Set Screw, Eccentric Collar, D-Lok, H-E Series, E-Z Kleen, Ultra Kleen, Food Safe, and Agriculture Duty Mounted Ball Bearings

Instruction Manual

These instructions must be read thoroughly before installation or operation. This instruction manual was accurate at the time of printing. Please see **dodgeindustrial.com** for updated instruction manuals.

WARNING: To ensure the drive is not unexpectedly started, turn off and lock-out or tag power source before proceeding. Failure to observe these precautions could result in bodily injury.

WARNING: All products over 55 lbs (25 kg) are noted on the shipping package. Proper lifting practices are required for these products.

CAUTION: Under certain operating conditions, it is possible for static electric charge to build up on E-Z Kleen and Ultra Kleen polymer housings. Do not operate these bearings in an environment where a sudden static discharge may cause either an operating hazard or personnel discomfort.

INSTALLATION

1. Clean shaft and bearing bore thoroughly. Measure and confirm shaft size and tolerance. File flats on shaft at set screw locations to permit easy removal of bearing.
2. Slip bearing into position. Be sure that bearing is not on a worn section of the shaft. For tighter fits, tap inner ring face only with soft driver. DO NOT HAMMER ON HOUSING.
3. The bearing outer ring OD is spherical and swivels in the housing to accommodate misalignment. Snug holddown bolts and use shaft to swivel each bearing until its final position is in the center of free movement top to bottom as well as side to side. Pass shaft through both bearings without forcing. This will prevent preloading of the bearings. Housing slippage depends on the mounting hold-down bolt tightening torque, number of bolts and friction characteristics between mounting surfaces. Auxiliary load carrying devices such as shear bars are advisable for side or end loading of pillow blocks and radial loads for flange units where normal to heavy loading or shock loading is encountered.

   NOTE: On coated and non-metallic housings, hold-down bolts should be tightened carefully with flat washers to prevent damage to the coating. Coated housings have reduced friction characteristics, so auxiliary load carrying devices are even more important in those applications.

WARNING: Because of the possible danger to person(s) or property from accidents which may result from the improper use of products, it is important that correct procedures be followed. Products must be used in accordance with the engineering information specified in the catalog. Proper installation, maintenance and operation procedures must be observed. The instructions in the instruction manuals must be followed. Inspections should be made as necessary to assure safe operation under prevailing conditions. Proper guards and other suitable safety devices or procedures as may be desirable or as may be specified in safety codes should be provided, and are neither provided by Dodge® nor are the responsibility of Dodge. This unit and its associated equipment must be installed, adjusted and maintained by qualified personnel who are familiar with the construction and operation of all equipment in the system and the potential hazards involved. When risk to persons or property may be involved, a holding device must be an integral part of the driven equipment beyond the speed reducer output shaft.

4. Tighten hold-down bolts to proper torque (Table 1). Turn shaft by hand. Resistance to turning should be the same as before full tightening of hold-down bolts.
5. For set screw mounted bearings: After final alignment of the shaft, tighten both set screws hand tight, then the set screws should be tightened alternately and in small increments to the torque specified in Table 1. After 24 hours operation, the set screws should be retightened to the torque in Table 1 to assure full locking of the inner race to the shaft. Care should be taken that the socket key or driver is in good condition with no rounded corners and the key is fully engaged in the set screw and held square with the set screw to prevent rounding out of the set screw socket when applying maximum torque. Do not drill through the set screw holes for spot drilling of the shaft. (Some inner rings have tempered set screw threads and can be damaged by a drill.) If spot drilling is required, locate bearings on the shaft and center punch through the set screw hole. Remove bearing and spot drill the shaft, then reassemble over the spot drilled position and assemble as above. Milled or filed flats are preferable to spot drilling.

   NOTE: On all set screw products, the set screws can be re-torqued many times without damage to the bearing system. To achieve maximum shaft holding power it is highly recommended that set screws be replaced with new hardware after any disassembly operation.
6. For eccentric collar mounted bearings, slide collar against cam end of inner race. Use a punch in the hole provided in the collar, tap collar smartly in the direction of shaft rotation. Tighten set screws to proper torque (Table 1). To remove bearings, loosen set screw and tap collar in the direction opposite of shaft rotation.
7. For D-Lok mounted bearings, be sure collar is square and tight against shoulder on inner ring. Tighten cap screw to recommended torque shown in Table 1.
8. For expansion bearings (H-E Series), locate inner unit in housing to allow expansion in the desired direction before locking to the shaft.

Table 1–Recommended Torque

Set Screws ①					D-Lok			Mounting Bolts					
Set Screw Size	Key Hex Across Flats	Recommended Torque ①			Cap Screw Size	Recom. Torque	E-Z Kleen Recom. Torque	Metal Housings		E-Z Kleen/Ultra Kleen/Food Safe Housed Bearings			
		Standard Ball Bearing Insert		Corrosion Resistant Stainless Steel				Bolt Size	Recom. Dry Torque (Grade 2)	2-Bolt PB, 2 and 4 Bolt Flg. and Flg. Brackets		Tapped-Base PB	
		Min	Max							Bolt Size	Torque ②	Bolt Size	Torque ③
(in)	(in)	(in-lbs)	(in-lbs)	(in-lbs)	(in)	(in-lbs)	(in-lbs)	(in)	(in-lbs)	(in)	(in-lbs)	(in)	(in-lbs)
#10 1/4 5/16 3/8 7/16	3/32 1/8 5/32 3/16 7/32	28 66 126 228 342	33 80 156 275 428	25 60 117 206 321	#8-32 #10-32 1/4-28 5/16-24 3/8-24	58 90 180 400 750	46 72 144 320 600	3/8-16 7/16-14 1/2-13 5/8-11 3/4–10 7/8–9	240 384 600 1200 1950 2890	3/8-16 7/16-14 1/2-13 9/16-12 5/8-11	225 350 500 650 1000	3/8-16 7/16-14 1/2-13	175 350 400
(mm)	(mm)	(N-m)	(N-m)	(N-m)	(mm)	(N-m)	(N-m)	(mm)	(N-m)	(mm)	(N-m)		
M5 M6 M8 M10 M12	2.5 3 4 5 6	3.2 6.2 14.2 26 46	3.7 7.7 17.8 31 57	2.8 5.8 13.4 23 43	M4 M5 M6 M8	5.85 10.75 20.5 45	4.68 8.6 16.4 36	M10 M12 M16 M20 M22	29 50 124 238 322	M8 M10 M12 M14 M18	15 25 50 75 125		

① The use of oils or locking agents on setscrews is not recommended. However, if utilized, the minimum installation torque values should be followed.
② Torque for Austenitic (18-8) Stainless
③ Maximum torque values published. Do not exceed.

LUBRICATION

Food Safe bearings cannot be relubricated.

High Speed Operation: In the higher speed ranges, too much grease will cause overheating. The amount of grease that the bearing will take for a particular high speed application can only be determined by experience. If excess grease in the bearing causes overheating, it will be necessary to remove grease fitting to permit excess grease to escape. The bearing has been greased at the factory and is ready to run. When establishing a relubrication schedule, note that a small amount of grease at frequent intervals is preferable to a large amount at infrequent intervals.

Table 2–Lubrication Guide
Use a No. 2 Lithium complex base grease or equivalent*

Hours Run Per Day	Suggested Lubrication Period in Weeks							
	1 to 250 RPM	251 to 500 RPM	501 to 750 RPM	751 to 1000 RPM	1001 to 1500 RPM	1501 to 2000 RPM	2001 to 2500 RPM	2501 to 3000 RPM
8	12	12	10	7	5	4	3	2
16	12	7	5	4	2	2	1	1
24	10	5	3	2	1	1	1	1

*For E-Z Kleen and Ultra Kleen series bearings, use an aluminum complex base grease.

Lubrication recommendations are intended for standard products applied in general operating conditions. For modified products, high temperature applications, and other anomalous applications contact product engineering at +1 864 284 5700.

Successful operation is dependent upon adequate lubrication. Precaution should be taken during handling and recycling grease, oil or water glycol mixtures.

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