Link-Belt® Klean-Gard Bearing Units

INSTALLATION INSTRUCTIONS KLFBSS200, KLFSS200, KLFXSS200, & KLPSS200 Series

Bearing Mounting Procedure

WARNING: These instructions should be read entirely and followed carefully before attempting to install or remove Link-Belt Ball bearings. Failure to do so can result in improper installation which could cause bearing performance problems as well as serious personal injury.

ALL UNITS

1. Inspect shaft size. The recommended shaft tolerance is nominal to minus (-) 0.0005". Shaft must be to correct size. Clean shaft and mounting surface as needed.
2. Coat the shaft and bearing bore with grease or oil to facilitate assembly.
3. Position bearings on the shaft, applying all driving pressure to the face of the inner ring. Do NOT strike or exert pressure on housing or seals.
4. Where shimming is required – use full shims across the housing base – not just at the bolt holes. Position and loosely bolt housing to mounting base. SAE Grade 2 mounting bolts are recommended.
5. Establish the final shaft position. Align bearings by hand or rubber mallet if required. Securely bolt units to the mounting structure by correctly torquing the bolts to the proper value listed in TABLE 2 below.
6. *Lock bearings to the shaft.* Tighten the set screws on the bearing to the proper tightening torque which can be found in the SET SCREW TORQUE TABLE below. Alternate torquing the screws to prevent unequal loading. See comment 7 in Additional Installation Comments.
7. *Installing Orange Safety Cap* – With the rubber O-ring placed inside the cap, press cap onto set screw side of housing. Cap will snap on.

NOTE: All units come with an orange plastic pipe plug in box. If lube for life bearing is required, removed the grease fitting in the housing and replace with plastic pipe plug.

Table 1) Inner Ring Setscrew Tightening Torque Values

RECOMMENDED SET SCREW TIGHTENING TORQUE			
Set Screw Size in.	**Series**	**Shaft Size (in.)**	**Set Screw Seating Torque (Inch- Pounds)**
1/4	212 – 2E20	3/4 – 1 1/4	87 – 92
5/16	220 – 224	1 1/4 – 1 1/2	165 – 185

Table 2)Housing Mounting Bolt Size & Torque Values

HOUSING BOLT RECOMMENDATIONS				
Shaft size in (mm)	**Flange Housings**		**Pillow Block Housings**	
	Bolt Size (in)	**Tightening Torque (lb-ft)**	**Bolt Size (in)**	**Tightening Torque (lb-ft)**
3/4" 20mm	3/8	20	3/8	20
1" 25mm	3/8	30	3/8	20
1 3/16", 1 1/4" 30mm	3/8	30	1/2	50
1 1/4", 1 3/8", 1 7/16" 35mm	3/8	30	1/2	50
1 1/2" 40mm	3/8	30	1/2	50

ADDITIONAL INSTALLATION COMMENTS

1. Position housings for accessibility of grease fittings.
2. Spot drill or mill flats on shaft for increased holding power of set screws or ease of removal.
3. When an eccentric load condition exists, position set screws directly opposite from eccentric weight.
4. Shaft shoulders are recommended to support vertical shafts and high thrust loads. The shoulder diameter should not exceed the outside diameter of the inner ring.
5. When pillow blocks are mounted on an inclined plane or the work force is parallel with the base, either lateral bolts or welded stop blocks should be used to prevent shifting.
6. Avoid direct hammer blows to the bearing and its components by using a soft drift or block.
7. If an Allen wrench is used as a torque wrench, place a length of pipe over the long end and pull until the wrench begins to twist.

LUBRICATION INFORMATION

Standard bearings come pre-lubricated from the factory with Mobil FM 222 grease. Mobil FM 222 is a NLGI Grade 2 grease with an aluminum complex thickener. It can be used a wide range of speed, loads, and temperatures ranging from freezers to ovens. For high speeds, other special service conditions, or for inquires on other acceptable greases, please consult your local Rexnord representative or the Rexnord Bearing Engineering Department. Oil lubrication is not recommended.

RELUBRICATION

Bearings should be re-lubricated at regular intervals. The frequency and amount of lubricant will be determined by the type of service. General guidelines for re-lubrication frequency and amount are based upon average application conditions. See LUBRICATION TABLE on page 2. Oil lubrication is not recommended.

At high temperatures, greases tend to degrade more rapidly and thus require fresh grease more frequently. In general, small amounts of grease added frequently provide better lubrication. When equipment will not be in operation for some time, grease should be added to provide corrosion protection. This is particularly important for equipment exposed to severe weather.

AUTOMATIC LUBRICATION SYSTEMS

A variety of automatic re-lubrication systems are available for use with ball bearings. Key considerations are:

1. NLGI grade of grease used, consistent with system layout
2. An amount/frequency combination necessary to replenish the grease

MIXING OF GREASES

Mixing of any 2 greases should be checked with the lubricant manufacturer. If the grease bases are different they should never be mixed.

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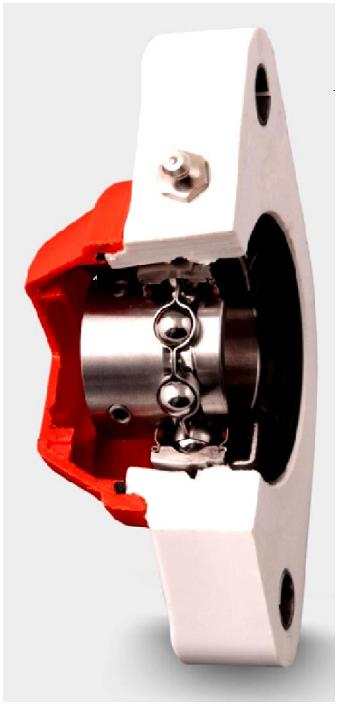
Table 3) Lubrication Information

LUBRICATION TABLE – Trough End Ball Bearings			
Operating Conditions		**Bearing Operating Temperature**	**Greasing Interval (1)**
Dirt Exposure	*Moisture Exposure*		
Slight	None	32°F to 120°F 120°F to 160°F	6 months 2-4 months
Moderate to Heavy		32°F to 160°F	1-4 weeks
Slight to Heavy	Direct water splash or exposure to outdoor environment	32°F to 160°F	Daily to 1 week or as determined by inspection of installation
Slight	None	-5°F to 32°F	Determined by inspection of installation

(1) Frequency of regreasing will vary, depending on the hours of operation, temperatures and surrounding conditions

Table 4) Relubrication Amount

RECOMMENDED LUBRUCATION AMOUNTS		
Shaft Size	**Volume Cubic In.**	**Volume Ounces**
3/4” 20mm	.12	.06
1” 25mm	.12	.06
1 3/16”, 1 1/4” 30mm	.30	.15
1 1/4”, 1 3/8”, 1 7/16” 35mm	.30	.15
1 1/2” 40mm	.45	.23



TECHNICAL INFORMATION

Components

- Reinforced Polypropylene Housing.
- AISI 440 Stainless Steel Bearing.
- AISI 304 Seal, Retainer and Set Screws.
- Standard Nitrile Rubber Seals. Viton available upon request.
- Rust Resistant Grease Fitting.
- Plastic pipe plug.
- Orange Safety Caps available upon request.

Self-Alignment

Maximum misalignment between housing and shaft: ± 2°.

Continuous Operating Temperatures

Bearing units can withstand temperatures in the range of -5°F to +160°F. At the maximum temperature, the housing still maintains a high dimensional stability.

Table 5) Cap and Seal Part Numbers

KLEAN-GARD ASSCESSORY KIT PART NUMBERS				
Shaft Size	**Basic Unit #**	**DC – Closed Cap w/ O-ring**	**D – Open Cap w/ Seal and O-Ring***	**Rear Auxiliary Seal ***
3/4”	212	K2126	K2126D	K212E
20mm	2M20	K2126	K2M206D	K2M20E
1”	216	K2166	K2166D	K216E
25mm	2M25	K2166	K2M256D	K2M25E
1 3/16”	219	K2196	K2196D	K219E
1 1/4”	2E20	K2196	K2E206D	K2E20E
30mm	2M30	K2196	K2M306D	K2M30E
1 1/4”	220	K2236	K2206D	K220E
1 3/8”	222	K2236	K2226D	K222E
1 7/16”	223	K2236	K2236D	K223E
35mm	2M35	K2236	K2M356D	K2M35E
1 1/2”	224	K2256	K2246D	K224E
40mm	2M40	K2256	K2M406D	K2M40E

***** For open cap kit (D) or Rear Auxiliary seal in Viton material, add an “L” after the “K”. Example: KL2166D and KL216E.

Table 6) Bearing Load Ratings

RECOMMENDED LOAD RATINGS		
Size Code	**Bearing Load Ratings**	
	Dynamic C	**Static Co**
204	1960 lb 8730 N	1480 lb 6590 N
205	2130 lb 9500 N	1760 lb 7830 N
206	2970 lb 13190 N	2530 lb 11300 N
207	3900 lb 17340 N	3340 lb 15300 N
208	4430 lb 19710 N	4460 lb 19900 N

Table 7) RESISTANCE TO CHEMICAL AGENTS

	Polypropylene Housing			Rubber						Stainless Steel					
				Standard Nitrile Seal			Optional Viton Seal			AISI 304			AISI 440		
Chemical Agent	*Note*	*Conc. %*	*23°C*	*Note*	*Conc. %*	*23°C*	*Note*	*Conc. %*	*23°C*	*Note*	*Conc. %*	*23°C*	*Note*	*Conc. %*	*23°C*
Acetic Acid		40	A			D		20	D		20	B		25	A
Acetone			A			D			D		25	A			B
Aluminum Chloride				Sol.		A	Sol.	Sat.	A		20	D		20	D
Ammonia		30	A	Sol.		C	Sol.		C		100	A		100	A
Ammonium Chloride				Sol.		A	Sol.	Sat.	A			A			A
Amyl Alcohol			A						A			A			A
Beer			A			A			A			A			A
Benzoic Acid		Sat.	A	Sol.		A	Sol.		A		100	A			A
Benzol			C			D			C			A			
Boric Acid		Sat.	A	Sol.		A	Sol.	Sat.	A		Sat.	A		Sat.	A
Butter			A			A			A			B			
Butyl Alcohol			A			C			A						A
Calcium Chloride	Sol.	50	A	Sol.		A	Sol.	Sat.	A			A			C
Carbon Sulphide			A			D			A			A			
Carbon Tetrachloride			D			D			A			B			A
Chloroform			C			D			A			A			A
Citric Acid		10	A	Sol.		A		Sat.	A		25	A			A
Copper Sulphate				Sol.		A	Sol.	Sat.	A		100	A			
Distilled Water			A												
Ethyl Acetate			A			D			D			A			A
Ethyl Alcohol		96	A			C			A						A
Ethyl Chloride			D									A			A
Ethyl Ether			A						D						
Ferric Chloride			A	Sol.		A	Sol.	Sat.	A			D			D
Food Oils and Fats			A			A			A						
Formaldehyde	Sol.	40	A					40	A						A
Freon 12						A			C						A
Gasoline			C			C			A			A			A
Glycerine			A			A			A			A			A
Hydrochloric Acid	Sol.	30	A	Sol.	10	C	Sol.	37	A			D		75	D
Hydrofluoric Acid		40	A		65	D		48	A		20	D		20	D
Hydrogen peroxide		30	A	Sol.	80	D		90	A		10	C			
Lactic Acid	Sol.	20	A	Sol.		A			A			A			C
Linseed Oil			A			A			A						A
Magnesium Chloride	Sol.	Sat.	A	Sol.		A	Sol.	Sat.	A			B			A
Mercury						A			A			A			A
Methyl Alcohol			A			C			C						A
Methylene Chloride			C			D			C			B			
Milk			A			A			A			A			A
Mineral Oil			A			A			A			A			A
Nitric Acid	Sol.		A	Sol.	10	D		70	A		50	A		50	A
Oleic Acid		98	A			C			C			A			B
Petroleum						A			A			A			A
Petroleum Ether			A									A			
Phenol			A			D			A			A			A
Phosphoric Acid		85	A	Sol.	20	C		85	A		40	B		40	A
Potassium Hydroxide				Sol.		C	Sol.		A		50	B		50	B
Sea Water			A			A			A			A			A
Silicone Oil			A			A			A						A
Silver Nitrate	Sol.		A	Sol.		C	Sol.		A			A			A
Sodium Chloride	Sol.	Sat.	A	Sol.		A	Sol.	Sat.	A			B			B
Sodium Carbonate	Sol.	Sat.	A	Sol.		A	Sol.		A		100	A			B
Sodium Hydroxide		52	A	Sol.		C		45	A		20	A		20	A
Sodium Hypochlorite	Sol.	20	A	Sol.		D		5	A		20	C		20	C
Sodium Silicate				Sol.		A					100	A			A
Sodium Sulphate				Sol.		A	Sol.		A		100	A			
Suds	Sol.		A	Sol.		A			A						
Sulphuric Acid		98	A	Sol.		D		95	A						
Tartaric Acid	Sol.	10	A	Sol.		A			A		50	A			B
Tetralin			D			D			A						
Tincture of Iodine			A												
Transformer Oil			C			A			A						
Trichloroethylene			C			D			A						A
Vaseline						A			A						A
Vinegar			A			C			D			A			A
Whisky and Wine			A			A			A			A			A
Xylol			D			D			A			A			A
Zinc Chloride	Sol.	20	A	Sol.		A	Sol.	Sat.	A			D			B

Legend

A-No Effect
B-Minor Effect
C-Moderate Effect
D-Severe Effect

LIMITED WARRANTY – LIABILITY

A. IT IS EXPRESLY AGREED THAT THE FOLLOWING WARRANTY IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, WHETHER EXPRESSLY IMPLIED OF STATUTORY. INCLUDING THOSE OF **MERCHANTABILITY** AND FITNESS FOR A PATICULAR PURPOSE, AND OF ANY OTHER OBLIGATION OR LIABILITY ON OR PART OF ANY KIND OR NATURE WHATSOEVER.

No representative of ours has any authority to waive, alter, vary, or add to the terms hereof without prior approval in writing, to our customer, signed by an officer of our company. It is expressly agreed that the entire warranty given to the customer is embodied in this writing. This writing constitutes the final expression of the parties agreement with respect to warranties, and that it is a complete and exclusive statement of the terms of the warranty.

We warrant to our customers that all Products manufactured by us will be free from defects in material and workmanship at the time of shipment to our customer for a period of one (1) year from the date of shipment. All warranty claims must be submitted to us within ten days of discovery of defects within the warranty period, or shall be deemed waived. As to Products or parts thereof that are proven to have been defective at the time of shipment, and that were not damaged in shipment, the sole and exclusive remedy shall be repair or replacement of the defective parts or repayment of the proportionate purchase price for such Products or part, at our option. Replacement parts shall be shipped free of charge f.o.b. from our factory.

This warranty shall not apply to any Product which has been subject to misuse; misapplication, neglect (including but not limited to improper maintenance and storage); accident, improper installation, modification (including but not limited to use of unauthorized parts or attachments), adjustment, repair or lubrication. Misuse also includes, without implied limitation, deterioration in the Product or part caused by chemical reaction, wear caused by the presence of abrasive materials, and improper lubrication. Identifiable items manufactured by others but installed in or affixed to our Products are not warranted by use but, bear only those warranties, express or implied, given by the manufacturer of that item, if any. Responsibility for system design to insure proper use and application of Link-Belt Products within their published specifications and ratings rests solely with customer. This includes without implied limitation analysis of loads created by torsional vibrations within the entire system regardless of how induced.

B. It is expressly agreed that our liability for any damage arising out of or related to this transaction, or the use of our Products, whether in contract or in tort, is limited to the repair or replacement of the Products, or the parts thereof by use, or to a refund of the proportionate purchase price. We will not be liable for any other injury, loss, damage, or expense, whether direct or consequential, including but not limited to use, income, profit, production, or increased cost of operation, or spoilage of or damage to material, arising in connection with the sale, installation, use of, inability to use, or the replacement of, or late delivery of, our Products.