may restrict rotation of the bearing. Metallic soap thickened greases of consistency 1, 2 or 3 are those normally used for rolling bearings. The consistency 3 greases are primarily recommended for bearing arrangements with vertical shafts.

Protection against corrosion

The grease rust inhibiting characteristics are mainly determined by the rust inhibitors which are added to the grease and its thickener. Grease should provide protection to the bearing against corrosion and should not be washed out of the bearing in case of water penetration. These two features are possessed by lithium and calcium based greases containing lead base additives. However, because of environmental and health reasons such additives are being replaced by other combinations of additives which do not always provide lubricant with such good features.

Load carrying ability

For heavily loaded bearings, e.g. rolling mill bearings, it has been accustomed to recommend the use of greases containing EP additives, since those additives increase the load carrying ability of the lubricant film. Originally, most EP additives were lead-based compounds and there were arguments suggesting benefits in bearing life extension where lubrication was otherwise poor without elastic-hydrodynamic lubricant film.

Miscibility

Some greases are incompatible and if mixed together the consistency can change dramatically as well as allowed operating temperature. Greases having the same thickener and similar base oils can generally be mixed without any consequences.

Lithium and calcium base greases are generally miscible with each other but not with sodium base greases. However, mixtures of compatible greases may have a consistency which is less than either of the component greases, although the lubricating characteristics are not necessarily impaired. In bearing arrangements where a low consistency might lead to grease leakage from the arrangement, the next relubrication should involve complete replacement of the grease rather than replenishment.

1.3.1.2 Relubrication

Rolling bearings have to be relubricated if the operating life of the used grease is shorter than the expected life span of the bearing. Relubrication should be performed while lubrication of the bearing is still satisfactory. The time at which relubrication should be undertaken depends on many factors which are related in a complex manner. Those include bearing type and size, speed, operating temperature, grease type, space around the bearing and the bearing environment. The following information is based on long-term tests in various applications but does not apply to applications where water and /or solid contaminants can penetrate the bearing arrangement. In such cases it is recommended that the grease is frequently renewed in order to remove contaminants from the bearing.

Relubrication intervals

Relubrication intervals t1, for normal operating conditions can be calculated as a function of bearing speed n and bore diameter d of a certain bearing type from Diagram 1. The diagram is valid for bearings on horizontal shafts in stationary machines under normal loads. It applies to good quality lithium base greases at a temperature not exceeding 70°C. To calculate accelerated ageing of grease due to increased temperature it is recommended to split intervals obtained from the diagram by half for every 15°C increase in bearing temperature above 70°C. The intervals may be extended at temperatures lower than 70°C but as operating temperatures decrease the grease will bleed oil less readily and with lower temperatures the extension of intervals by more than two times is not recommended. For bearings on vertical shafts the intervals obtained from the diagram (t1,) should be halved. For large roller bearings having d of 300 mm and above, the high specific loads in the bearing mean that adequate lubrication will be obtained only if the bearing is more frequently relubricated than indicated by the diagram, and the lines are therefore broken. It is recommended in such cases when continuous lubrication is practiced for technical and economic reasons. The grease quantity to be supplied can be obtained from the equation below:

$$G_k=(0,3...0,5)D\ B\ 10^{-4}$$

where
G_k grease quantity to be continuously supplied, g/h
D bearing outside diameter, mm
B total bearing width (for thrust bearings use total height H), mm

Relubrication procedures

One of the two procedures described below should be used, depending on the relubrication interval t1 obtained:

1. If the relubrication interval is shorter than 6 months, then it is recommended that the grease filling the bearing arrangement should be replenished (topped up) at intervals corresponding to 0,5 t1, the complete grease fill should be replaced after three replenishments, at the latest. Suitable quantities for replenishment can be obtained from

$$G_p=0,005\ D\ B$$

where
G_p grease quantity to be added when replenishing, g
D bearing outside diameter, mm
B total bearing width (for thrust bearings use total height H), mm

2. When lubrication intervals are longer than 6 months it is recommended that all used grease should be removed from the bearing arrangement and replaced by fresh grease.
All these are rough guidelines if there are no specific recommendations by the manufacturer or maintenance service. To facilitate the supply of grease using a grease gun, a grease nipple should be provided on the housing. It is also necessary to provide an exit hole for the grease so that excessive amounts would not build up in the bearing surrounding space. Otherwise it might cause permanent increase in the bearing temperature.
However, as soon as the appropriate temperature is reached after relubrication, the exit hole should be plugged or clogged so the oil bled by the grease could remain at the bearing position. The danger of excess grease collection in the space surrounding the bearing, causing temperature peaking with its detrimental effect on the grease as well as the bearing, is most emphasized when bearing operates at high speeds. In such cases it is advisable to use a grease discharge valve rather than an exit hole.
A grease discharge valve consists basically of a disc which rotates with the shaft and forms a narrow gap with the housing end cover. Excess and used grease is thrown out by the disc into an annular cavity and leaves the housing through an opening on the bottom side of the end cover.
To ensure the fresh grease actually reaches the bearing and replaces the old grease, lubrication duct in the housing should either feed the grease adjacent to the outer ringside face or, into the bearing tracks. In general, one should pay attention to grease density and that it does not remain within the bearing.

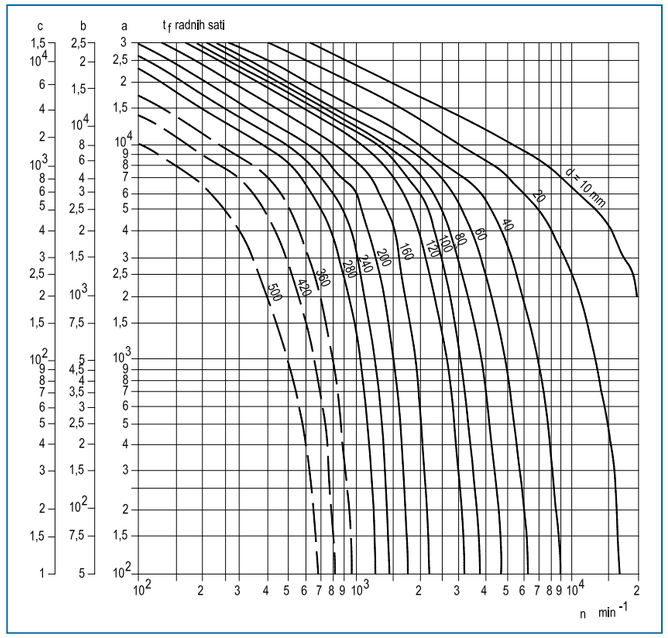


Diagram 1. Relubrication interval

Scale a: deep groove ball bearings
Scale b: cylindrical roller bearings, needle bearings
Scale c: spherical, taper roller bearings, thrust ball bearings
roller bearings – full complement (0,2 t_1),
cross-roller bearings with cage (0,3t_1)
thrust roller, needle, spherical bearings (0,5t_1,)

1.3.2 Bearing storage
When bearings are stored in their original packaging, they are corrosion protected for several years. Warehouse humidity should not exceed 60%. In case of sealed bearings, if kept in stock for a long period of time, grease may solidify so after the bearing is mounted, its friction moment is higher in comparison to new bearings. Therefore, this should be taken into consideration.

1.4 Materials

The rings of the bearings and rolling elements are made of special steel (100Cr6 by ISO 683-17:1999) manufactured by the method of vacuum degasification. They are exposed to heat treatment to retain dimensions stability to 150°C.
The cages for standard operating temperatures (-20 to +120°C) are made of plastic (ULTRAMID A4H, POLYAMIDE 66). The positive effects of POLYAMIDE, elasticity and small weight, are evident on the high impact bearing load and negative acceleration. The cages of POYIAMIDE possess very good sliding characteristics and steady operation.
The pressed cages are made out of steel sheet.
Some massive cages are made of brass.
The seals are rubber made (PERBUNAN, BUNA M) and vulcanized onto the sheet guard plate. They can operate in temperature range from - 20 to +120°C.
Flingers are made of steel sheet.
Housings of the Y-bearings are made of cast iron, hardness 200 HB or cold-rolled steel sheet.
Grease for common operation temperatures (between -20 and +120°C) is lithium base grease, consistency of the grease 2, viscosity at 40°C is 90 mm^2/s.

2. Installation

2.1 Shaft tolerance and speed limit number

Speed ratings
Speed is limited by two factors:
1. By the shaft tolerance on which the bearing is mounted; as tighter fitting is more resistant to shock loads and vibrations and vice versa, fitting with greater clearance is sensitive to those influences and lower speed can be allowed. Recommendations for speed rating, depending on the shaft tolerance, are shown in the Table 1.
2. By the type of sealing because the friction between the sealing and bearing ring increases the operating temperature in proportion to the speed. For normal sealing 2S and 2F data are shown in the following table. For sealing 2B allowed speed is 55 - 60% from that given in the table.
For bearings with three-lip sealing 2T, 2TB and 2TC (bearings for agricultural machinery) allowed speed is max. 500 min-1 unless it is lower according to the Table 1.

Bearing type →	UE, LE, UY, LY Shaft tolerances						LK	1726..., LS
Shaft diameter d	m7, k7	h6	h7	h8	h9	h11		
12	12000	9500	6000	4300	1500	950	-	14000
15	12000	9500	6000	4300	1500	950	-	13000
17	12000	9500	6000	4300	1500	950	-	12000
20	10000	8500	5300	3800	1300	850	7000	10000
25	9000	7000	4500	3200	1000	700	6300	10000
30	7500	6300	4000	2800	900	630	5300	7500
35	6300	5300	3400	2200	750	530	4800	6300
40	5600	4800	3000	1900	670	480	4300	5600
45	5300	4300	2600	1700	600	430	4000	5000
50	4800	4000	2400	1600	560	400	3600	4800
55	4300	3600	2000	1400	500	360	3400	-
60	4000	3400	1900	1300	480	340	3000	-
65	3600	3000	1700	1100	430	300	2600	-
70	3300	2800	1600	1000	400	280	2400	-
80	2800	2400	1400	900	360	240	2200	-
90	2400	2000	1200	800	320	200	-	-
100	2200	1900	1100	750	300	190	-	-
120	1900	1700	900	600	250	160	-	-

Table 1. Speed ratings for Y bearings

2.2. Tightening

Axial load carrying capacity

Tightening torques for grub screws locking the bearings on the shaft, as well as axial load capacity of shaft-bearing connections are shown in the Table 2.

Shaft diameter (mm)	up to 20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	100	120
Tightening torque (Nm)	4	5	6	12	12	12	23	23	23	23	23	23	23	23	23	23	23
Hook spanner (mm)	3	3	3	4	4	4	5	5	5	5	5	5	6	6	6	6	6
Axial load (kN)	2	3	4	5	6	8	9	10	12	14	14	15	16	16	16	16	16

Table 2. Axial load carrying capacity

2.3. Protective caps

For cast iron housing bearing units FKL makes plastic protection caps against external influences.
They are set at the end of shaft.
The material is highly resistant polypropylene with 20% glass fibers.

Bearing units **Protective caps**								
			Dimensions (mm)			Groove dimensions (mm)		
Designation	A	d1	d2	d3	h	b min	D7	D8
ECF 204	20,5	49	50,5	43	2,3	2,5	46	49
ECF 205	20,5	54	55,5	48	2,3	2,5	50,4	54
ECF 206	22,5	65	66,5	58	2,3	2,5	60	65
ECF 207	24,5	75	76,5	68	2,3	2,5	70,2	75
ECF 208	26	83	84,5	75	2,3	2,5	78	83
ECF 209	26,5	88	89,5	80	2,3	2,5	83	88
ECF 210	46	94	96	86	1,5	2,5	88	94
ECF 211	35	104	105,5	88	2,3	2,5	99	105
ECF 212	37	116	117,5	98	2,8	3	109	116

Table 3.Protective caps

Possibility of ordering:

1. Only cap (example size 207):	ECF 207
2. Only housing (example S 207 with cuts for caps):	S 207 E
3. Housing S 207 + cap (without bearing):	S 207 + ECF
4. Bearing LY 207 2F + housing S 207 E (without cap):	LYS 207 2F.E
5. Set (bearing + housing + cap):	LYS 207 2F + ECF

Suffix E at the end of designation for bearing units means that there is groove for cap and vice versa, if bearing unit without suffix E is ordered groove for cap does not exists and the cap can't be set. Bearing units with the end designation +ECF will be supplied with a cap.

Fig.8. Protective caps FKL ECF 210

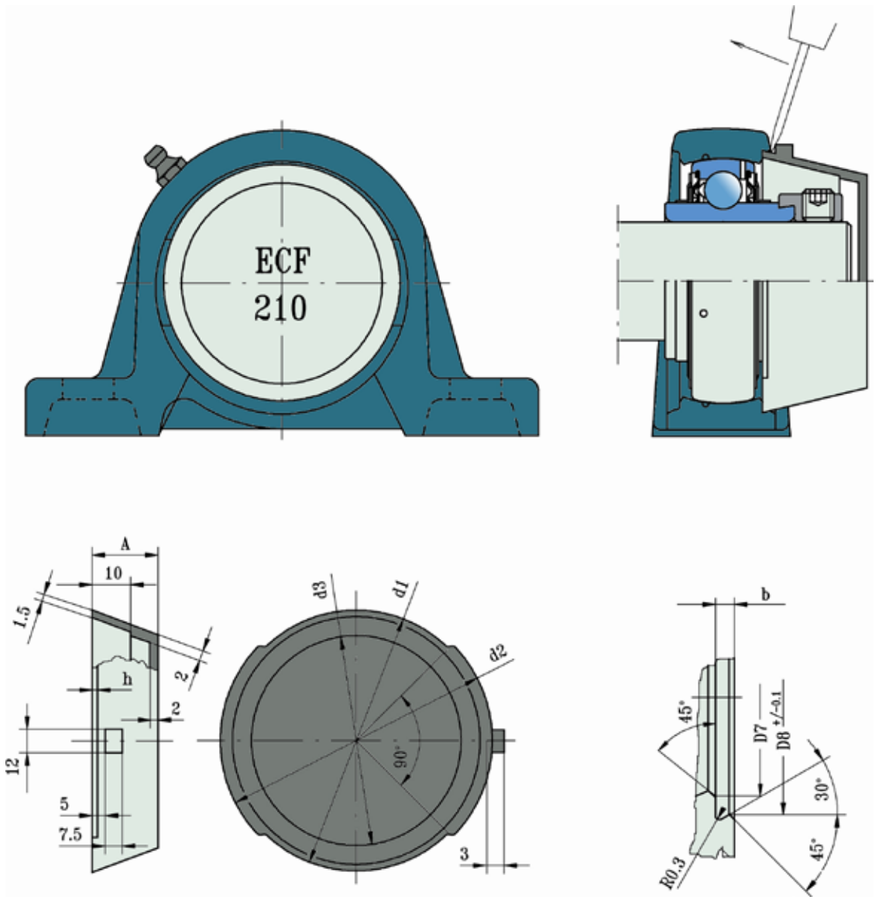


Fig.9. Technical drawing FKL ECF 210

3.1 Designation system and comparative designation for Y-bearings and bearing units

LEGEND	R	P	D	C	T	G	N	F	U	V	S
FKL SKF FAG INA NSK NTN	**R** P SB B/T PP PP	**P** PFT FBB MST PFL PFL	**D** PFD - MSTR PFT -	**C** PF FB MSB PF PF	**T** TU - - T T	**G** FYC FG16 FE FC FC	**N** FYT - CFT/CJT FL FL	**F** FY(J) FG56 CF/CJ F F	**U** SYF - SHE - -	**V** SYFJ - - PA UP	**S** SY(J) SG ASE P P
UE YAT - GAY.NPPB UB AS	**UER** P.RM - PBY UBPP ASPP	**UEP** PFT.RM - RATY UBPFL ASPFL	**UED** PFD.RM - PARTRY - -	**UEC** PF.RM - RAY UBPF ASPF	**UET** TU.RM - - UBT AST	**UEG** FYC.RM - - UBFC ASFC	**UEN** FYT.RM - PCJTY UBFL ASFL	**UEF** FY(J).RM - PCJY UBF ASF	**UEU** SYF.RM - PSHEY - -	**UEV** SYFJ.RM - - UBPA ASUP	**UES** SY(J).RM - PASEY UBP ASP
LE YAR 562 GYE.KRRB UC UC	**LER** P.TF - - - -	**LEP** PFT.TF - RRTY ENPFL AELPFL	**LED** PFD.TF - RRTRY - -	**LEC** PF.TF FB562 RAY - -	**LET** TU.TF - - UCT UCT	**LEG** FYC.TF - - UCFC UCFC	**LEN** FYT.TF - RCJTY UCFL UCFL	**LEF** FY (J).TF FG562 RCJY UCF UCF	**LEU** SYF.TF - RSHEY - -	**LEV** SYFJ.TF - - UCPA UCUP	**LES** SY(J).TF SG562 RASEY UCP UCP
UY YET 162 GRAE.NPPB EN AEL	**UYR (J)** P.FM SB162 PB ENPP AELPP	**UYP** PFT.FM - RAT - -	**UYD** PFD.FM - RARTR - -	**UYC** PF.FM FB162 RA ENPF AELPF	**UYT** TU.FM - PTUE ENT AELT	**UYG** FYC.FM - - - AELFC	**UYN** FYT.FM - PCJT - AELFL	**UYF** FY(J).FM FG162 PCJ - AELF	**UYU** SYF.FM - PSHE - -	**UYV** SYFJ.FM - - - AELUP	**UYS** SY(J).FM SG162 PASE ENLP -
LY YEL 362.B GE.KRRB EW UEL	**LYR** P.WF - - - -	**LYP** PFT.WF - RRT - -	**LYD** PFD.WF - RRTR - -	**LYC** PF.WF PB362.B RR - -	**LYT** TU.WF - RTUE EWT UELT	**LYG** FYC.WF - RFE EWFC UELFC	**LYN** FYT.WF - RCJT EWFL UELFL	**LYF** FY(J).WF - RCJ EWF UELF	**LYU** SYF.WF - RSHE - -	**LYV** SYFJ.WF - - EWPA UELUP	**LYS** SY(J).WF SG362.B RASE EWP UELP
US 17262 762.B - CS CS	**USR** - SB762.B - - -	**USP** - - - - -	**USD** - - - - -	**USC** - FB762.B - - -	**UST** - - - - -	**USG** - - - - -	**USN** - - - - -	**USF** - FG762.B - - -	**USU** - - - - -	**USV** - - - - -	**USS** SG 762.B - - - -
LS YFE - - - -	**LSR** - - - - -	**LSP** - - - - -	**LSD** - - - - -	**LSC** - - - - -	**LST** - - - - -	**LSG** - - - - -	**LSN** - - - - -	**LSF** - - - - -	**LSU** - - - - -	**LSV-** - - - -	**LSS** - - - - -
UK 3620 - - - -	**UKR** - - - - -	**UKP** - - - - -	**UKD** - - - - -	**UKC** - - - - -	**UKT** - - - - -	**UKG** - - - - -	**UKN** - - - - -	**UKF-** - - - -	**UKU** - - - - -	**UKV** - - - - -	**UKS** - - - - -
LK YSA - - UK UK	**LKR** - - - - -	**LKP** - - - - -	**LKD** - - - - -	**LKC** - - - - -	**LKT** TU.KF - - UKT UKT	**LKG** FYC.KF - - UKFC UKFC	**LKN** LYN.KF - - UKFL UKFL	**LKF** FY(J).KF - - UKF UKF	**LKU** SYF.KF - - - -	**LKV** SYFJ.KF - - UKPA UKUP	**LKS** SY(J).KF - - UKP UKP

Designation Y bearing units

Y-bearing units represent the main FKL production program, which is characterized by:

- Compatibility with ISO standards
- Market/customer focused range
- Premium quality products and reliable delivery service

How to use this publication

S	V
203-204-205-206 207-208-209-210 211-212-213-214 215-216-218-220	204-205-206-207 208-209-210
UES 12-15-17-20-25 30-35-40-45-50 mm bore	**UEV** 20-25-30-35-40 45-50 mm bore
LES 12-15-17-20-25 30-35-40-45-50 55-60-65-70-75 80-90-100 mm bore	**LEV** 20-25-30-35-40 45-50 mm bore

UE

UE 2
Size: 03/12-03/15-03-04-05-06-07-08-09-10
- Inner ring extended on one side only
- Grub screw locking
- Seals: Metal-rubber seal
- Long life lithium/calcium grease

LE

LE 2
Size: 03/12-03/15-03-04-05-06-07-08-09-10-11-12
13-14-15-16-17-18-20-24
- Inner ring extended on both sides
- Grub screw locking
- Seals: Metal-rubber seal + metal shield
- Long life lithium/calcium grease

1. Select the bearing type
2. Select the housing design
3. Check that the selected unit is in the „Y-units“
4. Determine the unit designation

Y-bearings and bearing units










S	V	U	F	N	G	T	C	D	P
203-204-205-206 207-208-209-210 211-212-213-214 215-216-218-220	204-205-206-207 208-209-210	204-205-206-207 208-209-210	203-204-205-206 207-208-209-210 211-212-213-214 215-216-218-220	203-204-205-206 207-208-209-210 211-212	204-205-206-207 208-209-210-211 212-213	204-205-206-207 208-209-210-211 212-213-214	203-204-205-206 207-208-209-210 211-212	203-204-205-206 207-208	203-204-205-206 207-208
UES 12-15-17-20-25 30-35-40-45-50 mm bore	**UEV** 20-25-30-35-40 45-50 mm bore	**UEU** 20-25-30-35-40 45-50 mm bore	**UEF** 12-15-17-20-25 30-35-40-45-50 mm bore	**UEN** 12-15-17-20-25 30-35-40-45-50 mm bore	**UEG** 20-25-30-35-40 45-50 mm bore	**UET** 20-25-30-35-40 45-50 mm bore	**UEC** 12-15-17-20-25 30-35-40-45-50 mm bore	**UED** 12-15-17-20-25 30-35 mm bore	**UEP** 12-15-17-20-25 30-35-40 mm bore
LES 12-15-17-20-25 30-35-40-45-50 55-60-65-70-75 80-90-100 mm bore	**LEV** 20-25-30-35-40 45-50 mm bore	**LEU** 20-25-30-35-40 45-50 mm bore	**LEF** 12-15-17-20-25 30-35-40-45-50 55-60-65-70-75 80-90-100 mm bore	**LEN** 12-15-17-20-25 30-35-40-45-50 55-60 mm bore	**LEG** 20-25-30-35-40 45-50-55-60-65 mm bore	**LET** 20-25-30-35-40 45-50-55-60-65 70 mm bore	**LEC** 12-15-17-20-25 30-35-40-45-50 55-60 mm bore	**LED** 12-15-17-20-25 30-35 mm bore	**LEP** 12-15-17-20-25 30-35-40 mm bore
UYS 12-15-17-20-25 30-35-40-45-50 55-60 mm bore	**UYV** 20-25-30-35-40 45-50 mm bore	**UYU** 20-25-30-35-40 45-50 mm bore	**UYF** 12-15-17-20-25 30-35-40-45-50 55-60 mm bore	**UYN** 12-15-17-20-25 30-35-40-45-50 55-60 mm bore	**UYG** 20-25-30-35-40 45-50-55-60 mm bore	**UYT** 20-25-30-35-40 45-50-55-60 mm bore	**UYC** 12-15-17-20-25 30-35-40-45-50 55-60 mm bore	**UYD** 12-15-17-20-25 30-35 mm bore	**UYP** 12-15-17-20-25 30-35-40 mm bore
LYS 12-15-17-20-25 30-35-40-45-50 55-60-65-70-75 80-90-100 mm bore	**LYV** 20-25-30-35-40 45-50 mm bore	**LYU** 20-25-30-35-40 45-50 mm bore	**LYF** 12-15-17-20-25 30-35-40-45-50 55-60-65-70-75 80-90-100 mm bore	**LYN** 12-15-17-20-25 30-35-40-45-50 55-60 mm bore	**LYG** 20-25-30-35-40 45-50-55-60-65 mm bore	**LYT** 20-25-30-35-40 45-50-55-60-65 70 mm bore	**LYC** 12-15-17-20-25 30-35-40-45-50 55-60 mm bore	**LYD** 12-15-17-20-25 30-35 mm bore	**LYP** 12-15-17-20-25 30-35-40 mm bore
USS 17-20-25-30-35 40-45-50-55-60 mm bore	**USV** 20-25-30-35-40 45-50 mm bore	**USU** 20-25-30-35-40 45-50 mm otvora	**USF** 17-20-25-30-35 40-45-50-55-60 mm otvora	**USN** 17-20-25-30-35 40-45-50-55-60 mm otvora	**USG** 20-25-30-35-40 45-50-55-60 mm bore	**UST** 20-25-30-35-40 45-50-55-60 mm bore	**USC** 17-20-25-30-35 40-45-50-55-60 mm bore	**USD** 17-20-25-30-35 mm bore	**USP** 17-20-25-30-35 40 mm bore
LSS 25-30-35-40-45 50-55 mm bore	**LSV** 25-30-35-40-45 50 mm bore	**LSU** 25-30-35-40-45 50 mm bore	**LSF** 25-30-35-40-45 50-55 mm bore	**LSN** 25-30-35-40-45 50-55 mm bore	**LSG** 25-30-35-40-45 50-55 mm otvora	**LST** 25-30-35-40-45 50-55 mm bore	**LSC** 25-30-35-40-45 50-55 mm bore	**LSD** 25-30-35 mm bore	**LSP** 25-30-35-40 mm bore
UKS 25-30-35-40-45 50-55-60-65-75 80-85-90 mm bore	**UKV** 25-30-35-40-45 50 mm bore	**UKU** 25-30-35-40-45 50 mm bore	**UKF** 25-30-35-40-45 50-55-60-65-75 80-85-90 mm bore	**UKN** 25-30-35-40-45 50-55-60 mm bore	**UKG** 25-30-35-40-45 50-55-60-65 mm bore	**UKT** 25-30-35-40-45 50-55-60 mm bore			
LKS 25-30-35-40-45 50-55-60-65-75 80-85-90 mm bore	**LKV** 25-30-35-40-45 50 mm bore	**LKU** 25-30-35-40-45 50 mm bore	**LKF** 25-30-35-40-45 50-55-60-65-75 80-85-90 mm bore	**LKN** 25-30-35-40-45 50-55-60 mm bore	**LKG** 25-30-35-40-45 50-55-60-65 mm bore	**LKT** 25-30-35-40-45 50-55-60 mm bore			

R

203-204-205-206
207-208-209

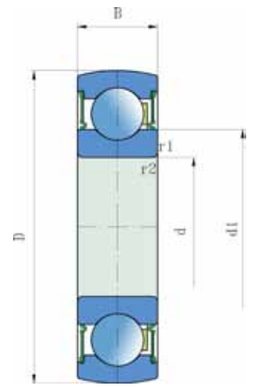
Bearings

UER **12-15-17-20-25** **30-35-40-45** mm bore	**UE**		**UE 2** Size: 03/12-03/15-03-04-05-06-07-08-09-10 - Inner ring extended on one side only - Grub screw locking - Seals: Metal-rubber seal - Long life lithium/calcium grease
LER **12-15-17-20-25** **30-35-40-45** mm bore	**LE**		**LE 2** Size: 03/12-03/15-03-04-05-06-07-08-09-10-11-12 13-14-15-16-17-18-20-24 - Inner ring extended on both sides - Grub screw locking - Seals: Metal-rubber seal + metal shield - Long life lithium/calcium grease
UYR **12-15-17-20-15** **30-35-40-45** mm bore	**UY**		**UY 2** Size: 03/12-03/15-03-04-05-06-07-08-09-10-11-12 - Inner ring extended on one side only - Eccentric locking collar - Seals: Metal-rubber seal - Long life lithium/calcium grease
LYR **12-15-17-20-25** **30-35-40-45** mm bore	**LY**		**LY 2** Size: 03/12-03/15-03-04-05-06-07-08-09-10-11-12 13-14-15-16-18-20-24 - Inner ring extended on both sides - Eccentric locking collar - Seals: Metal-rubber seal + metal shield - Long life lithium/calcium grease
USR **17-20-25-30-35** **40-45** mm bore	**US**		**US 2** Size: 03-04-05-06-07-08-09-10-11-12 - Inner ring and outer ring same width - Locking by interference on the shaft - Seals: Metal-rubber seal - Long life lithium/calcium grease
LSR **25-30-35-40-45** mm bore	**LS**		**LS 2** Size: 05-06-07-08-09-10-11 - Inner ring extended on both sides - Locking by interference on the shafts - Seals: Metal-rubber seal + metal shield - Long life lithium/calcium grease
	UK		**UK 2+H** Size: 05-06-07-08-09-10-11-12-13-14-15-16-17-18 - Bore reduced one size by adapter sleeve - Standard adapter sleeve series H23 (00) - Seals: Metal-rubber seal - Long life lithium/calcium grease - Bearing and adapter sleeve to be ordered separately
	LK		**LK 2+H** Size: 05-06-07-08-09-10-11-12-13-14-15-16-17-18 - Bore reduced one size by adapter sleeve - Standard adapter sleeve series H23 (00) - Seals: Metal-rubber seal + metal shield - Long life lithium/calcium grease - Bearing and adapter sleeve to be ordered separately

3.2 Y berings data

Y BALL BEARINGS WITH STANDARD INNER RING

172...



Shaft	Dimensions (mm)				Load ratings(kN)			Mass	Designation
d	D	B	d_1	$r_{1,2}$	C	C_O	P_u	kg	
15	35	11	21,5	0,6	7,80	3,75	0,16	0,04	**1726202-2RS1**
17	40	12	24,2	0,6	9,50	4,75	0,20	0,06	**1726203-2RS1**
20	47	14	28,2	1	12,7	6,55	0,28	0,10	**1726204-2RS1**
25	52	15	33,6	1	14	7,80	0,34	0,11	**1726205-2RS1**
	62	17	36,6	1,1	22,5	11,6	0,49	0,20	**1726305-2RS1**
30	62	16	39,7	1	19,5	11,2	0,48	0,18	**1726206-2RS1**
	72	19	44,6	1,1	28,1	16	0,67	0,30	**1726306-2RS1**
35	72	17	46,1	1	25,5	15,3	0,66	0,25	**1726207-2RS1**
	80	21	49,5	1,5	33,2	19	0,82	0,40	**1726307-2RS1**
40	80	18	52	1,1	30,7	19	0,80	0,32	**1726208-2RS1**
	90	23	56,1	1,5	41	24	1,02	0,55	**1726308-2RS1**
45	85	19	56,6	1,1	32,5	20,4	0,92	0,37	**1726209-2RS1**
	100	25	62,1	1,5	52,7	31,5	1,34	0,73	**1726309-2RS1**
50	90	20	62,5	1,1	35,1	23,2	0,98	0,41	**1726210-2RS1**
	110	27	68,7	2	61,8	38	1,60	0,95	**1726310-2RS1**
55	100	21	69,1	1,5	43,6	29	1,25	0,56	**1726211-2RS1**
60	110	22	75,5	1,5	52	36	1,40	0,75	**1726212-2RS1**
65	120	23	82,5	1,5	57	40	1,73	0,94	**1726213-2RS1**

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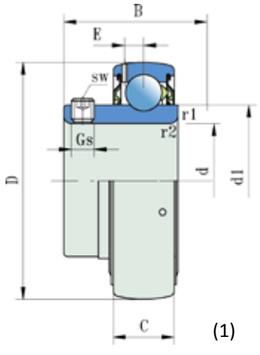
Y BALL BEARINGS WITH GRUB SCREW LOCKING

UE...
UE...SH
UE...SHN



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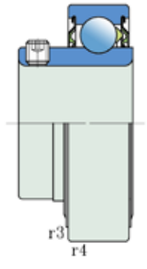

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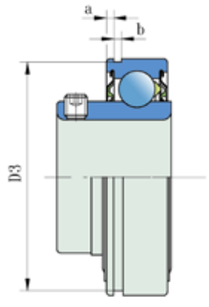

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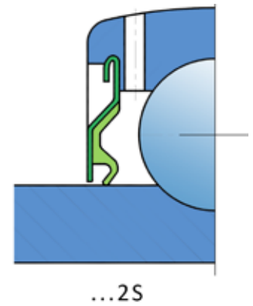
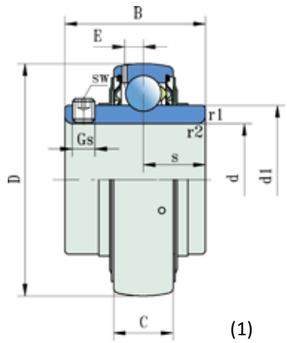

...2S

Shaft	Dimensions (mm)										
d	D	B	C	s	d_1	E	Gs	sw	a	b	D_3
12 **15** **17**	40	22,1	12	6,2	24,2	3,6	M6X0,75	3	2,06	1,35	38,1
20	47	25,5	14	7,2	28,2	4,3	M6X0,75	3	2,46	1,35	44,6
25	52	27,2	15	7,7	33,6	4,3	M6X0,75	3	2,46	1,35	59,61
30	62	33	18	9,2	39,7	5,6	M6X0,75	3	3,28	1,9	68,81
35	72	33	19	9,7	46,1	5,6	M6X0,75	3	3,28	1,9	76,81
40	80	36	21	10,7	51,8	6,1	M8X1	4	3,28	1,9	81,81
45	85	37	22	11,2	56,6	6,1	M8X1	4	3,28	1,9	81,81
50	90	38,8	22	11,2	62,5	6,4	M10X1	5	3,28	2,7	86,79

Load ratings (kN)					Mass	Designation		
$r_{1,2}$	$r_{3,4}$	C	C_O	Pu	kg	1	2	3
0,3	0,6	9,56	4,75	0,200	0,09	**UE 203/12 2S**	UE 203/12 2S.SH	UE 203/12 2S.SHN
					0,08	**UE 203/15 2S**	UE 203/15 2S.SH	UE 203/15 2S.SHN
					0,07	**UE 203 2S**	UE 203 2S.SH	UE 203 2S.SHN
0,6	0,6	12,7	6,55	0,280	0,11	**UE 204 2S**	UE 204 2S.SH	UE 204 2S.SHN
0,6	0,6	14	7,8	0,335	0,14	**UE 205 2S**	UE 205 2S.SH	UE 205 2S.SHN
0,6	0,6	19,5	11,2	0,475	0,23	**UE 206 2S**	UE 206 2S.SH	UE 206 2S.SHN
1	1	25,5	15,3	0,655	0,31	**UE 207 2S**	UE 207 2S.SH	UE 207 2S.SHN
1	1,5	30,7	19	0,800	0,43	**UE 208 2S**	UE 208 2S.SH	UE 208 2S.SHN
1	1,5	33,2	21,6	0,915	0,48	**UE 209 2S**	UE 209 2S.SH	UE 209 2S.SHN
1	1,5	35,1	23,2	0,980	0,54	**UE 210 2S**	UE 210 2S.SH	UE 210 2S.SHN

Y BALL BEARINGS WITH GRUB SCREW LOCKING

LE...
LE...SH
LE...SHN



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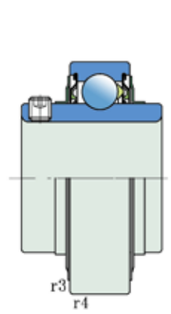

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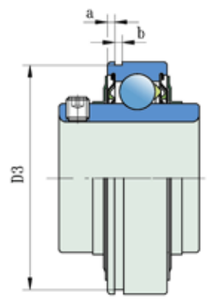

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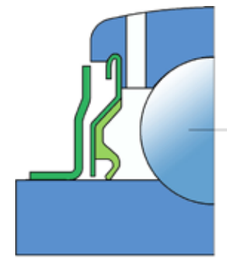
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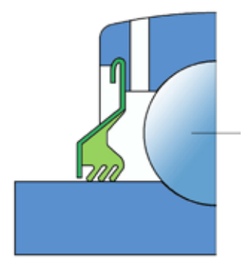
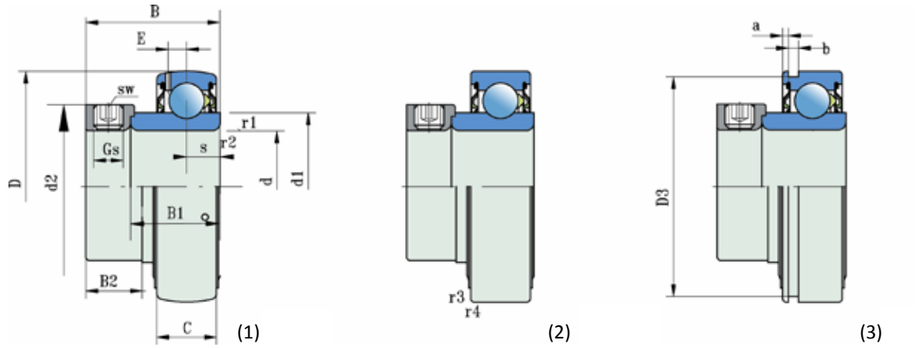

...2T

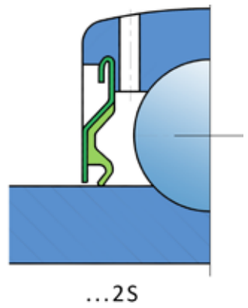
Shaft	Dimensions (mm)										
d	D	B	C	s	d_1	E	Gs	sw	a	b	D_3
12	40	27,4	12	11,5	24,2	3,6	M6X0,75	3	2,06	1,35	38,1
15											
17											
20	47	31	14	12,7	28,2	4,3	M6X0,75	3	2,46	1,35	44,6
25	52	34,1	15	14,3	33,6	4,3	M6X0,75	3	2,46	1,35	49,73
	62	38	20	15	36,6	5	M6X0,75	3	3,28	1,9	59,61
30	62	38,1	18	15,9	39,7	5,1	M6X0,75	3	3,28	1,9	59,61
	72	43	23	17	44,6	5,6	M6X0,75	3	3,28	1,9	68,81
35	72	42,9	19	17,5	46,1	5,6	M6X0,75	3	3,28	1,9	68,81
	80	48	25	19	49,5	5,7	M8X1	4	3,28	1,9	76,81
40	80	49,2	21	19	51,8	6,1	M8X1	4	3,28	1,9	76,81
	90	52	27	19	56,1	6,1	M10X1	5	3,28	2,7	86,79
45	85	49,2	22	19	56,6	6,1	M8X1	4	3,28	1,9	81,81
	100	57	29	22	62,1	7,1	M10X1	5	3,28	2,7	96,8
50	90	51,6	22	19	62,5	6,4	M10X1	5	3,28	2,7	86,79
	110	61	32	22	68,7	7,9	M12X1,5	6	3,28	2,7	106,81
55	100	55,6	25	22,2	69,1	7	M10X1	5	3,28	2,7	96,8
	120	66	34	25	75,3	8,5	M12X1,5	6	4,06	3,1	115,21
60	110	65,1	26	25,4	75,5	7,7	M10X1	5	3,28	2,7	106,81
	130	71	36	26	81,8	9	M12X1,5	6	4,06	3,1	125,22
65	120	68,3	27	25,4	82,5	7,6	M10X1	5	3,28	2,7	115,21
	140	75	39	30	88,3	9,4	M12X1,5	6	4,06	3,1	135,23
70	125	69,9	28	30,2	87,1	8,1	M10X1	5	4,06	3,1	120,22
	150	78	41	33	94,9	10	M12X1,5	6	4,9	3,1	145,24
75	130	73,3	29	27	92,1	8,3	M10X1	5	4,06	3,1	125,22
80	140	77,8	30	30,2	97,4	8,2	M10X1	5	4,9	3,1	135,23
85	150	81	34	30,2	105	9,3	M12X1,5	6	4,9	3,1	145,24
90	160	89	36	35	112,5	10	M12X1,5	6	4,9	3,1	155,22
	190	96	48	42	121	14,3	M16X1,5	8	5,69	3,5	183,64
100	180	98,4	40	35	112,5	10	M12X1,5	6	5,69	3,1	173,66
	215	108	54	40	121	14,3	M16X1,5	10	5,69	3,5	208,6
110	240	117	60	46	149	18	M18X1,5	10	6,5	4,5	232
120	215	73,5	40	28,5	146,4	14	M12X1,5	6	5,69	3,5	208,6
	260	126	64	51	164	19,2	M18X1,5	10	-	-	-

Load ratings (kN)					Mass	Designation		
$r_{1,2}$	$r_{3,4}$	C	C_O	Pu	kg	1	2	3
0,3	0,6	9,56	4,75	0,200	0,09	**LE 203/12 2F**	LE 203/12 2F.SH	LE 203/12 2F.SHN
					0,10	**LE 203/15 2F**	LE 203/15 2F.SH	LE 203/15 2F.SHN
					0,11	**LE 203 2F**	LE 203 2F.SH	LE 203 2F.SHN
0,6	0,6	12,7	6,55	0,280	0,14	**LE 204 2F**	LE 204 2F.SH	LE 204 2F.SHN
0,6	0,6	14	7,8	0,335	0,17	**LE 205 2F**	LE 205 2F.SH	LE 205 2F.SHN
1,1	1,1	22,5	11,6	0,490	0,35	**LE 305 2F**	LE 305 2F.SH	LE 305 2F.SHN
0,6	0,6	19,5	11,2	0,475	0,28	**LE 206 2F**	LE 206 2F.SH	LE 206 2F.SHN
1,1	1,1	28,1	16	0,670	0,56	**LE 306 2F**	LE 306 2F.SH	LE 306 2F.SHN
1	1	25,5	15,3	0,655	0,41	**LE 207 2F**	LE 207 2F.SH	LE 207 2F.SHN
1,5	1,5	33,2	19	0,820	0,71	**LE 307 2F**	LE 307 2F.SH	LE 307 2F.SHN
1	1	30,7	19	0,800	0,55	**LE 208 2F**	LE 208 2F.SH	LE 208 2F.SHN
1,5	1,5	41	24	1,020	0,96	**LE 308 2F**	LE 308 2F.SH	LE 308 2F.SHN
1	1,5	33,2	21,6	0,915	0,60	**LE 209 2F**	LE 209 2F.SH	LE 209 2F.SHN
1,5	1,5	52,7	31,5	1,340	1,28	**LE 309 2F**	LE 309 2F.SH	LE 309 2F.SHN
1	1,5	35,1	23,2	0,980	0,69	**LE 210 2F**	LE 210 2F.SH	LE 210 2F.SHN
2	2	61,8	38	1,600	1,65	**LE 310 2F**	LE 310 2F.SH	LE 310 2F.SHN
1	2	43,6	29	1,25	0,94	**LE 211 2F**	LE 211 2F.SH	LE 211 2F.SHN
2	2	71,5	45	1,90	2,07	**LE 311 2F**	LE 311 2F.SH	LE 311 2F.SHN
1,5	2	52,7	36	1,53	1,30	**LE 212 2F**	LE 212 2F.SH	LE 212 2F.SHN
2,1	2,1	81,0	52	2,20	2,60	**LE 312 2F**	LE 312 2F.SH	LE 312 2F.SHN
1,5	2	57,2	40	1,70	1,70	**LE 213 2F**	LE 213 2F.SH	LE 213 2F.SHN
2,1	2,1	92,3	60	2,50	3,25	**LE 313 2F**	LE 313 2F.SH	LE 313 2F.SHN
1,5	2	62,4	44	1,86	1,90	**LE 214 2F**	LE 214 2F.SH	LE 214 2F.SHN
2,1	2,1	104	68	2,75	3,89	**LE 314 2F**	LE 314 2F.SH	LE 314 2F.SHN
1,5	2	66,3	49	2,04	2,10	**LE 215 2F**	LE 215 2F.SH	LE 215 2F.SHN
2	2,5	72,8	53	2,16	2,80	**LE 216 2F**	LE 216 2F.SH	LE 216 2F.SHN
2	2,5	83,2	62	2,50	3,30	**LE 217 2F**	LE 217 2F.SH	LE 217 2F.SHN
2	2,5	95,6	72	2,70	4,10	**LE 218 2F**	LE 218 2F.SH	LE 218 2F.SHN
3	3	151	108	3,80	7,87	**LE 318 2F**	LE 318 2F.SH	LE 318 2F.SHN
2	2,5	124	93	3,35	5,65	**LE 220 2F**	LE 220 2F.SH	LE 220 2F.SHN
3	3	174	140	4,75	11,2	**LE 320 2F**	LE 320 2F.SH	LE 320 2F.SHN
3	3	203	180	5,70	15,1	**LE 322 2F**	LE 322 2F.SH	LE 222 2F.SHN
2	2,5	155	113	3,90	6,20	**LE 224 2F**	LE 224 2F.SH	LE 224 2F.SHN
3	3	208	186	5,70	19	**LE 324 2F**	LE 324 2F.SH	LE 324 2F.SHN

Y BALL BEARINGS WITH ECCENTRIC LOCKING COLLAR

UY...
UY...SH
UY...SHN





Shaft	Dimensions (mm)													
d	D	B	C	s	d_1	B_1	d_2	B_2	E	Gs	sw	a	b	D_3
12	40	28,6	12	6,5	24,2	19,1	28,6	13,5	3,6	M6X0,75	3	2,06	1,35	38,1
15														
17														
20	47	31	14	7,5	28,2	21,5	33	13,5	4,3	M6X0,75	3	2,46	1,35	44,6
25	52	31	15	7,5	33,6	21,5	37,4	13,5	4,3	M6X0,75	3	2,46	1,35	49,73
30	62	35,7	18	9	39,7	23,8	44,2	16	5,1	M8X1	4	3,28	1,9	59,61
35	72	38,9	19	9,5	46,1	25,4	51,2	17,5	5,6	M10X1	5	3,28	1,9	68,81
40	80	43,7	21	11	51,8	30,2	58,2	18,3	6,1	M10X1	5	3,28	1,9	76,81
45	85	43,7	22	11	56,6	30,2	63,6	18,3	6,1	M10X1	5	3,28	1,9	81,81
50	90	43,7	22	11	62,5	30,2	67,6	18,3	6,4	M10X1	5	3,28	2,7	86,79
55	100	48,4	25	12,5	69,1	32,5	76,2	20,6	7	M10X1	5	3,28	2,7	96,8
60	110	53,3	26	13,5	75,5	37,5	84	22,3	7,7	M10X1	5	3,28	2,7	106,81

Load ratings (kN)					Mass	Designation		
$r_{1,2}$	$r_{3,4}$	C	C_O	Pu	kg	1	2	3
0,3	0,6	9,56	4,75	0,200	0,09	**UY 203/12 2S**	UY 203/12 2S.SH	UY 203/12 2S.SHN
					0,08	**UY 203/15 2S**	UY 203/15 2S.SH	UY 203/15 2S.SHN
					0,07	**UY 203 2S**	UY 203 2S.SH	UY 203 2S.SHN
0,6	0,6	12,7	6,55	0,280	0,11	**UY 204 2S**	UY 204 2S.SH	UY 204 2S.SHN
0,6	0,6	14	7,8	0,335	0,14	**UY 205 2S**	UY 205 2S.SH	UY 205 2S.SHN
0,6	0,6	19,5	11,2	0,475	0,23	**UY 206 2S**	UY 206 2S.SH	UY 206 2S.SHN
1	1	25,5	15,3	0,655	0,31	**UY 207 2S**	UY 207 2S.SH	UY 207 2S.SHN
1	1,5	30,7	19	0,800	0,43	**UY 208 2S**	UY 208 2S.SH	UY 208 2S.SHN
1	1,5	33,2	21,6	0,915	0,48	**UY 209 2S**	UY 209 2S.SH	UY 209 2S.SHN
1	1,5	35,1	23,2	0,980	0,54	**UY 210 2S**	UY 210 2S.SH	UY 210 2S.SHN
1	2	43,6	29	1,25	0,98	**UY 211 2S**	UY 211 2S.SH	UY 211 2S.SHN
1,5	2	52,7	36	1,53	1,3	**UY 212 2S**	UY 212 2S.SH	UY 212 2S.SHN

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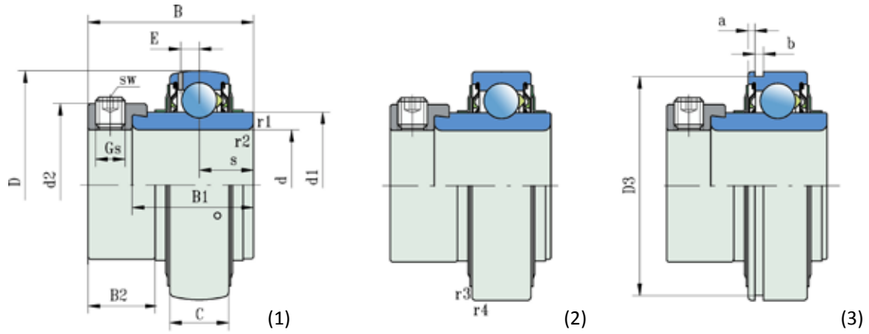
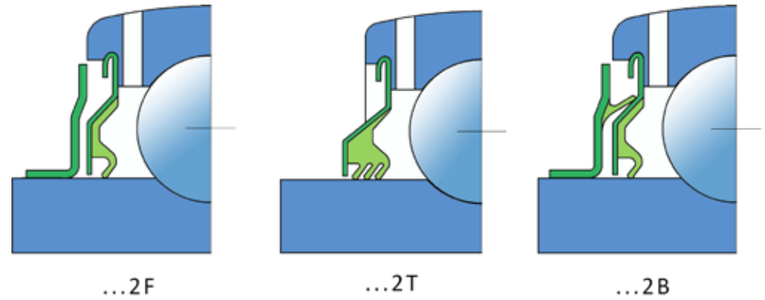
Y BALL BEARINGS WITH ECCENTRIC LOCKING COLLAR

LY...
LY...SH
LY...SHN



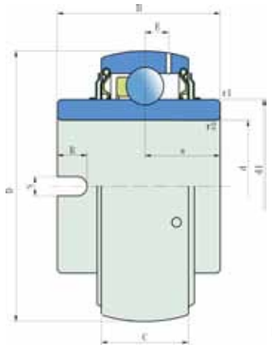


Shaft	Dimensions (mm)													
d	D	B	C	s	d_1	B_1	d_2	B_2	E	Gs	sw	a	b	D_3
12	40	37,3	12	13,9	24,2	27,8	28,6	13,5	3,6	M6X0,75	3	2,06	1,35	38,1
15														
17														
20	47	43,7	14	17,1	28,2	34,1	33	13,5	4,3	M6X0,75	3	2,46	1,35	44,6
25	52	44,4	15	17,5	33,6	34,8	37,4	13,5	4,3	M6X0,75	3	2,46	1,35	49,73
	62	46,8	20	16,7	36,6	34,9	42,8	15,9	5	M8X1	4	3,28	1,9	59,61
30	62	48,4	18	18,3	39,7	36,5	44,2	16	5,1	M8X1	4	3,28	1,9	59,61
	72	50	23	17,5	44,6	36,5	50	17,5	5,6	M8X1	4	3,28	1,9	68,81
35	72	51,1	19	18,8	46,1	37,6	51,2	17,5	5,6	M10X1	5	3,28	1,9	68,81
	80	51,6	25	18,3	49,5	38,1	55	17,5	5,7	M8X1	4	3,28	1,9	76,81
40	80	56,3	22	21,4	56,6	42,8	63,6	18,3	6,1	M10X1	5	3,28	1,9	76,81
	90	57,1	29	19,8	62,1	42,9	70	20,6	7,1	M10X1	5	3,28	2,7	86,79
45	85	56,3	22	21,4	56,6	42,8	63,6	18,3	6,1	M10X1	5	3,28	1,9	81,81
	100	58,7	29	19,8	62,1	42,9	70	20,6	7,1	M10X1	5	3,28	2,7	96,8
50	90	62,7	22	24,6	62,5	49,2	67,6	18,3	6,4	M10X1	5	3,28	2,7	86,79
	110	66,6	32	24,6	68,7	49,2	76,2	22,2	7,9	M10X1	5	3,28	2,7	106,81
55	100	71,4	25	27,8	69,1	55,6	76,2	20,6	7	M10X1	5	3,28	2,7	96,8
	120	73	34	27,8	75,3	55,6	83	22,2	8,5	M10X1	5	4,06	3,1	115,21
60	110	77,8	26	31	75,5	62	84	22,3	7,7	M10X1	5	3,28	2,7	106,81
	130	79,4	36	30,9	81,8	61,9	89	23,9	9,0	M10X1	5	4,06	3,1	125,22
65	120	85,7	27	34,1	82,5	68,2	86	24	7,6	M10X1	5	4,06	3,1	115,21
	140	85,7	39	32,6	88,3	65,1	97	27	9,4	M12X1,5	6	4,9	3,1	135,23
70	125	85,7	28	34,1	87,1	68,2	92,9	23,8	8,1	M10X1	5	4,06	3,1	120,22
	150	92,1	41	34,2	94,9	68,3	102	30,2	10	M12X1,5	6	4,9	3,1	145,24
75	130	92,1	29	37,3	92,1	74,6	101,7	24	8,3	M10X1	5	4,06	3,1	125,22
80	140	100	30	40,4	97,4	80,8	110	26,2	8,2	M12X1,5	6	4,9	3,1	135,23
90	160	106,4	36	43,6	112,5	88,2	123,7	25,2	10	M12X1,5	6	4,9	3,1	155,22
	190	115,9	48	43,6	121	87,3	133	38,5	14,3	M20X1,5		5,69	3,5	183,64
100	180	75	40	25,5	124,8	57,5	130	25,5	12	M12X1,5	6	5,69	3,1	173,66
	215	128,6	54	50	135	100	146	38,5	16,7	M20X1,5		5,69	3,5	208,6
110	240	141,3	60	49,2	149	106,4	168	44,8	18	M20X1,5		6,5	4,5	232
120	215	81	40	28,5	146,4	63,5	150	25,5	14	M12X1,5	6	5,69	3,5	208,6

Load ratings (kN)					Mass	Designation		
$r_{1,2}$	$r_{3,4}$	C	C_O	Pu	kg	1	2	3
0,3	0,6	9,56	4,75	0,200	0,162	**LY 203/12 2F**	LY 203/12 2F.SH	LY 203/12 2F.SHN
					0,143	**LY 203/15 2F**	LY 203/15 2F.SH	LY 203/15 2F.SHN
					0,128	**LY 203 2F**	LY 203 2F.SH	LY 203 2F.SHN
0,6	0,6	12,7	6,55	0,280	0,19	**LY 204 2F**	LY 204 2F.SH	LY 204 2F.SHN
0,6	0,6	14	7,8	0,335	0,23	**LY 205 2F**	LY 205 2F.SH	LY 205 2F.SHN
1,1	1,1	22,5	11,6	0,490	0,43	**LY 205 2F**	LY 205 2F.SH	LY 205 2F.SHN
0,6	0,6	19,5	11,2	0,475	0,37	**LY 206 2F**	LY 206 2F.SH	LY 206 2F.SHN
1,1	1,1	28,1	16	0,670	0,68	**LY 306 2F**	LY 306 2F.SH	LY 306 2F.SHN
1	1	25,5	15,3	0,655	0,57	**LY 207 2F**	LY 207 2F.SH	LY 207 2F.SHN
1,5	1,5	33,2	19	0,820	0,80	**LY 307 2F**	LY 307 2F.SH	LY 307 2F.SHN
1	1,5	30,7	19	0,800	0,80	**LY 208 2F**	LY 208 2F.SH	LY 208 2F.SHN
1,5	1,5	41	24	1,020	1,08	**LY 308 2F**	LY 308 2F.SH	LY 308 2F.SHN
1	1,5	33,2	21,6	0,915	0,76	**LY 209 2F**	LY 209 2F.SH	LY 209 2F.SHN
1,5	1,5	52,7	31,5	1,340	1,44	**LY 309 2F**	LY 309 2F.SH	LY 309 2F.SHN
1	1,5	35,1	23,2	0,980	0,91	**LY 210 2F**	LY 210 2F.SH	LY 210 2F.SHN
2	2	61,8	38	1,600	1,86	**LY 310 2F**	LY 310 2F.SH	LY 310 2F.SHN
1	2	43,6	29	1,25	1,20	**LY 211 2F**	LY 211 2F.SH	LY 211 2F.SHN
2	2	71,5	45	1,90	2,34	**LY 311 2F**	LY 311 2F.SH	LY 311 2F.SHN
1,5	2	52,7	36	1,53	1,67	**LY 212 2F**	LY 212 2F.SH	LY 212 2F.SHN
2,1	2,1	81,9	52	2,20	2,95	**LY 312 2F**	LY 312 2F.SH	LY 312 2F.SHN
1,5	2	57,2	40	1,70	2,30	**LY 213 2F**	LY 213 2F.SH	LY 213 2F.SHN
2,1	2,1	92,3	60	2,50	3,67	**LY 313 2F**	LY 313 2F.SH	LY 313 2F.SHN
1,5	2	62,4	44	1,86	2,50	**LY 214 2F**	LY 214 2F.SH	LY 214 2F.SHN
2,1	2,1	104	68	2,75	4,40	**LY 314 2F**	LY 314 2F.SH	LY 314 2F.SHN
1,5	2	66,3	49	2,04	2,90	**LY 215 2F**	LY 215 2F.SH	LY 215 2F.SHN
2	2,5	72,8	53	2,16	3,54	**LY 216 2F**	LY 216 2F.SH	LY 216 2F.SHN
2	2,5	95,6	72	2,70	5,11	**LY 218 2F**	LY 218 2F.SH	LY 218 2F.SHN
3	3	151	108	3,80	9,10	**LY 318 2F**	LY 318 2F.SH	LY 318 2F.SHN
2	2,5	124	93	3,35	4,35	**LY 220 2F**	LY 220 2F.SH	LY 220 2F.SHN
3	3	174	140	4,75	12,6	**LY 320 2F**	LY 320 2F.SH	LY 320 2F.SHN
3	3	203	180	5,70	17,2	**LY 222 2F**	LY 222 2F.SH	LY 222 2F.SHN
2	2,5	155	113	3,90	6,70	**LY 224 2F**	LY 224 2F.SH	LY 224 2F.SHN

Y BALL BEARINGS WITH DRIVE SLOT IN INNER RING

LN...



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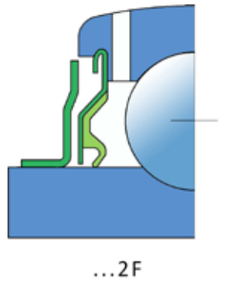

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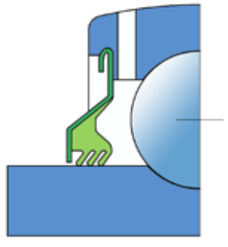
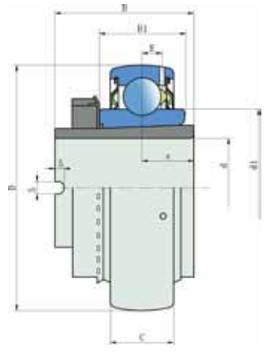


...2T

Shaft	Dimensions (mm)								
d	D	B	C	B_1	s	d_1	N	R^{H11}	E
20	47	34,1	14	-	28,2	28,2	7	7	4,3
	47	28	14	16,6	33,5	33,5	-		4,3
25	52	34,9	15	-	33,6	33,6	8	-	4,3
30	62	36,5	18	-	39,7	39,7	8	7	5,1
	62	32	18		43,7	43,7	-		5,1
35	72	37,7	19	18	46,1	46,1	8	7	5,6
40	80	42,9	21	-	51,8	51,8	9	7	6,1
45	85	42,9	22	-	56,6	56,6	9	7	6,1
50	90	42,9	22	-	62,5	62,5	10	7	6,4
60	110	61,9	24	-	75,5	75,5	12	9	7,7
70	125	68,2	28	-	87,1	87,1	12	9	8,1

Y BALL BEARINGS WITH INTEGRAL ADAPTER SLEEVE

UH...



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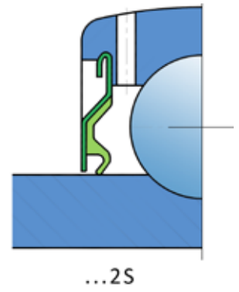
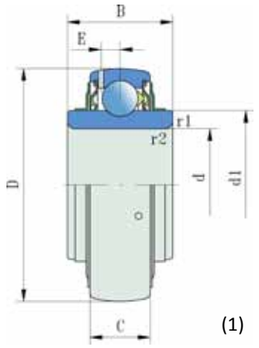


...2S

Load ratings (kN)				Mass	Designation	
$r_{1,2}$	C	C_O	Pu	kg		Fig.
0,6	12,7	6,55	0,280	0,16	**LN 204 2F**	1
-	11,2	6,55	0,275	0,14	**UH 005/20 2S**	2
0,6	14	7,8	0,335	0,17	**LN 205 2F**	1
0,6	19,5	11,2	0,475	0,30	**LN 206 2F**	1
-	15,9	10,2	0,440	0,27	**UH 007/30 2S**	2
1	25,5	15,3	0,655	0,49	**LN 207 2F**	1
1	30,7	19	0,800	0,58	**LN 208 2F**	1
1	33,2	21,6	0,915	0,66	**UE 208 2S**	1
1	35,1	23,2	0,980	0,76	**LN 209 2F**	1
1,5	52,7	36	1,53	1,52	**LN 210 2F**	1
1,5	62,4	44	1,86	2,25	**LN 214 2F**	1

Y BALL BEARINGS WITH EXTENDED STANDARD INNER RING

LS...



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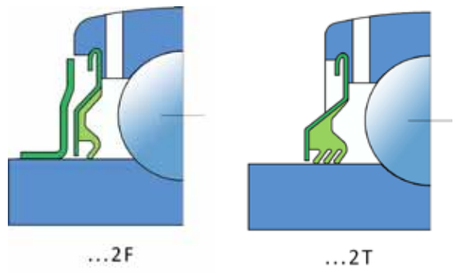
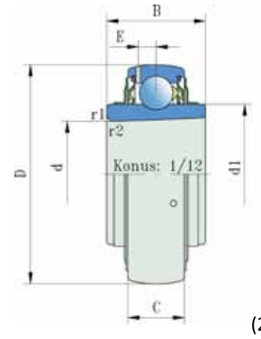


Shaft	Dimensions (mm)								
d_2	d	D	L	B	C	d_1	W	Y	E
20	25	52	35	24	15	33,6	38	8	4,3
25	25	52	-	24	15	33,6	-	-	4,3
	30	62	38	28	18	39,7	45	8	5,1
30	30	62	-	28	18	39,7	-	-	5,1
	35	72	43	30,5	19	46,1	52	9	5,6
35	35	72	-	30,5	19	46,1	-	-	5,6
	40	80	46	33,9	21	51,8	58	10	6,1
40	40	80	-	33,9	21	51,8	-	-	6,1
	45	85	50	35	22	56,6	65	11	6.1
45	45	85	-	35	22	56,6	-	-	6,1
	50	90	55	37	22	62,5	70	12	6,4
50	50	90	-	37	22	62,5	-	-	6,4
	55	100	59	40	25	69,1	75	12	7
55	55	100	-	40	25	69,1	-	-	7
	60	110	62	42,5	26	75,5	80	13	7,7
60	65	120	65	43,5	27	82,5	85	14	7,6
65	75	130	73	47,5	29	92,1	98	15	8,1
70	80	140	78	49	30	97,4	105	17	8,3
75	85	150	82	56	34	97,4	110	18	8,2
80	90	160	86	58	36	105	120	19	9,3

Y BALL BEARING WITH TAPERED BORE
Y BALL BEARINGS WITH ADAPTER SLEEVE

LK...
LK...+H...



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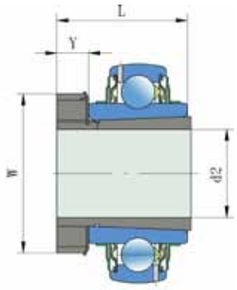
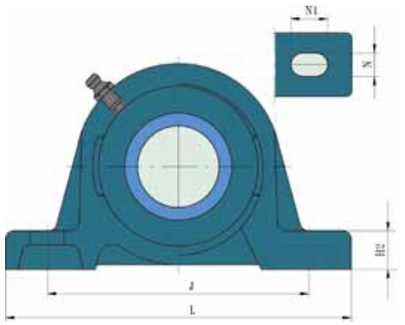


(3)

Load ratings (kN)			Mass	Designation	Mass	Designation	Mass	Designation
C	C_O	Pu	kg	1	kg	2	kg	3
14	7,8	0,335			0,13	**LK 205 2F**	0,22	**LK 205 2F+H 2305**
14	7,8	0,335	0,14	**LS 205 2F**	0,22	**LK 206 2F**	0,33	**LK 206 2F+H 2306**
19,5	11,2	0,475						
19,5	11,2	0,475	0,23	**LS 206 2F**	0,29	**LK 207 2F**	0,47	**LK 207 2F+H 2307**
25,5	15,3	0,655						
25,5	15,3	0,655	0,31	**LS 207 2F**	0,41	**LK 208 2F**	0,63	**LK 208 2F+H 2308**
30,7	19	0,800						
30,7	19	0,800	0,43	**LS 208 2F**	0,47	**LK 209 2F**	0,73	**LK 209 2F+H 2309**
33,2	21,6	0,915						
33,2	21,6	0,915	0,49	**LS 209 2S**	0,51	**LK 210 2F**	0,86	**LK 210 2F+H 2310**
35,1	23,2	0,980						
35,1	23,2	0,980	0,54	**LS 210 2F**	0,75	**LK 211 2F**	1,10	**LK 211 2F+H 2311**
43,6	29	1,25						
43,6	29	1,25	0,79	**LS 211 2F**	1,05	**LK 212 2F**	1,40	**LK 212 2F+H 2312**
52,7	36	1,53						
57,2	40	1,70			1,30	**LK 213 2F**	1,70	**LK 213 2F+H 2313**
66,3	49	2,04			1,64	**LK 215 2F**	2,35	**LK 215 2F+H 2315**
72,8	53	2,16			2,05	**LK 216 2F**	3,00	**LK 216 2F+H 2316**
85	65	2,50			2,41	**LK 217 2F**	3,55	**LK 217 2F+H 2317**
95,6	72	2,70			3,05	**LK 218 2F**	4,20	**LK 218 2F+H 2318**

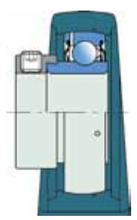
Y BEARING PLUMMER BLOCK UNITS – GREY CAST IRON HOUSING "S"

UES...
LES...
UYS...
LYS...
LSS...
LKS...



(1)

(2)



(3)

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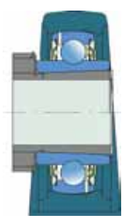


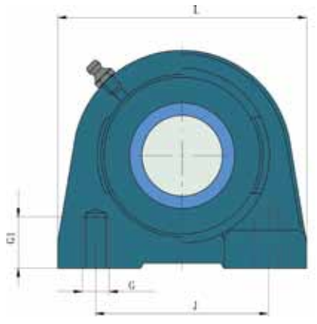
(6)

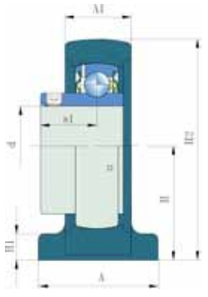
Shaft	Dimensions (mm)													Mass	Designation
d	A	A_1	H	H_1	H_2	$J_{min.}$	$J_{max.}$	L	N	N_1	s_1	fig.	kg	
17	32	18	56,2	30,2	14	88	106	127	11,5	20,5	15,9	1	0,48	**UES 203 2S**
											15,9	2	0,50	**LES 203 2F**
											22,1	3	0,52	**UYS 203 2S**
											23,4	4	0,54	**LYS 203 2F**
20	34	23	63,8	33,3	14	89	104,5	127	13	20,7	18,3	1	0,55	**UES 204 2S**
											18,3	2	0,57	**LES 204 2F**
											23,5	3	0,59	**UYS 204 2S**
											26,6	4	0,62	**LYS 204 2F**
	38	24	69,5	36,5	16	94	111	140	13	21,5	20	6	0,77	**LKS 205 2F + H2305**
25	38	24	69,5	36,5	16	94	111	140	13	21,5	19,5	1	0,70	**UES 205 2S**
											19,8	2	0,73	**LES 205 2F**
											23,5	3	0,73	**UYS 205 2S**
											26,9	4	0,78	**LYS 205 2F**
											12	5	0,70	**LSS 205 2F**
	42	27	81,4	42,9	16	111	125	165	17	24	22	6	1,15	**LKS 206 2F + H2306**
30	42	27	81,4	42,9	16	111	125	165	17	24	21	1	1,06	**UES 206 2S**
											22.2	2	1,12	**LES 206 2F**
											26,7	3	1,12	**UYS 206 2S**
											30,1	4	1,19	**LYS 206 2F**
											14	5	1,06	**LSS 206 2F**
	46	28	92,1	47,6	17	122	136	167	17	24	24,3	6	1,55	**LKS 207 2F + H2307**
35	46	28	92,1	47,6	17	122	136	167	17	24	23,3	1	1,46	**UES 207 2S**
											25,5	2	1,53	**LES 207 2F**
											29,4	3	1,58	**UYS 207 2S**
											32,3	4	32,3	**LYS 207 2F**
											15,2	5	1,47	**LSS 207 2F**
	49	31	98,2	49,2	18	128	145	184	17	25,5	27	6	1,90	**LKS 208 2F + H2308**
40	49	31	98,2	49,2	18	128	145	184	17	25,5	25,3	1	1,85	**UES 208 2S**
											30,2	2	1,96	**LES 208 2F**
											32,7	3	1,99	**UYS 208 2S**
											34,9	4	2,08	**LYS 208 2F**
											17	5	1,88	**LSS 208 2F**
	52	36	107	54	20	136	151	190	17	23,5	28,5	6	2,35	**LKS 209 2F + H2309**
45	52	36	107	54	20	136	151	190	17	23,5	25,8	1	2,23	**UES 209 2S**
											30,2	2	2,34	**LES 209 2F**
											32,7	3	2,34	**UYS 209 2S**

Shaft	Dimensions (mm)													Mass	Designation
d	A	A_1	H	H_1	H_2	$J_{min.}$	$J_{max.}$	L	N	N_1	s_1	fig.	kg	
45	52	36	107	54	20	136	151	190	17	23,5	34,9	4	2,46	**LYS 209 2F**
											17,5	5	2,25	**LSS 209 2F**
											30,5	6	2,85	**LKS 210 2F + H2310**
50	58	38	113,2	57,2	22	151	164	206	20	26,5	27,6	1	2,59	**UES 210 2S**
												2	2,74	**LES 210 2F**
												3	2,73	**UYS 210 2S**
												4	2,92	**LYS 210 2F**
												5	2,65	**LSS 210 2F**
												6	3,75	**LKS 211 2F + H2311**
55	60	24	69,5	36,5	16	94	111	140	13	21,5	33,4	2	3,62	**LES 211 2F**
											35,9	3	3,59	**UYS 211 2S**
											43,6	4	3,80	**LYS 211 2F**
											21,2	5	3,59	**LSS 211 2F**
	65	47	136,8	69,8	26,5	179	198	241	20	29,5	34,3	6	4,55	**LKS 212 2F + H2312**
60	65	47	136,8	69,8	26,5	179	198	241	20	29,5	39,7	2	4,62	**LES 212 2F**
											40,3	3	4,19	**UYS 212 2S**
											46,8	4	4,82	**LYS 212 2F**
	70	49	150	76,2	27	193	213	265	25	35	35,8	6	5,70	**LKS 213 2F + H2313**
65	70	49	150	76,2	27	193	213	265	25	35	42,9	2	6,02	**LES 213 2F**
											51,6	4	6,55	**LYS 213 2F**
	74	54	165	82,5	28	209	225	275	25	33	38,8	6	7,55	**LKS 215 2F + H2315**
70	72	46	155	79,4	27	205	215	266	25	30	39,7	2	6,60	**LES 214 2F**
											51,6	4	7,10	**LYS 214 2F**
	78	50	175	88,9	30	222	242	292	25	35	41,5	6	9,50	**LKS 216 2F + H2316**
75	74	54	165	82,5	28	209	225	275	25	33	46,3	2	7,80	**LES 215 2F**
											54,8	4	8,40	**LYS 215 2F**
80	78	50	175	88,9	30	222	242	292	25	35	47,6	2	9,20	**LES 216 2F**
											59,6	4	10,0	**LYS 216 2F**
	88	54	200	101,6	33	254	270	327	27	35	47	6	13,7	**LKS 218 2F + H2318**
90	88	54	200	101,6	33	254	270	327	27	35	54	2	13,7	**LES 218 2F**
											62,8	4	14,6	**LYS 218 2F**
100	95	57	225	115	38	286	330	380	26	48	63,4	2	17,8	**LES 220 2F**
											49,5	4	17,4	**LYS 220 2F**

Y BEARING PLUMMER BLOCK UNIT – GREY CAST IRON HOUSING "V"

UEV...
LEV...
UYV...
LYV...
LSV...
LKV...





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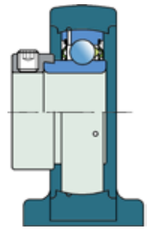

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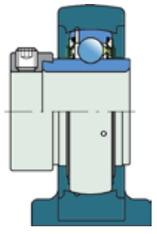

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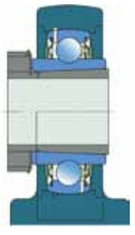


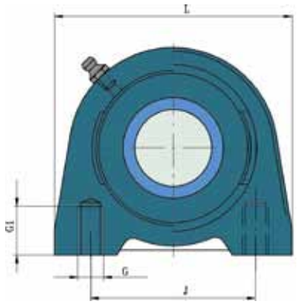
(6)

Shaft	Dimensions (mm)												Mass	Designation
d	L	A	J	H	G	G_1	H_1	H_2	A_1	s_1	fig.	kg	
20	76	38	52	30,2	M10	12	8	62	24	18,3	1	0,52	**UEV 204 2S**
										18,3	2	0,54	**LEV 204 2F**
										23,5	3	0,56	**UYV 204 2S**
										26,6	4	0,59	**LYV 204 2F**
	84	38	56	36,5	M10	15	10	72	25	20	6	0,74	**LKV 205 2F + H2305**
25	84	38	56	36,5	M10	15	10	72	25	19,5	1	0,65	**UEV 205 2S**
										19,8	2	0,68	**LEV 205 2F**
										23,5	3	0,68	**UYV 205 2S**
										26,9	4	0,73	**LYV 205 2F**
										12	5	0,65	**LSV 205 2F**
	94	48	66	42,9	M14	18	10	84	28,5	22	6	1,13	**LKV 206 2F + H2306**
30	94	48	66	42,9	M14	18	10	84	28,5	21	1	0,97	**UEV 206 2S**
										22,2	2	1,03	**LEV 206 2F**
										26,7	3	1,03	**UYV 206 2S**
										30,1	4	1,10	**LYV 206 2F**
										14	5	0,97	**LSV 206 2F**
	110	48	80	47,6	M14	20	12	95	30,5	24,3	6	1,53	**LKV 207 2F + H2307**
35	110	48	80	47,6	M14	20	12	95	30,5	23,3	1	1,37	**UEV 207 2S**
										25,5	2	1,44	**LEV 207 2F**
										29,4	3	1,49	**UYV 207 2S**
										32,3	4	1,57	**LYV 207 2F**
										15,2	5	1,38	**LSV 207 2F**
	116	54	84	49,2	M14	20	12	1000	31,5	27	6	1,76	**LKV 208 2F + H2308**

Shaft	Dimensions (mm)												Mass	Designation
d	L	A	J	H	G	G_1	H_1	H_2	A_1	s_1	fig.	kg	
40	116	54	84	49,2	M14	20	12	100	31,5	25,3	1	0,56	**UEV 208 2S**
										30,2	2	1,67	**LEV 208 2F**
										32,7	3	1,70	**UYV 208 2S**
										34,9	4	1,79	**LYV 208 2F**
										17	5	1,59	**LSV 208 2F**
	120	54	90	54,2	M14	25	12	108	33,5	28,5	6	2,04	**LKV 209 2F + H2309**
45	120	54	90	54,2	M14	25	12	108	33,5	25,8	1	1,80	**UEV 209 2S**
										30,2	2	1,91	**LEV 209 2F**
										32,7	3	1,89	**UYV 209 2S**
										34,9	4	1,91	**LYV 209 2F**
										17,5	5	1,82	**LSV 209 2F**
	130	60	94	57,2	M16	25	14	116	35,5	30,5	6	2,53	**LKV 210 2F + H2310**
50	130	60	94	57,2	M16	25	14	116	35,5	27,6	1	2,18	**UEV 210 2S**
										32,6	2	2,33	**LEV 210 2F**
										32,7	3	2,32	**UYV 210 2S**
										38,1	4	2,51	**LYV 210 2F**
										20	5	2,24	**LSV 210 2F**

Y BEARING PLUMMER BLOCK UNITS – GREY CAST IRON HOUSING "U"

UEU...
LEU...
UYU...
LYU...
LSU...
LKU...



(1)

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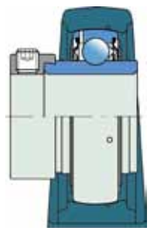

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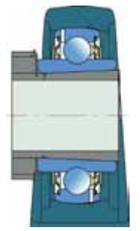


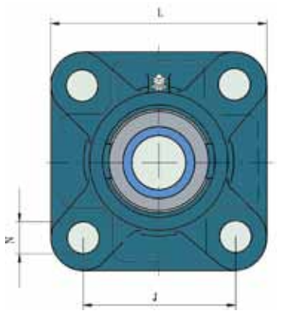
(6)

Shaft	Dimensions (mm)										Mass	Designation
d	L	A	J	H_1	G	G_1	H	A_1	s_1	fig.	kg	
20	65	32	52	30,2	M10	14	63,8	21	18,3	1	0,52	**UEU 204 2S**
									18,3	2	0,54	**LEU 204 2F**
									23,5	3	0,56	**UYU 204 2S**
									26,6	4	0,59	**LYU 204 2F**
	70	36	50,8	36,5	M10	15	69,5	22	20	6	0,74	**LKU 205 2F + H2305**
25	70	36	50,8	36,5	M10	15	69,5	22	19,5	1	0,65	**UEU 205 2S**
									19,8	2	0,68	**LEU 205 2F**
									23,5	3	0,68	**UYU 205 2S**
									26,9	4	0,73	**LYU 205 2F**
									12	5	0,65	**LSU 205 2F**
	98	40	76,2	42,9	M10	15	81,4	25	22	6	1,13	**LKU 206 2F + H2306**
30	98	48	76,2	42,9	M10	15	81,4	25	21	1	0,97	**UEU 206 2S**
									22,2	2	1,03	**LEU 206 2F**
									26,7	3	1,03	**UYU 206 2S**
									30,1	4	1,10	**LYU 206 2F**
									14	5	0,97	**LSU 206 2F**
	103	45	82,6	47,6	M10	15	92,1	27	24,3	6	1,53	**LKU 207 2F + H2307**
35	103	45	82,6	47,6	M10	15	92,1	27	23,3	1	1,37	**UEU 207 2S**
									25,5	2	1,44	**LEU 207 2F**
									29,4	3	1,49	**UYU 207 2S**
									32,3	4	1,57	**LYU 207 2F**
									15,2	5	1,38	**LSU 207 2F**
	116	48	88,9	49,2	M12	20	98,2	30	27	6	1,76	**LKU 208 2F + H2308**

Shaft	Dimensions (mm)										Mass	Designation
d	L	A	J	H_1	G	G_1	H	A_1	s_1	fig.	kg	
40	116	48	88,9	49,2	M12	20	98,2	30	25,3	1	1,56	**UEU 208 2S**
									30,2	2	1,67	**LEU 208 2F**
									32,7	3	1,70	**UYU 208 2S**
									34,9	4	1,79	**LYU 208 2F**
									17	5	1,59	**LSU 208 2F**
	120	48	95,3	54	M12	22	106,5	32	28,5	6	2,04	**LKU 209 2F + H2309**
45	120	48	95,3	36,5	M12	15	69,5	32	25,8	1	1,80	**UEU 209 2S**
									30,2	2	1,91	**LEU 209 2F**
									32,7	3	1,89	**UYU 209 2S**
									34,9	4	1,91	**LYU 209 2F**
									17,5	5	1,82	**LSU 209 2F**
	135	54	101,6	57,2	M16	25,5	113,2	34	30,5	6	2,53	**LKU 210 2F + H2310**
50	135	54	101,6	57,2	M16	25,5	113,2	34	27,6	1	2,18	**UEU 210 2S**
									32,6	2	2,33	**LEU 210 2F**
									32,7	3	2,32	**UYU 210 2S**
									38,1	4	2,51	**LYU 210 2F**
									20	5	2,24	**LSU 210 2F**

Y FLANGED BEARING UNITS – SQUARE GREY CAST IRON HOUSING "F"

UEF...
LEF...
UYF...
LYF...
LSF...
LKF...



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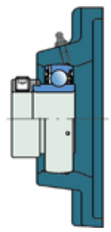
(2)



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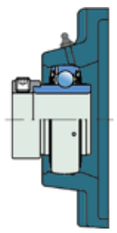

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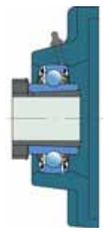


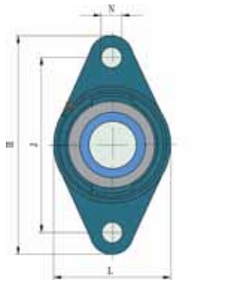
(6)

Shaft	Dimensions (mm)							Mass	Designation
d	A_1	A_2	J	L	N	A	fig.	kg	
17	26	11	54	76	11,5	32,9	1	0,42	**UEF 203 2S**
						32,9	2	0,44	**LEF 203 2F**
						39,1	3	0,46	**UYF 203 2S**
						40,4	4	0,48	**LYF 203 2F**
20	25,5	11	64	86	12	33,3	1	0,52	**UEF 204 2S**
						33,3	2	0,54	**LEF 204 2F**
						38,5	3	0,56	**UYF 204 2S**
						41,6	4	0,59	**LYF 204 2F**
	27	12	70	95	12	39	6	0,73	**LKF 205 2F + H2305**
25	27	13	83	95	12	35,5	1	0,70	**UEF 205 2S**
						35,8	2	0,73	**LEF 205 2F**
						39,5	3	0,73	**UYF 205 2S**
						42,9	4	0,78	**LYF 205 2F**
						28	5	0,70	**LSF 205 2F**
	31	13	83	108	14	40	6	1,05	**LKF 206 2F + H2306**
30	31	13	83	108	14	39	1	0,94	**UEF 206 2S**
						40,2	2	1,00	**LEF 206 2F**
						44,7	3	1,00	**UYF 206 2S**
						48,1	4	1,07	**LYF 206 2F**
						32	5	0,94	**LSF 206 2F**
	34	13	92	118	14	43,3	6	1,35	**LKF 207 2F + H2307**
35	34	13	92	118	14	42,3	1	1,27	**UEF 207 2S**
						44,5	2	1,34	**LEF 207 2F**
						48,4	3	1,39	**UYF 207 2S**
						51,3	4	1,47	**LYF 207 2F**
						34,3	5	1,28	**LSF 207 2F**
	36	14	102	130	16	48	6	1,75	**LKF 208 2F + H2308**
40	36	14	102	130	16	46,3	1	1,68	**UEF 208 2S**
						51,2	2	1,79	**LEF 208 2F**
						53,7	3	1,82	**UYF 208 2S**
						52,2	4	1,91	**LYF 208 2F**
						38	5	1,71	**LSF 208 2F**
	38	16	105	137	16	50,5	6	2,10	**LKF 209 2F + H2309**
45	38	16	105	137	16	47,8	1	2,08	**UEF 209 2S**
						52,2	2	2,19	**LEF 209 2F**
						54,7	3	2,19	**UYF 209 2S**

Shaft	Dimensions (mm)							Mass	Designation
d	A_1	A_2	J	L	N	A	fig.	kg	
45	38	16	105	137	16	56,9	4	2,31	**LYF 209 2F**
						39,5	5	2,10	**LSF 209 2F**
	40	15	111	143	16	52,5	6	2,80	**LKF 210 2F + H2310**
50	40	15	111	143	16	49,6	1	2,43	**UEF 210 2F**
						54,6	2	2,58	**LEF 210 2F**
						54,7	3	2,57	**UYF 210 2S**
						60,1	4	2,76	**LYF 210 2F**
						40,5	5	2,49	**LSF 210 2F**
	43	17	130	162	19	57,5	6	3,60	**LKF 211 2F + H2311**
55	43	17	130	162	19	58,4	2	3,42	**LEF 211 2F**
						60,9	3	3,39	**UYF 211 2S**
						68,6	4	3,60	**LYF 211 2F**
						45	5	3,39	**LSF 211 2F**
	48	18	83	175	19	63,3	6	4,60	**LKF 212 2F + H2312**
60	48	18	143	175	19	68,7	2	4,27	**LEF 212 2F**
						69,3	3	3,84	**UYF 212 2F**
						75,8	4	4,47	**LYC 212 2F**
	50	18	143	187	19	65,8	6	6,00	**LKF 213 2F + H2313**
65	50	22	149	187	19	72,9	2	5,57	**LEF 213 2F**
						81,6	4	6,10	**LYF 213 2F**
	50,3	21,3	152	193	19	73,7	6	7,00	**LKF 215 2F + H2315**
70	50,3	21,3	152	193	19	70,7	2	6,20	**LEF 214 2F**
						82,6	4	6,70	**LYF 214 2F**
	53,6	22,1	159	200	19	76,5	6	7,80	**LKF 216 2F + H2316**
75	53,6	22,1	159	200	19	80,3	2	7,00	**LEF 215 2F**
						88,8	4	7,60	**LYF 215 2S**
80	54,5	22	165	208	23	81,6	2	7,50	**LEF 216 2F**
						93,6	4	8,34	**LYF 216 2F**
	63,4	23,4	184	235	23	88,6	6	11,6	**LKF 218 2F + H2318**
90	63,4	23,4	187	235	23	94,0	2	11,6	**LEF 218 2F**
						102,8	4	12,5	**LYF 218 2F**
100	70	25	210	265	27	107,5	2	13,9	**LEF 220 2F**
						93,6	4	13,5	**LYF 220 2F**

Y BEARING FLANGED UNITS – OVAL GREY CAST IRON HOUSING "N"

UEN...
LEN...
UYN...
LYN...
LSN...
LKN...



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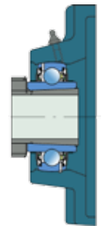

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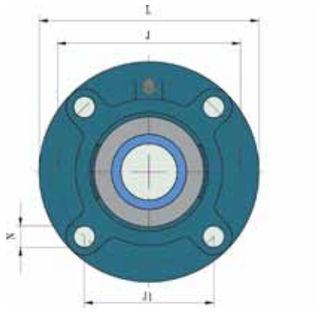
Shaft	Dimensions (mm)								Mass	Designation
d	A_1	A_2	H	J	L	N	A	fig.	kg	
17	26	11	98,5	76,5	57	11,5	32,9	1	0,37	**UEN 203 2S**
							32,9	2	0,39	**LEN 203 2F**
							39,1	3	0,41	**UYN 203 2S**
							40,4	4	0,43	**LYN 203 2F**
20	25,5	11	112	90	60	12	33,3	1	0,41	**UEN 204 2S**
							33,3	2	0,43	**LEN 204 2F**
							38,5	3	0,45	**UYN 204 2S**
							41,6	4	0,48	**LYN 204 2F**
	27	14	130	99	68	16	36	6	0,66	**LKN 205 2F + H2305**
25	27	14	130	99	68	16	35,5	1	0,58	**UEN 205 2S**
							35,8	2	0,61	**LEN 205 2F**
							39,5	3	0,61	**UYN 205 2S**
							42,9	4	0,66	**LYN 205 2F**
							28	5	0,56	**LSN 205 2F**
	30,5	14	148	117	80	16	40,5	6	0,98	**LKN 206 2F + H2306**
30	30,5	14	148	117	80	16	39	1	0,84	**UEN 206 2S**
							40,2	2	0,90	**LEN 206 2F**
							44,7	3	0,90	**UYN 206 2S**
							48,1	4	0,97	**LYN 206 2F**
							32	5	0,98	**LSN 206 2F**
	34	16	161	130	96	16	44,8	6	1,20	**LKN 207 2F + H2307**
35	34	16	161	130	96	16	42,3	1	1,20	**UEN 207 2S**
							44,5	2	1,27	**LEN 207 2F**
							48,4	3	1,32	**UYN 207 2S**
							51,3	4	1,40	**LYN 207 2F**
							34,3	5	1,29	**LSN 207 2F**
	36	16	175	144	100	16	48,5	6	1,60	**LKN 208 2F + H2308**
40	36	16	175	144	100	16	46,3	1	1,58	**UEN 208 2S**
							51,2	2	1,69	**LEN 208 2F**
							53,7	3	1,72	**UYN 208 2S**
							55,9	4	1,81	**LYN 208 2F**
							38	5	1,73	**LSN 208 2F**
	38	18	188	148	108	19	52,5	7	1,95	**LKN 209 2F + H2309**

Shaft	Dimensions (mm)								Mass	Designation
d	A_1	A_2	H	J	L	N	A	fig.	kg	
45	38	18	188	148	108	19	47,8	1	1,73	**UEN 209 2S**
							52,2	2	1,84	**LEN 209 2F**
							54,7	3	1,84	**UYN 209 2S**
							56,9	4	1,96	**LYN 209 2F**
							39,5	5	1,86	**LSN 209 2F**
	40	18	195	157	115	19	58,5	6	2,10	**LKN 209 2F + H2310**
50	40	18	195	157	115	19	49,6	1	1,98	**UEN 210 2S**
							54,6	2	2,13	**LEN 210 2F**
							54,7	3	2,12	**UYN 210 2S**
							60,1	4	2,31	**LYN 210 2F**
							40,5	5	2,27	**LSN 210 2F**
	44	18	220	184	130	19	63,5	6	3,26	**LKN 211 2F + H2311**
55	44	18	220	184	130	19	58,4	2	3,12	**LEN 211 2F**
							60,9	3	3,09	**UYN 211 2S**
							68,6	4	3,30	**LYN 211 2F**
							45	5	3,04	**LSN 211 2F**
	48	18	242	202	140	23	70	6	4,07	**LKN 212 2F + H2312**
60	48	18	242	202	140	23	68,7	2	4,07	**LEN 212 2F**
							69,3	3	3,64	**UYN 212 2S**
							75,8	4	4,27	**LYN 212 2F**

Y BEARING FLANGED UNITS – ROUND GREY CAST IRON HOUSING "G"

UEG...
LEG...
UYG...
LYG...
LSG...
LKG...



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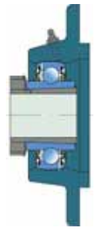

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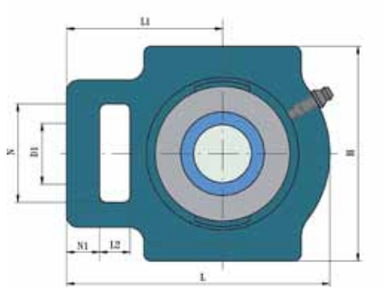
Shaft	Dimensions (mm)										Mass	Designation
d	A_1	A_2	A_3	D_a	J	J_1	L	N	A	fig.	kg	
20	25,5	7	5	62	78	55,1	100	12	28,3	1	0,65	**UEG 204 2S**
									28,3	2	0,67	**LEG 204 2F**
									33,5	3	0,69	**UYG 204 2S**
									36,6	4	0,72	**LYG 204 2F**
	27	7	6	70	90	63,6	115	12	30	6	0,78	**LKG 205 2F + H2305**
25	27	7	6	70	90	63,6	115	12	29,5	1	0,95	**UEG 205 2S**
									29,5	2	0,98	**LEG 205 2F**
									33,5	3	0,98	**UYG 205 2S**
									36,9	4	1,03	**LYG 205 2F**
									20,5	5	0,93	**LSG 205 2F**
	31	8	8	80	100	70,7	125	12	32	6	1,45	**LKG 206 2F + H2306**
30	31	8	8	80	100	70,7	125	12	31	1	1,34	**UEG 206 2S**
									32,2	2	1,40	**LEG 206 2F**
									36,7	3	1,40	**UYG 206 2S**
									40,1	4	1,47	**LYG 206 2F**
									23	5	1,48	**LSG 206 2F**
	34	9	8	90	110	77,8	135	14	35,3	6	1,60	**LKG 207 2F + H2307**
35	34	9	8	90	110	77,8	135	14	34,3	1	1,57	**UEG 207 2S**
									36,5	2	1,64	**LEG 207 2F**
									40,4	3	1,69	**UYG 207 2S**
									43,3	4	1,77	**LYG 207 2F**
									23,8	5	1,66	**LSG 207 2F**
	36	9	10	100	120	84,8	145	14	38,5	6	2,10	**LKG 208 2F + H2308**
40	36	9	10	100	120	84,8	145	14	36,3	1	1,78	**UEG 208 2S**
									41,2	2	1,89	**LEG 208 2F**
									43,7	3	1,92	**UYG 208 2S**
									45,9	4	2,01	**LYG 208 2F**
									24,5	5	1,93	**LSG 208 2F**
	38	14	12	105	132	93,3	160	16	38,5	6	2,75	**LKG 209 2F + H2309**

Shaft	Dimensions (mm)										Mass	Designation
d	A_1	A_2	A_3	D_a	J	J_1	L	N	A	fig	kg	
45	38	14	12	105	132	93,3	160	16	35,8	1	2,53	**UEG 209 2S**
									40,2	2	2,64	**LEG 209 2F**
									42,7	3	2,64	**UYG 209 2S**
									44,9	4	2,76	**LYG 209 2F**
									24	5	2,66	**LSG 209 2F**
	40	14	12	110	138	97,6	165	16	40	6	3,00	**LKG 210 2F + H2310**
50	40	14	12	110	138	97,6	165	16	37,6	1	2,78	**UEG 210 2S**
									42,6	2	2,93	**LEG 210 2F**
									42,7	3	2,92	**UYG 210 2S**
									48,1	4	3,11	**LYG 210 2F**
									24	5	3,07	**LSG 210 2F**
	43	15	12	125	150	106,1	185	19	57	6	3,26	**LKG 211 2F + H2311**
55	43	15	12	125	150	106,1	185	19	46,4	2	4,07	**LEG 211 2F**
									48,9	3	4,04	**UYG 211 2S**
									56,6	4	4,25	**LYG 211 2F**
									27,5	5	3,99	**LSG 211 2F**
	48	15	12	135	160	113,1	195	19	59	6	4,07	**LKG 212 2F + H2312**
60	48	15	12	135	160	113,1	195	19	56,7	2	5,02	**LEG 212 2F**
									57,3	3	4,59	**UYG 212 2S**
									63,8	4	5,22	**LYG 212 2F**
65	50	15	14	145	170	120,2	205	19	58,9	2	5,85	**LEG 213 2F**
									67,6	4	6,59	**LYG 213 2F**

Y BEARING TAKE – UP UNITS - GREY CAST IRON HOUSINGS "T", "TJ"

UET(J)...
LET(J)...
UYT(J)...
LYT(J)...
LST(J)...
LKT(J)...



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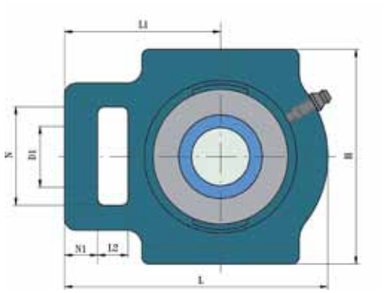
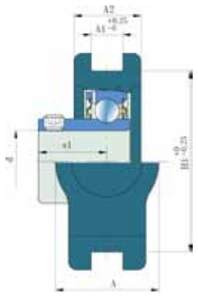
Shaft	Dimensions (mm)													Mass	Designation
d	A	A_2	D_a	H	L	L_1	L_2	N	N_1	A_1	H_1	s_1	fig.	kg	
20	34	52	19	92	97	62	16	32	10	13,5	76	18,3	1	0,89	**UET 204 2S**
												18,3	2	0,91	**LET 204 2F**
												23,5	3	0,93	**UYT 204 2S**
												26,6	4	0,96	**LYT 204 2F**
	34	25	19	91	100	64	16	33	10	13,5	76	23,5	6	0,94	**LKT 205 2F + H2305**
	34	25	19	91	100	62	16	32	10	12	76	18,3	1	0,89	**UETJ 204 2S**
												18,3	2	0,91	**LETJ 204 2F**
												23,5	3	0,93	**UYTJ 204 2S**
												26,6	4	0,96	**LYTJ 204 2F**
	34	25	19	104	114	64	16	33	10	13,5	76	23,5	6	0,94	**LKTJ 205 2F + H2305**
25	34	25	19	91	100	64	16	33	10	13,5	76	19,5	1	0,85	**UET 205 2S**
												19,8	2	0,88	**LET 205 2F**
												23,5	3	0,88	**UYT 205 2S**
												16,9	4	0,93	**LYT 205 2F**
												11,5	5	0,85	**LST 205 2F**
	37	28	22	104	114	70	16	37	10	13,5	89	25	6	1,37	**LKT 206 2F + H2306**
	34	25	19	91	100	64	16	33	10	12	76	19,5	1	0,85	**UETJ 205 2S**
												19,8	2	0,88	**LETJ 205 2F**
												23,5	3	0,88	**UYTJ 205 2S**
												26,9	4	0,93	**LYTJ 205 2F**
												11,5	5	0,85	**LSTJ 205 2F**
	37	28	22	104	114	70	16	37	10	12	89	25	6	1,37	**LKTJ 206 2F + H2306**
30	37	28	22	104	114	70	16	37	10	13,5	89	21	1	1,21	**UET 206 2S**
												22,2	2	1,27	**LET 206 2F**
												26,7	3	1,27	**UYT 206 2S**
												30,1	4	1,34	**LYT 206 2F**
												13	5	1,21	**LST 206 2F**
	37	30	22	103	129	78	17	38	12	13,5	89	29,5	6	1,66	**LKT 207 2F + H2307**

Shaft	Dimensions (mm)													Mass	Designation
d	A	A_2	D_a	H	L	L_1	L_2	N	N_1	A_1	H_1	s_1	fig.	kg	
30	37	28	22	104	114	70	16	37	10	12	89	21	1	1,21	**UETJ 206 2S**
												22,2	2	1,27	**LETJ 206 2F**
												26,7	3	1,27	**UYTJ 206 2S**
												30,1	4	1,34	**LYTJ 206 2F**
												13	5	1,21	**LSTJ 206 2F**
	37	30	22	103	129	78	17	38	12	12	89	29,5	6	1,66	**LKTJ 207 2F + H2307**
35	37	30	22	103	129	78	17	38	12	13,5	89	23,3	1	1,50	**UET 207 2S**
												25,5	2	1,57	**LET 207 2F**
												29,4	3	1,62	**UYT 207 2S**
												32,3	4	1,70	**LYT 207 2F**
												13,5	5	1,51	**LST 207 2F**
	49	33	29	115	145	88	19	50	15	17,5	101	31,5	6	2,43	**LKT 208 2F + H2308**
	37	30	22	103	145	78	17	38	12	12	89	23,3	1	1,50	**UETJ 207 2S**
												25,5	2	1,57	**LETJ 207 2F**
												29,4	3	1,62	**UYTJ 207 2S**
												32,3	4	1,70	**LYTJ 207 2F**
												13,5	5	1,51	**LSTJ 207 2F**
	49	33	29	115	145	88	19	50	15	16	102	31,5	6	2,43	**LKTJ 208 2F + H2308**
40	49	33	29	115	145	88	19	50	15	17,5	101	25,3	1	2,23	**UET 208 2S**
												30,2	2	2,34	**LET 208 2F**
												32,7	3	2,37	**UYT 208 2S**
												34,9	4	2,46	**LYT 208 2F**
												14,5	5	2,26	**LST 208 2F**
	49	35	29	117	144	87	19	49	15	17,5	101	35	6	2,47	**LKT 209 2F + H2309**
	49	33	29	115	145	88	19	50	15	16	102	25,3	1	2,23	**UETJ 208 2S**
												30,2	2	2,34	**LETJ 208 2F**
												32,7	3	2,37	**UYTJ 208 2S**
												34,9	4	2,46	**LYTJ 208 2F**
												14,5	5	2,26	**LSTJ 208 2F**
	49	35	29	117	144	87	19	49	15	16	102	35	6	2,47	**LKTJ 209 2F + H2309**

Y BEARING TAKE – UP UNITS - GREY CAST IRON HOUSINGS "T", "TJ"

UET(J)...
LET(J)...
UYT(J)...
LYT(J)...
LST(J)...
LKT(J)...





(1)

(2)

(3)

(4)

(5)

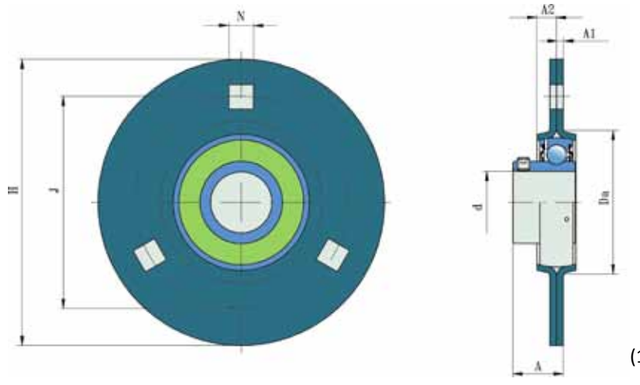
(6)

Shaft	Dimensions (mm)													Mass	Designation
d	A	A_2	D_a	H	L	L_1	L_2	N	N_1	A_1	H_1	s_1	fig.	kg	
45	49	35	29	117	144	87	19	49	15	17,5	101	25,8	1	2,23	**UET 209 2S**
												30,2	2	2,34	**LET 209 2F**
												32,7	3	2,34	**UYT 209 2S**
												34,9	4	2,46	**LYT 209 2F**
												15	5	2,25	**LST 209 2F**
	49	36	29	117	149	90	19	49	16	17,5	101	39,5	6	2,63	**LKT 210 2F + H2310**
	49	35	29	117	144	87	19	49	15	16	102	25,8	1	2,23	**UETJ 209 2S**
												30,2	2	2,34	**LETJ 209 2F**
												32,7	3	2,34	**UYTJ 209 2S**
												34,9	4	2,46	**LYTJ 209 2F**
												15	5	2,25	**LSTJ 209 2F**
	49	36	29	117	149	90	19	49	16	16	102	39,5	6	2,63	**LKTJ 210 2F + H2310**
50	49	36	29	117	149	90	19	49	16	17,5	101	27,6	1	2,28	**UET 210 2S**
												32,6	2	2,43	**LET 210 2F**
												32,7	3	2,42	**UYT 210 2S**
												38,1	4	2,61	**LYT 210 2F**
												15,5	5	2,34	**LST 210 2F**
	64	41	35	146	171	106	25	64	19	27	130	42,5	6	4,16	**LKT 211 2F + H2311**
	49	36	29	117	149	90	19	49	16	16	102	27,6	1	2,28	**UETJ 210 2S**
												32,6	2	2,43	**LETJ 210 2F**
												32,7	3	2,42	**UYTJ 210 2S**
												38,1	4	2,61	**LYTJ 210 2F**
												15,5	5	2,34	**LSTJ 210 2F**
	64	41	35	146	171	106	25	64	19	22	130	42,5	6	4,16	**LKTJ 211 2F + H2311**

Shaft	Dimensions (mm)													Mass	Designation
d	A	A_2	D_a	H	L	L_1	L_2	N	N_1	A_1	H_1	s_1	fig.	kg	
55	64	41	35	146	171	106	25	64	19	27	130	33,4	2	4,02	**LET 211 2F**
												35,9	3	3,99	**UYT 211 2S**
												43,6	4	4,20	**LYT 211 2F**
	64	41	35	146	171	106	25	64	19	22	130	16,5	5	3,99	**LST 211 2F**
	64	41	35	146	171	106	25	64	19	22	130	33,4	2	4,02	**LETJ 211 2F**
												35,9	3	3,99	**UYTJ 211 2S**
												43,6	4	4,20	**LYTJ 211 2F**
												16,5	5	3,99	**LSTJ 211 2F**
	64	44	35	146	186	118	32	64	19	22	130	44	6	4,67	**LKTJ 212 2F + H2312**
60	64	44	35	146	186	118	32	64	19	22	130	39,7	2	4,67	**LETJ 212 2F**
												40,3	3	4,24	**UYTJ 212 2S**
												46,8	4	4,87	**LYTJ 212 2F**

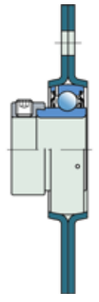
Y BEARING FLANGED UNITS – ROUND PRESSED STEEL HOUSING "C"

UEC...
LEC...
UYC...
LYC...



(1)

(2)



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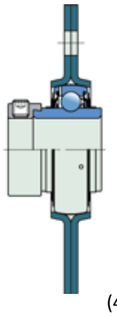


(4)

Shaft	Dimensions (mm)							Perm. load (kN)			Mass	Designation
d	A_1	A_2	D_a	H	J	N	A	rad.	axial	fig.	kg	
17	2	7	49	81	63	7,1	17,9	2,5	1,2	1	0,20	**UEC 203 2S**
							17,9			2	0,22	**LEC 203 2F**
							24,1			3	0,24	**UYC 203 2S**
	2	8	55	91	71,5	8,7	24,3			4	0,26	**LYC 203 2F**
20	2	8	55	91	71,5	8,7	20,3	3,3	1,6	1	0,28	**UEC 204 2S**
							20,3			2	0,30	**LEC 204 2F**
							25,5			3	0,32	**UYC 204 2S**
							28,6			4	0,35	**LYC 204 2F**
25	2	9	60	95	76	8,7	21,5	3,6	1,8	1	0,33	**UEC 205 2S**
							21,8			2	0,36	**LEC 205 2F**
							25,5			3	0,36	**UYC 205 2S**
							28,9			4	0,41	**LYC 205 2F**
30	2,5	9,5	71	112	90,5	10,5	23,5	5,0	2,5	1	0,52	**UEC 206 2S**
							24,7			2	0,58	**LEC 206 2F**
							29,2			3	0,58	**UYC 206 2S**
							32,6			4	0,65	**LYC 206 2F**
35	2,5	10,5	81	122	100	10,5	25,8	6,5	3,2	1	0,69	**UEC 207 2S**
							28			2	0,76	**LEC 207 2F**
							31,9			3	0,81	**UYC 207 2S**
							34,8			4	0,89	**LYC 207 2F**

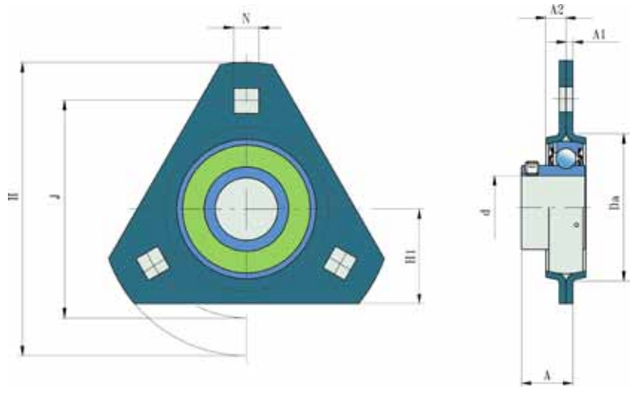
Shaft	Dimensions (mm)							Perm. load (kN)			Mass	Designation
d	A_1	A_2	D_a	H	J	N	A	rad.	axial	fig.	kg	
40	3,5	11	91	148	119	13,5	28,8	7,5	3,7	1	1,16	**UEC 208 2S**
							33,7			2	1,27	**LEC 208 2F**
							36,2			3	1,30	**UYC 208 2S**
							38,4			4	1,39	**LYC 208 2F**
45	3,5	11,5	96	149	120,5	13,5	29,3	8,3	4,1	1	1,23	**UEC 209 2S**
							33,7			2	1,34	**LEC 209 2F**
							36,2			3	1,34	**UYC 209 2S**
							38,4			4	1,46	**LYC 209 2F**
50	4	2	102	155	127	13,5	31,6	9	4,5	1	1,44	**UEC 210 2S**
							36,6			2	1,59	**LEC 210 2F**
							36,7			3	1,58	**UYC 210 2S**
							42,1			4	1,77	**LYC 210 2F**
55	4	12,5	112	167	138	13,5	37,4	9,5	4,8	2	2,02	**LEC 211 2F**
							39,9			3	1,99	**UYC 211 2S**
							47,6			4	2,20	**LYC 211 2F**
60	4	13	122	176	148	13,5	43,7	9,5	4,8	2	2,67	**LEC 212 2F**
							44,3			3	2,24	**UYC 212 2S**
							50,8			4	2,87	**LYC 212 2F**

HOUSING C 208 AND LARGER HAVE 4 LOCKING HOLES.

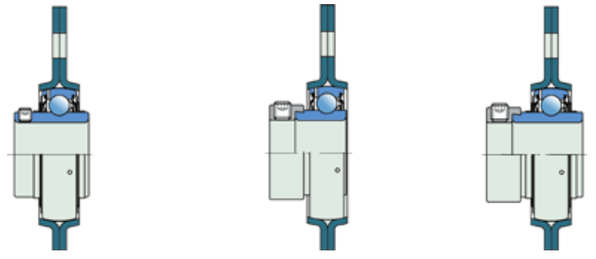
ALL COMBINATIONS WITH OTHER TYPES OF Y BEARINGS ARE POSSIBLE.

Y BEARING FLANGED UNITS – TRIANGULAR PRESSED STEEL HOUSING "D"

UED...
LED...
UYD...
LYD...



(1)



(2) (3) (4)

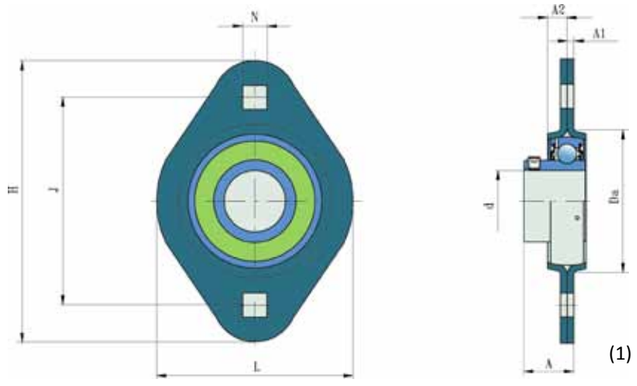
Shaft				Dimensions (mm)					Perm. load (kN)			Mass	Designation
d	A_1	A_2	D_a	H	H_1	J	N	A	rad.	axial	fig.	kg	
17	2	7	49	81	29	63	7,1	17,9	2,5	1,2	1	0,16	**UED 203 2S**
								17,9			2	0,18	**LED 203 2F**
								24,1			3	0,20	**UYD 203 2S**
								24,3			4	0,22	**LYD 203 2F**
20	2	8	55	91	32	71,5	8,7	20,3	3,3	1,6	1	0,25	**UED 204 2S**
								20,3			2	0,27	**LED 204 2F**
								25,5			3	0,29	**UYD 204 2S**
								28,6			4	0,32	**LYD 204 2F**
25	2	9	60	95	34	76	8,7	21,5	3,6	1,8	1	0,31	**UED 205 2S**
								21,8			2	0,34	**LED 205 2F**
								25,5			3	0,34	**UYD 205 2S**
								28,9			4	0,39	**LYD 205 2F**

Shaft				Dimensions (mm)					Perm. load (kN)			Mass	Designation
d	A_1	A_2	D_a	H	H_1	J	N	A	rad.	axial	fig.	kg	
30	2,5	9,5	71	112	38	90,5	10,5	23,5	5,0	2,5	1	0,43	**UED 206 2S**
								24,7			2	0,49	**LED 206 2F**
								29,2			3	0,49	**UYD 206 2S**
								32,6			4	0,56	**LYD 206 2F**
35	2,5	10,5	81	122	45	100	10,5	25,8	6,5	3,2	1	0,65	**UED 207 2S**
								28			2	0,72	**LED 207 2F**
								31,9			3	0,77	**UYD 207 2S**
								34,8			4	0,85	**LYD 207 2F**

ALL COMBINATIONS WITH OTHER TYPES OF Y BEARINGS ARE POSSIBLE.

Y BEARING FLANGED UNITS – OVAL PRESSED STEEL HOUSING "P"

UEP...
LEP...
UYP...
LYP...



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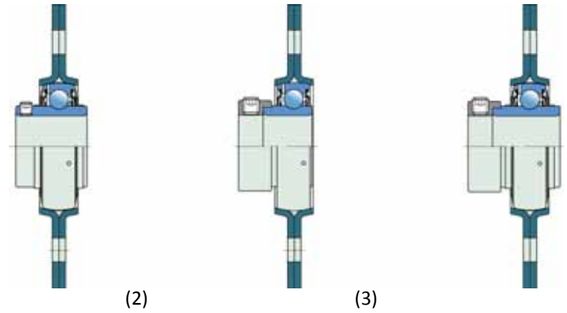


(2) (3) (4)

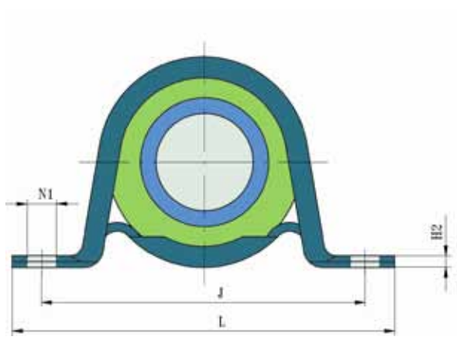
Shaft				Dimensions (mm)					Perm. load (kN)			Mass	Designation
d	A_1	A_2	D_a	H	L	J	N	A	rad.	axial	fig.	kg	
17	2	7	49	81	59	63	7,1	17,9	2,5	1,2	1	0,15	**UEP 203 2S**
								17,9			2	0,17	**LEP 203 2F**
								24,1			3	0,19	**UYP 203 2S**
								24,3			4	0,21	**LYP 203 2F**
20	2	8	55	91	67	71,5	8,7	20,3	3,3	1,6	1	0,21	**UEP 204 2S**
								20,3			2	0,23	**LEP 204 2F**
								25,5			3	0,25	**UYP 204 2S**
								28,6			4	0,28	**LYP 204 2F**
25	2	9	60	95	71	76	8,7	21,5	3,6	1,8	1	0,26	**UEP 205 2S**
								21,8			2	0,29	**LEP 205 2F**
								25,5			3	0,29	**UYP 205 2S**
								28,9			4	0,34	**LYP 205 2F**

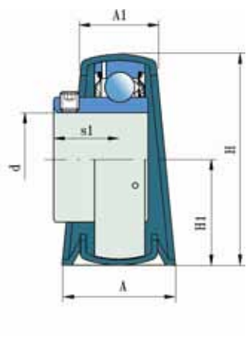
Shaft				Dimensions (mm)					Perm. load (kN)			Mass	Designation
d	A_1	A_2	D_a	H	L	J	N	A	rad.	axial	fig.	kg	
30	2,5	9,5	71	112	84	90,5	10,5	23,5	5,0	2,5	1	0,40	**UEP 206 2S**
								24,7			2	0,46	**LEP 206 2F**
								29,2			3	0,46	**UYP 206 2S**
								32,6			4	0,53	**LYP 206 2F**
35	2,5	10,5	81	122	94	100	10,5	25,8	6,5	3,2	1	0,60	**UEP 207 2S**
								28			2	0,67	**LEP 207 2F**
								31,9			3	0,72	**UYP 207 2S**
								34,8			4	0,80	**LYP 207 2F**
40	3,5	11	91	148	100	119	13,5	28,8	7,5	3,7	1	0,83	**UEP 208 2S**
								33,7			2	0,94	**LEP 208 2F**
								36,2			3	0,97	**UYP 208 2S**
								38,4			4	1,06	**LYP 208 2F**

ALL COMBINATIONS WITH OTHER TYPES OF Y BEARINGS ARE POSSIBLE.

Y BEARING PLUMMER BLOCK UNITS - PRESSED STEEL HOUSING "R"

UER...
LER...
UYR...
LYR...





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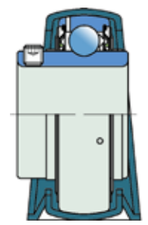

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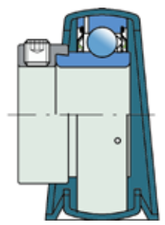
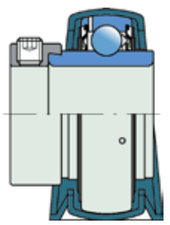


(3)



(4)

Shaft	Dimensions (mm)									Perm. load		Mass	Designation
d	A	A_1	H	H_1	H_2	J	L	N	s_1	rad. (kN)	fig.	kg	
17	26	18	44	22	3	68	86	9,6	15,9	1,25	1	0,14	**UER 203 2S**
									15,9		2	0,16	**LER 203 2F**
									22,1		3	0,18	**UYR 203 2S**
									22,3		4	0,20	**LYR 203 2F**
20	32	21	50	25,2	3	76	99	9,6	18,3	1,80	1	0,25	**UER 204 2S**
									18,3		2	0,28	**LER 204 2F**
									23,5		3	0,28	**UYR 204 2S**
									26,9		4	0,33	**LYR 204 2F**
25	32	24	56	28,3	3,2	86	108	11,2	19,5	1,80	1	0,25	**UER 205 2S**
									19,8		2	0,28	**LER 205 2F**
									23,5		3	0,28	**UYR 205 2S**
									26,9		4	0,33	**LYR 205 2F**
30	38	25	66	32,9	4	95	119	11,2	21	2,6	1	0,41	**UER 206 2S**
									22,2		2	0,47	**LER 206 2F**
									26,7		3	0,47	**UYR 206 2S**
									30,1		4	0,54	**LYR 206 2F**

Shaft	Dimensions (mm)									Perm. load		Mass	Designation
d	A	A_1	H	H_1	H_2	J	L	N	s_1	rad. (kN)	fig.	kg	
35	41	27	78	39,2	5	106	130	11,2	23,3	3,3	1	0,68	**UER 207 2S**
									25,5		2	0,75	**LER 207 2F**
									29,4		3	0,80	**UYR 207 2S**
									32,3		4	0,88	**LYR 207 2F**
40	43	29	86	43,5	5	120	148	14	25,3	3,8	1	0,88	**UER 208 2S**
									30,2		2	0,99	**LER 208 2F**
									32,7		3	1,02	**UYR 208 2S**
									34,9		4	1,11	**LYR 208 2F**
45	45	31	92	46,4	6	128	156	14	25,8	4,2	1	0,93	**UER 209 2S**
									30,2		2	1,04	**LER 209 2F**
									35,7		3	1,04	**UYR 209 2S**
									34,9		4	1,16	**LYR 209 2F**

ALL COMBINATIONS WITH OTHER TYPES OF Y BEARINGS ARE POSSIBLE.

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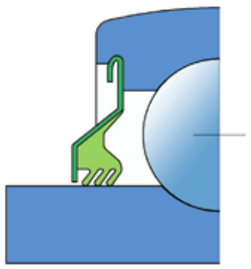
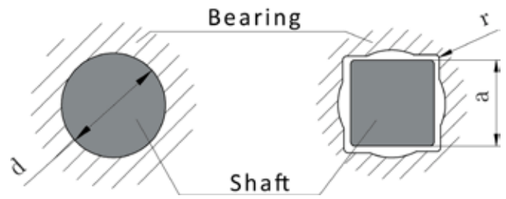
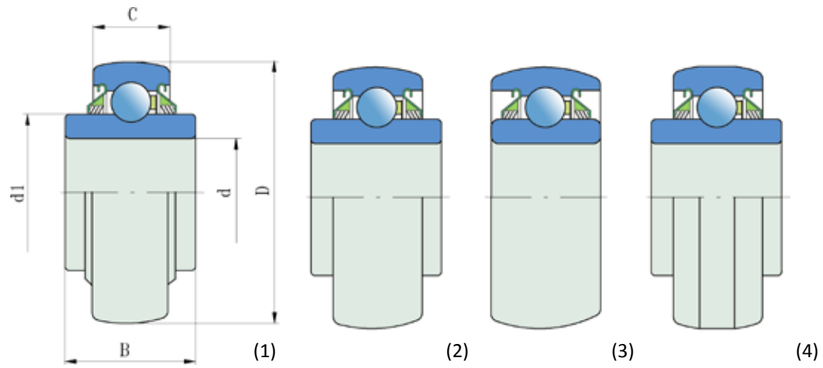
3.4 DISC HARROW BEARINGS FIRST GENERATION

TRIPLE-LIP SEALS – SPHERICAL OUTSIDE SURFACE ON OUTER RING – NON RELUBRICATABLE TYPE



...2T



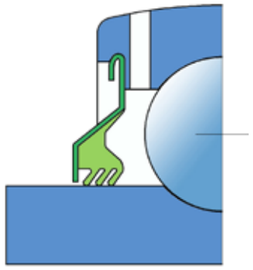


Dimensions (mm)										Load ratings (kN)						CYLINDRICAL BORE	
Bore d		D		B		C		d_1		C		C_o		Mass			
ich	mm	inch	mm	inch	mm	inch	mm	inch	mm	lbs.	kN	lbs.	kN	lbs.	kg	Designation	Type
1,5005	**38,113**	3,1496	80	1,688	42,96	0,709	18	2,047	52	7300	32,5	4400	19,8	1,59	0,72	**W208PPB2**	1
1,1880	**30,17**			1,188	30,18	1,188	30,18							1,60	0,73	**W208PPB4**	3
1,1880	**30,17**			1,188	30,18	0,709	18							1,41	0,64	**W208PPB7**	1
1,5005	**38,113**			1,688	42,96	1,188	30,18							1,50	0,68	**W208PPB23**	1
1,7717	**45**	3,3465	85	1,188	30,18	1,188	30,18	2,228	56,6	7300	32,5	4600	20,4	1,44	0,65	**W209PPB2**	3
1,5350	**39**			1,188	30,18	1,188	30,18							1,65	0,75	**W209PPB4**	3
1,7811	**45,24**			1,438	36,53	0,866	22							1,34	0,62	**W209PPB11**	1
1,9380	**49,23**	3,5433	90	1,188	30,18	1,188	30,18	2,461	62,5	7800	35,0	5200	23,2	1,56	0,71	**W210PPB2**	3
1,7811	**45,34**			1,188	30,18	1,188	30,18							1,75	0,79	**W210PPB5**	3
2,1880	**55,58**	3,39370	100	1,312	33,34	1,312	33,34	2,720	69,1	9700	43,5	6500	29,0	2,13	0,97	**W211PPB2**	3

Shaft size a																SQUARE BORE	
1 1/8	**28,6**	3,1496	80	1,438	36,53	0,709	18	2,047	52	7300	32,5	4400	19,8	1,47	0,68	**W208PPB5**	1
1	**25,4**	3,1496	80			0,709	18							1,59	0,72	**W208PPB6**	1
1 1/8	**28,6**	3,1496	80			1,188	30,18							1,70	0,77	**W208PPB8**	2
1	**25,4**	3,1496	80			1,188	30,18							1,90	0,86	**W208PPB9**	2
7/8	**22,2**	3,3755	85,74			1,188	30,18							2,20	1,00	**W208PPB11**	4
1 1/8	**28,6**	3,3755	85,74			1,188	30,18							2,09	0,95	**W208PPB12**	4
7/8	**22,2**	3,1496	80			0,709	18							1,62	0,74	**W208PPB13**	1
7/8	**22,2**	3,4385	87,34			1,188	30,18							2,05	0,93	**W208PPB18**	4
1 1/8	**28,6**	3,4385	87,34			1,188	30,18							1,87	0,85	**W208PPB19**	4
1 1/4	**31,8**	3,3465	85	1,438	36,53	1,188	30,18	2,228	56,6	7300	32,5	4600	20,4	1,75	0,79	**W209PPB5**	1
1 1/4	**31,8**	3,4385	87,34	1,438	36,53	1,188	30,18							1,85	0,84	**W208PPB7**	4
1 1/4	**31,8**	3,3465	85	1,438	36,53	0,748	19							1,65	0,75	**W209PPB8**	1
-	**30**	3,5433	90	1,772	45	1,142	29							2,51	1,14	**W209PPB30**	4
-	**25**	3,5433	90	1,772	45	1,142	29							2,91	1,32	**W209PPB25**	4
1 1/8	**28,6**	3,5433	90	1,188	30,18	1,188	30,18	2,461	62,5	7800	35,0	5200	23,2	2,11	0,96	**W210PPB4**	3
1 1/8	**28,6**	3,5433	90	1,438	36,53	1,188	30,18							2,25	1,02	**W210PPB6**	1
1 1/2	**38,1**	3,9370	100	1,312	33,34	1,312	33,34	2,720	69,1	9700	43,5	6500	29,0	2,66	1,21	**W211PPB3**	3
1 1/2	**38,1**	4,1250	104,77	1,750	44,45	1,438	36,53							4,10	1,86	**W211PPB5**	4
1 1/2	**38,1**	4,0770	103,56	1,750	44,45	1,438	36,53							3,83	1,74	**W211PPB6**	4

DISC HARROW BEARINGS FIRST GENERATION

TRIPLE-LIP SEALS – CYLINDRICAL OUTSIDE SURFACE ON OUTER RING – NON RELUBRICATABLE TYPE



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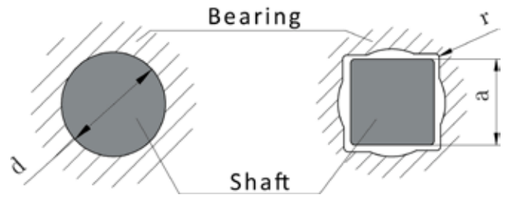
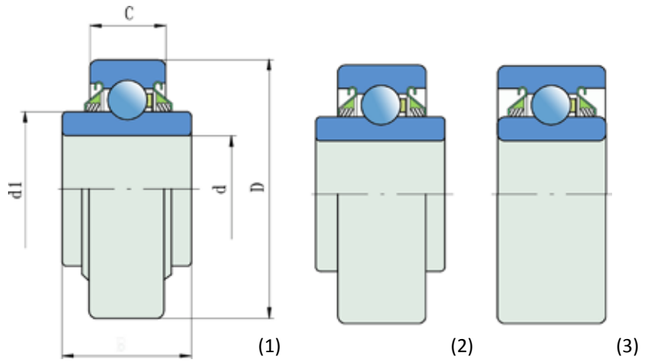
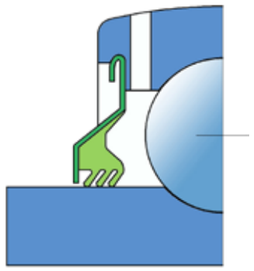




Dimensions (mm)										Load ratings (kN)						CYLINDRICAL BORE	
Bore d		D		B		C		d_1		C		C_o		Mass			
ich	mm	inch	mm	inch	mm	inch	mm	inch	mm	lbs.	kN	lbs.	kN	lbs.	kg	Designation	Type
1,1880	**30,17**	3,1496	80	1,188	30,18	1,188	30,18	2,047	52	7300	32,5	4400	19,8	1,68	0,76	**W208PP4**	3
1,1880	**30,17**			1,188	30,18	0,709	18							1,43	0,65	**W208PP7**	1
1,5005	**38,113**			1,687	42,85	0,827	21							1,50	0,68	**W208PP10**	1
1,9380	**49,23**	3,5433	90	1,188	30,18	1,188	30,18	2,461	62,5	7800	35,0	5200	23,2	1,69	0,77	**W210PP2**	3
1,5300	**38,86**			1,188	30,18	1,188	30,18							1,97	0,89	**W210PP9**	3
2,1880	**55,58**	3,3970	100	1,312	33,34	1,312	33,34	2,720	69,1					2,33	1,06	**W211PP2**	3
Shaft size a																**SQUARE BORE**	
	25	2,8346	72	1,771	45	0,945	24	1,815	46,1	5700	25,5	3400	15,3	1,65	0,75	**W207PP3**	1
1 1/4	**31,8**	3,1496	80	1,438	36,53	0,709	18	2,047	52	7300	32,5	4400	19,8	1,50	0,68	**W208PP5**	1
1	**25,4**					0,709	18							1,62	0,73	**W208PP6**	1
1 1/8	**28,6**					1,188	30,18							1,66	0,75	**W209PP8**	1
1 1/8	**28,6**					0,709	18							2,50	0,68	**W209PP20**	1
	30	3,3465	85	1,771	45	1,188	30,18	2,228	56,6	7300	32,5	4600	20,4	2,16	0,98	**W209PP3**	2
1 1/8	**28,6**	3,5433	90	1,188	30,18	1,188	30,18	2,461	62,5	7800	35,0	5200	23,2	1,92	0,87	**W210PP4**	3
1 1/2	**38,1**	3,9370	100	1,312	33,34	1,312	33,34	2,720	69,1	9700	43,5	6500	29,0	2,79	1,27	**W211PP3**	3
1 1/2	**38,1**	4	101,6	1,750	44,45	1,438	36,52							3,48	1,58	**W211PP5**	1

DISC HARROW BEARINGS FIRST GENERATION
TRIPLE-LIP SEALS – RELUBRICATABLE TYPE



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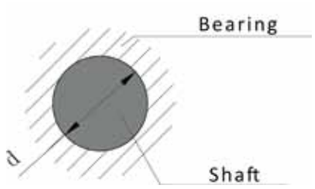
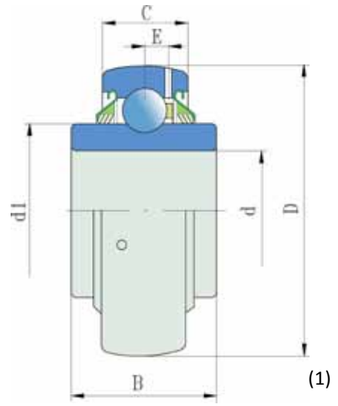
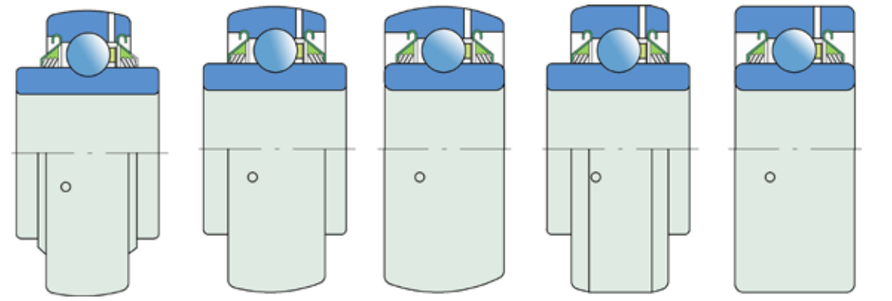




(1)

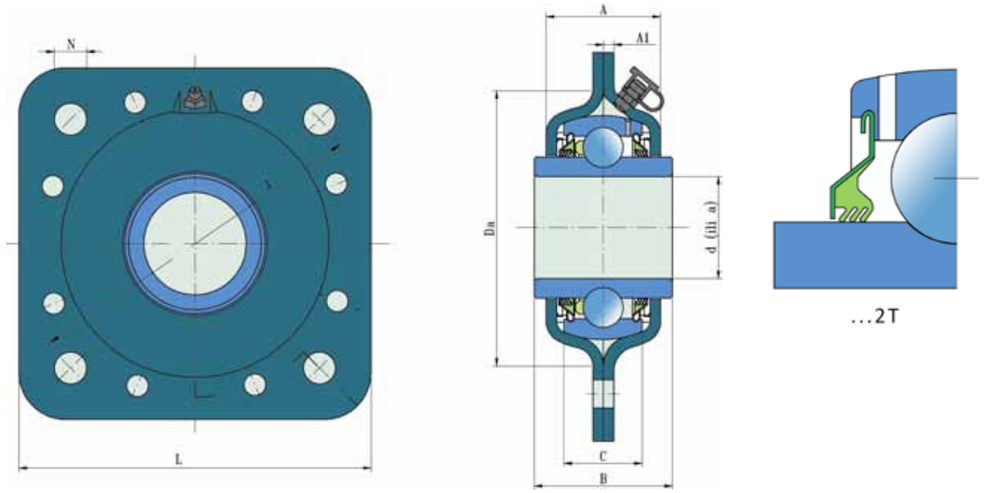


(2) (3) (4) (5) (6)

Dimensions (mm)												Load ratings (kN)						CYLINDRICAL BORE	
Bore d		D		B		C		d_1		E		C		C_o		Mass			
ich	mm	inch	mm	inch	mm	inch	mm	inch	mm	ich	mm	lbs.	kN	lbs.	kN	lbs.	kg	Designation	Type
1,7717	**45**	3,3465	85	1,188	30,18	1,188	30,18	2,228	56,6	0,256	6,5	7300	32,5	4600	20,4	1,44	0,65	**GW209PPB2**	3
1,5350	**39**			1,188	30,18	1,188	30,18									1,65	0,75	**GW209PPB4**	3
1,7810	**45,24**			1,438	36,53	0,866	22									1,37	0,62	**GW209PPB11**	1
1,7650	**44,831**			1,687	42,85	0,866	22									1,50	0,68	**GW209PPB12**	1
1,9380	**49,23**	3,5433	90	1,188	30,18	1,188	30,18	2,461	62,5	0,260	6,6	7800	35,0	5200	23,2	1,50	0,68	**GW210PPB2**	3
1,4065	**35,73**			1,188	30,18	1,188	30,18									2,25	1,02	**GW210PPB3**	5
1,7850	**45,34**			1,188	30,18	1,188	30,18									1,75	0,79	**GW210PPB5**	3
1,9450	**49,40**			1,438	36,53	0,906	23									1,75	0,79	**GW210PP9**	6
2,1880	**55,58**	3,3970	100	1,312	33,34	1,312	33,34	2,720	69,1	0,279	7,1	9700	43,5	6500	29,0	3,00	1,36	**GW211PP2**	5
2,1880	**55,58**			1,312	33,34	1,312	33,34									2,62	1,19	**GW211PPB2**	3
1,6600	**42,16**			1,312	33,34	1,312	33,34									3,00	1,36	**GW211PP4**	5
2,1880	**55,58**			1,312	33,34	0,984	25									1,85	0,84	**GW211PPB8**	1
2,1950	**55,75**			1,562	1,562	0,984	25									2,02	0,92	**GW211PPB9**	1
2,1950	**55,75**			1,562	1,562	0,984	25									2,02	0,92	**GW211PP9**	6
1,9380	**49,23**			1,312	1,312	1,312	33,34									2,26	1,03	**GW211PPB10**	3
1,7850	**45,34**			1,312	1,312	0,984	25									2,02	0,92	**GW211PPB13**	1
1,7850	**45,34**			1,312	1,312	0,984	25									2,02	0,92	**GW211PP13**	6
2,0150	**51,18**			1,312	1,312	0,984	25									2,00	0,91	**GW211PPB14**	1
2,1880	**55,58**			2,187	2,187	0,984	25									2,18	0,99	**GW211PPB15**	1
2,1880	**55,58**			1,575	1,575	0,984	25									2,03	0,92	**GW211PPB16**	1

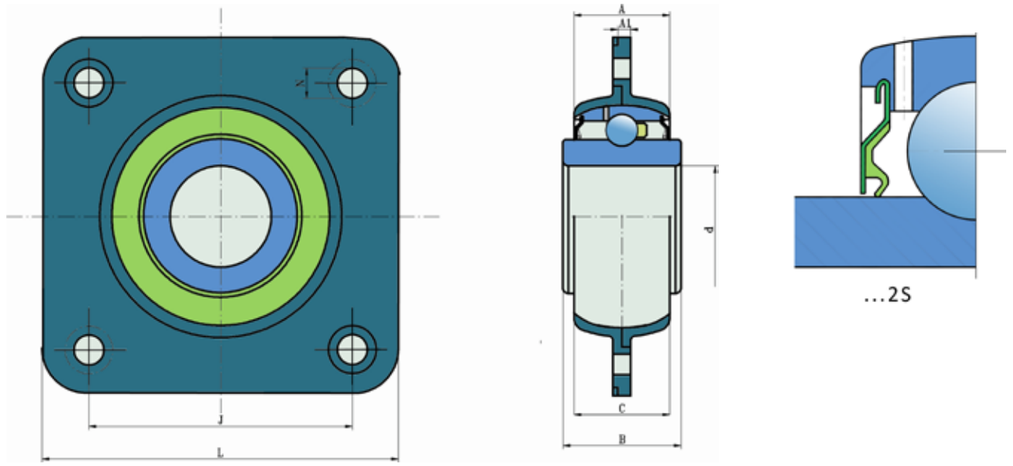
DISC HARROW BEARINGS FIRST GENERATION

Type 1.



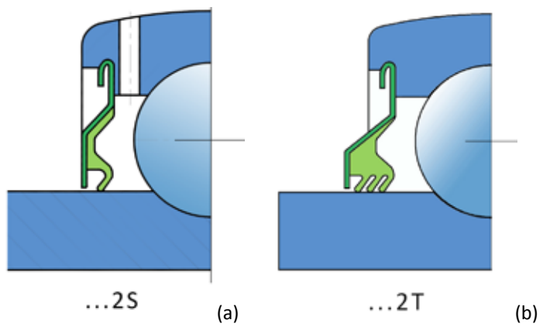
Shaft size			Dimensions (mm)							
a-square mm	inch	d-cylindrical bore mm	B	A	A_1	C	D_a	L	J	N
	0,9843	**25**	30	15	2	15	-	78	58	9,5
	1,7650	**44,831**	42,85	40	4	25,4	97	127	127	13,5
25			42,85			25,4				
30			42,85			25,4				
30			45			26,5				
	1,5748	**40**	42,85			25,4				
	2,1880	**55,58**	55,55	44,7	4	31,8	113	140	140	13,5
40,5			45			26,5				
	2,1653	**55**	55			31,5				

Type 2.

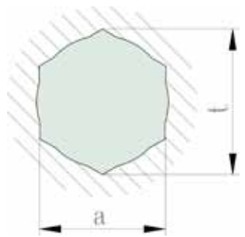


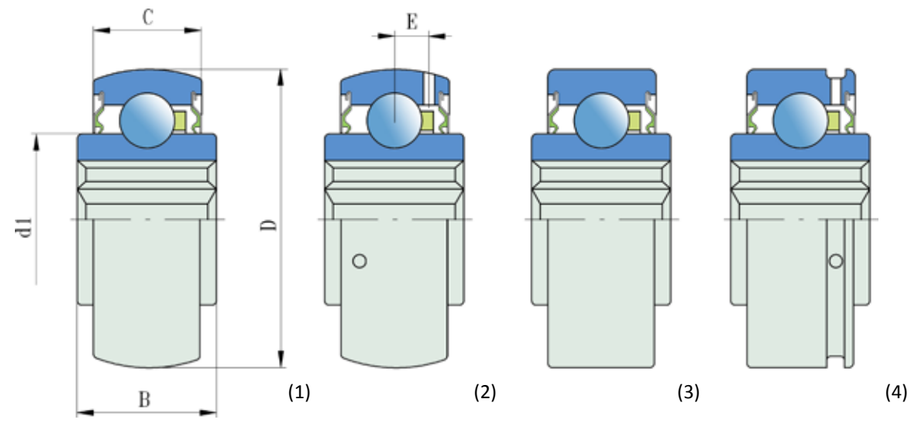
Recommendations for max. load				Mass		Type	Designation
radial		axial					
lbs	kN	lbs	kN	lbs	kN		
817	3,6	409	1,8	0,79	0,36	2	**LEST 205 2F**
1750	7,7	860	3,8	3,32	1,51	1	**GWST 209PPB12**
				3,92	1,78	1	**GWST 209PPB26**
				3,72	1,69	1	**GWST 209PPB31**
				3,98	1,81	1	**GWST 209PPB3**
				3,56	1,62	1	**GWST 209PPB40**
2200	9,8	1150	5,1	4,51	2,05	1	**GWST 211PPB15**
				4,95	2,25	1	**GWST 211PPB40**
				4,55	2,07	1	**LSST 211 X3-3**

DISC HARROW BEARINGS FIRST GENERATION
HEXAGONAL BORE



(a) (b)





(1) (2) (3) (4)

Shaft		a		t min.		D		B		C		d1		E	
inch	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	
7/8	0,876	**22,25**	1,010	25,65	2,0472	52	1	25,4	0,591	15	1,323	33,6			
1	1,001	**25,43**	1,152	29,26	2,4409	62	0,945	24	0,630	16	1,563	39,7			
1 1/4	1,251	**31,77**	1,443	36,35	2,8346	72	1,484	37,7	0,669	17	1,815	46,1			
1 1/4	1,251	**31,77**	1,443	36,35			0,984	25							
1 1/8	1,126	**28,6**	1,298	32,97			1,484	37,7							
1 1/8	1,126	**28,6**	1,298	32,97			0,984	25							
1 1/4	1,251	**31,77**	1,443	36,35			0,984	25							
1 1/4	1,251	**31,77**	1,443	36,35			0,984	25							
1 1/4	1,251	**31,77**	1,443	36,65	3,1496	80	1,438	36,53	0,709	18	2,047	52			
1 1/2	1,501	**38,12**	1,730	43,94	3,3456	85	1,181	30	0,748	19	2,228	56,6			
1	1,001	**25,43**	1,152	29,26	2,4409	62	0,945	24	0,709	18	1,563	39,7	0,201	5,1	
1 1/8	1,126	**28,60**	1,298	32,97	2,8346	72	1,484	37,7	0,748	19	1,815	46,1	0,220	5,6	
1 1/4	1,251	**31,77**	1,443	36,65	3,1496	80	1,438	36,53	0,827	21	2,047	52	0,236	6	
1 1/4	1,255	**31,88**	1,447	36,75											

Load ratings						NON RELUBRICATABLE TYPE			
C		C_o		Mass		Designation			
lbs.	kN	lbs.	kN	lbs.	kg	Seal Fig.a	Type	Seal Fig.b	Type
3100	14,0	1700	7,8	0,44	0,20	**205KRR2**	3		
				0,44	0,20	**205KRRB2**	1		
				0,44	0,20			**205PPB13**	
4400	19,5	2500	11,3	0,76	0,35			**206KPP3**	3
				0,76	0,35			**206KPPB3**	1
				0,75	0,34	**206KRR6**	3		
				0,75	0,34	**206KRRB6**	1		
5700	25,5	3400	15,3	1,00	0,45	**207KPP3**	3		
				0,87	0,40	**207KPPB3**	1		
				1,00	0,45	**207KRRB9**	1		
				0,87	0,40	**207KRRB12**	1		
				0,87	0,40	**207KRR17**	3		
				0,87	0,40	**207KRRB17**	1		
7300	32,5	4400	19,8	1,45	0,66			**W208PPB16**	1
				1,45	0,66	**W208KRR8**	3		
7300	32,5	4600	20,4	1,27	0,58	**209KRRB2**	1		
RELUBRICATABLE TYPE									
4400	19,5	2500	11,3	0,62	0,28			**G206KPP4**	4
				0,61	0,28			**G206KPPB4**	2
				0,59	0,27	**G206KRRB6**	2		
5700	25,5	3400	15,3	1,00	0,45			**G207KPPB2**	2
7300	32,5	4400	19,8	1,40	0,64	**GW208KRRB5**	2		
				1,50	0,68			**GW208PPB22**	2

3.5 Disc harrow bearings second generation

Development of modern agricultural machinery has increased the demand of bearings for soil preparation machinery. There is a requirement that each plate should have its own compact bearing, in order to reduce the costs of dismounting and mounting during maintenance, as well as request for better sealing and permanent lubrication of bearings.

Design
Design of double row angular contact ball bearings for agricultural application has derived from the design of the wheel bearings.
Rigid bearing arrangement needs reduced and constant axial clearance that does not depend on the skills of final user but is provided by design and bearing production technology.
Rings and balls are made of special bearing steel.
One bearing is mounted on a single plate.

Force
As opposite from classical disc harrow bearings, these bearings can support both axial force and torque.

Sealing and lubrication
Bearing are permanently lubricated with grease for agricultural machinery at a rate of 60-80% of the free volume.
These bearings have rubber-metal seals. It is also necessary to add the final sealing.

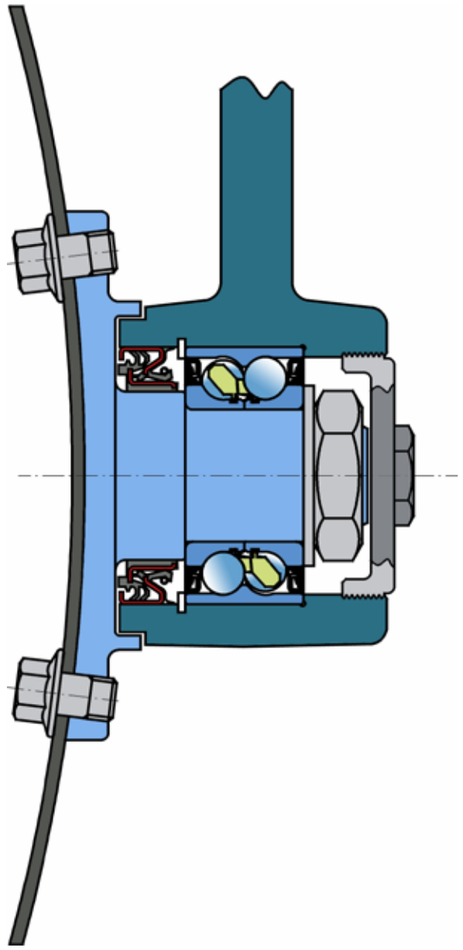
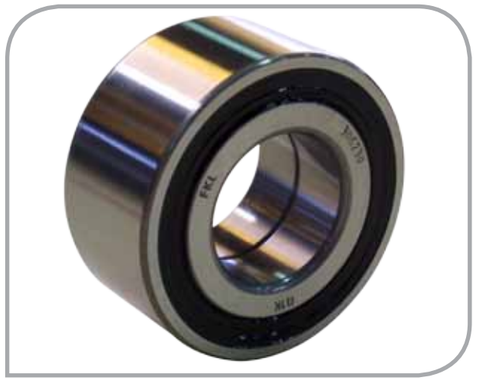


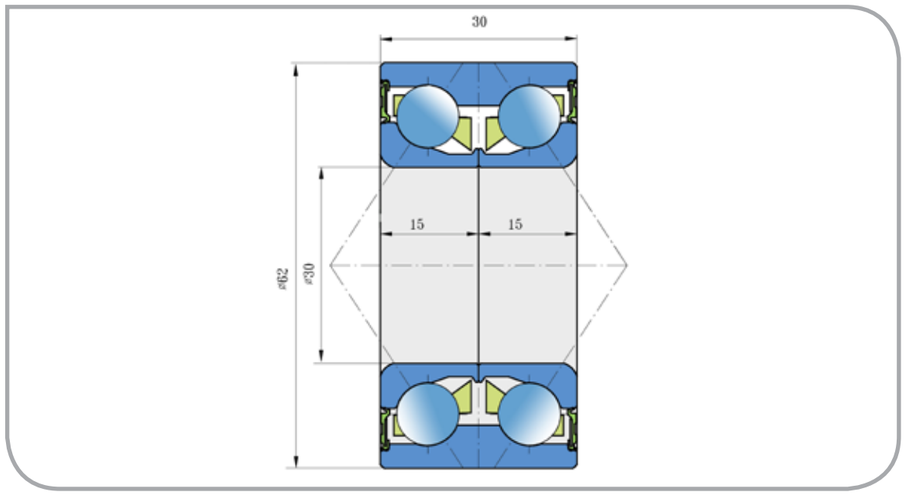
Fig.10. Mounting of disc harrow bearing

306230



PARALLEL MARKS

FKL	**306230**
LEMKEN	3198760



Dimensions (mm)

d	D	B	C	kg
30	62	30	30	0,390

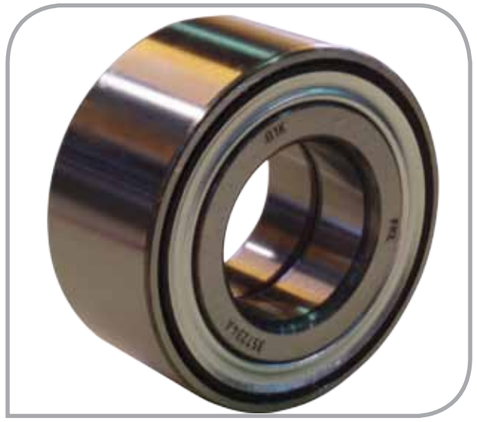
Possible place of mounting and application:

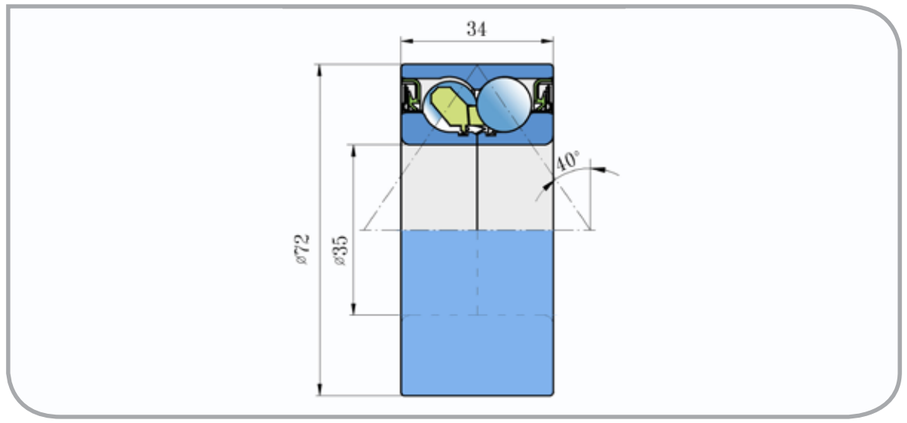
These bearings are installed in various agricultural machinery: cultivators, roller harrows “LEMKEN“ (especially in “Rubin” model)

357234A

PARALLEL MARKS

FKL	357234A
SKF	VKBA 857D
NKE	3198750
LEMKEN	F214101-1 3198750
SNR	GB-40582
CLAAS	939717.0
FERSA	A+S F16201





Dimensions (mm)

d	D	B	C	kg
35	72	34	34	0,539

Possible place of mounting and application:

Mounting of one bearing on one disc

3.6 Disc harrow bearings third generation

Further development of agricultural machinery led to more compact solution, integrated bearing with flange named IL-117-M22.

Design of double row angular contact ball bearings
The internal design is the same as of bearings of the second generation, with an even smaller axial clearance that remains the same after the installation.
Inner rings and balls material is a special bearing steel. Flange is made out of improved high quality induction hardened steel.
Dynamic bearing load is 30% higher than the corresponding values from the second generation.

Shaft
Shaft is incorporated in the bearing and is locked after mounting with a screw nut M22X1,5.

Sealing and lubrication
They are permanently lubricated with grease for agricultural machinery at the rate of 60-80% of free volume. Labyrinth contact sealing with the cassette seal provides long-term life for the whole bearing unit. Bearing also has additional sealing with RS seals.

Flanges with outer ring
4 holes are evenly distributed over the flange at 98 mm diameter. Plate is mounted to the flange with M12X1,25 screws. The entire flange is painted - anti corrosion protected.

Designation	d	A	J	L	B
IL-117-M22	28	117	98	122	80
IL2-117-M22	28	117	98	102	60

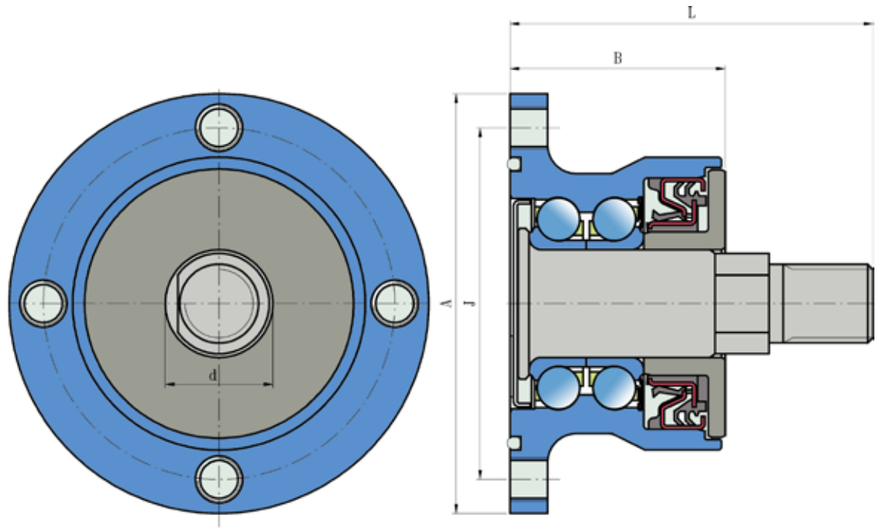


Fig.11. Technical drawing bearing unit IL2-117-M22

3.7 Bearing units type 2TB

By the requests of the agricultural equipment manufacturers in addition to the standard Y program FKL has developed special versions of bearings with a variety of improvements in construction , primarily in order to extend the life of bearing to the end-users satisfaction.
In agriculture, good sealing means longevity and accordingly LEF 200 2TB series of bearing units with better sealing have been developed. They carry an additional designation 2TB, but have the same size as series LEF 200 2F.

Triple-lip seals
Instead of one-lip seals triple-lip seals are installed and this solution has been implemented for number of years.
Seal has a steel reinforcement which is further zinc galvanized so it has good anti corrosion protection.
Strong triple lips are made of NBR rubber resistant to lubricants and fuels.
Between the lips there are 3 compartments for grease storage, which retain impurities, thus preventing the penetration of dirt to the balls.

Protective flinger
As additional protection from rough dirt (grass, wires, strings, ...) and mechanical impact of foreign matters, increased thickness 1,5-2 mm reinforced rubble protection flinger was added.
Increased thickness and surface protection (blued) ensure longer operation life despite the influence of various external atmospheric agents (water, acids, ...) Flinger is fitted interference a solid flap on the inner ring so it provides a good additional protection.
Flinger has protection function to the seal. Since mounted in front of it, prevents rough dirt penetration and provide protection against mechanical impact.

Lubrication
These series are enabled for additional lubrication by means of lubricators.
Cone countersinks are made at angle of 120˚, one per side. This results in better flow and entry of grease which makes easier to bring grease in the contact zone of balls and raceways.
Grease flow is better due to the increased diameter of the intake grease hole.

Housing material
Material selected for 2TB housings is ductile iron EN-GJS-500-7, which has many advantages comparing to commercial gray iron, reflecting in the strength of structure, resistance to shocks, vibrations, abrasion and therefore longer life span.

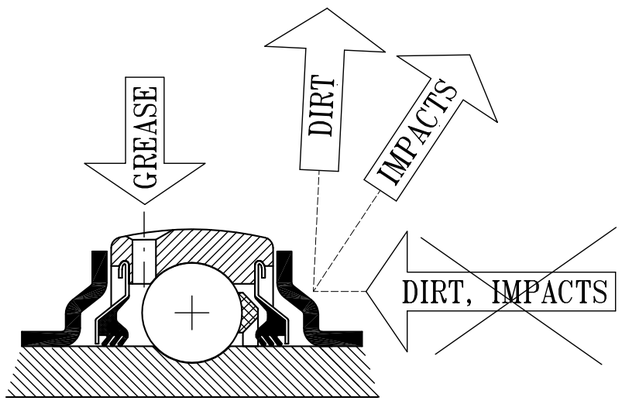
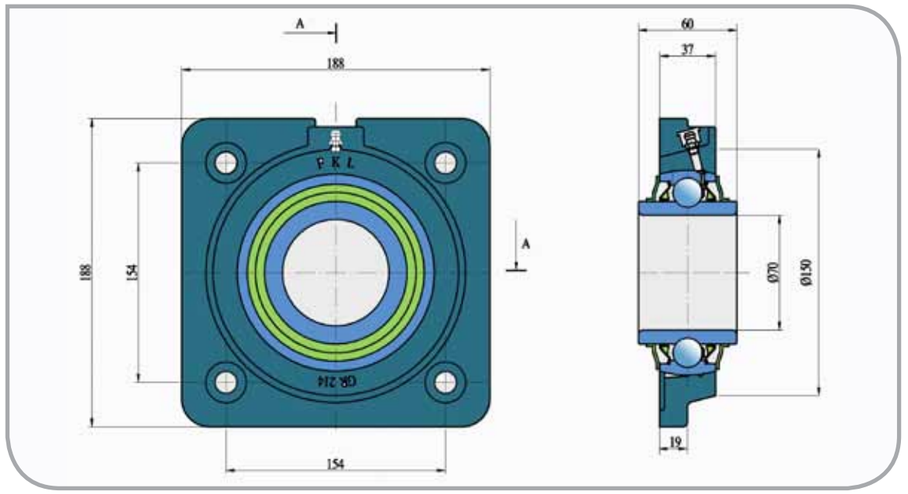


Fig.12. Sealing 2TB

LSGR 214 2TB



Dimensions (mm)

d	B	C	L	kg
70	60	37	188	5,45

Possible place of mounting and application:

For heavy weight disc harrows

3.8 Bearing units type 2TC

FKL has developed another series of bearing units for agriculture named LEF 200 2TC.
Bearing units for disc harrows, rollers and similar reduced tillage machines, where the grass is present in excessive amounts and high probability for the machine to encounter problems with leftover ropes or winded wires on rotating shaft which tend to destroy the sealing (and a whole bearing) are developed using tin caps protection 2TC.

Five lip seal
Instead triple-lips seals, they are incorporated with newly developed seal, five lip seal.
Seal has a steel reinforcement which is zinc galvanized and has good corrosion protection.
Five strong lips are made out of new type NBR rubber, resistant to oils and fuels, and resistant to high temperatures above 110˚C.

Cap
As additional protection from rough dirt (grass, wire, soil, mud ...) and mechanical impact of foreign matter e.g. rubble, protective sheet of the series 2TC, has been replaced with an increased thickness steel cap (1,5-2 mm), that covers the whole front of the bearing unit.
Increased thickness and surface protection improves longer operation life. The tin is mounted below the cast housing tightening screw.
It also has protective function for the five-lips seal , because it is mounted in front of the seal and prevents penetration of rough dirt to the seal and protects it from mechanical impact.

Lubrication
These series are enabled for additional lubrication by means of lubricators.
Cone countersinks are made at angle of 120˚, one per side. This results in a better flow and entry of grease which makes easier to bring grease in the contact zone of balls and raceways.
Grease flow is better due to the increased diameter of the intake grease hole and number of holes is increased from 2 to 3.

Housing material
Material selected for 2TC housings is ductile iron EN-GJS-500-7, which has many advantages comparing to commercial gray iron, reflecting in the strength of structure, resistance to shocks, vibrations, abrasion and therefore longer life span.
Color of these housings is black.

Anti-corrosion protection of the inner ring
Inner rings are galvanized to prevent the occurrence of corrosion which also extends the lifetime of seal lips.

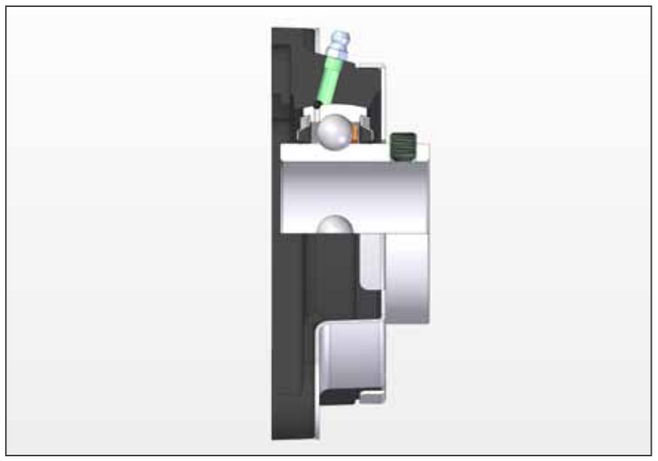


Fig.13. Bearing units type 2TC

3.9 Special bearings

FKL developed a range of special bearings according to customer request that are broadly used in agricultural machinery. Here is a brief survey of some versions which were developed in last two years.

06C04-2Z
AA21480; 204RY2(204JY3);
822-011C; 820-033C

203 KRR.AH02
AN100425; JD 9214;
666624R91; F16246

203 KRR.AH05
JD10008; 611928R91;
3198563

204 KRR2
JD7126; AH107148; JD7126;
822-173C; 1AH01-11/16

204 KRRB2
A-HPS011GP
11K204N

205 KRP2
40-155; A27002;
1337998C1

209 KRR K/50.135
straw walker shaft for
CLAAS

210 RRB6
AE42880 ;
HPS108GPB-I;

3204 B.2RS1
for Majevica-Serbia
machines

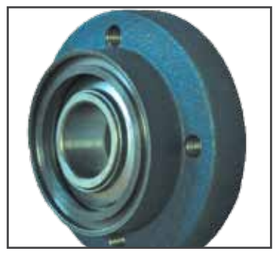
5206KPP3
822-215C; GA8603,
GA8641

60Z45
for tractors DEUTZ,
FENDT

885152
AA21015-AA35741;
128558C91; A2022

ILSGE 213
for AMAZONE machines

LSGR 205-FS
3199371; F-239975

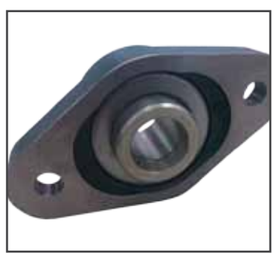


LSGR 207 2TB
3199372; F-232812

885154B
AN 131668; 446612MI

GW 211PP202
8K2050 (SUMMERS);
8K2000 (SUMMERS)

GWHR 211PP202
8K2050 (SUMMERS);
8K2000 (SUMMERS)



LSNR 205-2T
3199367;
F-233449

LSNR 207-TBS
3199352;
F-232812-0200

SBX 1227
409556A1

GWHG 211PP25
SN3090; SN3091;
SN 1937

GWR 209PPB30
GW209PPB23+BR209RH;
40-167; CDS209TTR6PA

GWR 211PPB21
822-026; CDS211TTR23N/3A;
GW211B21+BR211RH

SL 3303 2S
for Seeding machines
(TCM - 8000, TCM - 8000A,
TCM - 4150)

SL 5203-2T
822-170C; 324461A1;
N212132; GA6171;
AN212132; Y00513900

SLE 53-012-2T
188-009V

GWST 209PPB13
AA30941; AA29784;
AA28184

GWST 211PPB20
AA 30941
822-208C

IL-117-M22
("SKF" BAA-OO4)
for disc harrows

SLU 53-012-2T
188-004V

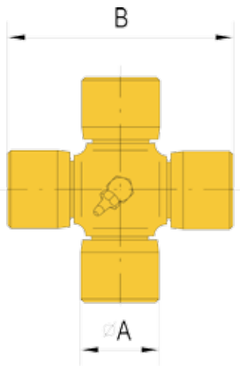
SL 53-014 2T
188-006V

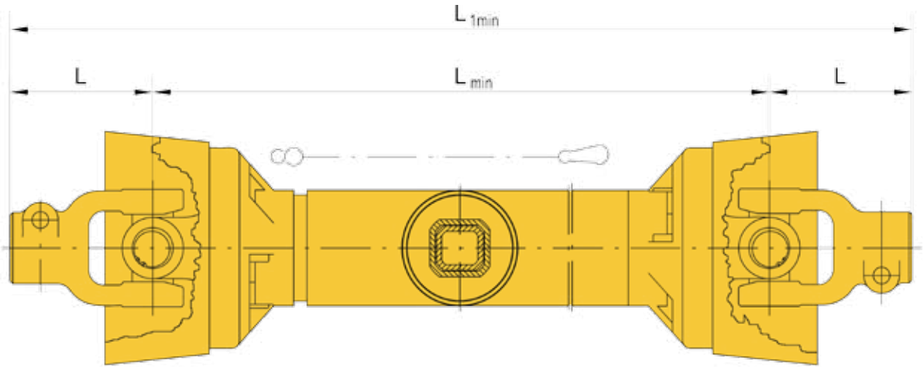
SL 5316-2T
AA205DD; 188-001V;
205VVH-I

4. PROGRAM OF CARDAN SHAFTS

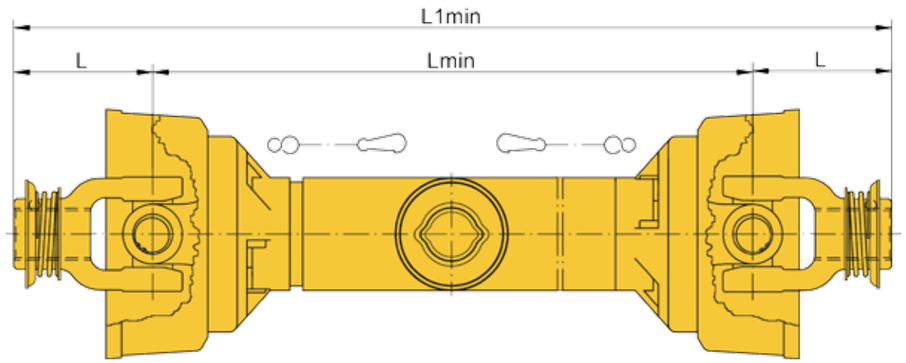
4.1 Cardan shafts

Size	Universal joint dimensions		Dinamic capacity Md (Nm)	
	ØA (mm)	B(mm)	540 min^{-1}	1000 min^{-1}
05	22	55	210	172
08	24	61	270	220
12	27	75	460	380
16	32	76	620	520
18	34	90	830	710
20	35	106.5	1240	1050



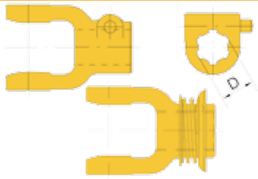
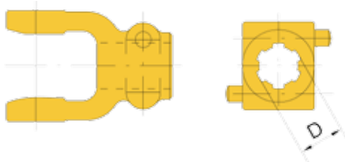
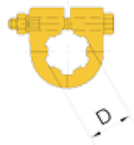
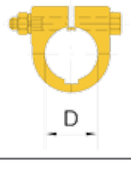
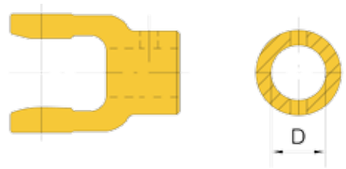
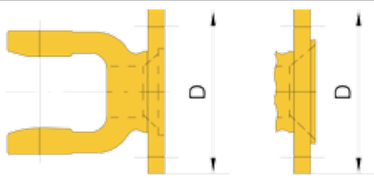


L_{min} - minimal shaft lenght (compressed)
L_{max} - maximal shaft lenght in operation



Size	05	08	12	16	18	20
L_{min}	460	465	480	505	515	545
L	90	98	107	112	116	129
L_{max}	1950	2000	2000	2000	2000	2000
L_{1min}	$L_{1min} = L_{min} + L + L$					

4.2 Table of drive shaft yokes

Outer yokes	D	Size 05	08	12	16	18	20
	6x21x25 (6)	×	×				
	6x26x30 (6)	×	×				
	6x32x38 (8)	×	×	×	×		
	Tip1 1⅜" (6)	×	×	×	×		
	Tip2 1⅜" (21)	×	×	×	×		
	6x32x38 (8)					×	×
	Tip1 1⅜" (6)					×	×
	Tip2 1⅜" (21)					×	×
	Tip3 1¾" (20)						×
	1¾" (6)						×
	6x23x28 (6)	×	×				
	6x26x30 (6)	×	×				
	Tip1 1⅜" (6)	×	×	×	×	×	×
	Tip2 1⅜" (21)	×	×	×	×	×	
	1¾" (6)						×
	20H8	×					
	25H8	×	×				
	30H8	×	×	×	×	×	
	35H8		×	×	×	×	×
	40H8				×	×	×
	20H8	×					
	22H8	×					
	25H8	×	×	×			
	30H8	×	×	×	×	×	
	35H8			×	×	×	×
	40H8			×	×	×	×
	Tip1 1⅜" (6)	×	×	×	×	×	
	1¾" (6)					×	×
	Tip3 1¾" (20)						×
	20H8	×					
	22H8	×					
	25H8	×	×	×	×		
	30H8	×	×	×	×	×	
	35H8			×	×	×	×
	40H8			×	×	×	×
	75	×					
	87.5	×					
	90			×	×		
	100			×	×	×	
	120					×	×

4.3 Overload and overrunning clutches

Different driving requirements of agricultural machines, first of all large kinetic energy of the driving machines flywheels require the insurance of working and driving elements by means of safety couplings. Couplings for cardan shafts preserve the driving system from the overload moment effect and in that way provide optimal utilization of material with construction of structures as well as the safe and uninterrupted machine operation. The couplings are of simple construction, they are easy to maintain and made of high quality local materials. The criteria for the couplings choice per size and working manner are the types of machines and type of load. Tolerances for fitness of coupling load compared to the declared capacity is ± 10%.

OVERRUNNING CLUTCHES

are applied as balance clutches in cases when there is a danger of flywheel moment effect of the working machine to the driving elements in case of driving machine suddenly stops working.

RADIAL PIN CLUTCHES

with radial hinges by means that hinge shape closes the power flow when overloaded hinges are pushed to the holes and then sliding occurs between the drive and driven part of the coupling in the pulsating manner. The sharp sound which appears than has a warning role.

SHEAR BOLT CLUTCHES

are rough couplings and are used to avoid blockage due to overload. The increase of moment beyond the shearing screw causes the screw shearing and the flow of power is interrupted. By the screw replacement the power transmission is set again.

FRICTION CLUTCHES

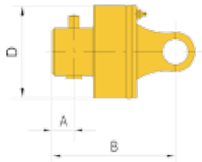
are safety couplings which by means of splitting power transmits the turning moment. These are used with the drive where the overloads are frequent and short. Here the interruption and reestablishment is softer then with the safety couplings with radial hinges.

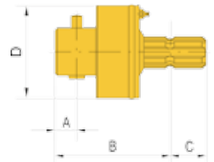
FRICTION AND OVERRUNNING CLUTCHES

present the combination of one-way and friction couplings so the type of operation is determined according to the characteristics set above.

Overload and overrunning clutches

SJ — OVERRUNNIG CLUTCHES

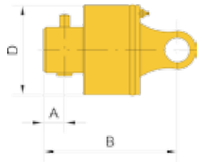


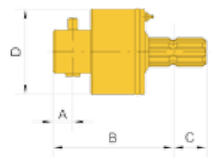


Type	Capacity (Nm)	Dimensions (mm) B	A	D	C	PTO Drive shafts 05	08	12	16	18	20
SJ-2	1600	131	24	100				×	×	×	
SJ-2V	1600	131	24	100	38						
SJ-4	2400	143	24	100						×	×
SJ-4V	2400	151	24	100	38						
51.AM	3000	141	37	73	28						

Connections: Shaft 1⅜"; Hub 1¾"; 1¼"

SR — RADIAL PIN CLUTCHES

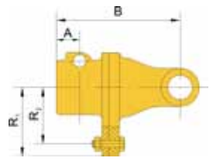




Type	Capacity (Nm)	Dimensions (mm) B	A	D	C	PTO Drive shafts 05	08	12	16	18	20
SR-1	300	127	24	100		×	×				
SR-2	600	153	24	100			×	×	×		
SR-3	900	176	24	100					×	×	×
SR-4	1200	203	24	100							×
SR-1V	300	119	24	100	38						
SR-2V	600	151	24	100	38						
SR-3V	900	171	24	100	38						
SR-4V	1200	191	24	100	38						

Connections: Shaft 1⅜"; Hub 1¾"; 1¼"

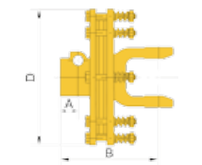
SV — SHEAR BOLT CLUTCHES

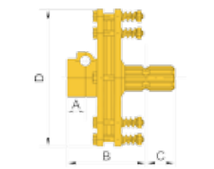


Type	Capacity (Nm)	Dimensions (mm) B	A	R_2	R_1	PTO Drive shafts 05	08	12	16	18	20	8.8
SV-05	320	95	20	35	55	×						M6x40
SV-08	450	99	20	45	55		×					M6x40
SV-12	740	107	20	48	63			×				M8x45
SV-16	1350	109	21	55	63				×			M8x45
SV-18	1600	137	24	60	78					×		M8x55
SV-20	2000	143	24	45	78						×	M10x60

Connections: Hub 1⅜"; 1¼"

SF — FRICTION CLUTCHES

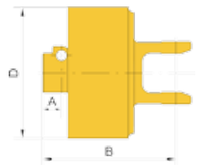


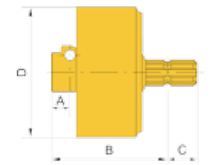


Type	Capacity (Nm)	Dimensions (mm) B	A	D	C	PTO Drive shafts 05	08	12	16	18	20
SF-1	900	138	24	170				×	×		
SF-2	1200	147	24	170				×	×	×	
SF-3	1500	170	24	190						×	×
SF-4	2000	170	24	210							×
SF-1V	900	143	24	170	38						
SF-2V	1200	143	24	170	38						
SF-3V	1500	162	24	190	38						
SF-4V	2000	162	24	210	38						

Connections: Shaft 1¾"; Hub 1¾"; 1⅛"

SFT — FRICTION CLUTCHES

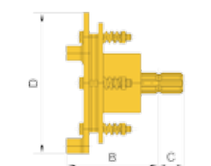




Type	Capacity (Nm)	Dimensions (mm) B	A	D	C	PTO Drive shafts 05	08	12	16	18	20
SFT-1	300-700	154	24	168				×	×		
SFT-2	700-1400	176	24	168				×	×	×	×
SFT-1V	300-700	148	24	168	38						
SFT-2V	700-1400	160	24	168	38						

Connections: Shaft 1¾"; Hub 1¾"; 1⅛"

SJF — FRICTION AND OVERRUNNING CLUTCHES



Type	Capacity (Nm)	Dimensions (mm) D	B	C	PTO Drive shafts 05	08	12	16	18	20
SJF-1V	800	230	158	38			×	×	×	×

Connections: Shaft 1¾"; Hub 1¾"; 1¼"

5. OTHER INFORMATION

FKL Temerin is a producer of rolling bearings and cardan shafts. The company was established in 1961, located at the area covering 13 hectares. Production area consists of two plants, covering 25 000 m^2.

OUR QUALITY HAS BEEN BUILT ON:

QMS verifed by ISO 9001, ISO 14001 and ISO 18001

High quality raw material

Own R&D department

Highly productive and modernized equipment

Qualified personnel


CERTIFICATE TÜV NORD

Management system as per
EN ISO 14001 : 2004

FKL – Factory of Roller Bearings and Cardan Shafts
Industrijska zona bb
21235 Temerin
Serbia

Design and production of bearings and cardanshafts


CERTIFICATE TÜV NORD

Management system as per
BS OHSAS 18001 : 2007

FKL – Factory of Roller Bearings and Cardan Shafts
Industrijska zona bb
21235 Temerin
Serbia

Design and production of bearings and cardanshafts


CERTIFICATE TÜV NORD

Management system as per
EN ISO 9001 : 2008

FKL – Factory of Roller Bearings and Cardan Shafts
Industrijska zona bb
21235 Temerin
Serbia

Design and production of bearings and cardanshafts


Акредитационо тело Србије 00057
Београд
додељује
СЕРТИФИКАТ О АКРЕДИТАЦИЈИ
којим се потврђује да организација
Фабрика котрљајућих лежајева и кардана
ФКЛ АД ТЕМЕРИН
Лабораторија за испитивање котрљајућих лежајева
Темерин, Индустријска зона бб
акредитациони број
01-158
задовољава захтеве стандарда
SRPS ISO/IEC 17025:2006
те је компетентна за обављање послова испитивања
који су спецификирани у обиму акредитације
Сертификат додељен 30. 12. 2010.
Акредитација важи до 29. 12. 2014.
Директор

ATC
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АКРЕДИТОВАНА ЛАБОРАТОРИЈА ЗА ИСПИТИВАЊЕ
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СЕРТИФИКАТ СООТВЕТСТВИЯ

№ РОСС RS.ШП02.В00831
ШП02
Срок действия с 03.07.2009 г. по 02.07.2012 г.
7377743

ОРГАН ПО СЕРТИФИКАЦИИ РОСС RU.0001.11ШП02
АВТОНОМНАЯ НЕКОММЕРЧЕСКАЯ ОРГАНИЗАЦИЯ
«ЦЕНТР СЕРТИФИКАЦИИ ПОДШИПНИКОВ»
Россия 115088, г. Москва , 2-ая ул. Машиностроения, дом 25, стр.5.
телефон: (495) 600-84-44

ПРОДУКЦИЯ
Подшипники шариковые радиальные однорядные
(С наружным диаметром от 30 до 125 мм.)
См. приложение
Серийный выпуск
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СООТВЕТСТВУЕТ ТРЕБОВАНИЯМ НОРМАТИВНЫХ ДОКУМЕНТОВ
ГОСТ 520-2002
код ТН ВЭД России: 8482 10 900

ИЗГОТОВИТЕЛЬ
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394088, г. Воронеж, ул. Новгородская, 121

НА ОСНОВАНИИ
Протокола испытаний № 11 от 22.06.09
Испытательного центра ОАО «ВНИИПП»
Аттестат аккредитации № РОСС RU.0001.21ШП08 действителен до 27 апреля 2012г.
Анализа состояния производства FKL от 21.05.09.

ДОПОЛНИТЕЛЬНАЯ ИНФОРМАЦИЯ

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