
Bushings

Featuring: Center Bonded Bushings
Square Bonded Bushings



Center Bonded Bushings and Square Bonded Bushings are used in applications where the absorption shock, attenuation of noise, reduction of wear and elimination of lubrication is required.

Center Bonded Bushings are designed to be loaded radially and utilize a soft torsional spring rate to provide freedom in rotation. High radial restraint maintains the alignment between joined parts. They are not intended for use where extreme rotational motion will occur. Typical applications include heavy duty highway equipment, drilling equipment, harvesters, combines and industrial machinery.

Square Center Bonded Bushings accommodate angular movement and isolate vibratory disturbances in heavy equipment. These bushings combine a torsional spring with an elastomeric pivot and isolator. They provide positive torsional positioning and pivot action under the most demanding operating conditions. Typical applications include wheel suspensions, vibratory feeders, mobile power equipment and vibratory cable layers.

Easy to install, the uncomplicated designs of the Center Bonded and Square Bonded Bushings provide initial economy, while the rugged elastomers and high strength bonding assure extended service life.

Features and Benefits:

- Easy to install.
- Uncomplicated design provides initial economy.
- High-strength bonding assures extended service life.
- Minimal maintenance due to specially compounded elastomer.

Bushings

Center Bonded Bushings With Outer Member

Specifications and Dimensions: Table 1.

| Part Number | Maximum Radial Static Load Rating | | Spring Rate Radial (K rad) | | Torsional | | Recommended Socket Dimensions | | | |
|-------------|-----------------------------------|--------|----------------------------|--------|------------|----------|-------------------------------|------|--------|--------|
| | | | | | | | Diameter | | Length | |
| | lbs | N | lbs/in | N/mm | lbs-in/deg | N-mm/deg | in ± .001 | mm | in | mm |
| J-3830-13 | 300 | 1334 | 14,000 | 2451 | 3.6 | 0.6 | 1.245 | 31.6 | .88 | 22.35 |
| J-5385-31 | 1000 | 4448 | 36,600 | 6408 | 18.7 | 3.3 | 1.743 | 44.3 | 2.00 | 50.80 |
| J-6729-2 | 6000 | 26,689 | 150,000 | 26,265 | 119 | 20.8 | 1.996 | 50.7 | 4.00 | 101.60 |
| J-6740-3 | 9300 | 41,368 | 256,000 | 44,825 | 475 | 83.2 | 3.231 | 82.1 | 4.00 | 101.60 |

Center Bonded Bushings Without Outer Member

Specifications and Dimensions: Table 2.

| Part Number | Maximum Radial Static Load Rating | | Spring Rate Radial (K rad) | | Torsional | | Recommended Socket Dimensions | | | |
|-------------|-----------------------------------|--------|----------------------------|--------|------------|----------|-------------------------------|--------|--------|--------|
| | | | | | | | Diameter Ø | | Length | |
| | lbs | N | lbs/in | N/mm | lbs/in-deg | N/mm-deg | in | mm | in | mm |
| J-3830-6 | 200 | 890 | 13,700 | 2398 | 4.8 | 0.8 | 1.06 | 27.05 | .88 | 22.35 |
| J-2005-2† | 250 | 1112 | 14,800 | 2591 | 3.0 | 0.5 | .70 | 17.78 | 1.00 | 25.40 |
| J-4705-2 | 625 | 2780 | 25,200 | 4412 | 16 | 2.8 | 1.28 | 32.63 | 1.44 | 36.58 |
| J-6424-1 | 780 | 3470 | 39,200 | 6863 | 23 | 4.0 | 1.37 | 34.92 | 1.47 | 37.34 |
| J-6310-1 | 925 | 4115 | 27,500 | 4815 | 25 | 4.4 | 1.72 | 44.68 | 1.56 | 39.62 |
| J-5385-32 | 1000 | 4448 | 26,200 | 4587 | 24 | 4.2 | 1.58 | 40.25 | 2.12 | 53.85 |
| J-5950 | 1125 | 5004 | 40,000 | 7004 | 94 | 16.5 | 2.22 | 56.38 | 1.88 | 47.75 |
| J-5506 | 1800 | 8007 | 24,600 | 4307 | 58 | 10.2 | 2.75 | 69.85 | 2.25 | 57.15 |
| J-7121-2 | 1950 | 8674 | 105,000 | 18,385 | 100 | 17.5 | 1.75 | 44.45 | 2.75 | 69.85 |
| J-7231-1 | 2075 | 9230 | 168,000 | 29,416 | 81 | 14.2 | 2.44 | 61.97 | 1.81 | 45.97 |
| J-5807-1 | 2700 | 12,010 | 96,000 | 16,809 | 105 | 18.4 | 2.31 | 58.67 | 3.00 | 76.20 |
| J-5971 | 3200 | 14,234 | 102,000 | 17,860 | 260 | 45.5 | 3.70 | 93.98 | 2.25 | 57.15 |
| J-6729 | 5250 | 23,353 | 164,000 | 28,716 | 123 | 21.5 | 1.75 | 44.45 | 4.00 | 101.60 |
| J-6145 | 8200 | 36,475 | 312,000 | 54,631 | 796 | 139.4 | 4.00 | 101.60 | 4.00 | 101.60 |

⊖ Tolerance ± .015 (± .38 mm) for joints without outer member.

† Non-Stock Item, please contact Lord Corporation for availability.

For installation instructions, see P. 80.

First determine the amount of static loading at the installation point. Then determine the conditions under which the joint will operate. The following should be used as a guide to part selection for Type "A" and Type "B" service.

TYPE A: Extreme conditions (reversing dynamic load or distortion at high frequency — over 600 cpm) use 1/3 the Radial Static Load Rating.

TYPE B: Average conditions (constant radial load, intermittent shock) use the Radial Static Load Rating.

Center Bonded Bushings With Outer Member

Specifications and Dimensions: Table 3.

| Part Number | Part Dimensions | | | | | | | |
|-------------|-----------------|------|-------|------|------|-------|------|------|
| | A | | B | | C | | D | |
| | in | mm | in | mm | in | mm | in | mm |
| J-3830-13 | .516 | 13.1 | 1.253 | 31.8 | 1.00 | 25.4 | .75 | 19.1 |
| J-5385-31 | .504 | 12.8 | 1.750 | 44.5 | 2.62 | 66.5 | 1.00 | 25.4 |
| J-6729-2 | 1.129 | 28.7 | 2.004 | 50.9 | 4.25 | 108.0 | 1.31 | 33.3 |
| J-6740-3 | 1.500 | 38.1 | 3.234 | 82.1 | 7.50 | 190.5 | 2.12 | 53.8 |

Center Bonded Bushings Without Outer Member

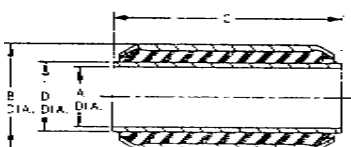
Specifications and Dimensions: Table 4.

| Part Number | Part Dimensions | | | | | | | |
|-------------|-----------------|------|------|-------|------|-------|------|------|
| | A | | B | | C | | D | |
| | in | mm | in | mm | in | mm | in | mm |
| J-3830-6 | .517 | 13.1 | 1.12 | 28.4 | 1.00 | 25.4 | .75 | 19.1 |
| J-2005-2† | .315 | 8.0 | .75 | 19.1 | 1.06 | 26.9 | .44 | 11.2 |
| J-4705-2 | .641 | 16.3 | 1.37 | 34.8 | 1.63 | 41.4 | .88 | 22.4 |
| J-6424-1 | .627 | 15.9 | 1.45 | 36.8 | 1.53 | 38.9 | 1.00 | 25.4 |
| J-6310-1 | 1.004 | 25.5 | 1.84 | 46.7 | 1.69 | 42.9 | 1.25 | 31.8 |
| J-5385-32 | .504 | 12.8 | 1.75 | 44.5 | 2.62 | 66.5 | 1.00 | 25.4 |
| J-5950 | 1.316 | 33.4 | 2.39 | 60.7 | 2.24 | 56.9 | 1.50 | 38.1 |
| J-5506 | 1.360 | 34.5 | 2.97 | 75.4 | 2.75 | 69.9 | 2.00 | 50.8 |
| J-7121-2 | 1.003 | 25.5 | 1.94 | 49.3 | 2.99 | 75.9 | 1.19 | 30.2 |
| J-7231-1 | 1.457 | 36.9 | 2.63 | 66.8 | 1.94 | 49.3 | 2.00 | 50.8 |
| J-5807-1 | 1.251 | 31.8 | 2.47 | 62.7 | 3.37 | 85.6 | 1.62 | 41.1 |
| J-5971 | 1.503 | 38.2 | 3.93 | 99.8 | 2.50 | 63.5 | 3.00 | 76.2 |
| J-6729 | 1.129 | 28.7 | 1.86 | 47.2 | 4.25 | 108.0 | 1.31 | 33.3 |
| J-6145 | 2.008 | 51.0 | 4.19 | 106.4 | 6.00 | 152.4 | 3.25 | 82.6 |

† Non-Stock Item, please contact Lord Corporation for availability.

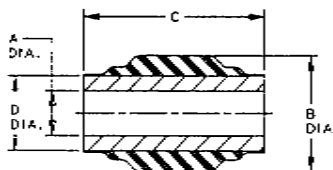
Part Dimension (With outer member)

Figure 1



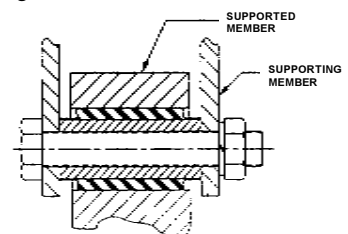
Part Dimension (Without outer member)

Figure 2



Installation View

Figure 3



Bushings

Square Bonded Bushings

Specifications and Dimensions: Table 1.

| Part Number | Maximum Radial Static Load Rating | | Radial Spring Rate (K rad) | | Static Torque @ 15 Degrees ϕ | | Key Location | Part Dimensions | | | | | |
|-------------|-----------------------------------|--------|----------------------------|--------|-----------------------------------|------|--------------|-----------------|------|------|-------|-------|------|
| | | | | | | | | A | | B | | C | |
| | lbs | N | lbs/in | N/mm | lbs.-in. | N-mm | | in | mm | in | mm | in | mm |
| J-6450-19† | 700 | 3114 | 25,000 | 4378 | 400 | 542 | Y | 1.75 | 44.5 | 2.62 | 66.5 | .626 | 15.9 |
| J-8203-1 | 1300 | 5783 | 40,000 | 7004 | 1000 | 1355 | Y | 2.38 | 60.5 | 3.25 | 82.6 | 1.379 | 35.0 |
| J-8203-19† | 1700 | 7562 | 60,000 | 10,506 | 1500 | 2033 | Y | 2.38 | 60.5 | 3.25 | 82.6 | 1.379 | 35.0 |
| J-8203-31† | 1000 | 4448 | 30,000 | 5253 | 750 | 1016 | Y | 2.38 | 60.5 | 3.25 | 82.6 | 1.379 | 35.0 |
| J-8203-35† | 1700 | 7562 | 100,000 | 17,510 | 2400 | 3252 | Y | 2.40 | 61.0 | 3.25 | 82.6 | 1.379 | 35.0 |
| J-9832-8† | 2500 | 11,121 | 70,000 | 12,257 | 2700 | 3659 | X | 3.40 | 86.4 | 4.00 | 101.6 | 2.009 | 51.0 |
| J-9832-11 | 5000 | 22,241 | 160,000 | 28,016 | 5200 | 7046 | X | 3.42 | 86.9 | 4.00 | 101.6 | 2.009 | 51.0 |

ϕ Rated static angular deflection is 15° for all parts. Maximum recommended deflection, static plus dynamic is 45° for all parts. Heavy wall tubing is recommended for proper operation.

For installation instructions, see P. 80.

† Non-Stock Item, please contact Lord Corporation for availability.

Square Bonded Bushings

Specifications and Dimensions: Table 2.

| Part Number | Part Dimensions | | | | | | | | | | | | | |
|-------------|-----------------|------|------|------|------|------|------|------|------|-----|-------|------|-----|-----|
| | D | | E | | F | | G | | H | | I | | J | |
| | in | mm | in | mm | in | mm | in | mm | in | mm | in | mm | in | mm |
| J-6450-19† | 1.00 | 25.4 | 1.17 | 29.7 | 1.62 | 41.1 | 1.75 | 44.5 | .191 | 4.9 | .719 | 18.3 | .09 | 2.3 |
| J-8203-1 | 1.62 | 41.1 | 2.15 | 54.6 | 2.25 | 57.2 | 3.00 | 76.2 | .191 | 4.9 | 1.444 | 36.7 | .09 | 2.3 |
| J-8203-19† | 1.62 | 41.1 | 2.15 | 54.6 | 2.25 | 57.2 | 3.00 | 76.2 | .191 | 4.9 | 1.444 | 36.7 | .09 | 2.3 |
| J-8203-31† | 1.62 | 41.1 | 2.15 | 54.6 | 2.25 | 57.2 | 3.00 | 76.2 | .191 | 4.9 | 1.444 | 36.7 | .09 | 2.3 |
| J-8203-35† | 1.62 | 41.1 | 2.15 | 54.6 | 2.25 | 57.2 | 3.00 | 76.2 | .191 | 4.9 | 1.442 | 36.7 | .09 | 2.3 |
| J-9832-8† | 2.53 | 64.3 | 2.50 | 63.5 | 3.25 | 82.6 | 3.75 | 95.3 | .253 | 6.4 | 2.128 | 54.1 | .09 | 2.3 |
| J-9832-11 | 2.53 | 64.3 | 2.50 | 63.5 | 3.25 | 82.6 | 3.75 | 95.3 | .253 | 6.4 | 2.128 | 54.1 | .09 | 2.3 |

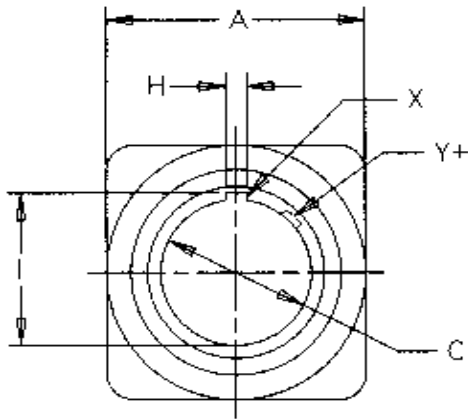
† Non-Stock Item, please contact Lord Corporation for availability.

To select a Square Bonded Bushing for your requirements, compute the static torsional load it must support. Select from Tables 1-2, a bushing with static torque at 15° which is equal to or greater than the computed load.

Compute the static plus the dynamic torsional load. If this total load exceeds three times the static torque at 15°, select a larger size static torque rating part. Static radial load should also be computed and compared to the maximum static radial load listed above. Dynamic plus static radial load can also be three times loads listed above.

Part Dimension

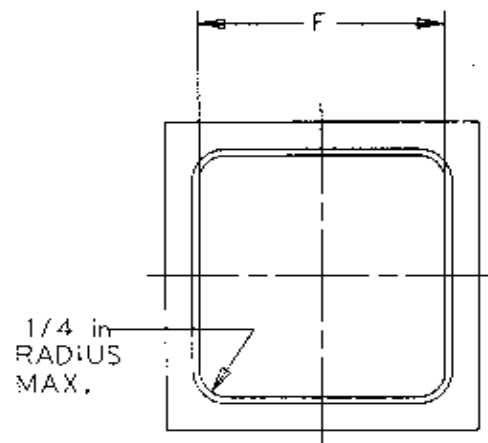
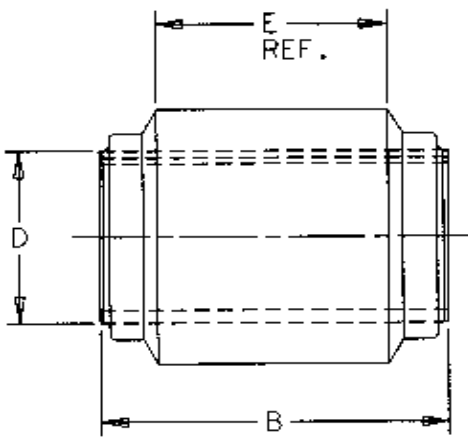
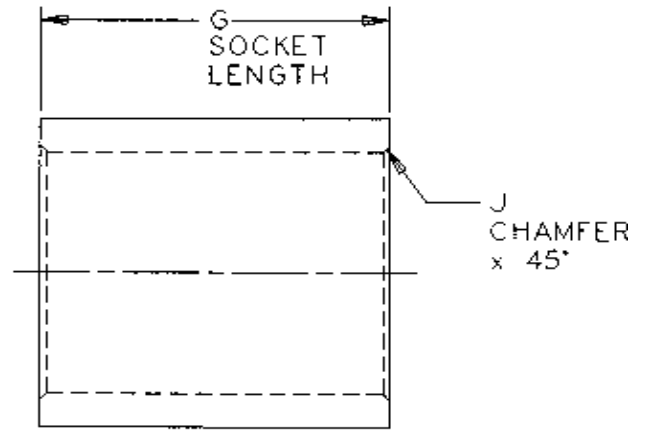
Figure 1



+Y - KEY LOCATION 45° FROM VERTICAL

Installation Socket

Figure 2



Bushings

Installation Guide

Installation:

Joint With Outer Sleeve: Clamp or press-fit the outer sleeve into a socket which has been machined to the dimensions shown on Table 1. The force required to install the joint in the socket with a press-fit can be approximated from the formula:

$$\text{Force (lbs.)} = 2500 \times \text{diameter} \times \text{length}$$

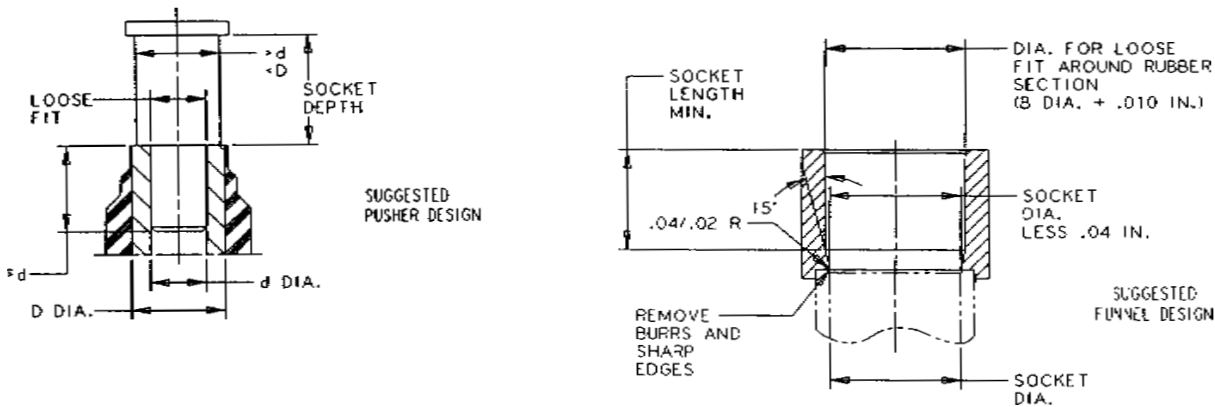
The inner member is normally attached by clamping or bolting its extended ends to a mounting bracket. An alternate method would be to press-fit a shaft through the inner tube.

Joint Without Outer Sleeve: Since the outer part of this type joint is the flexing element, it must be compressed and inserted directly into a socket which has been machined to the dimensions shown on Table 2. This is done with the aid of a funnel-shaped fixture and a suitable lubricant: P-80 Rubber Emulsion Lubricant made by International Products Corporation, P. O. Box 70, Burlington, NJ 08016-0070, Phone: (609) 386-8770, FAX: (609) 386-8438.

The inner member attachment is accomplished in the same manner as described above for the joint with outer sleeve.

Suggested Funnel Design

Figure 4



Installation: Square Bonded Bushings

Joints may be installed in preformed sockets machined, cast or fabricated to dimensions as shown in Table 1.

Installation is a simple, four-step procedure:

1. Lubricate the mount and socket lightly with P-80 Rubber Emulsion Lubricant or water. Lubricant available from International Products Corporation, P. O. Box 70, Burlington, NJ 08016-0070, Phone: (609) 386-8770, FAX: (609) 386-8438.
2. Insert assembly fixture or driving bolt through center member. Take care that driving members do not overhang center member outside diameter or damage may result to the elastomer.
3. Apply sufficient pressure to seat the joint in the center of the supporting socket.
4. Attach the supported member snug against the center member.