

HARP

Proven
solutions for you

HARP-AGRO BEARINGS AND UNITS FOR AGRICULTURE INDUSTRY





UPEC is one of the leading CIS manufacturers of bearings, electric motors, pumps, CNC grinding machines, transmissions and chassis, air-cycle climate control systems, trailed agricultural machinery as well as other machines, equipment, units and components for railway, automotive, agricultural, power and electric machinery, defense, metallurgical and other industries.

UPEC was established in 1995 and today it unites a number of leading manufacturing companies and engineering centres with more than half a century of history.

The main manufacturing capacities of the UPEC Industrial Group:



Kharkov Bearing Plant “HARP” – manufacture of energy-efficient bearing units and “cartridge” bearing products;



LKMZ

Oskol Bearing Plant “HARP” – international localization of HARP, manufacture of a new generation of bearing products;



Lozova Forging-Mechanical Plant “LKMZ” – manufacture of cold- and hotforged components, transmissions and trailed agricultural machinery;

Kharkov Electro-Technical Plant “HELZ Ukrelectromash” – manufacture of induction electric motors, a wide range of electric pumps and other consumer products;



Kharkov Machine-Tool Plant “Harverst” – manufacture and refurbishment of roll and cylindrical grinding machines, as well as special-purpose grinding machines for the bearing industry;



Ukrainian Casting Company “ULK” – manufacture of precision steel and iron castings.

The products of the UPEC Industrial Group are presented on the market by the divisions united in **UPEC TRADING**: Railway, Automotive, Electro-Technical, Machine-Tool, Agricultural and Special-purpose Machinery. The **Automotive and Agricultural Divisions** provide a wide range of products – bearings, forgings, castings, components, complex units and assemblies for automotive industry manufacturers, motor builders, agricultural and transport machine builders. They also supply components and assemblies to the aftermarket.

The **Automotive Division** presents to the market products of three companies – Kharkov Bearing Plant, Lozova Forging-Mechanical Plant and Ukrainian Casting Company.

We fulfill orders in accordance with the customers' drawings.

The Joint Engineering Centre

The main company's know-how is created in the Joint Engineering Centre of the company, which also includes a number of specialized engineering centres and departments.

The Joint Engineering Centre (JEC) was established to implement a new strategy of the UPEC Industrial Group, focusing on the priority of engineering knowledge, development and manufacture of innovative products with a high intellectual level.

The JEC performs the most complex calculations and studies, mathematical simulation and optimal design for all of the Industrial Group's product areas, taking designs to the commercial prototypes together with the UPEC specialized engineering centres.

UKRAINIAN BEARING INDUSTRY DESIGN AND TECHNOLOGY BUREAU (UKTBPP)

UKTBPP specializes in the design of rolling bearings. The developed products meet requirements of the international ISO standards. UKTBPP is Ukraine's leading engineering company in the bearing industry. Since 2008, UKTBPP has been working on the order from the Ukrainian Ministry of Industrial Policy for the development of new national standards and normative documentation for bearing products.

Kharkov Bearing Plant (HARP)



The Kharkov Bearing Plant HARP (formerly GPZ-8) occupies a leading position in bearing production for agricultural machinery in the CIS.

The Kharkov Bearing Plant manufactures over 500 types of bearings with outer diameter from 30 to 400 mm under the HARP, HARP-AGRO and HARP-AUTO trademarks, hot-forged and cold-rolled semi-finished products and components for automotive, railway and industrial bearings.

Specialists working at the Kharkov Bearing Plant, which was designed and constructed in accordance with agricultural machinery needs, clearly understand the difficulties of both, who develop agricultural machinery and who operate it. A wealth of design and production experience (70 years) enables the company to continuously improve the developed products; thus, taking into consideration the machinery operating conditions and the machinery design modification of the leading in the CIS engineering and manufacturing companies, which production lines are currently supplied with the HARP-AGRO bearings.

The plant is certified according to ISO 9001:2008, ISO 14001:2004 and ISO/TS 16949:2009 and is approved supplier for Schaeffler and SKF - the world leaders of bearing industry.

X-SHIELD – multi-lip seals of increased tightness

































Every agrarian needs bearings for agricultural machinery, which would increase the average time of failure-free operation, minimize expensive down time and maintenance time, as well as reduce production losses.

In order to fulfill these requirements, HARP manufactures agricultural bearings with special X-SHIELD seals of increased tightness.

Kharkov Bearing Plant (HARP) has developed a brand new line of seals with the new X-SHIELD sealing systems for HARP AGRO bearings for

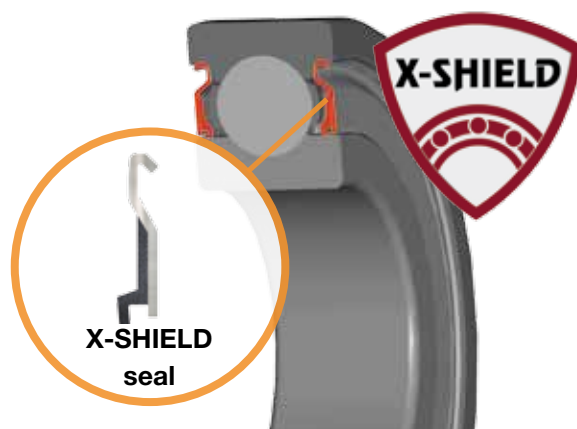
agricultural machinery. The line includes the existing seals with K10 suffix, as well as new types of seals with K15-K19 suffixes, which are designed for different areas and conditions of work.

The seal's design is chosen depending on the work conditions, operating mode of the unit, type of lubrication material and necessary tightness degree.

Designation	Design	Bearing designation suffix	Number of lips	Moisture and dust protection level	Mechanical damages protection level	Durability in aggressive medium	
Conventional seals		2RS (DIN)	1				
X-SHIELD		K10	1				
X-SHIELD		K10	1				
X-SHIELD-2		K15	2				
X-SHIELD-2		K16	2				
X-SHIELD-3		K17	3				
X-SHIELD-3		K18	3				
X-SHIELD-6		K19	6				

Advantages of X-SHIELD seals

- Bearing units assembled with bearings with new X-SHIELD seals do not require maintenance during the entire period of operation
- Unique system of multi-lip seals in combination with protective washers ensure 100% tightness of bearings
- Term of HARP AGRO bearing's safe operation with X-SHIELD sealing is in 2-4,5 times higher than with standard sealing
- Extended range of the seal operating temperatures: from -40 to +150°C (HNBR)



Rotation rate*, RPM	HARP series	Description
up to 3000	160000, 180000, 380000, 580000, 1580000, 680000, 1680000, 750000	Standard one-lip seal made of rubber, with a partial reinforcement.
up to 3000	160000, 180000, 380000, 580000, 1580000, 680000, 1680000, 750000, 780000K	K10 serial seal is mounted in the groove of the outer bearing ring. The elastic part of the seal with one lip is vulcanized to protective washer and covered from mechanical impact.
up to 3000	480000, 780000 and other bearings with a wide inner ring	In the series of bearings 480 000 and 780 000 (UC, EX) K10 seal is supplemented with a protective washer, mounted on the outer diameter of the inner ring, for additional protection against mechanical damage.
up to 1500		An additional protective washer has a rubber sealing element, which contacts the sheet (metal) part of the K10 seal, which increases tightness of the bearing.
до 1500		K10 seal with two lips to enhance moisture and dust protection.
up to 900	376905EKL19 (AA205DD), 966903EL19 (5203KYY2), 530903EL19 (203KRR.AN02), 420905EL19(205KRRB2), 480000, 780000 and other bearings with a wide inner ring	K10 seal with three lips to enhance moisture and dust protection.
up to 900	480000, 780000 and other bearings with a wide inner ring	Seal system consisting of two elements: reinforced protective washer and three-lip seal K17. Protective washer is made of a sheet of bigger thickness and is several times stronger than standard washer.
up to 700		Reinforced protective washer additionally has three rubber elements, which contact a sheet part of K17 seal for maximum protection from external impacts.

*rotation rate is specified for bearings of the dimension group 210 acc. to GOST (DIN 6210) and operation mode S1

Technical features and advantages of the X-SHIELD multi-lip seals

Wear-resistant and reliable material

- X-SHIELD seals are made of **butadiene-acrylonitrile rubber (NBR)**, which has a much better wear resistance than conventional nitrile rubber, so the seals serve much longer.

This universal material has a good resistance to the most of mineral oils and mineral-based plastic lubricants; gasoline, diesel fuel and fuel oil; animal and vegetable oils, fats; hot water.

Operating temperature range is from -40° to +100°C and for a short time up to + 120°C, and short-term dry friction of the seal lip is allowed.

- Seals of bearings operating at high temperatures are made of **hydrogenated butadiene acrylonitrile rubber (HNBR)**.

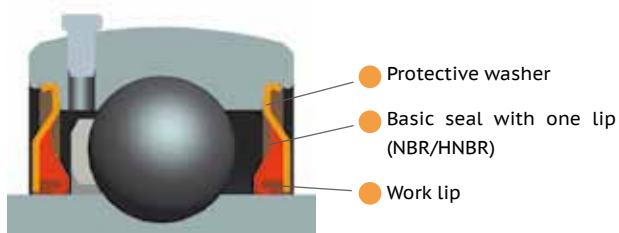
HNBR also has better resistance to heat, aging and hardening in hot oil or ozone.

The upper temperature limit for seal made of HNBR is up to + 150°C.

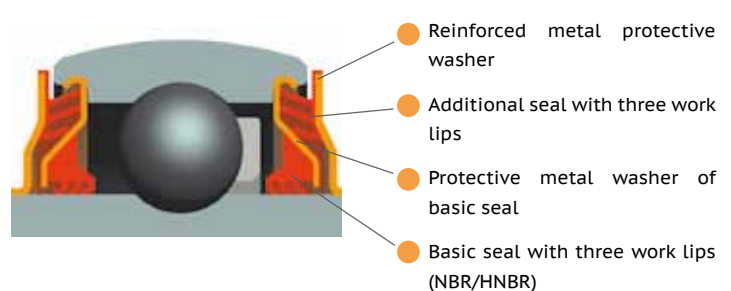
- Metal part of the seal is zinc-coated with additional treatment (phosphating, oxidation).

Improved work features – 100% bearing tightness:

X-SHIELD combined seal



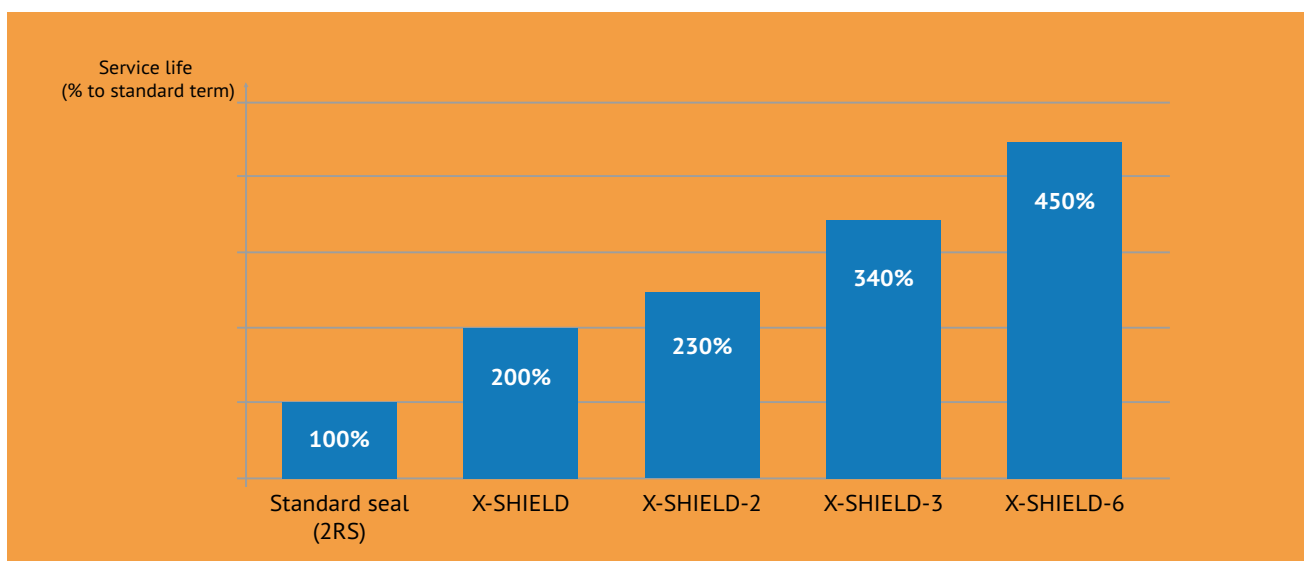
X-SHIELD-6 reinforced combined seal



Costs reduction – zero maintenance

Bearings with X-SHIELD seals have a bigger overhaul interval and do not require maintenance.

Dependence of the service life of the bearing (bearing unit) on the type of the sealing according to the results of tillage machinery field testing (Ukraine, 2017)





HARP-AGRO BEARINGS

HARP-AGRO BEARINGS

Arguably one of the best bearings for agricultural machinery in the world

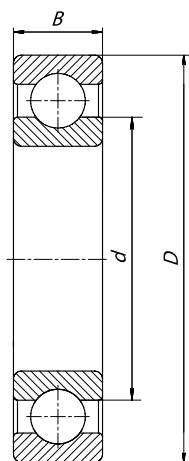


Fig. 1

Single row deep groove ball bearings

Bearing designation		Overall dimensions, mm			Weight, kg	Load ratings, kN		Max. rotational speed, RPM (grease)		Fig.
GOST	DIN	d	D	B	m	Dynamic	Static	Solid		
115A	6015	75	115	20	0,6	41,68	26	5600	6700	1
118A	6018	90	140	24	1,17	60,06	39	4800	5600	1
206A	6206	30	62	16	0,2	19,5	11,25	10000	13000	1
208A	6208	40	80	18	0,4	33,6	19	8500	10000	1
307A	6307	35	80	21	0,4	34,86	19	8500	10000	1

Bearing with a tight **X-SHIELD®** sealing is the best bearing for agricultural machinery

Increased hermeticity, external protection, reliability

Currently almost full range of HARP AGRO bearings for agricultural machinery can be manufactured not only with standard sealing but also with any multi-lip seal with advanced tightness from X-SHIELD range (additional bearing designation contains suffix K along with index K10 (standard sealing), K15....K19 (two-six-lip sealing)). This provides 100% protection of bearing from dust, mud, water and abrasive particles as well as additional protection from mechanical damages and allows the bearing to operate effectively under the extreme conditions.

Most of the bearings have standard pressed steel cages or polyamide cages. The polyamide cages have high friction characteristics and durability, while their flexibility and light weight considerably increase bearing serviceability during impact loads, acceleration and deceleration, or mutual misalignment of rings.



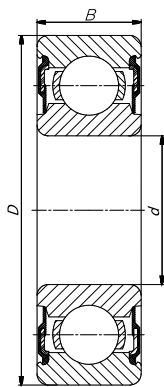


Fig. 2

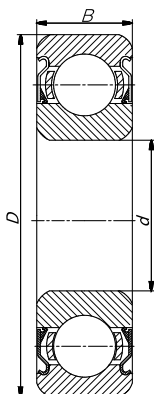


Fig. 3

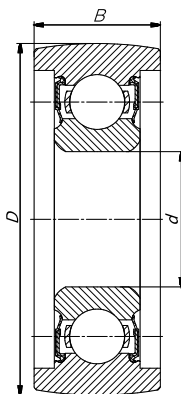


Fig. 4

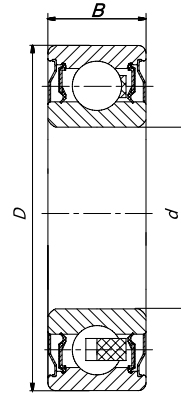


Fig. 5

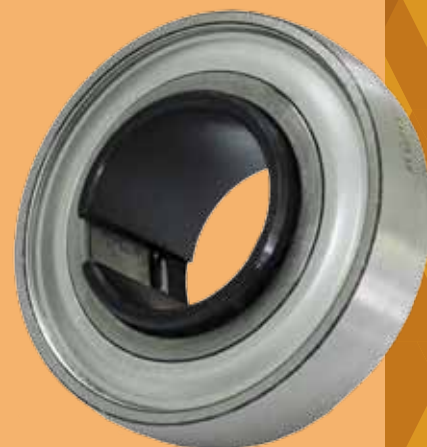
Single row radial ball bearings with double-sided X-SHIELD seal

Bearing designation		Overall dimensions, mm			Weight, kg	Load ratings, kN		Max. rotational speed, RPM (grease)	Fig.
GOST	DIN	d	D	B	m	Dynamic	Static	Solid	
180204AK10C17		20	47	14	0,1	13,33	6,5	10000	3
180205AK10C17		25	52	15	0,1	14,7	6,95	8500	3
180206AK10C17		30	62	16	0,2	19,5	11,2	7500	3
180207AK10C17		35	72	17	0,3	27	15,3	6300	3
180208C17	6208-2RS	40	80	18	0,4	33,6	19	8000	2
180210C17	6210-2RS	50	90	20	0,5	35,1	23,2	7000	2
180304AC17	6304-2RS	20	52	15	0,1	16,69	7,8	14000	2
180305AC17	6305-2RS	25	62	17	0,2	23,6	11,6	8500	2
180306K3C17	6306-2RS	30	72	19	0,3	28,1	14,6	6300	2
180307C17	6307-2RS	35	80	21	0,4	34,86	19	6000	2
180308C17	6308-2RS	40	90	23	0,6	42,3	24	7500	2
180503C17	62203-2RS	17	40	16	0,1	10,4	4,7	12000	2
180706KC17		30	78	28	0,53	28,1	14,6	6300	4
180712AK10C17		60	110	24	0,85	54,6	31	6000	2
2180120AEC17		100	150	30	1,5	63,52	54	4300	5
70-2180120AEC17		100	150	30	1,5	63,52	54	4300	5

Application of HARP-AGRO bearings:

- combines, tractors, balers, harvesters and other aggregates manufactured by **CLAAS, John Deere, New Holland, CASE**;
- **Rostselmash** combines (grain combines: Acros, Torum, Vector, Niva; forage combines: RSM, DON), **Gomselmash** PALESSE combines (forage, grain, beet, potato combines);
- tractors of **Minsk, Kharkov, Volgograd Tractor Plants**;
- trailed and mounted units of **Lozova Machinery (LKMZ), Gomselmash, Elvorti (Chervona Zirka), Sibselmash, Bobruyskagromash** and many of other manufacturers of agricultural machinery.

For more information about application of the HARP-AGRO bearings visit the web-site – HARP.UA



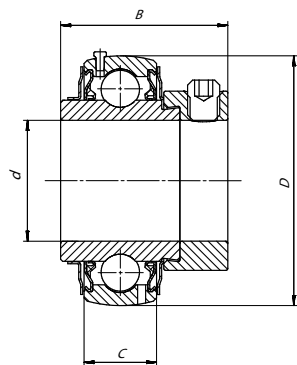


Fig. 6

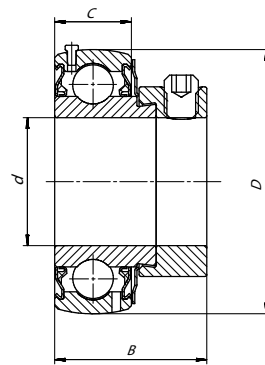


Fig. 7

Single row deep groove ball bearings with double-sided X-SHIELD (K10, K15...K19) seals, with wide inner ring, spherical mounting surface of the outer ring, with symmetrical (fig. 6) and asymmetrical (fig. 7) inner ring and eccentric locking pin

Bearing designation		Overall dimensions, mm			Weight, kg	Load ratings, kN		Max. rotational speed, RPM (grease)	Fig.
HARP (GOST)	Possible marking	d	D	B	m	Dynamic	Static	Solid	
780716EHK7C17	-	80	150	39	4,6	71	53	3000	6
780207KHK10T2C17-EX207	SKF: YEL FAG: GE SNR: EX FKL: LY KOYO: NA	35	72	51,1/20	0,61	25,7	15,32	6300	6
780205AEHK10T2C17-EX205		25	52	44,4/16	0,24	14,7	7,87	8500	6
780206AEHK10T2C17-EX206		30	62	48,4/18	0,39	19,5	11,3	7500	6
780210AEHK10T2C17-EX210		50	90	76,2/23	1,05	35,1	23,3	4800	6
780205KAHK10T2C17-ES205	SKF: YET FAG: GRAE SNR: ES FKL: UY KOYO: SA	25	52	31/15	0,2	14,7	7,87	8500	7
780206KEHK10T2C17-ES206		30	62	35,7/18	0,32	19,5	11,3	7500	7
780207KEHK10T2C17-ES207		35	72	38,9/19	0,52	25,7	15,32	6300	7
780208KEHK10T2C17-ES208		40	80	43,7/21	0,64	32,6	19,8	5000	7

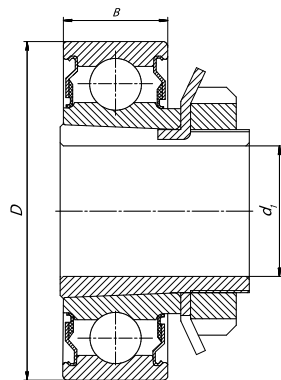


Fig. 8

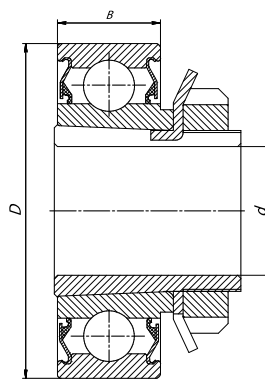


Fig. 9

Single row deep groove ball bearings with X-SHIELD seals and adapter sleeve

Bearing designation	Overall dimensions, mm			Weight, kg	Load ratings, kN		Max. rotational speed, RPM (grease)	Fig.
HARP (GOST)	d	D	B	m	Dynamic	Static	Solid	
380706T2C17	30	85	23	0,7	32,5	18	5800	8
380707T2C17	35	85	23	0,7	32,5	18	5800	8
380708T2C17	40	85	23	0,7	32,5	18	5800	8
380708ET2C17	40	85	23	0,7	32,5	18	5800	8
380708K10T2C17	40	85	23	0,7	32,5	18	5800	9
380708EK10T2C17	40	85	23	0,7	32,5	18	5800	9

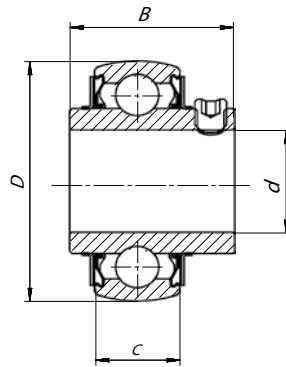


Fig. 10

Single row deep groove ball bearings with double-sided X-SHIELD (K10, K15...K19) seal, with wide inner ring, spherical mounting surface of outer ring and locking pin on inner ring

Bearing designation		Overall dimensions, mm			Weight, kg	Load ratings, kN		Max. rotational speed, RPM (grease)	Fig.
HARP (GOST)	Versions of marking	d	D	B	m	Dynamic	Static	Solid	
480205AEHK10T2C17-UC205	SKF: YAR FAG: UC SNR: UC FKL: LE KOYO: UC	25	52	34,1/16	0,2	14,7	7,9	8500	10
480206EHK10T2C17-UC206		30	62	38,1/18	0,3	19,5	11,3	7500	10
480207EHK10T2C17-UC207		35	72	42,9/20	0,47	25,7	15,3	6300	10
480208EHK10T2C17-UC208		40	80	49,2/21	0,6	32,6	19,8	5000	10
480209EHK10T2C17-UC209		45	85	49,2/21	0,66	32,8	20,5	5000	10
480210EHK10T2C17-UC210		50	90	51,6/23	0,75	35,1	23,3	4800	10

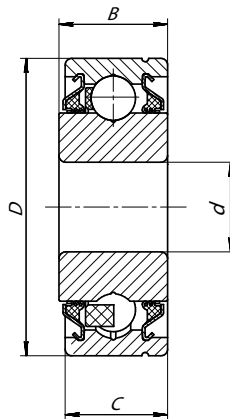


Fig. 11

POSSIBLE MARKING

FKL	SL 5316 2T
JOHN DEERE	AA 205DD
	205VVH
GREAT PLAINS	188-001V

Angular contact single row ball bearing with four-point contact and three-lip double-sided X-SHIELD-3 seal

Bearing designation		Overall dimensions, mm			Weight, kg	Load ratings, kN		Max. rotational speed, RPM (grease)	Fig.
HARP (GOST)		d	D	B	m	Dynamic	Static	Solid	
AA205DD-376905EKL19		16	53,086	18,288/19,4	0,22	14	7,88	500	11

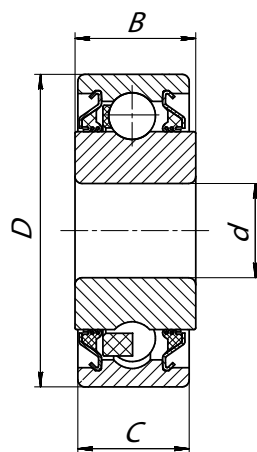


Fig. 12

POSSIBLE MARKING

FKL	203KRR.AHO2
FAFNIR	203KRR2
JOHN DEERE	JD 9214
JOHN DEERE	AN 100425
BCA	203RRAR10
IHC	666624R91
LINK-BELT	126115
CASE	F16246
FAG	518855
NEW HOLLAND	66553

Single row deep groove ball bearing with symmetric inner ring and three-lip double-sided X-SHIELD-3 seal

Bearing designation	Overall dimensions, mm			Weight, kg	Load ratings, kN		Max. rotational speed, RPM (grease)	Fig.
	d	D	B		Dynamic	Static		
HARP (GOST) 203KRR.AHO2-530903EKL19	16,26	40	18,29/12	0,09	10,1	4,75	13000	12

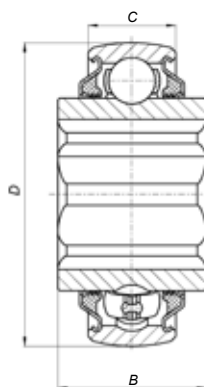


Fig. 13

POSSIBLE MARKING

GREAT PLAINS	822-119C
KINZE	G2-10003
JOHN DEERE	JD9260
FKL	205KRRB2

Ball bearing with double-sided three-lip X-SHIELD-3 seal and spherical mounting surface of outer ring, inner ring fits to hexagonal shaft

Bearing designation	Overall dimensions, mm			Weight, kg	Load ratings, kN		Max. rotational speed, RPM (grease)	Fig.
	d	D	B		Dynamic	Static		
HARP (GOST) 205 KRRB2-420905EL19	22,25	52	25,4/15	0,28	14	7,8	900	13

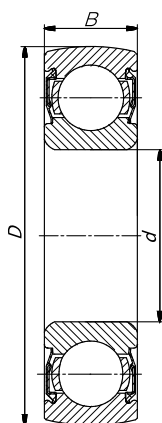


Fig. 14

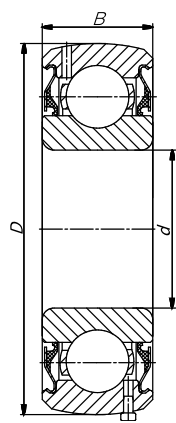


Fig. 15

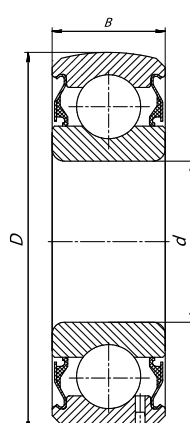


Fig. 16

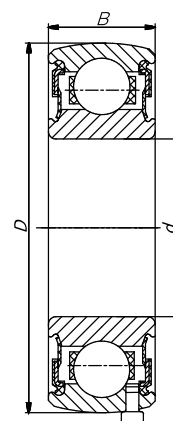


Fig. 17

Single row deep groove ball bearings with spherical mounting surface of the outer ring and X-SHIELD sealings

Bearing designation		Overall dimensions, mm			Weight, kg	Load ratings, kN		Max. rotational speed, RPM (grease)	Fig.
HARP (GOST)	DIN	d	D	B	m	Dynamic	Static	Solid	
580204AK10C17		20	47	14	0,1	13,33	6,5	10000	16
580205AC17	76205-2RS	25	52	15	0,1	14,7	6,95	8500	14
580205AEC17	76205-2RST	25	52	15	0,1	14,7	6,95	8500	14
580205AEK7C17	76205-2RST	25	52	15	0,1	14,7	6,95	8500	17
580205AK7C17	76205-2RS	25	52	15	0,1	14,7	6,95	8500	17
580306C17	76306-2RS	30	72	19	0,3	28,1	14,6	9000	14
580306K7C17	76306-2RS	30	72	19	0,3	28,1	14,6	9000	17
1580206EK7C17		30	62	18	0,2	19,5	11,25	7500	17
1580206EC17		30	62	18	0,2	19,5	11,25	7500	14
1580206C17		30	62	18	0,2	19,5	11,25	7500	14
1580206EK10T2C17		30	62	18	0,2	19,5	11,25	7500	16
1580207EK1T2C17		35	72	20	0,3	26,77	15,3	6300	14
1580207K1T2C17		35	72	20	0,3	26,77	15,3	6300	14
1580207EK7T2C17		35	72	20	0,3	26,77	15,3	6300	17
1580207K7T2C17		35	72	20	0,3	26,77	15,3	6300	17
1580207EK10T2C17		35	72	20	0,3	26,77	15,3	6300	16
1580209T2C17		45	85	21	0,4	34,86	21,6	5000	14
1580209K7T2C17		45	85	21	0,4	34,86	21,6	5000	17
1580209EK7T2C17		45	85	21	0,4	34,86	21,6	5000	17
1580209EK10T2C17		45	85	21	0,4	34,86	21,6	5000	16
1580211EHK10T2C17		55	100	23	0,7	45,78	29	4300	15

Definition of bearing suffixes

GOST	
Suffix	Description
A	Increased bearing load
C17	Filling of bearing with the Lithol-24 grease
E	Polyamide cage, which increases service life due to better greasing (not recommended at operating temperatures above 100°C)
H	Bore for grease in outer ring
K	Design changes of the bearing parts
K7	Locking pin in outer ring
K10	Improved design of seal (recommended for dust polluted environment) and locking pin in outer ring
K15...K19	X-SHIELD multi-lip seals with advanced level of protection from dust, mud, water and mechanical damages (option)
T2	Rated temperature of tempering for bearing components is 250°C

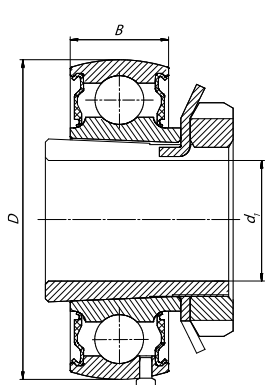


Fig. 18

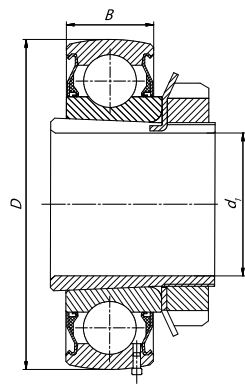


Fig. 19

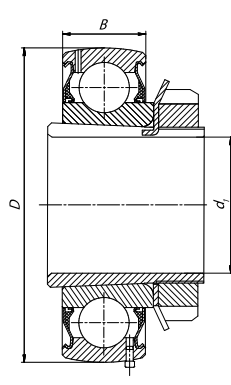


Fig. 20

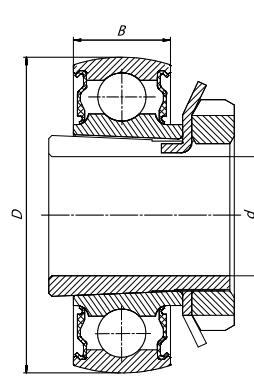


Fig.21

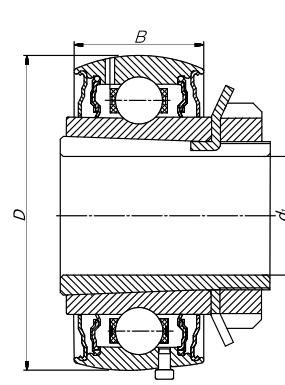


Fig. 22

Single Row Deep Groove Ball Bearings with Spherical Mounting Surface of the Outer Ring and X-SHIELD Sealings on Adapter Sleeve

Bearing designation	Overall dimensions, mm			Weight, kg	Load ratings, kN		Max. rotational speed, RPM (grease)	Fig.
	d	D	B		Dynamic	Static		
HARP (GOST)				m			Solid	
680210A2HK7C17	55	100	25	1,2	45,5	29,6	4300	22
680210AEHK10C17	55	100	25	1,2	45,78	29	4300	20
680314EHK7C17	70	150	39	3,6	71	53	3000	22
1680204AC17	20	52	16	0,2	14,7	6,95	8500	21
1680204AK7C17	20	52	16	0,2	14,7	6,95	8500	18
1680204AEK7C17	20	52	16	0,2	14,7	6,95	8500	18
1680204AEC17	20	52	16	0,2	14,7	6,95	8500	21
1680204AK10C17	20	52	16	0,2	14,7	6,95	8500	19
1680204AEK10C17	20	52	16	0,2	14,7	6,95	8500	19
1680205K7T2C17	25	62	18	0,3	19,5	11,25	7500	18
1680205EK7T2C17	25	62	18	0,3	19,5	11,25	7500	18
1680205ET2C17	25	62	18	0,3	19,5	11,25	7500	21
1680205EK10T2C17	25	62	18	0,3	19,5	11,25	7500	19
1680206T2C17	30	72	20	0,4	26,77	15,3	6300	21
1680206K7T2C17	30	72	20	0,4	26,77	15,3	6300	18
1680206EK7T2C17	30	72	20	0,4	26,77	15,3	6300	18
1680206EK10T2C17	30	72	20	0,4	26,77	15,3	6300	19
1680207K7T2C17	35	80	21	0,6	33,6	19	5000	18
1680207EK7T2C17	35	80	21	0,6	33,6	19	5000	18
1680207EK10T2C17	35	80	21	0,6	33,6	19	5000	19
1680208T2C17	40	85	21	0,7	34,86	21,6	5000	21
1680208ET2C17	40	85	21	0,7	34,86	21,6	5000	21
1680208EK7T2C17	40	85	21	0,7	34,86	21,6	5000	18
1680208EK10T2C17	40	85	21	0,7	34,86	21,6	5000	19

BEARING UNITS



HARP



Bearing units with different housings

Sealed (maintenance-free) bearing solutions

Bearing unit is an assembly component, which combines bearing and bearing housing, and consists of the following components:

- housing made of cast iron or special materials. It can consist of two or more parts with two or more mounting bolt holes;
- one or several bearings which are mounted directly on the shaft or attached by means of an adapter sleeve;
- sealing system X-SHIELD® for bearings protection during operation;
- fitting for the bearings regreasing during operation.

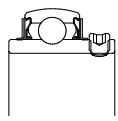
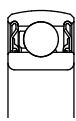
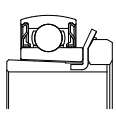
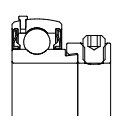
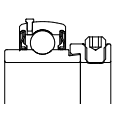
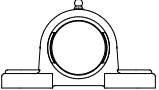

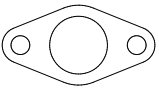
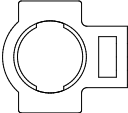

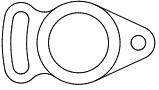
Bearing units can operate at increased loads with low noise level. They are reliable and durable.

A distinctive feature of the bearing unit is that the spherical outside surface of the bearing and inner housing surface ensure self-alignment. On both sides it has X-SHIELD® seals consist of oil-resistant rubber and flingers.

Bearing housing is a part of the bearing unit, which is assembled with a bearing with spherical ground surface and made of high quality cast iron, stamped or pressed steel.

Bearing housings can have different shapes.

Table of housings and bearings compatibility

Housing type	HARP bearing				
					
	P480000-UCP200 (Ø25...50 mm)	P580000, P1580000 (Ø25...55 mm)	P680000, P1680000 (Ø25...50 mm)	P780000K-ESP200 (Ø25...50 mm)	P780000-EXP200 (Ø25...50 mm)
	F480000-UCF200 (Ø25...50 mm)	F580000, F1580000 (Ø25...55 mm)	F680000, F1680000 (Ø25...50 mm)	F780000K-ESF200 (Ø25...50 mm)	F780000-EXF200 (Ø25...50 mm)
	FL480000-UCFL200 (Ø25...50 mm)	FL580000, FL1580000 (Ø25...50 mm)	FL680000, FL1680000 (Ø25...50 mm)	FL780000K-ESFL200 (Ø25...50 mm)	FL780000-EXFL200 (Ø25...50 mm)
	T480000-UCT200 (Ø25...50 mm)	T580000, T1580000 (Ø25...50 mm)	T680000, T1680000 (Ø25...50 mm)	T780000K-EST200 (Ø25...50 mm)	T780000-EXT200 (Ø25...50 mm)
	FC480000-UCFC200 (Ø25...50 mm)	FC580000, FC1580000 (Ø25...50 mm)	FC680000, FC1680000 (Ø25...50 mm)	FC780000K-ESFC200 (Ø25...50 mm)	FC780000-EXFC200 (Ø25...50 mm)
	FA480000-UCFA200 (Ø25...50 mm)	FA580000, FA1580000 (Ø25...50 mm)	FA680000, FA1680000 (Ø25...50 mm)	FA780000K-ESFA200 (Ø25...50 mm)	FA780000-EXFA200 (Ø25...50 mm)

Advantages of the HARP bearing units

Self-alignment of the bearing outer diameter and housing inner diameter.

The bearing outer diameter has a spherical ground surface matching to the spherical housing inner diameter, which provides self-alignment between the contact surfaces and compensation of the unit misalignment.

Increased service life of the bearing unit.

Bearing units are used in severe operation conditions with dust, dirt and moisture penetration and high temperatures. Under these operation conditions the bearing grease properties deteriorate in a short period of time. Therefore it is necessary to change old grease at appropriate intervals.

For this purpose all bearing units with cast iron housings have the grease nipples to ensure longer service life and maximum efficiency of bearing units.

Effective sealing X-SHIELD®.

Bearing has X-SHIELD® sealing, which consists of heat- and oil-resistant seal made of synthetic rubber and steel shield. The sealing is mounted on the outer ring and contacts with the inner ring flange surface with certain tightness. Steel shield is mounted on the inner ring flange. Combination of these two sealing elements provides protection from dust, dirt and moisture penetration, as well as preservation of grease in the bearing, which ensures the bearing maximum efficiency even in severe operation conditions.

Massive cast iron housing.

Cast iron housing is a one-piece monolithic construction, which provides maximum durability in all operating conditions.

Device which eliminates rotation of the bearing outer ring in the housing.

There is a locking pin on the bearing outer ring, which provides free self-alignment of units, as well as eliminates rotation of the outer ring, increasing the bearing unit service life.

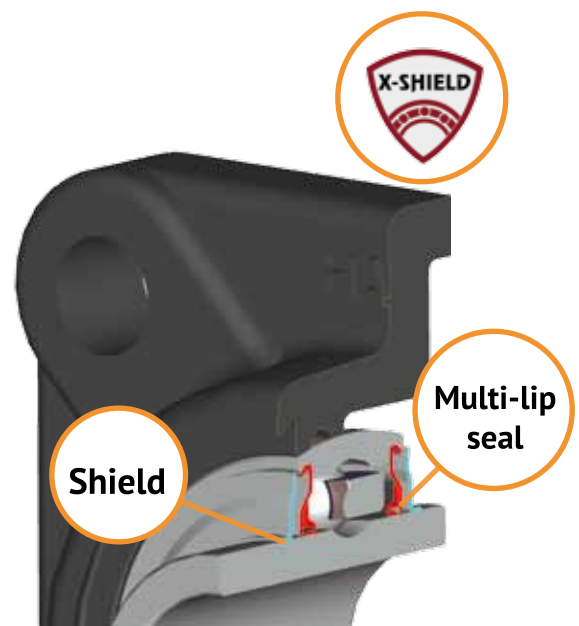
Complete interchangeability of bearing and housing.

High-quality manufacture of the bearing and housing allows their complete interchangeability when required during operation.

No special requirements to the shaft mounting surface.

The advantage of using this type of bearings is that there are no special requirements to the shaft.

Quenching or polishing of the shaft are not strictly required, and the surface quality may be poor.



UCF bearing unit

UCF – series of bearing units with the square flanged housings made of grey cast iron SCh20, which consist of the UC-series ball bearings (single row ball bearings with two X-SHIELD® sealings, with wide inner ring and spherical mounting surface of the outer ring, with locking pin on the inner ring) and F-series flanged housings. Besides standard seals units can be assembled with protective covers made of pressed steel or cast iron, open or closed. Upon customer's request housings can be made of high-strength cast iron GGG 45, GGG 50.

This housing can be assembled with bearings of other types - see table on p. 16

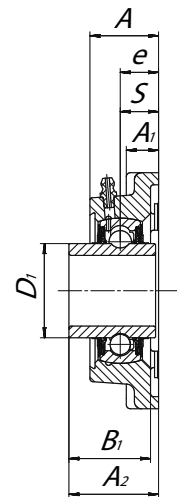
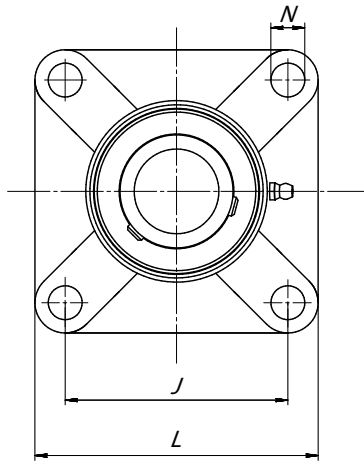
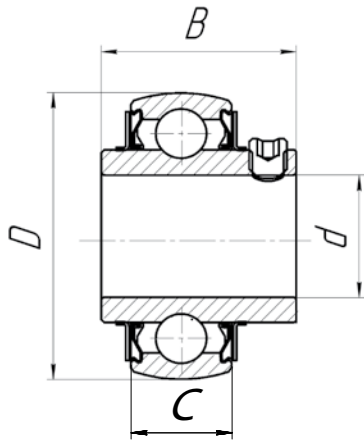
№	Designation of HARP bearing units	Designation of FAG,KOYO,SNR, FBJ/FKL bearing units	Designation of HARP,FAG, KOYO, SNR, FBJ, FKL housings	Designation of HARP bearing	Designation of SKF/FAG, KOYO, SNR, FBJ/FKL bearing	Bearing overall dimensions, mm			
						d	D	B	C
1	F480205-UCF205	UCF205/LEF205 2F	F205	480205AEHK10T2C17-UC205	YAR205-2F/UC205/LE205 2F	25	52	34.1	16
2	F480206-UCF206	UCF206/LEF206 2F	F206	480206EHK10T2C17-UC206	YAR206-2F/UC206/LE206 2F	30	62	38.1	18
3	F480207-UCF207	UCF207/LEF207 2F	F207	480207EHK10T2C17-UC207	YAR207-2F/UC207/LE207 2F	35	72	42.9	20
4	F480208-UCF208	UCF208/LEF208 2F	F208	480208EHK10T2C17-UC208	YAR208-2F/UC208/LE208 2F	40	80	49.2	21
5	F480209-UCF209	UCF209/LEF209 2F	F209	480209EHK10T2C17-UC209	YAR209-2F/UC209/LE209 2F	45	85	49.2	21
6	F480210-UCF210	UCF210/LEF210 2F	F210	480210EHK10T2C17-UC210	YAR210-2F/UC210/LE210 2F	50	90	51.6	23

UCP bearing unit

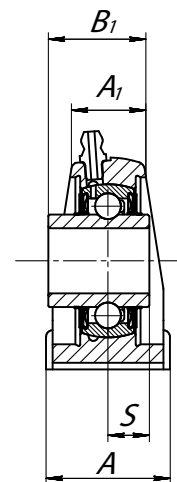
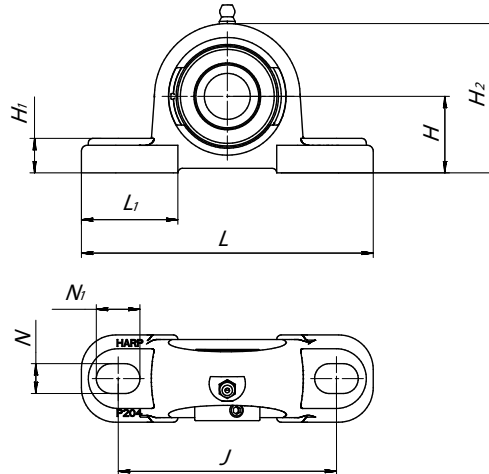
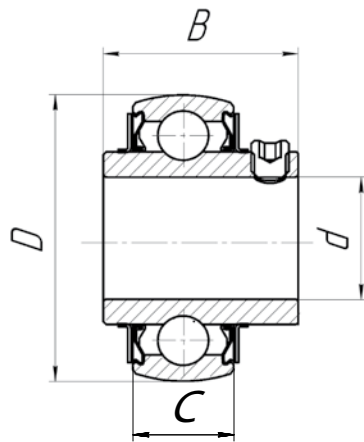
UCP – series of bearing units, which consist of the UC-series ball bearings (single row ball bearings with two X-SHIELD® sealings, with wide inner ring and spherical mounting surface of the outer ring, with locking pin on the inner ring) and P-series housings. Housing is made of SCh20 grey cast iron. UCP is one of the most common series and used in used in the various equipment and mechanisms. Main characteristic feature is the small distance between the housing center and base. Upon customer's request housings can be made of high-strength cast iron GGG 45, GGG 50.

This housing can be assembled with bearings of other types - see table on p. 16

№	Designation of HARP bearing units	Designation of FAG,KOYO,SNR, FBJ/FKL bearing units	Designation of HARP,FAG, KOYO, SNR, FBJ, FKL housings	Designation of HARP bearing	Designation of SKF/FAG, KOYO, SNR, FBJ/FKL bearing	Bearing overall dimensions, mm			
						d	D	B	C
1	P480205-UCP205	UCP205/LES205 2F	P205/S205	480205AEHK10T2C17-UC205	YAR205-2F/UC205/LE205 2F	25	52	34.1	16
2	P480206-UCP206	UCP206/LES206 2F	P206/S206	480206EHK10T2C17-UC206	YAR206-2F/UC206/LE206 2F	30	62	38.1	18
3	P480207-UCP207	UCP207/LES207 2F	P207/S207	480207EHK10T2C17-UC207	YAR207-2F/UC207/LE207 2F	35	72	42.9	21
4	P480208-UCP208	UCP208/LES208 2F	P208/S208	480208EHK10T2C17-UC208	YAR208-2F/UC208/LE208 2F	40	80	49.2	21
5	P480209-UCP209	UCP209/LES209 2F	P209/S209	480209EHK10T2C17-UC209	YAR209-2F/UC209/LE209 2F	45	85	49.2	21
6	P480210-UCP210	UCP210/LES210 2F	P210/S210	480210EHK10T2C17-UC210	YAR210-2F/UC210/LE210 2F	50	90	51.6	23




Mass, kg	Loading capacity, kN		Run-away speed, r/min. Grease type	Housings overall dimensions, mm									
m	Dynamic	Static	Plastic	L	J	A	A1	A2	e	N	B1	S	D1
0.2	14.7	7.9	8500	95	70	27	13	35.8	16	12	34.1	14.3	34
0.3	19.5	11.3	7500	108	83	31	13	40.2	18	12	38.1	15.9	40.3
0.47	25.7	15.3	6300	117	92	34	16	44.4	19	14	42.9	17	48
0.6	32.6	19.8	5000	130	102	36	16	51.2	21	16	49.2	19	53
0.66	32.8	20.5	5000	137	105	38	16	52.2	22	16	49.2	19	57.2
0.75	35.1	23.3	4800	143	111	40	17	54.6	22	16	51.6	19	61.8



Mass, kg	Loading capacity, kN		Run-away speed, r/min. Grease type	Housings overall dimensions, mm											
m	Dynamic	Static	Plastic	L	H	A	A1	J	N	N1	L1	H1	H2	B1	S
0.2	14.7	7.9	8500	140	36.5	38	26	105	13	19	42	16	70	34.1	14.3
0.3	19.5	11.3	7500	165	42.9	48	30	121	17	21	54	18	83	38.1	15.9
0.47	25.7	15.3	6300	167	47.6	48	31	127	17	21	54	19	94	42.9	17.5
0.6	32.6	19.8	5000	184	49.2	54	34	137	17	23	52	19	100	49.2	19
0.66	32.8	20.5	5000	190	54	54	37	146	17	23	60	20	108	49.2	19
0.75	35.1	23.3	4800	206	57.2	60	39	159	20	25	65	22	114	51.6	19


UCFL bearing unit

 **UCFL** – designation of bearing units with rhombic flanged housings made of SCh grey cast iron, which consist of UC-series ball bearings (single row ball bearings with two X-SHIELD® sealings, with wide inner ring and spherical mounting surface of the outer ring, with locking pin on the inner ring with locking pin on the inner ring) and FL-series rhombic flanged housings. Usually bearing units are mounted vertically, they are quite light and save space in units of equipment (e.g. conveyors). Main characteristic feature is mounting with only two bolts. Upon customer's request housings can be made of high-strength cast iron GGG 45, GGG 50.

This housing can be assembled with bearings of other types - see table on p. 16

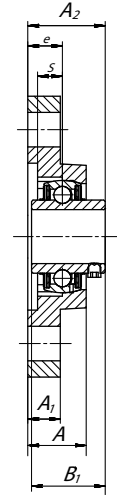
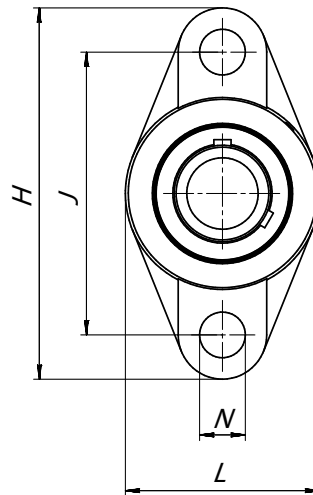
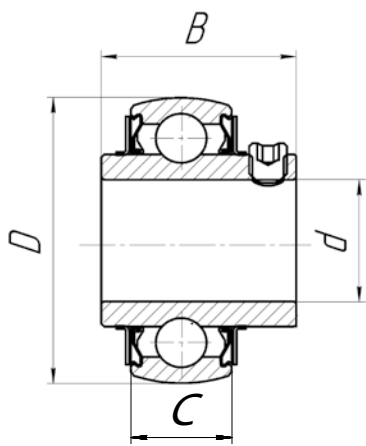
№	Designation of HARP bearing units	Designation of FAG,KOYO,SNR, FBJ/FKL bearing units	Designation of HARP,FAG, KOYO, SNR, FBJ, FKL housings	Designation of HARP bearing	Designation of SKF/FAG, KOYO, SNR, FBJ/FKL bearing	Bearing overall dimensions, mm			
						d	D	B	C
1	FL480205-UCFL205	UCFL205/LEN205 2F	FL205/N205	480205AEHK10T2C17-UC205	YAR205-2F/UC205/LE205 2F	25	52	34.1	16
2	FL480206-UCFL206	UCFL206/LEN206 2F	FL206/N206	480206EHK10T2C17-UC206	YAR206-2F/UC206/LE206 2F	30	62	38.1	18
3	FL480207-UCFL207	UCFL207/LEN207 2F	FL207/N207	480207EHK10T2C17-UC207	YAR207-2F/UC207/LE207 2F	35	72	42.9	20
4	FL480208-UCFL208	UCFL208/LEN208 2F	FL208/N208	480208EHK10T2C17-UC208	YAR208-2F/UC208/LE208 2F	40	80	49.2	21
5	FL480209-UCFL209	UCFL209/LEN209 2F	FL209/N209	480209EHK10T2C17-UC209	YAR209-2F/UC209/LE209 2F	45	85	49.2	21
6	FL480210-UCFL210	UCFL210/LEN210 2F	FL210/N210	480210EHK10T2C17-UC210	YAR210-2F/UC210/LE210 2F	50	90	51.6	23

UCT bearing unit

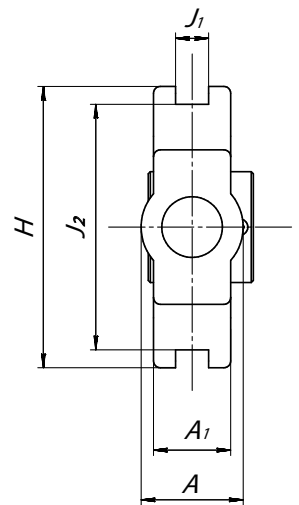
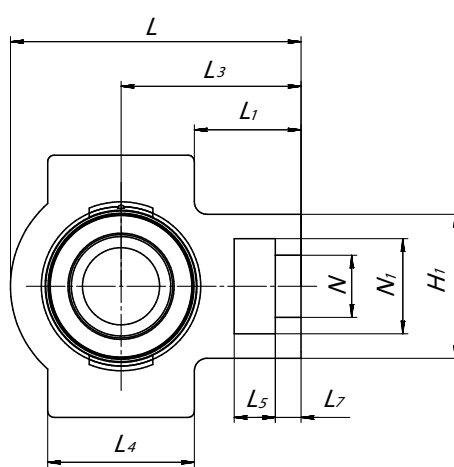
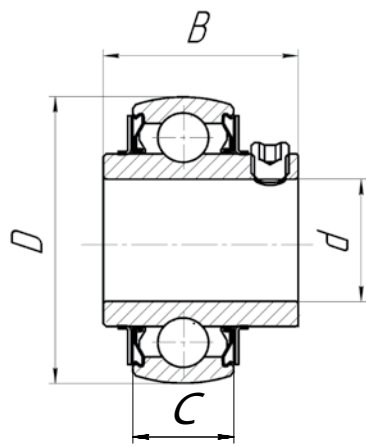
 **UCT** – designation of bearing units, which consist of UC-series ball bearings (single row ball bearings with two X-SHIELD® sealings, with wide inner ring and spherical mounting surface of the outer ring, with locking pin on the inner ring) and cast iron housings of T-series with the rectangular bore that allows moving of the unit in radial direction and changing of the seat angle (bearing support). This innovative design has found application primarily in various belt conveyors. Upon customer's request housings can be made of high-strength cast iron GGG 45, GGG 50.

This housing can be assembled with bearings of other types - see table on p. 16

№	Designation of HARP bearing units	Designation of FAG,KOYO,SNR, FBJ/FKL bearing units	Designation of HARP,FAG, KOYO, SNR, FBJ, FKL housings	Designation of HARP bearing	Designation of SKF/FAG, KOYO, SNR, FBJ/FKL bearing	Bearing overall dimensions, mm			
						d	D	B	C
1	T480205-UCT205	UCT205/LET205 2F	T205	480205AEHK10T2C17-UC205	YAR205-2F/UC205/LE205 2F	25	52	34.1	16
2	T480206-UCT206	UCT206/LET206 2F	T206	480206EHK10T2C17-UC206	YAR206-2F/UC206/LE206 2F	30	62	38.1	18
3	T480207-UCT207	UCT207/LET207 2F	T207	480207EHK10T2C17-UC207	YAR207-2F/UC207/LE207 2F	35	72	42.9	20
4	T480208-UCT208	UCT208/LET208 2F	T208	480208EHK10T2C17-UC208	YAR208-2F/UC208/LE208 2F	40	80	49.2	21
5	T480209-UCT209	UCT209/LET209 2F	T209	480209EHK10T2C17-UC209	YAR209-2F/UC209/LE209 2F	45	85	49.2	21
6	T480210-UCT210	UCT210/LET210 2F	T210	480210EHK10T2C17-UC210	YAR210-2F/UC210/LE210 2F	50	90	51.6	23



Mass, kg	Loading capacity, kN		Run-away speed, r/min. Grease type	Housings overall dimensions, mm									
m	Dynamic	Static	Plastic	L	H	J	A	A1	A2	e	N	B1	S
0.2	14.7	7.9	8500	68	130	99	27	13	35.8	16	16	34.1	14.3
0.3	19.5	11.3	7500	80	148	117	31	13	40.2	18	16	38.1	15.9
0.47	25.7	15.3	6300	90	161	130	34	14	44.4	19	16	42.9	17.5
0.6	32.6	19.8	5000	100	175	144	36	14	51.2	21	16	49.2	19
0.66	32.8	20.5	5000	108	188	148	38	16	52.2	22	19	49.2	19
0.75	35.1	23.3	4800	115	197	157	40	16	54.6	22	19	51.6	19



	Mass, kg	Loading capacity, kN		Run-away speed, r/min. Grease type	Housings overall dimensions, mm													
	m	Dynamic	Static	Plastic	L	H	J1	J2	A	A1	L1	L2	L3	L4	L5	H1	N	N1
	0.2	14.7	7.9	8500	97	89	12	76	32	24	36.5	10	62	51	16	51	19	32
	0.3	19.5	11.3	7500	113	102	12	89	37	28	41.5	10	70	57	16	56	22	37
	0.47	25.7	15.3	6300	129	102	12	89	37	30	46	13	78	64	16	64	22	37
	0.6	32.6	19.8	5000	144	114	16	102	49	33	46.5	16	88	83	19	83	29	49
	0.66	32.8	20.5	5000	144	117	16	102	49	35	45.5	16	87	83	19	83	29	49
	0.75	35.1	23.3	4800	149	117	16	102	49	37	47	16	90	86	19	83	29	49

UCFC bearing unit

UCFC – designation of bearing units with round housing made of made of SCh20 grey cast iron, which consist of UC-series ball bearings (single row radial ball bearings with two X-SHIELD® seals, with wide inner ring and spherical mounting surface of the outer ring, with locking pin on the inner ring) and FC-series round flanged housings. The unit can be mounted by fitting in the mounting hole. It is used in rotating shafts, drums. Upon customer's request housings can be made og high-strength cast iron GGG 45, GGG 50.

This housing can be assembled with bearings of other types - see table on p. 16

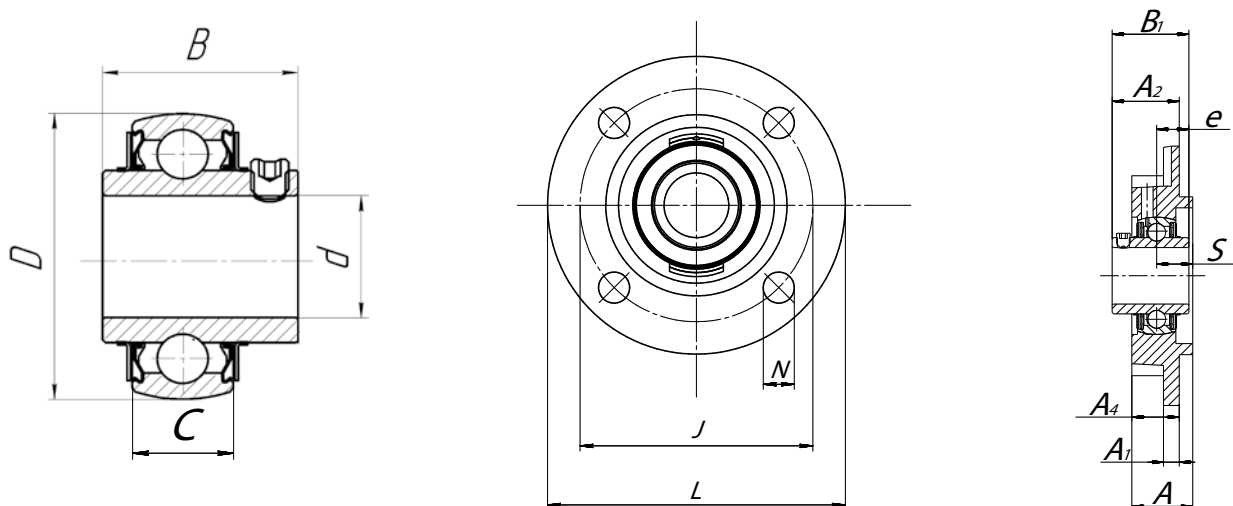
№	Designation of HARP bearing units	Designation of FAG,KOYO,SNR, FBJ/FKL bearing units	Designation of HARP,FAG, KOYO, SNR, FBJ, FKL housings	Designation of HARP bearing	Designation of SKF/FAG, KOYO, SNR, FBJ/FKL bearing	Bearing overall dimensions, mm			
						d	D	B	C
1	FC480205-UCFC205	UCFC205/LEG205 2F	FC205/G205	480205AEHK10T2C17-UC205	YAR205-2F/UC205/LE205 2F	25	52	34.1	16
2	FC480206-UCFC206	UCFC206/LEG206 2F	FC206/G206	480206EHK10T2C17-UC206	YAR206-2F/UC206/LE206 2F	30	62	38.1	18
3	FC480207-UCFC207	UCFC207/LEG207 2F	FC207/G207	480207EHK10T2C17-UC207	YAR207-2F/UC207/LE207 2F	35	72	42.9	20
4	FC480208-UCFC208	UCFC208/LEG208 2F	FC208/G208	480208EHK10T2C17-UC208	YAR208-2F/UC208/LE208 2F	40	80	49.2	21
5	FC480209-UCFC209	UCFC209/LEG209 2F	FC209/G209	480209EHK10T2C17-UC209	YAR209-2F/UC209/LE209 2F	45	85	49.2	21
6	FC480210-UCFC210	UCFC210/LEG210 2F	FC210/G210	480210EHK10T2C17-UC210	YAR210-2F/UC210/LE210 2F	50	90	51.6	23

UCFA bearing unit

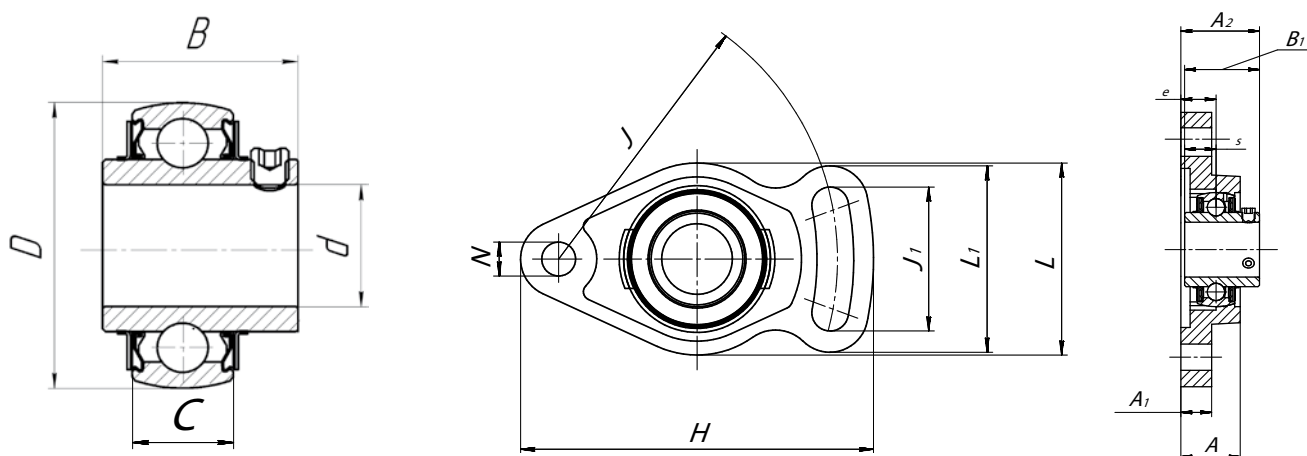
UCFA – designation of rhombic shaped bearing units made of SCh20 grey cast iron, which consist of UC-series ball bearings (single row radial ball bearings with two X-SHIELD® seals, with wide inner ring and spherical mounting surface of the outer ring, with locking pin on the inner ring) and FA-series rhombic flanged housings. From one side they are mounted with bolt, and from other side with special fitting, which allows to adjust the load angle relative to the shaft center. Upon customer's request housings can be made og high-strength cast iron GGG 45, GGG 50.

This housing can be assembled with bearings of other types - see table on p. 16

№	Designation of HARP bearing units	Designation of FAG,KOYO,SNR, FBJ/FKL bearing units	Designation of HARP,FAG, KOYO, SNR, FBJ, FKL housings	Designation of HARP bearing	Designation of SKF/ FAG, KOYO, SNR, FBJ/ FKL bearing	Bearing overall dimensions, mm			
						d	D	B	C
1	FA480205-UCFA205	UCFA205	FA205	480205AEHK10T2C17-UC205	YAR205-2F/UC205	25	52	34.1	16
2	FA480206-UCFA206	UCFA206	FA206	480206EHK10T2C17-UC206	YAR206-2F/UC206	30	62	38.1	18
3	FA480207-UCFA207	UCFA207	FA207	480207EHK10T2C17-UC207	YAR207-2F/UC207	35	72	42.9	20
4	FA480208-UCFA208	UCFA208	FA208	480208EHK10T2C17-UC208	YAR208-2F/UC208	40	80	49.2	21
5	FA480209-UCFA209	UCFA209	FA209	480209EHK10T2C17-UC209	YAR209-2F/UC209	45	85	49.2	21
6	FA480210-UCFA210	UCFA210	FA210	480210EHK10T2C17-UC210	YAR210-2F/UC210	50	90	51.6	23



Mass, kg	Loading capacity, kN		Run-away speed, r/min. Grease type	Housings overall dimensions, mm											
	Dynamic	Static		L	J	A	A1	A2	A4	H3	e	N	B1	s	D1
0.2	14.7	7.9	8500	115	90	27	7	29.7	21	70	10	12	34.1	14.3	34
0.3	19.5	11.3	7500	125	100	31	8	32.2	23	80	10	12	38.1	15.9	40.3
0.47	25.7	15.3	6300	135	110	34	9	36.4	26	90	11	14	42.9	17.5	48
0.6	32.6	19.8	5000	145	120	36	9	41.2	26	100	11	14	49.2	19	53
0.66	32.8	20.5	5000	160	132	38	10	40.2	26	105	10	16	49.2	19	57.2
0.75	35.1	23.3	4800	165	138	40	14	42.6	28	110	10	16	51.6	19	61.8



Mass, kg	Loading capacity, kN		Run-away speed, r/min. Grease type	Housings overall dimensions, mm											
	Dynamic	Static		L	J	A	A1	A2	A4	H3	e	N	B1	s	D1
0.2	14.7	7.9	8500	68	125	98	51	27	14	35.7	65	16	12	34.1	14.3
0.3	19.5	11.3	7500	80	144	117	58	31	14	40.2	72	18	12	38.1	15.9
0.47	25.7	15.3	6300	90	161	130	66	34	16	44.4	82	19	15	42.9	17.5
0.6	32.6	19.8	5000	100	175	144	71	36	16	51.2	87	21	15	49.2	19
0.66	32.8	20.5	5000	108	181	148	72	38	18	52.2	90	22	15	49.2	19
0.75	35.1	23.3	4800	115	190	157	76	40	18	54.6	94	22	15	51.6	19

HARP AGRO UNIT

Bearing Units

Tillage agricultural machinery works in severe operating conditions: in a hostile environment, including dust, dirt, moisture, sometimes chemically active fertilizers and protective means; with intense combined force impacts, including significant static loads, deformations, impact temperature loads, random overloads of obstacles.

Therefore, bearing units for combine harvesters, tractors and, especially, tillage machines, in comparison with other stationary operating machines should have a higher reliability and tightness.

HARP AGRO UNIT – solid, maintenance-free (and completely repairable) bearing unit, optimized for using in tillage equipment.

HARP AGRO UNIT is distinguished with:

- Increased service life (more than 120000 ha)
- Superreliable bearing three-level protection
- Cartridge bearing, which is filled with high-quality grease and doesn't require additional lubrication for the entire life cycle
- Possibility of restoration, including the replacement of the bearing without housing replacement in an ordinary workshop
- Fast assembly and disassembly (which maximally minimizes downtime of equipment)
- Trouble-free operation during long term

All of this increase durability and ensure long-term high-quality work of the unit and ultimately reduce the LCC (life cycle cost).

Application:

HARP AGRO UNIT is used with discs of different diameters in a wide range of tillage agricultural machinery: cultivators and harrows, sowing complexes and much more.

Fully compatible with common range of technique:



Turnkey solution for manufacturers and users of disc harrows

Despite the seeming simplicity of HARP AGRO UNIT, manufacturers shall have at least three important competencies and relevant technological resources to develop and manufacture such kind of bearing unit on high technical level:

The UPEC Industrial Group has all these competencies. Production process involves: the largest forging company in Ukraine and the CIS - Lozova Forging-Mechanical Plant (LKMZ), the leader in bearing industry of Ukraine - Kharkov Bearing Plant (HARP), Joint Engineering Center with R&D center and Ukrainian Bearing Industry Design and Technology Bureau (UKTBPP).

bearing competencies in order to develop an optimal design of the bearing, ensure the interchangeability, reliability and durability of all the components

**HARP
AGRO
UNIT**

knowledge, experience and modern equipment for stamping and heat treatment in order to ensure high-quality of forged housings

extensive experience in proper selection, application and operation of various seals and lubricants, including special ones

Products are successfully tested in real operation conditions.



Constructive advantages of HARP AGRO UNIT:

1

Easy adjustment and mounting on any tillage equipment

Mounting of HARP AGRO UNIT is quite easy. It can be performed even in the field conditions. Disc is fixed to the unit by several bolts. High quality of the flange steel ensures protection of the thread even after multiple replacement of discs

2

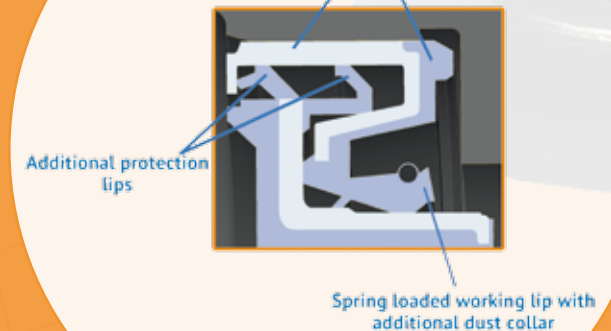
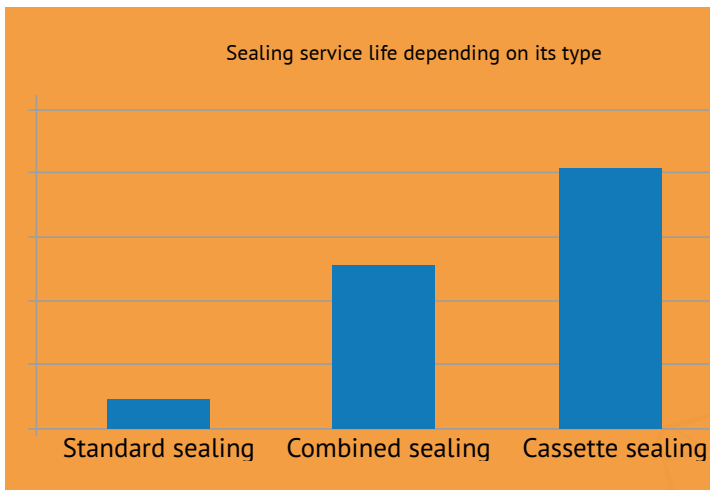
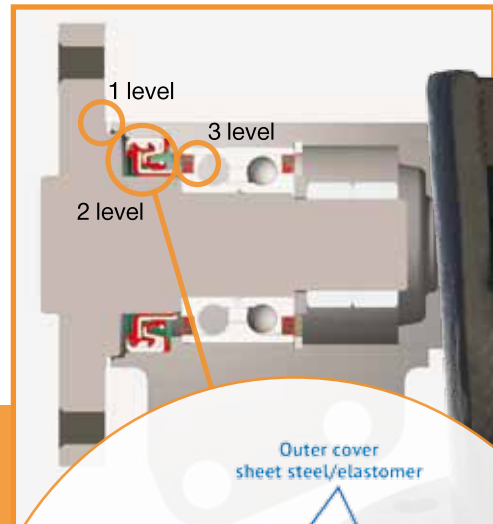
Superreliable bearing three-level protection

HARP AGRO UNIT has three-level protection of the bearing:

1 level – “Labyrinth cutter” – prevents high pressure of the soil on the sealing and protects unit from mechanical damages.

2 level – “Cassette sealing” from the world leader **Freudenberg Sealing Technologies (Simrit)**, filled with **Klüber** grease with multi-lip elastomeric element which provides reliable protection of unit from moisture and mechanical impurities from the external environment.

3 level – “Lip sealing” – additional sealing, integrated in the bearing and enhanced for application in agricultural machines.



Such complex of seals provides reliable protection against all types of dirt: dust, dirt, moisture, snow, fertilizers, grass, stones, etc.

3

Reliable bearing

The unit is assembled with HARP bearing - one of the most reliable bearings, which quality is proven by long-term application in heavy-loaded machines. Bearing rings are hot-forged, which significantly increases bearing durability. Bearing is preloaded, which provides additional rigidity of the whole unit. Bearing does not require additional lubrication for the entire life cycle. In some models of HARP AGRO UNIT there is used one of the best hub bearing (6-256907AEK12L19) with service life of over 6 000 m.h. Bearing 6-256907AEK12L19 is used in all units described in this catalogue.

4

High-quality greasing

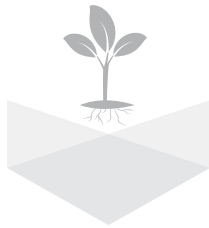
There are three types of grease, each one is adapted to its friction pair with optimal compromise between the requirements to wear resistance on the one hand, and reduction of the hydraulic and mechanical losses – on the other hand. The bearing is filled with Chevron grease, cassette sealing with Klüber Lubrication grease, and the unit is filled with Litol grease. The requirements of chemical friendliness of greases and elastomers/rubbers are sustained.

5 Massive forged housing

Well-established technologies of forging and heat treatment significantly increase the wear resistance of rubbing metal layers, provide high durability and reliability of the unit under any operation conditions.

6 Possibility of unit restoration and bearing replacement

A distinctive feature is the possibility of bearing replacement at any time with no need to replace the housing. The worn bearing can be replaced in an ordinary workshop, and the unit is ready for operation again.



Environment protection

Bearing unit doesn't require relubrication which allows to reduce grease consumption due to the unique seals design, and prevent «release» of the grease into soil during opeartion.



Benefits for manufacturers of agricultural machinery

HARP AGRO UNIT is a cost effective solution. Increased reliability allows us to provide longer warranty for the final products. Starting price is lower than for import ones with same technical level, and life-cycle costs (including low cost of ultra reliable exploitation, and, relatively, duration of the life cycle) are considerably lower than for the dismountable and relubricated units.



Benefits for owners of agricultural machinery

Application of HARP AGRO UNIT will reduce your costs by 30%.

Load capacity:

- Static 27.8 kN
- Dynamic 40 kN



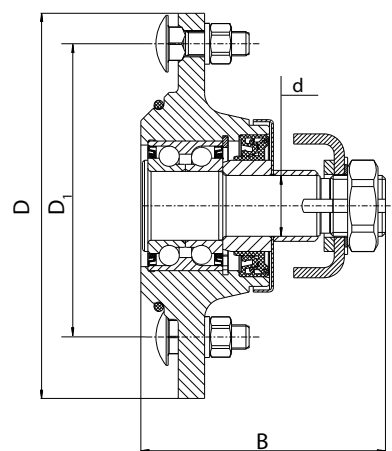
HARP AGRO UNIT

Designation of bearing units for disc harrows 8395.TN-DDD.LL.CEE.555:

T – basic applicability of bearing unit (H - disc harrow, S - seed drill);
N – number of disc mounting bolts;
DDD (DD) – diameter of disc mounting bolts location, mm;
LL – height of bearing unit from the disc mounting plane to the block in tine plane, mm;
C – conditional characteristic of mounting and fixing the bearing unit on the tine/coulter (w- with welding of fasteners; l – with fixing by lockpatch against rotation; s – with fixing by dowel against rotation; f – fitting on smooth surface with the original fixation against rotation; d – smooth inner bore; M – external metric thread; unc- outer inch thread);
EE – diameter of mounting surface of bearing unit on the tine/coulter, mm;
555 – three-digit bearing unit code.

Hub assembly 8395.H5-160.47.f35.011

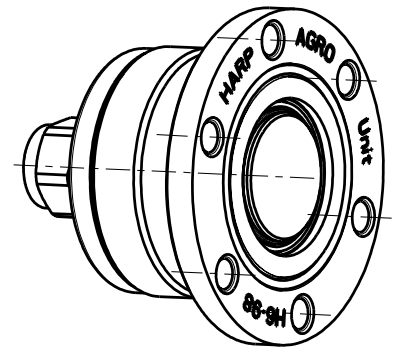
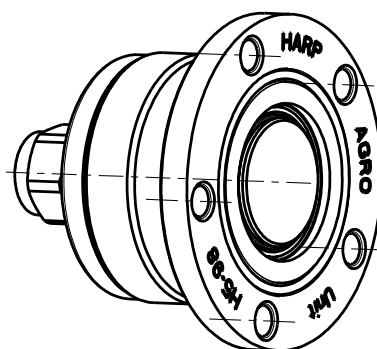
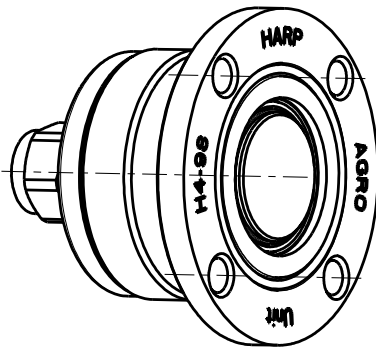
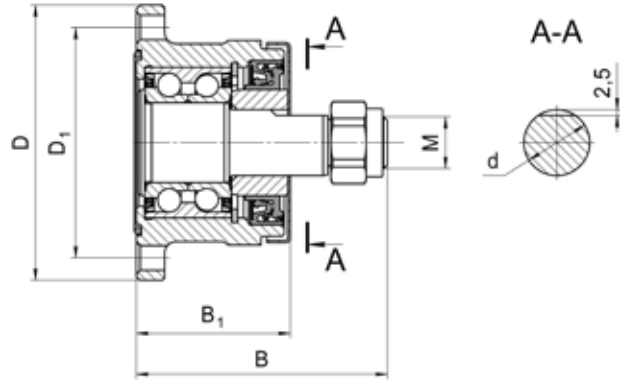
For disc harrow Lemken Rubin 9



Reference designation		Overall dimensions, mm					Weight, kg	Load rate, kN	
Designation	Possible marking	d	D	D ₁	B	Bores	m	Dynamic	Static
8395.H5-160.47.f35.011	Lemken: 5554502/03 FKL: PL-185-V30	35	190	160	120	5/M12x1,25	6,3	40	27,8

Bearing unit 8395.H4-98.65.l28.014; 8395.H4-98.80.l28.014

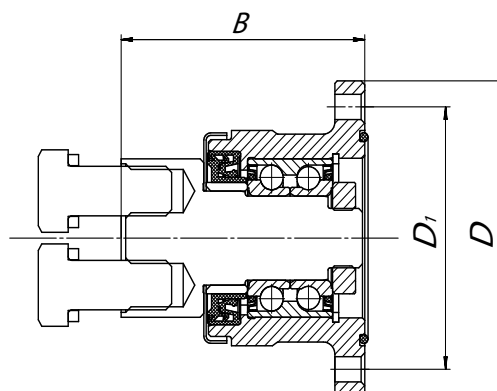
For agricultural machinery: Great Plains, Quivogne, Agrisem, Einböck, Gregoire Besson, Köckerling, Rabe, Vogel&Noot, Farnet, Bednar.



Reference designation		Overall dimensions, mm							Weight, kg	Load rate, kN	
Designation	Possible marking	d	M	D	D ₁	B	B ₁	Bores	m	Dynamic	Static
8395.H4-98.65.l28.014	SKF: BAA-0004 FKL: IL2-117-M22-D	28	M22x1,5	117	98	106,5	65,5	4/M12x1,25	3,02	40	27,8
8395.H5-98.65.l28.014	SKF: BAA-0012 FKL: IL2-117-M22-G	28	M22x1,5	117	98	106,5	65,5	5/M12x1,25	3,02	40	27,8
8395.H6-98.65.l28.014	SKF: BAA-0006 FKL: IL2-117-M22-I	28	M22x1,5	117	98	106,5	65,5	6/M12x1,25	3,01	40	27,8
8395.H4-98.80.l28.014	FKL: IL-117-M22	28	M22x1,5	117	98	121,5	80	4/M12x1,25	3,2	40	27,8
8395.H5-98.80.l28.014		28	M22x1,5	117	98	121,5	80	5/M12x1,25	3,2	40	27,8
8395.H6-98.80.l28.014		28	M22x1,5	117	98	121,5	80	6/M12x1,25	3,2	40	27,8

Bearing unit 8395.H5-106.106.f55.015

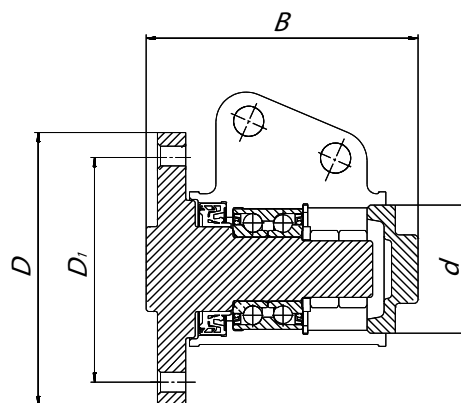
For compact disc harrows Horsch Joker



Reference designation	Overall dimensions, mm				Weight, kg	Load rate, kN	
Designation	D	D ₁	B	Bores	m	Dynamic	Static
8395.H5-106.106.f55.014	127	106	106	5/M12x1,5	4,3	40	27,8

Bearing unit 8395.DLM-4.05.015

For compact disc harrows DUCAT (LOZOVA MACHINERY)



Reference designation		Overall dimensions, mm				Weight, kg	Load rate, kN	
Designation	d	D	D ₁	B	Bores	m	Dynamic	Static
8395.ДЛМ-4.05.015	80	145	120	144	6/M12x1,5	6,0/4,9	40	27,8



HARP AGRO UNIT

Bearing units HARP AGRO UNIT for agricultural machinery

Nº	Designation	Application	Disc fastening nxD, mm	Tine fastening, mm	Appearance (3D model)
1	8395.ДЛМ 4.05.015	DUCAT compact disc harrows (LOZOVA MACHINERY)	6 bores M12x1,5/Ø120	2 bores M16x1,5 / 50	
2	8395.ДЛМ 4.05.015-01	ZLATNIK seed drill (LOZOVA MACHINERY)	6 bores M6x0,75/Ø120	2 bores M16x1,5 / 50	
3	8395.H6 160.47.f35. xxx*	Compact disc harrows Lemken Rubin 9	6 bolts M14x1,5/Ø160	axle Ø35, nut M30x2	
4	8395.H6 160.47.f40. xxx*	DUCAT-GOLD compact disc harrows (LOZOVA MACHINERY)	6 bolts M14x1,5/Ø160	axle Ø40, nut M36x1,5	
5	8395.H3 97.111.f60. xxx*	Seeding machines Horsch Express TD	3 bores M12x1,25/Ø98	1 bolt M20 / 45	
6	8395.H3 97.130.f56. xxx*	Cultivators Horsch Terrano, Tiger	3 bores M12x1,25/Ø98	2 bolts M16x1,5 / 38	
7	8395.H5 106.106.f64. xxx*	Compact disc harrows Horsch Jocker CT	Compact disc harrows Horsch Jocker CT	2 bolts M20 / 38	
8	8395.H4 98.d30. xxx*	Compact disc harrows Väderstad Carrier	4 bores M12x1,25/Ø98	bores Ø30	
9	8395.H6 98.60.l28b. xxx*	Compact disc harrows Bednar Swifterdisc	6 bores M12x1,25/Ø98	axle Ø28, nut M22x1,5	
10	8395.H4 98.65.l28. xxx*	Compact disc harrows analogue SKF Agrihub BAA 0004	4 bores M12x1,25/Ø98	axle Ø28, nut M22x1,5	

xxx* - the unit is available in various configurations: without fasteners, with a certain type of fastening to the tine or disc.

Nº	Designation	Application	Disc fastening nxD, mm	Tine fastening, mm	Appearance (3D model)
11	8395.H5 98.65.l28. xxx*	Compact disc harrows analogue SKF Agrihub BAA 0012	5 bores M12x1,25/Ø98	axle Ø28, nut M22x1,5	
12	8395.H6 98.65.l28. xxx*	Compact disc harrows analogue SKF Agrihub BAA 0006	6 bores M12x1,25/Ø98	axle Ø28, nut M22x1,5	
13	8395. H4 98.69.s35. xxx*	Compact disc harrows; cultivating and seeding machines Bobruisksel- mash АПД/АПН; АППА	4 bores M12x1,5/Ø98	axle Ø35, nut M22x1,5	
14	8395.H4 98.80.l28. xxx*	Compact disc harrows analogue FKL IL 117 M22	4 bores M12x1,25/Ø98	axle Ø28, nut M22x1,5	
15	8395.H5 98.80.l28. xxx*		5 bores M12x1,25/Ø98	axle Ø28, nut M22x1,5	
16	8395.H6 98.80.l28. xxx*		6 bores M12x1,25/Ø98	axle Ø28, nut M22x1,5	
17	8395.H5 112.66.f30. xxx*	Compact disc harrows Hatzenbichler Disko with a tine of LOZOVA MACHINERY	5 bores M12x1,25/Ø112	axle Ø30, nut M30x2	
18	8395.H5 112.83.f40. xxx*	Compact disc harrows Multiva DiscMaster	5 bores M12x1,5/Ø112	axle Ø40 for welding	
19	8395.H5 116.80.l30. xxx*	Compact disc harrows Bomet U800 (AUS)	5 bores M12x1,25/Ø116	nut M22x1,5	

xxx* - the unit is available in various configurations: without fasteners, with a certain type of fastening to the tine or disc.

Nº	Designation	Application	Disc fastening nxØ, mm	Tine fastening, mm	Appearance (3D model)
20	8395.H6 120.62.l30. xxx*	Compact disc harrows	6 bores Ø13/Ø120	axle Ø30, nut M24x2	
21	8395.H6 120.76.l30. xxx*	Compact disc harrows Bomet U200 (BK)	6 bores M12x1,25/Ø120	nut M22x1,5	
22	8395.H6 98.80.l28. xxx*	Welded unit for disc harrows with housing fastening	6 bores M12x1,5/Ø120	for welding Ø80	
23	8395.S6-76.d19. xxx*	Seeding machines Sunflower 9000	6 bores Ø8,3/Ø76,2	bores Ø19,2	
24	8395.S6 76.unc3/4". xxx*	Seeding machines Salford	6 bores UNC5/16"/ Ø76,2	bolt UNC 3/4"	
25	8395.S6 76.M20. xxx*		6 bores UNC5/16"/ Ø76,2	bolt M20x2,5LH	
26	8395.S6 76.unc3/4". xxx*		6 bores UNC5/16"/ Ø76,2	bolt UNC 3/4"	
27	8395.S6 76.M20. xxx*		6 bores UNC5/16"/ Ø76,2	bolt M20x2,5LH	
28	8395.S5-92.d16. xxx*	Seeding machines Elvorti (Chervona Zirka) SZ	5 bores Ø6,6/Ø92	bores Ø16	

xxx* - the unit is available in various configurations: without fasteners, with a certain type of fastening to the tine or disc.



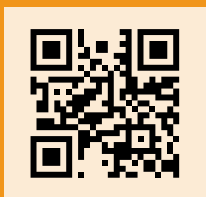
UPEC Industrial Group
Automotive Division

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HARP