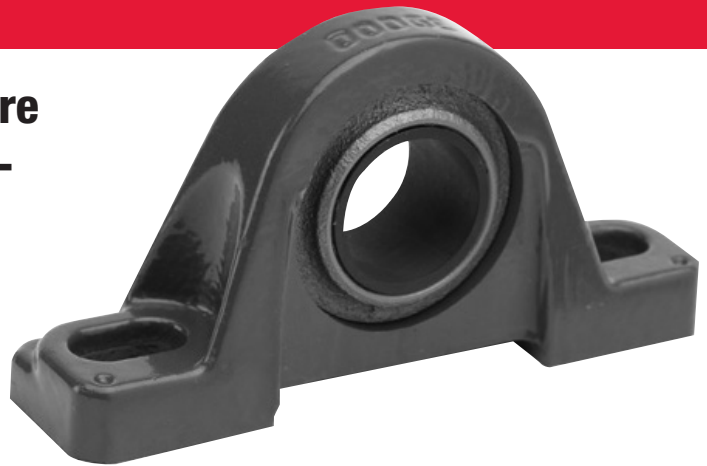


# SOLIDLUBE

# BEARINGS

**Solidlube sleeve bearings are statically self-aligning, non-galling, corrosion resistant, solid-film lubricating for temperature extremes.**



First in the field and second to none, Dodge® Solidlube is the bearing that works where others won't. In temperatures ranging from -200°F to +1000°F...under water...vacuum environments...corrosive atmospheres liquids...slow speed and limited shaft movement applications — wherever lubrication is critical.

**Two series cover a wide range of temperature extremes:**

700 Series: -40°F to 700°F -40°C -370°C

1000 Series: -200°F to -40°F; 250°F to 1000°F  
-129°C to -40°C; 121°C to 537°C

Notes: Overlap of 250°F to 700°F – The 700 Series is less expensive but the 1000 Series will give better bearing life on a continuous 24 hour/day application. The 1000 Series should not be used in "wet" environments or in the temperature range of -40°F to 250°F.

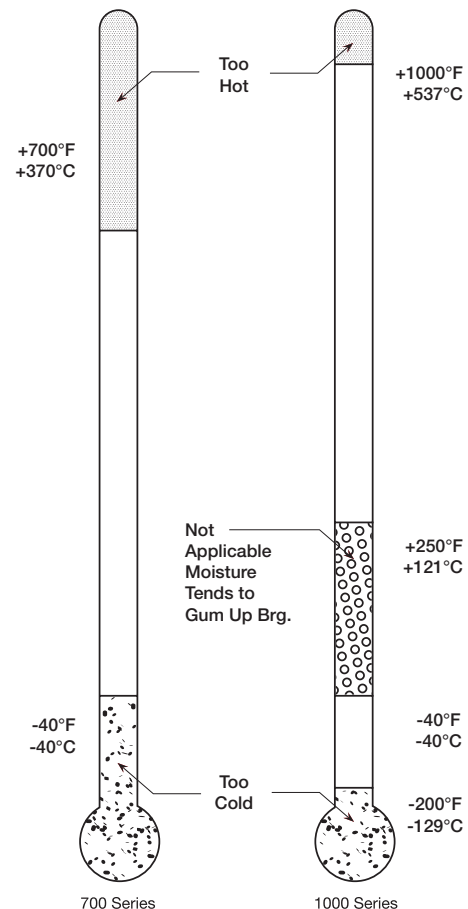
The 700 Series and 1000 Series SOLIDLUBE Bearings are not to be used above 700°F and 1000°F respectively.

**Self-Lubricated:**

- Lubrication is provided from the bearing's own solid sleeve material and requires no additional lubrication of any type

**Self-Aligning:**

- Ball and socket arrangement between the housing I.D. and the O.D. of the bearing insert provides self-alignment
- Anti-rotation pin locks the insert in place
- Bearing is self aligning up to ±2°



**SOLIDLUBE  
Bearing  
Operating  
Temperature**

**700 and 1000 Series – Inch – Radial Load Ratings (Normal Loads)**

Shaft Size	Radial Load Ratings in Pounds at various Revolutions per Minute																								
	Up to 10	25	50	75	100	150	200	250	300	350	400	450	500	550	600	700	800	900	1000	1100	1300	1600	1900	2200	2500
3/4"	560	560	560	560	560	380	285	230	190	165	145	125	110	105	96	82	72	64	57	52	44	35	30	26	22
7/8", 15/16", 1"	750	750	750	750	610	405	315	245	205	175	155	130	120	110	105	90	80	70	60	54	47	38	32	..	..
1-1/8", 1-3/16"	1050	1050	1050	908	680	450	340	270	225	190	170	150	135	125	115	97	85	75	68	62	42	..	..	..	..
1-1/4", 1-3/8", 1-7/16", 1-1/2"	1610	1610	1610	1140	855	570	430	340	280	245	215	190	170	155	145	120	105	95	86	78	66	..	..	..	..
1-11/16", 1-3/4"	1980	1980	1790	1190	895	595	440	390	295	255	220	200	180	165	150	130	110	99	89	81	..	..	..	..	..
1-15/16", 2"	2360	2360	1860	1240	930	620	465	370	310	265	235	205	185	170	155	135	115	105	..	..	..	..	..	..	..
2-3/16"	2870	2870	2010	1340	1000	670	500	400	335	285	250	225	200	180	165	145	125	..	..	..	..	..	..	..	..
2-7/16", 2-1/2"	3760	3760	2360	1580	1180	795	590	475	390	340	295	265	235	215	195	170	..	..	..	..	..	..	..	..	..
2-15/16", 3"	5970	5970	3120	2070	1560	1040	780	625	515	445	390	345	315	290	..	..	..	..	..	..	..	..	..	..	..
3-7/16", 3-1/2"	9100	8010	4000	2670	2000	1340	1000	800	670	570	500	445	400	365	..	..	..	..	..	..	..	..	..	..	..
3-15/16", 4"	11800	9160	4590	3060	2290	1530	1150	930	765	665	575	510	..	..	..	..	..	..	..	..	..	..	..	..	..
4-7/16", 4-1/2"	15200	10300	5150	3440	2580	1720	1290	1030	860	740	645	..	..	..	..	..	..	..	..	..	..	..	..	..	..
4-15/16", 5"	18400	11400	5710	3810	2860	1910	1430	1140	955	815	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..

NOTE: The above ratings apply to all base loaded pillow blocks. all cylindrical units and flange bearings for flange bearings cap and side loading of pillow blocks, consult Application Engineering. For operation speeds below **heavy line**, use LT1000 and/or hardened shaft.

**700 and 1000 Series – Metric – Radial Load Ratings in Newtons (Normal Loads)**

Series	Shaft Size	Radial Load Ratings in Newtons at various Revolutions per Minute											
		10	25	50	75	100	150	200	250	300	350	400	450
204	20 mm	2490	2490	2490	2490	2490	1690	1270	1020	840	730	640	560
205	25 mm	3340	3340	3340	3340	2710	1800	1400	1090	910	780	690	580
206	30 mm	4670	4670	4670	4040	3020	2000	1510	1200	1000	840	760	670
207	35 mm	7160	7160	7160	5070	3800	2540	1910	1510	1240	1090	960	840
209	40 mm, 45 mm	8800	8800	7960	5290	3980	2650	1960	1740	1310	1130	980	890
210	50 mm	10500	10500	8270	5520	4140	2760	2070	1650	1380	1180	1040	910
212	60 mm	16700	16700	10500	7030	5250	3540	2620	2110	1730	1510	1310	1180
215	70 mm, 75 mm	26500	26500	13900	9200	6940	4630	3470	2780	2290	1980	1740	1540

Series	Shaft Size	Radial Load Ratings in Newtons at various Revolutions per Minute													
		500	550	600	700	800	900	1000	1100	1300	1600	1900	2200	2500	
204	20 mm	490	470	430	360	320	200	250	230	200	160	130	120	100	
205	25 mm	530	490	470	400	360	310	270	240	210	170	140	-	-	
206	30 mm	600	560	510	430	380	330	300	280	190	190	-	-	-	
207	35 mm	760	690	640	530	470	420	380	350	300	-	-	-	-	
209	40 mm, 45 mm	800	730	670	580	490	440	400	360	-	-	-	-	-	
210	50 mm	820	760	690	600	510	470	-	-	-	-	-	-	-	
212	60 mm	1040	960	870	760	-	-	-	-	-	-	-	-	-	
215	70 mm, 75 mm	1530	1400	1290	-	-	-	-	-	-	-	-	-	-	

NOTE: The above ratings apply to all base loaded pillow blocks, all cylindrical units and flange type bearings for cap and side loading of pillow blocks consult Applications Engineering. For operation speeds below **heavy line**, use LT1000 and/or hardened shaft.

**700 and 1000 Series – Inch – Radial Load Ratings in Pounds – (Limited Shaft Movement Applications)**

Bearing Size	Maximum Radial Load		Maximum Thrust Load (lbs)
	Base Load (lbs)	Cap or Side Load (lbs)	
3/4"	1100	775	56
7/8", 15/16", 1"	1500	795	75
1-1/8", 1-3/16"	2100	820	105
1-1/4", 1-3/8", 1-7/16", 1-1/2"	3200	1710	161
1-11/16", 1-3/4"	4000	1905	198
1-15/16", 2"	4700	1920	236
2-3/16"	5700	1900	287
2-7/16", 2-1/2"	7500	2360	376
2-15/16", 3"	12000	4151	597

Note: Use these load ratings only where: Shaft movement is limited to approximately ±90°, Shaft movement is infrequent as opposed to continuous, Maximum Bearing temperature is 800°F, Maximum cap load is limited by the pillow block housing capacity.

**Thrust Load Ratings:**

Shaft locating collars may be used for slight amounts of thrust only. Generally, up to 10% of the radial load rating.

## HOUSING CONFIGURATIONS:

- Pillow Blocks
- 4-Bolt Flange Units
- 2-Bolt Flange Units
- Take-Up Units
- Wide Slot Take-Up Units
- Cylindrical Units
- Hanger Units
- Screw Conveyor Hanger Units

## INNER UNIT:

- The cast iron inner unit assembly allows for  $\pm 2^\circ$  of self alignment.
- The cast iron inner unit also protects, strengthens and improves the overall life of the carbon graphite.
- A high performance corrosion resistant coating protects the inner unit from rust.

## BUSHINGS:

- **Bushing Material:**
  - Bushing material is a carbon-graphite compound
  - Other special carbon-graphite compounds can be formulated for special applications
  - Alternate materials such as bronze, polymers, fibers, etc. can be supplied on a special order basis
- **Vacuum Applications:**
  - Carbon-graphite bushings have only traces of gas. The degassing rate of the bushings is better than cast iron, and thus the bushings will function in a vacuum.
- **Expected Life:**
  - The inner unit assembly may be rotated  $180^\circ$  on the shaft to utilize a new bushing surface and increase bearing life.
- **Dirty Environments:**
  - Caution: Sand, grit, lime, etc. reduce life as these hard abrasive particles act like a grinding compound.
- **Coefficient of Friction:**
  - Static .20 to .30
  - Dynamic .05 to .15
- **Bearing life is dependent on shaft surface finish, loads, speeds and ambient conditions.**

## SHAFTING:

- **Shaft Hardness:**
  - Commercial steel shafting may be used for temperatures not exceeding  $700^\circ$ .
  - For extended bearing life at any temperature, the shaft should have a hardness of 35 Rockwell "C" or higher.
- **Shaft Finish:**
  - 10 to 20 micro-inches is recommended.
  - A finish rougher than 20 micro-inches will lessen bushing life.
  - A finish smoother than 10 micro-inches will not allow the optimum lubricant film to develop.
- **Shaft Expansion vs. Bearing/Carbon-Graphite Expansion:**
  - Note that some types of stainless steel expand twice as fast as Solidlube bushings. The user must design the shaft diameter accordingly for high temperatures.
- **Corrosion on shaft:**
  - When commercial steel shafting is exposed to corrosive media, the shaft will oxidize (rust), pit, etc. The Solidlube bushing is chemically inert, but a rusty shaft can reduce clearances and restrict movement. Use corrosive resistant shafting such as stainless steel where corrosion is a problem.
- **Shaft Materials for Elevated Temperatures:**
  - Stainless Steel: Grades such as 17-4, 15-5 and 13-8 are hardenable.
  - Hard Chrome Coating: Shafts can be spray coated with hard chrome. This should be satisfactory up to  $700^\circ\text{F}$ .
  - Ceramic Coating: Ceramic can be sprayed on and will form an excellent coating.
  - High Grade, Specialty Steels: Many of these materials are good in excess of  $1000^\circ\text{F}$ . In many applications a cost savings can be obtained by fitting sleeves of these materials on more economical shafting.

Note: Customers should check with their supplier, especially with hard chrome and ceramic, since these can flake off when the coefficient of thermal expansion of the base material differs greatly from that of the coating.

## Solidlube Bearing Corrosion (Chemical) Resistance

Type of Chemical	Chemical	Bearing Series	
		LM800 700	1000
Acids and Acidic Solutions	Mineral (Non-Oxidizing)	◆	◆
	Mineral (Oxidizing)	○	◆
	Inorganic Salts (Acid Forming)	◆	◆
	Organic (Strong)	◆	◆
	Organic (Weak) pH 3-7	◆	◆
	Organic Salts (Acid Forming)	◆	◆
Alkalis (Bases & Alkaline Solutions)	Mineral (Non-Oxidizing)	◆	◆
	Mineral (Oxidizing)	□	◆
	Inorganic Salts (Base Forming)	◆	◆
	Organic (Strong)	◆	◆
	Weak Organic Bases pH 7-11	◆	◆
Gases	Acid	◆	◆
	Alkaline (base)	◆	◆
	Anhydrous (dew Point below -30°F)	□	□
	Cyrogenic (Liquefied)	○	□
	Inert	◆	◆
	Oxidizing	○	□
	Reducing	◆	◆
Salts	Acid Salts	□	□
	Alkaline Sales	□	□
	Metals	◆	◆
	Neutral Salts	○	□
	Neutral Salt Solutions	◆	◆
Solvents	Aliphatic	◆	◆
	Aromatic	◆	◆
	Chlorinated, Fluorinated	◆	◆
	Oxygenated, Sulfides	◆	◆

◆ – Good. Not known interaction; compatible, □ – Questionable (depends on conditions), ○ – Not recommended

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