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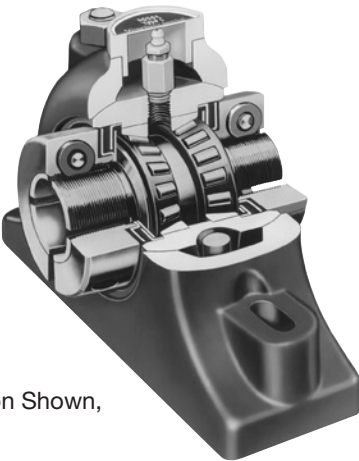


## FEATURES/BENEFITS

### Specialty Tapered Products

#### TYPE C

- Positive Concentric Clamp Sleeve Mounting
- Steel Multiple Labyrinth Seals
- 2 Quality Single Row
- Tapered Roller Assemblies
- Rugged Two-Piece Housing
- Elongated Bolt Holes



2-1/2" to 5" NE Construction Shown, Expansion also Available



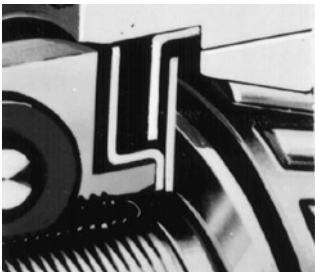
#### CLAMP SLEEVE MOUNTING -

- Two quality single row tapered bearings press fitted on sleeve
- Outer races shouldered against rib in housing
- Offers improved concentricity over other collar mounted types of bearings
- Best bearing unit for wheel or sprocket applications
- Two piece split collars used on 2-1/2" and larger sizes
- Single piece split collars, used on smaller sizes
- Performs flinger like function keeping many materials away from seal



#### STEEL MULTIPLE LABYRINTH SEALS

- Combine with collars offering excellent resistance to keep contaminants out of the bearing
- Seal bearing both on and off the shaft before, during and after installation
- Especially well suited on applications where dirt and dust are severe



#### RUGGED TWO PIECE OUTER HOUSING

- Split housing of heavy duty gray iron construction houses completely assembled inner unit
- Elongated bolt holes provide lateral adjustment for ease of installing pillow blocks



**NOTE:** Instruction manuals for Dodge bearings are available on [www.dodge-pt.com](http://www.dodge-pt.com)

Bearing Reference Guide

E-Family Roller Bearings

Specialty Tapered Products

S-2000

UNISPHERE II

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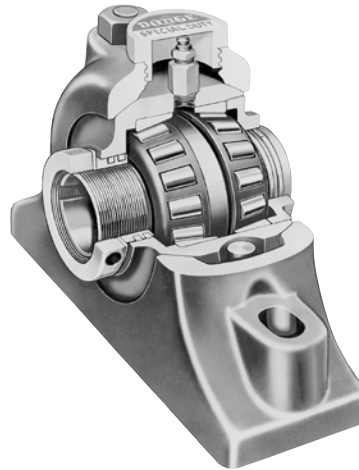
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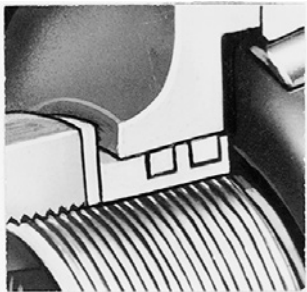
# FEATURES/BENEFITS

## Specialty Tapered Products SPECIAL DUTY

- Quality Duplex Tapered Roller Bearing
- Tapered Adapter Sleeve Mounting
- Effective Piston Ring Seals
- Rugged Two-Piece Housing
- Elongated Bolt Holes



1-3/8" to 3-1/2" NE Type Construction Shown



### SPECIAL DUTY PILLOW BLOCKS DUAL PISTON RING SEALS -

- Contained within self aligning inner unit, to be unaffected by misalignment
- Seal bearing both on and off the shaft before, during and after installation
- Extremely close clearances to exclude most materials from entering bearings



### TAPERED ADAPTER SLEEVE MOUNTING

- A split tapered adapter sleeve extending thru the entire length of the pillow block is used to securely fasten the bearing to the shaft tighter than shorter adapter sleeves
- A single adapter nut is used on sizes 3-1/2" and smaller with two adapter nuts being used on the larger sizes. The adapter nut at the large end of the taper can be used to remove the bearing from the shaft

### DUPLEX TAPERED ROLLER BEARING

- Uses case hardened inner race, outer races and rollers with adapter sleeve mounting resulting in unsurpassed load handling capability and longer useful bearing life
- Handles any combination of radial and thrust load from 100% radial load to 100% thrust load



### RUGGED TWO PIECE OUTER HOUSING

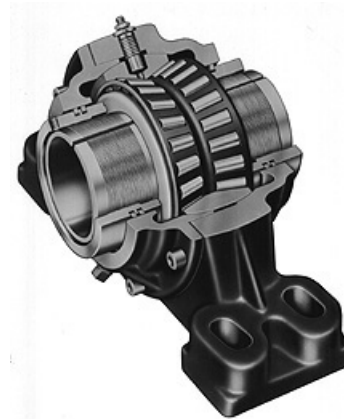
- Split housing of heavy duty gray iron construction houses completely assembled inner unit
- Elongated bolt holes provide lateral adjustment for ease of installing pillow blocks



# FEATURES/BENEFITS

## Specialty Tapered Products ALL STEEL

- Quality Duplex Tapered Roller Bearing
- Tapered Adapter Sleeve Mounting
- Dual Piston Ring Seals
- Solid One-Piece Cast Steel Housing



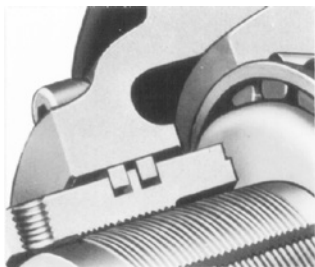
### DUPLEX TAPERED ROLLER BEARING

- Uses case hardened inner race, outer races and rollers with adapter sleeve mounting resulting in unsurpassed load handling capability and longer useful bearing life.
- Handles any combination of radial and thrust load from 100% radial load to 100% thrust load



### TAPERED ADAPTER SLEEVE MOUNTING

- A split tapered adapter sleeve extending thru the entire length of the pillow block is used to securely fasten the bearing to the shaft tighter than shorter adapter sleeves
- Two ductile iron adapter nuts are used with the All Steel pillow blocks. The adapter nut at the small end of the taper is used to tighten the bearing to the shaft with the adapter nut at the large end of the taper used to remove the bearing from the shaft.



### DUAL PISTON RING SEALS

- Dual piston ring seals are housed in accurately machined grooves in the adapter nuts resulting efficient labyrinth sealing action throughout the full range of misalignment.
- Seal bearing both on and off the shaft before, during and after installation



### RUGGED TWO PIECE OUTER HOUSING

- Vertically split housing of heavy duty cast steel ribbed construction houses duplex tapered roller bearing.
- Elongated bolt holes provide lateral adjustment for ease of installing pillow blocks



## SPECIFICATION

### Type C

The standard housing material for Type C mounted bearings is ASTM A48 Class 30 Iron having a minimum tensile strength of 30,000 psi. The outer housings for the pillow blocks and flange bearings are of split construction for ease of replacement of the completely assembled, adjusted and lubricated inner units. The housings for the take-ups, hanger bearings, D, S-1 and B-1 units are of solid one piece construction. Pillow blocks and flange bearings are available in both expansion and non-expansion styles. Take up and hanger bearings are available as non expansion only.

The Type C mounted bearing has indirect mounted tapered roller bearings press fitted on a common sleeve with the outer race shouldered against a rib in the housing. The tapered roller

bearings used in the Type C mounted bearings all have case carburized inner races (cones), outer races (cups) and rollers.

The Type C bearing is mounted to the shaft by clamping the sleeve to the shaft at the slotted threaded end of the sleeve with flinger collars. These collars are one piece construction for sizes thru 2-1/2", with larger sizes using collars of two piece construction. The bearing rating for the type C is determined by the sleeve resulting in a L<sub>10</sub> life at maximum speed of at least 100,000 hours.

Steel multiple labyrinth seals are used to offer extra resistance to keep contaminants out of the bearing before, during, and after installation.

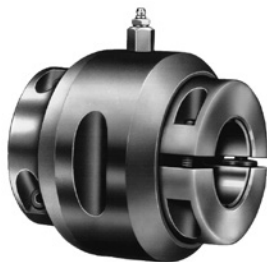
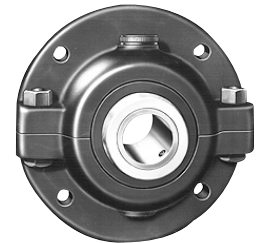
#### TYPE C AVAILABLE IN

PILLOW BLOCKS, 2 BOLT BASE	1-3/16" TO 3-7/16"
PILLOW BLOCKS, 4 BOLT	2-3/8" TO 4-15/16"
FLANGE BEARINGS 4 BOLT	1-3/16" TO 3-7/16"
ALL IN EITHER EXPANSION OR NON-EXPANSION	



HANGER BEARINGS  
TAKE-UP BEARINGS

1-15/16" TO 3-7/16"  
1-3/16" TO 2-15/16"



D, S-1 OR B-1 UNITS 1-3/16" TO 4-15/16"

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# HOW TO ORDER/NOMENCLATURE



## HOW TO ORDER Type C

There are two ways to specify DODGE Bearings. Most of the product offering have part numbers with listings shown throughout this catalog. Use of part numbers ensures accurate order processing.

When part numbers are not shown, the product may be specified by description or part name. This method is used when ordering units that include modifications or options. To order by description, use the nomenclature key shown below and add any special instructions to the end of the description for options not covered by the nomenclature.

### Special Bearing Requirements And Special Lubricants

DODGE Type C Bearings are factory adjusted and pre-lubricated. For applications where extreme ambient temperatures, high speeds or high loads are expected, a variety of specialty lubricants and adjustments are available. Standard

grease provided is Mobil Grease XHP222. Special lubricant options usually involve set-up charges and premiums. To order, specify type of lubricant required at the end of the product name or after the standard part number.

Example:

065294 except with Mobil Grease HTS #2 grease

or

P2B-C-207 except with Mobil Grease HTS #2 grease

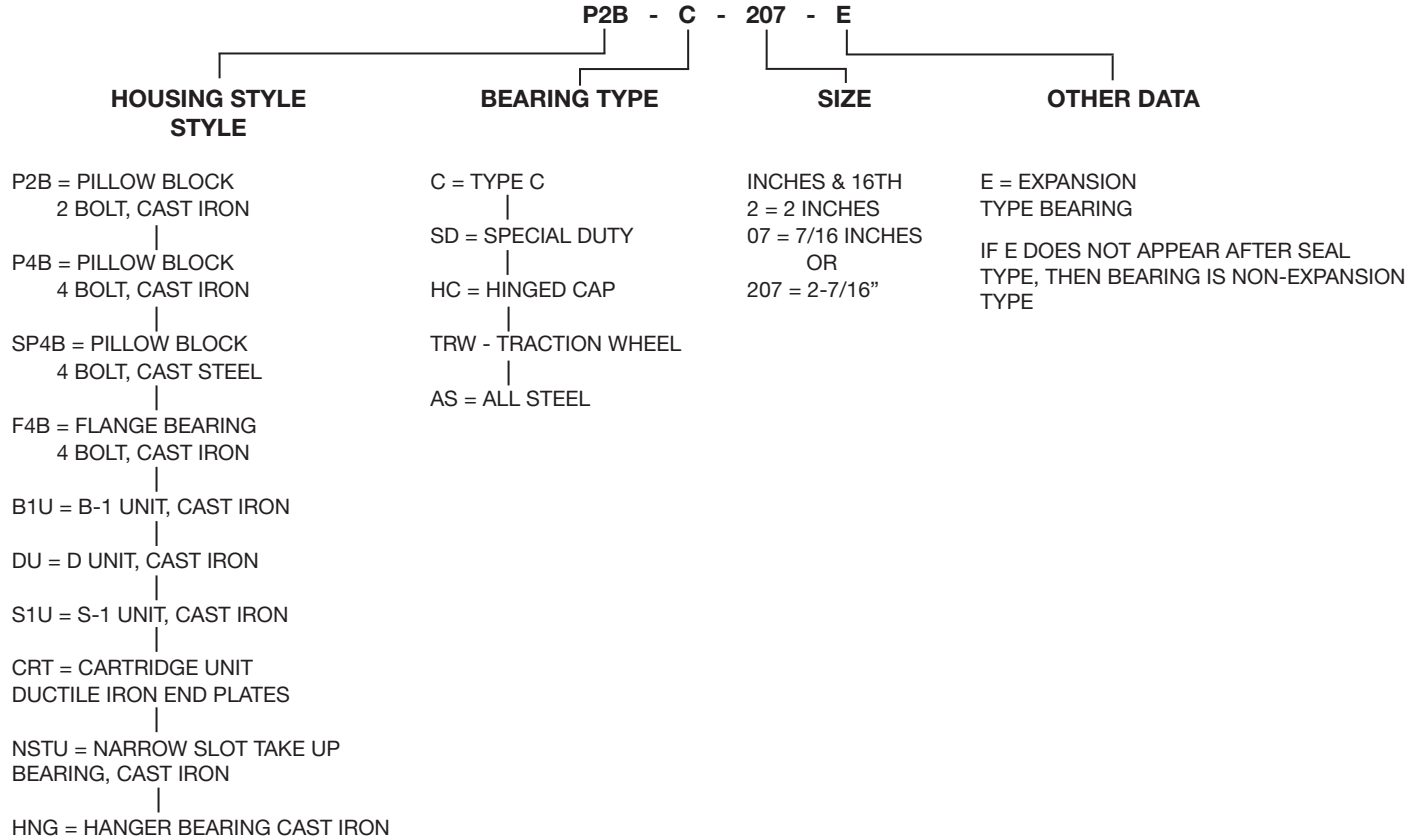
### Other Special Requirements Not Listed

For applications requiring modifications not listed, we encourage you to contact our Customer Order Engineering Department for Bearings at 864-284-5700.

## NOMENCLATURE

### Specialty Tapered Products

#### Type C, Special Duty and All Steel



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# SELECTION

## Type C

### Type C Bearing

The capacity of the Type C bearing is designed to handle loads normally imposed on the shaft. However, due to the assembly method and method of fastening the bearing to the shaft, there are necessary clearances between the sleeve and the shaft except at the two ends. Consequently, under heavy loads a flexing and stressing of the sleeve will take place as the shaft rotates. For this reason, the Radial Load Ratings shown in Table 1 are based on the sleeve capacity under maximum clearance conditions rather than on the capacity of the roller bearings themselves.

Sleeve capacity being independent of speed, the table gives maximum recommended bearing loads at all allowable speeds

and is based on the use of shafting tolerances from Table 18 on page B20-14.

Type C bearings are primarily utilized on radial load applications. They have ample thrust capacity for use as the locating bearing normally encountered with this type service. If heavy thrust loads are involved, Application Engineering should be contacted for a review of the application. The maximum thrust load should not exceed Type C pillow block limits shown in Table 3.

Since these ratings are considerably less than the base bearing ratings, the resulting life expectancy is, for all practical purposes, contingent only on proper lubrication.

**Table 1: Type C Radial Load Ratings**

Shaft Size Inches	Radial Load Rating (Lbs.) *	Max. RPM	Shaft Size Inches	Radial Load Rating (Lbs.) *	Max. RPM
1-3/16 - 1-7/16	725	3000	2-1/2 - 2-15/16	3000	1750
1-1/2 - 1-3/4	1000	3000	3 - 3-7/16	4000	1500
1-15/16	1350	2500	3-1/2 - 4	5500	1250
2 - 2-1/4	1700	2500	4-7/16 - 4-1/2	6500	1000
2-3/8 - 2-7/16	2100	2000	4-15/16 - 5	7500	750

\* More than 100,000 L<sub>10</sub> hours life at Max. RPM listed.

**Table 2: Type C Expansion Capability, Inches**

Shaft Size, Inches	Type C		
	2-Bolt Pillow Block	4-Bolt Pillow Block	Flange
1-3/16 - 1-7/16	3/16	--	3/16
1-1/2 - 1-3/4	5/8	--	1/4
1-15/16	5/8	--	1/4
2 - 2-1/4	5/8	--	1/4
2-3/8 - 2-7/16	5/8	5/8	1/4
2-1/2 - 2-15/16	3/4	5/8	5/8
3 - 3-7/16	3/4	3/4	1/4
3-1/2 - 4	--	3/4	1/4
4-7/16 - 4-1/2	--	3/4	5/8
4-15/16 - 5	--	3/4	5/8

**Table 3: Type C Pillow Block Permissible Thrust Load**

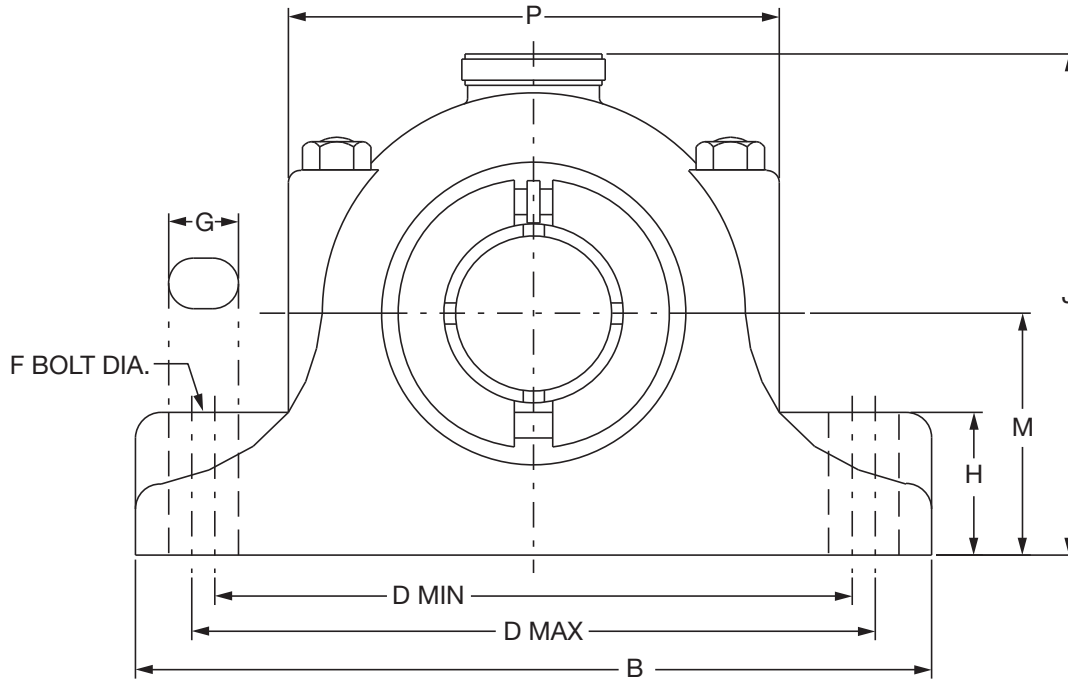
Shaft Size, Inches	Thrust loads, lbs		Shaft Size, Inches	Thrust loads, lbs	
	2-Bolt	4-Bolt		2-Bolt	4-Bolt
1-3/16 - 1-7/16	3000	--	2-1/2 - 2-15/16	6900	9300
1-1/2 - 1-3/4	3150	--	3 - 3-7/16	5700	12000
1-15/16	5000	--	3-1/2 - 4	--	12000
2 - 2-3/16	5000	--	4-7/16 - 4-1/2	--	12000
2-3/8 - 2-7/16	7300	10000	4-15/16 - 5	--	16500

\* The limits in above apply to pillow blocks. For thrust loads larger than listed or heavy thrust loading on other style housings, contact DODGE Engineering for recommendation.

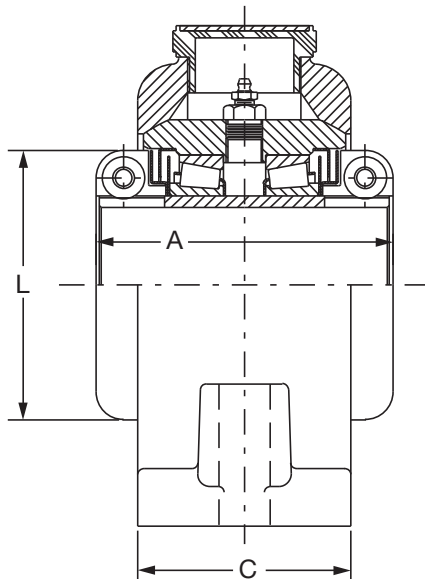
# SELECTION/DIMENSIONS



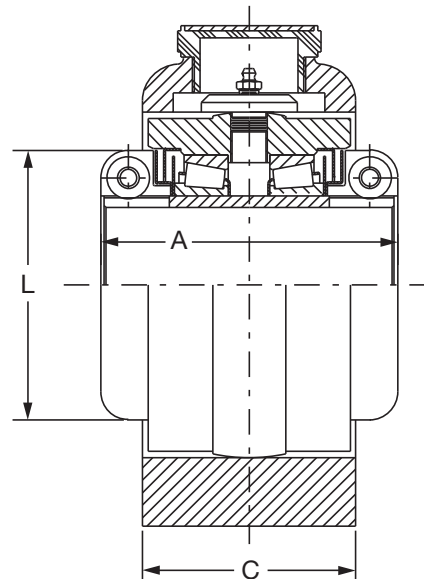
## Type C Pillow Block - Inch 2-BOLT BASE



**NOTE:** All sizes use a 1/8 - 27 NPT hydraulic grease fitting



NON-EXPANSION CONSTRUCTION



EXPANSION CONSTRUCTION

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# SELECTION/DIMENSIONS

## Type C Pillow Block - Inch 2-BOLT BASE

Gray Iron Non-Expansion*				Gray Iron Expansion			
Shaft Size Inches#	Part Number	Part Name	Weight Lbs (Approx)	Shaft Size Inches#	Part Number	Part Name	Weight Lbs (Approx)
1-3/16	<b>065289</b>	P2B-C-103	21	1-3/16	<b>087262</b>	P2B-C-103E	22
1-1/4	<b>065311</b>	P2B-C-104	20	1-1/4	<b>087263</b>	P2B-C-104E	22
1-7/16	<b>065290</b>	P2B-C-107	20	1-7/16	<b>087180</b>	P2B-C-107E	20
1-1/2	<b>065312</b>	P2B-C-108	28	1-1/2	<b>087264</b>	P2B-C-108E	28
1-11/16	<b>065291</b>	P2B-C-111	28	1-11/16	<b>087181</b>	P2B-C-111E	28
1-3/4	<b>065238</b>	P2B-C-112	26	1-3/4	<b>087172</b>	P2B-C-112E	28
1-15/16	<b>065292</b>	P2B-C-115	29	1-15/16	<b>087182</b>	P2B-C-115E	29
2	<b>065313</b>	P2B-C-200	47	2	<b>087265</b>	P2B-C-200E	49
2-3/16	<b>065293</b>	P2B-C-203	47	2-3/16	<b>087183</b>	P2B-C-203E	49
2-1/4	<b>065314</b>	P2B-C-204	47	2-1/4	<b>087266</b>	P2B-C-204E	49
2-7/16	<b>065294</b>	P2B-C-207	57	2-7/16	<b>087184</b>	P2B-C-207E	57
2-1/2	<b>065315</b>	P2B-C-208	83	2-1/2	<b>087267</b>	P2B-C-208E	90
2-11/16	<b>065295</b>	P2B-C-211	83	2-11/16	<b>087185</b>	P2B-C-211E	90
2-7/8	<b>065244</b>	P2B-C-214	83	2-7/8	<b>087178</b>	P2B-C-214E	90
2-15/16	<b>065296</b>	P2B-C-215	83	2-15/16	<b>087186</b>	P2B-C-215E	90
3	<b>065316</b>	P2B-C-300	132	3	<b>087268</b>	P2B-C-300E	135
3-3/16	<b>065317</b>	P2B-C-303	132	3-3/16	<b>087269</b>	P2B-C-303E	135
3-7/16	<b>065297</b>	P2B-C-307	128	3-7/16	<b>087187</b>	P2B-C-307E	131

\* Furnished Unless Otherwise Specified

# Consult Dodge For Sizes Not Listed.

# Consult Dodge For Sizes Not Listed.

Shaft Size Inches	A	B*	C*	D		F Bolt Dia.	G*	H*	J	L Δ	M	P*	EXP**
				Min.	Max.								
1-3/16													
1-1/4	4.50	9.00	3.00	6.88	7.63	1/2	1.00	2.13	6.25	3.09	2.88	5.88	3/16
1-7/16													
1-1/2													
1-11/16	4.88	9.50	3.38	7.38	8.13	1/2	0.81	2.38	6.81	3.50	3.13	6.50	5/8
1-3/4													
1-15/16	5.25	11.00	3.50	8.50	9.00	5/8	1.25	2.50	7.13	3.88	3.25	7.38	5/8
2													
2-3/16	5.75	12.00	4.00	9.25	10.25	5/8	1.18	2.88	8.00	4.38	3.75	8.00	5/8
2-1/4													
2-7/16	6.00	13.25	4.25	10.13	11.38	3/4	1.50	3.00	8.56	4.66	4.00	8.88	5/8
2-1/2													
2-11/16	6.50	14.25	4.75	11.13	12.38	3/4	1.50	3.75	9.88	5.44	4.75	9.88	3/4
2-7/8													
2-15/16													
3													
3-3/16	7.00	16.75	5.50	13.75	14.25	7/8	1.50	4.00	11.38	5.94	5.50	11.63	3/4
3-7/16													

**NOTE:** All sizes use a 1/8 - 27 NPT hydraulic grease fitting

\* These Are As Cast Surfaces. Dimensions May Fluctuate Due To Draft Angles And Pattern Shifts

Δ A One-piece Collar Furnished Up Thru 2-7/16 Sizes. Larger Sizes Use A Two-piece Collar.

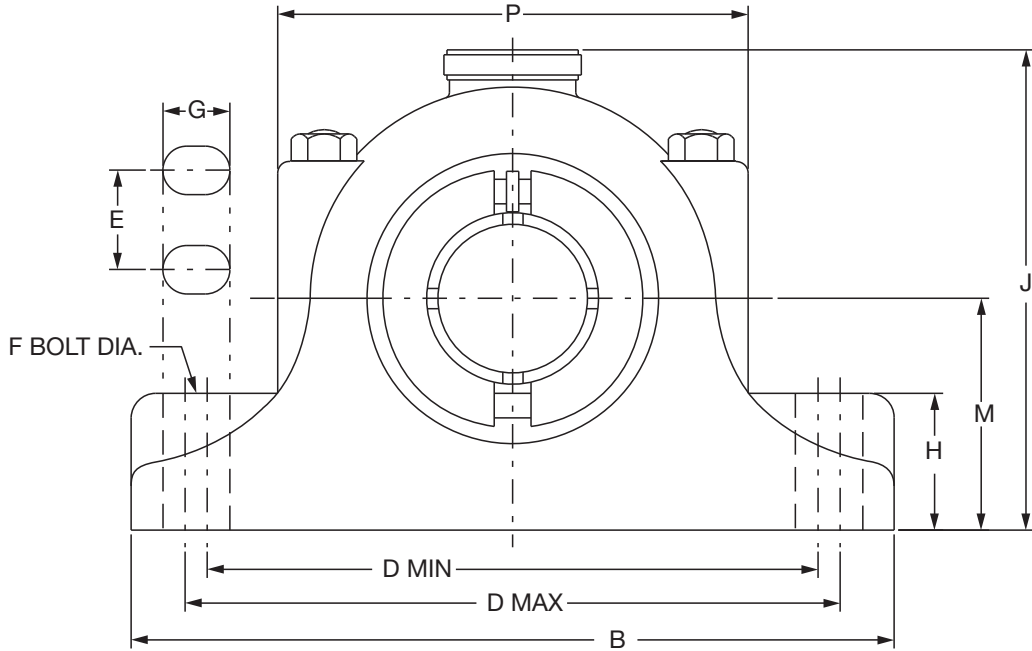
\*\* EXP - Total Expansion For Expansion Bearing Only

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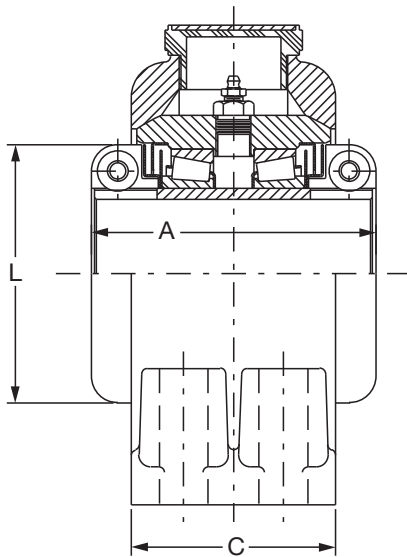
# SELECTION/DIMENSIONS



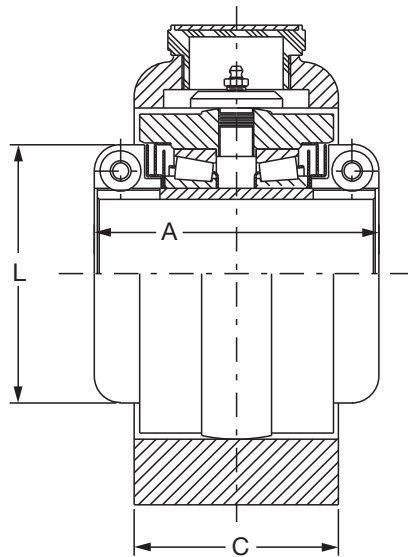
## Type C Pillow Block - Inch 4-BOLT BASE



**NOTE:** All sizes use a 1/8 - 27 NPT hydraulic grease fitting



NON-EXPANSION CONSTRUCTION



EXPANSION CONSTRUCTION

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# SELECTION/DIMENSIONS

## Type C Pillow Block - Inch 4-BOLT BASE

Gray Iron Non-Expansion*				Gray Iron Expansion			
Shaft Size Inches#	Part Number	Part Name	Weight Lbs (Approx)	Shaft Size Inches#	Part Number	Part Name	Weight Lbs (Approx)
2-7/16	<b>065310</b>	P4B-C-207	59	2-7/16	<b>087191</b>	P4B-C-207E	59
2-15/16	<b>065302</b>	P4B-C-215	85	2-15/16	<b>087192</b>	P4B-C-215E	85
3-7/16	<b>065303</b>	P4B-C-307	130	3-7/16	<b>087193</b>	P4B-C-307E	135
3-15/16	<b>065298</b>	P4B-C-315	230	3-15/16	<b>087188</b>	P4B-C-315E	230
4-7/16	<b>065299</b>	P4B-C-407	280	4-7/16	<b>087189</b>	P4B-C-407E	290
4-15/16	<b>065300</b>	P4B-C-415	370	4-15/16	<b>087190</b>	P4B-C-415E	380

\* Furnished Unless Otherwise Specified

# Consult Dodge For Sizes Not Listed.

# Consult Dodge For Sizes Not Listed.

Shaft Size Inches	A	B*	C*	D		E	F Bolt Dia.	G*	H*	J	L Δ	M	P*	Exp**
				Min.	Max.									
2-7/16	6.00	13.25	4.25	10.00	11.50	2.50	5/8	1.50	3.00	8.50	4.66	4.00	8.88	5/8
2-15/16	6.50	14.25	4.75	11.00	12.50	2.75	5/8	1.50	3.75	9.88	5.44	4.75	9.88	5/8
3-7/16	7.00	16.75	5.50	12.88	14.63	3.25	3/4	1.50	4.00	11.38	5.94	5.50	11.63	3/4
3-15/16	9.50	19.00	7.00	15.00	16.00	3.25	7/8	1.50	4.00	13.38	7.38	6.38	13.88	3/4
4-7/16	10.00	20.00	7.50	15.63	17.38	3.50	7/8	1.88	4.00	14.50	8.38	7.25	15.25	3/4
4-15/16	11.25	23.00	8.25	17.75	19.75	3.75	1	2.13	4.25	15.63	9.38	7.50	16.75	3/4

**NOTE:** All sizes use a 1/8 - 27 NPT hydraulic grease fitting

Δ A One-piece Collar Furnished Up Thru 2-7/16 Sizes. Larger Sizes Use A Two-piece Collar.

\* These Are As Cast Surfaces. Dimensions May Fluctuate Due To Draft Angles And Pattern Shifts

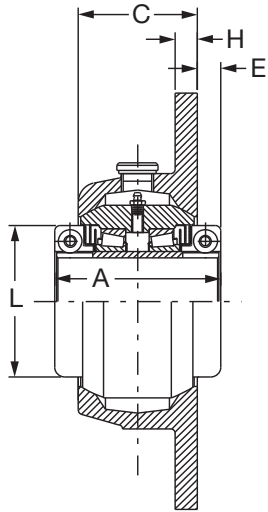
\*\* EXP - Total Expansion For Expansion Bearing Only

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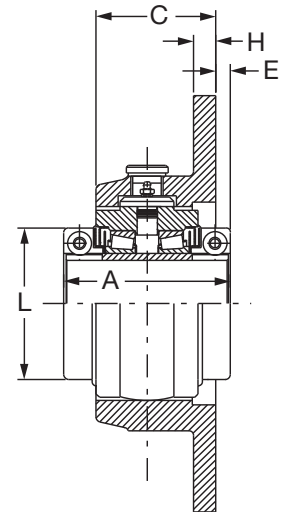
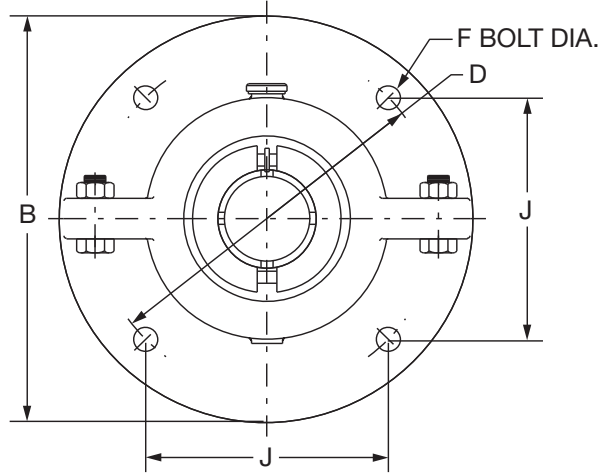
# SELECTION/DIMENSIONS



## Type C Flange Bearing - Inch



NON-EXPANSION CONSTRUCTION



EXPANSION CONSTRUCTION

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# SELECTION/DIMENSIONS

## Type C Flange Bearing - Inch

Gray Iron Non-Expansion*				Gray Iron Expansion			
Shaft Size Inches#	Part Number	Part Name	Weight Lbs (Approx)	Shaft Size Inches#	Part Number	Part Name	Weight Lbs (Approx)
1-7/16	104040	F4B-C-107	21	1-7/16	104050	F4B-C-107E	21
1-11/16	104041	F4B-C-111	31	1-11/16	104051	F4B-C-111E	31
1-3/4	104106	F4B-C-112	31	1-3/4	104078	F4B-C-112E	31
1-15/16	104042	F4B-C-115	37	1-15/16	104052	F4B-C-115E	38
2-3/16	104043	F4B-C-203	49	2-3/16	104053	F4B-C-203E	49
2-7/16	104044	F4B-C-207	63	2-7/16	104054	F4B-C-207E	63
2-15/16	104045	F4B-C-215	98	2-15/16	104055	F4B-C-215E	98
3	104119	F4B-C-300	140	3	104090	F4B-C-300E	140
3-7/16	104046	F4B-C-307	140	3-7/16	104056	F4B-C-307E	140

\* Furnished Unless Otherwise Specified

# Consult Dodge For Sizes Not Listed.

# Consult Dodge For Sizes Not Listed.

Shaft Size Inches	A	B	C	D	E	F Bolt Dia.	H	J	L Δ	Exp*
1-7/16	4.50	8.25	3.00	7.00	0.75	1/2	0.63	4.95	3.09	3/16
1-11/16	4.88	9.00	3.38	7.63	0.75	1/2	0.69	5.39	3.50	1/4
1-3/4	5.25	10.00	3.50	8.38	0.88	5/8	0.75	5.92	3.88	1/4
1-15/16	5.75	10.75	4.00	9.13	0.88	5/8	0.81	6.45	4.38	1/4
2-3/16	6.00	12.00	4.25	10.25	0.88	3/4	0.88	7.25	4.66	1/4
2-7/16	6.50	13.00	4.63	11.25	0.94	3/4	1.00	7.96	5.44	5/8
2-15/16	7	14.50	5.375	12.5	0.81	7/8	1.13	8.839	5.94	1/4
3										
3-7/16										

Δ A One-Piece Collar Furnished Up Thru 2-7/16 Sizes.

\* EXP - Total Expansion For Expansion Bearing Only.

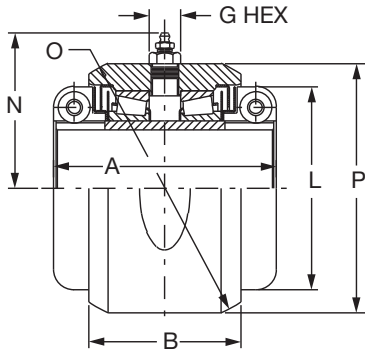
Larger Sizes Use A Two-Piece Collar.

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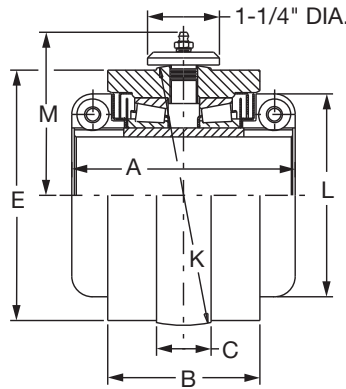
# SELECTION/DIMENSIONS



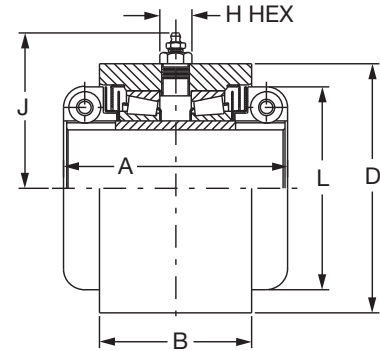
## Type C Units - Inch



**D UNIT**  
USED IN NON-EXPANSION HOUSINGS



**S-1 UNIT**  
USED IN EXPANSION HOUSINGS



**B-1 UNIT**  
USED IN CUSTOMER MANUFACTURED HOUSINGS

### Type C Units - Inches

Shaft Size Inches #	D Units		S-1 Units		B-1 Units		Weight Lbs (Approx)
	Part Number	Part Name	Part Number	Part Name	Part Number	Part Name	
1-7/16	065282	DU-C-107	087199	S1U-C-107	069060	B1U-C-107	7
1-1/2	065258	DU-C-108	087205	S1U-C-108	----	----	11
1-11/16	065283	DU-C-111	087200	S1U-C-111	069061	B1U-C-111	11
1-3/4	065260	DU-C-112	087207	S1U-C-112	----	----	11
1-15/16	065284	DU-C-115	087194	S1U-C-115	069062	B1U-C-115	12
2	065262	DU-C-200	087209	S1U-C-200	069034	B1U-C-200	18
2-3/16	065285	DU-C-203	087195	S1U-C-203	069063	B1U-C-203	17
2-1/4	065265	DU-C-204	087215	S1U-C-204	----	----	17
2-7/16	065286	DU-C-207	087196	S1U-C-207	069064	B1U-C-207	20
2-1/2	----	----	----	----	069039	B1U-C-208	35
2-11/16	065268	DU-C-211	087218	S1U-C-211	----	----	34
2-7/8	065270	DU-C-214	087220	S1U-C-214	----	----	34
2-15/16	065287	DU-C-215	087197	S1U-C-215	069065	B1U-C-215	34
3	065271	DU-C-300	087221	S1U-C-300	----	----	55
3-3/16	----	----	087222	S1U-C-303	069045	B1U-C-303	53
3-1/4	----	----	----	----	069046	B1U-C-304	53
3-7/16	065288	DU-C-307	087198	S1U-C-307	069066	B1U-C-307	51
3-1/2	065274	DU-C-308	087224	S1U-C-308	----	----	115
3-11/16	----	----	087225	S1U-C-311	----	----	115
3-15/16	065304	DU-C-315	087210	S1U-C-315	069067	B1U-C-315	115
4	----	----	----	----	069069	B1U-C-400	115
4-7/16	065305	DU-C-407	087211	S1U-C-407	----	----	138
4-15/16	065306	DU-C-415	087212	S1U-C-415	----	----	190

#Consult Dodge For Sizes Not Listed.

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# SELECTION/DIMENSIONS



## Type C Units - Inch

Bearing Reference Guide

E-Family Roller Bearings

Specialty Tapered Products

S-2000

UNISPHERE II

IMPERIAL

UNIFIED SAF

Shaft Size Inches	A	B	C	D**	E	G Hex	H Hex	J	K	L	M	N	O**	P
1-7/16	4.50	2.69	0.75	3.875	3.81	7/16	5/8	3.13	4.062	3.09	2.69	2.50	4.438	3.94
1-1/2														
1-11/16	4.88	3.13	0.75	4.250	4.13	7/16	5/8	3.31	4.438	3.50	2.88	2.75	5.000	4.50
1-3/4														
1-15/16	5.25	3.25	0.88	4.750	4.50	7/16	5/8	3.56	4.812	3.88	3.06	2.88	5.312	4.75
2														
2-3/16	5.75	3.75	0.88	5.250	5.00	7/16	5/8	3.81	5.375	4.38	5.31	3.19	6.000	5.38
2-1/4														
2-7/16	6.00	4.00	1.00	5.750	5.31	5/8	5/8	4.06	5.687	4.66	3.80	4.09	6.375	5.69
2-1/2														
2-11/16	6.50	4.44	1.00	6.500	6.19	5/8	3/4	4.63	6.562	5.44	4.50	4.50	7.312	6.50
2-7/8														
2-15/16														
3														
3-3/16	7.00	5.00	1.25	7.750	7.50	5/8	3/4	5.25	8.000	5.94	4.88	5.56	8.625	7.91
3-1/4														
3-7/16														
3-1/2														
3-11/16	9.50	6.25	1.50	9.250	8.81	5/8	3/4	6.00	9.500	7.38	5.63	6.38	10.250	9.75
3-15/16														
4														
4-7/16	10.00	6.63	1.75	10.500	9.84	3/4	3/4	6.63	10.625	8.38	6.19	6.89	11.125	10.38
4-15/16	11.25	7.38	2.00	11.750	10.84	3/4	3/4	7.25	11.500	9.38	6.63	7.44	12.500	11.88

**NOTE:** All sizes use a 1/8 - 27 NPT hydraulic grease fitting

Δ A One-Piece Collar Furnished Up Thru 2-7/16 Sizes. Larger Sizes Use A Two-Piece Collar

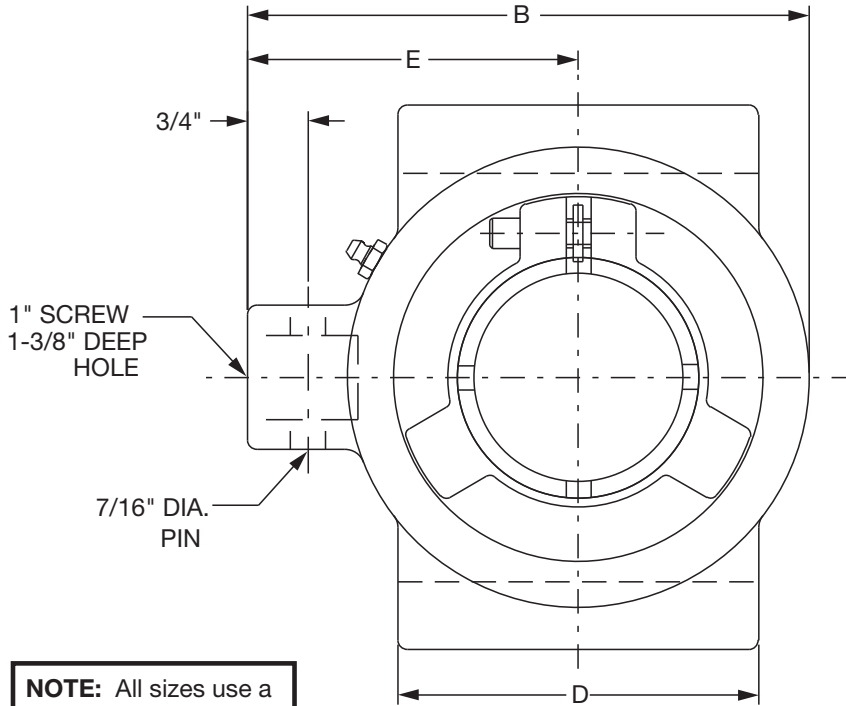
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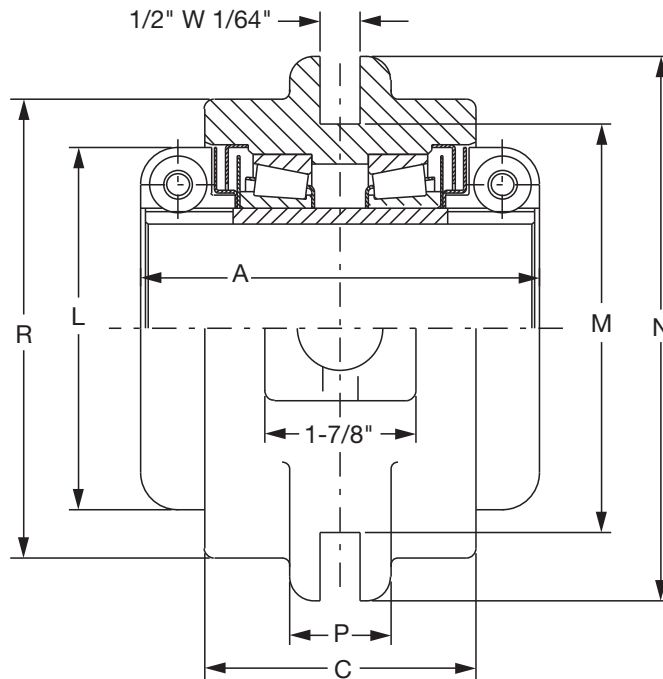
# SELECTION/DIMENSIONS



## Type C Take-Up Bearing



**NOTE:** All sizes use a 1/8 - 27 NPT hydraulic grease fitting



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# SELECTION/DIMENSIONS

## Type C Take-Up Bearing

Gray Iron			
Shaft Size Inches #	Part Number	Part Name	Weight Lbs (Approx)
1-7/16	<b>036116</b>	NSTU-C-107	12
1-1/2	<b>036054</b>	NSTU-C-108	15
1-15/16	<b>036118</b>	NSTU-C-115	18
2-3/16	<b>036119</b>	NSTU-C-203	26
2-7/16	<b>036120</b>	NSTU-C-207	27
2-15/16	<b>036121</b>	NSTU-C-215	37

# Consult Dodge For Sizes Not Listed.

Shaft Size Inches	A	B	C	D	E	L	M	N	P	R
1-7/16	4.50	5.63	2.69	2.50	3.63	3.08	5.13	6.25	1.25	4.00
1-1/2	4.88	5.88	3.13	3.00	3.63	3.50	5.13	6.25	1.25	4.25
1-15/16	5.25	6.00	3.25	3.50	3.63	3.88	5.13	6.25	1.25	4.75
2-3/16	5.75	7.00	3.75	4.50	4.63	4.38	5.13	6.25	1.25	5.75
2-7/16	6.00	7.00	4.00	4.50	4.63	4.66	5.13	6.25	1.25	5.75
2-15/16	6.50	7.75	4.44	5.00	4.50	5.44	6.13	7.25	1.25	6.50

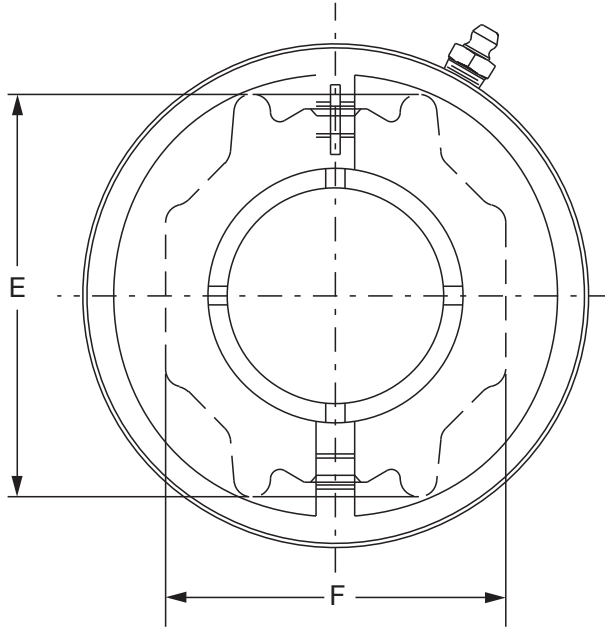
**Note:** All sizes use a 1/8-27 NPT hydraulic grease fitting

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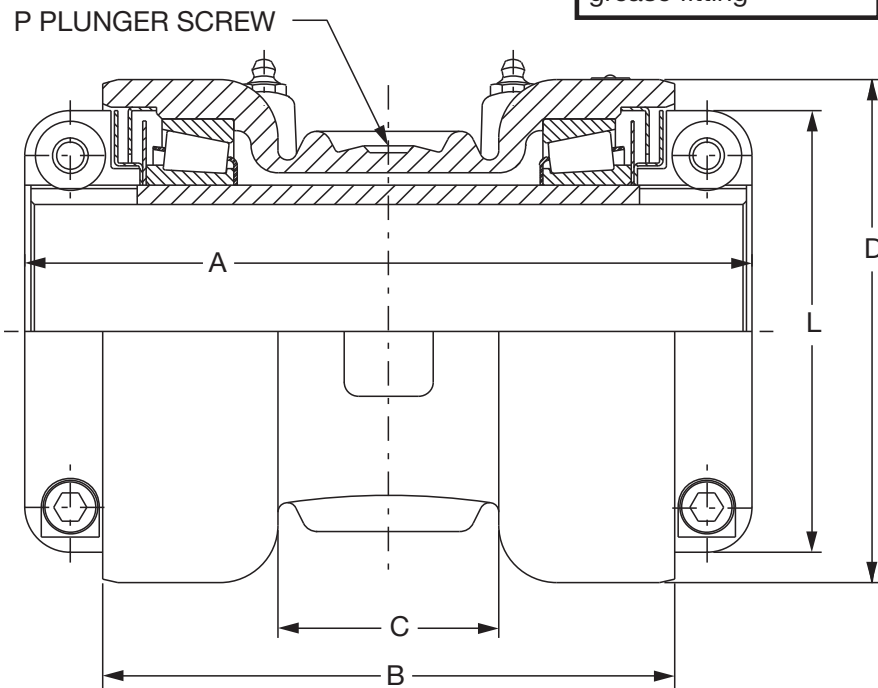
# SELECTION/DIMENSIONS



## Type C Hanger Bearing



**NOTE:** All sizes use a 1/8 - 27 NPT hydraulic grease fitting



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## Type C Hanger Bearing

Gray Iron			
Shaft Size Inches #	Part Number	Part Name	Weight Lbs (Approx)
1-15/16	<b>061082</b>	HNG-C-115	16
2-3/16	<b>061083</b>	HNG-C-203	21
2-7/16	<b>061084</b>	HNG-C-207	30
2-11/16	<b>061085</b>	HNG-C-211	41
2-15/16	<b>061086</b>	HNG-C-215	40
3-7/16	<b>061087</b>	HNG-C-307	51

# Consult Dodge For Sizes Not Listed.

Shaft Size Inches	A	B	C	D	E	F	L	P
1-15/16	8.25	6.25	2.75	4.63	3.38	2.94	3.88	5/8, 1-1/2
2-3/16	8.88	6.88	3.00	5.13	3.75	3.31	4.38	5/8, 1-1/2
2-7/16	9.63	7.63	3.00	5.38	4.13	3.50	4.66	5/8, 1-1/2
2-11/16	10.38	8.25	3.25	6.25	4.63	4.00	5.44	3/4, 2
2-15/16								
3-7/16	11.25	9.25	4.00	6.75	5.13	4.50	5.94	3/4, 2-1/2

**Note:** All sizes use a 1/8-27 NPT hydraulic grease fitting

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# SPECIFICATION



## Special Duty

The standard housing material for Special Duty mounted bearings is ASTM A48 Class 30 Iron having a minimum tensile strength of 30,000 psi. The outer housings for the pillow blocks and flange bearings are of split construction for ease of replacement of the completely assembled, adjusted and lubricated inner units. The housings for the D, S-1 and B-1 units are of solid one piece construction. Pillow blocks and flange bearings are available in both expansion and non expansion types.

Special Duty mounted bearings have duplex tapered roller mounted to the shaft with a tapered adaptor sleeve extending thru the complete length of the pillow block. The tapered roller bearings used in the Special Duty mounted bearings all have case carburized inner races (cone), outer races (cup) and rollers. A single adaptor nut is used on sizes thru 3-1/2" with two adaptor nuts being used on the larger sizes. The nut at the large end of the taper can be used to remove the bearing from the shaft.

Special Duty mounted bearings have two piston ring seals running in grooves in the seal ring carriers at each end of the units to seal the bearings both on and off the shaft. Sizes thru 3-1/2" use a grooved seal ring carrier at one end and grooved adaptor at the opposite end for carrying the piston ring seals. Larger sizes have grooved adaptor nuts to carry the piston ring seals.

## SPECIAL DUTY (Hinged Cap Type)

The standard housing material for Special Duty hinged cap bearings is ASTM A48 Class 30 Iron having a minimum tensile strength of 30,000 psi. The housing is equipped with a brass hand wheel for ease of removal of the S-1 unit from the pillow block housing. Hinged cap pillow blocks are available in both expansion and non-expansion types.

Hinged cap pillow blocks and units are mounted to the shaft with a tapered adapter sleeve extending completely thru the unit. The tapered adapter sleeve is equipped with micro mount removal screws for ease of demounting the bearing from the shaft.

The hinged cap pillow blocks are arranged for relubrication from the end of the pillow block rather than from the top of the pillow block. Besides the features specified above the hinged cap pillow blocks have many other features in common with the special duty mounted bearings.

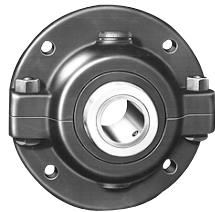
## TRACTION WHEEL

The traction wheel is to be equipped with a ductile iron (ASTM 536 grade 65-45-10) hub, having indirect mounted tapered roller bearings mounted to ASTI 1018 shafting secured in a support and having drops of 7-3/16", 8" and 10". Combination labyrinth and dynaface seals shall be used.

## SPECIAL DUTY AVAILABLE IN



Pillow Blocks,  
2-Bolt Base  
1-3/8" To 3-1/2"  
  
Pillow Blocks,  
4-Bolt Base  
2-1/4" To 12"



Flange  
Bearings  
4-Bolt  
1-3/16" To 6"



All In Either Expansion Or Non-Expansion D, S1 & B1 Units 1-3/8" To 12"

Hinged Cap Pillow Blocks Available In Pillow Blocks,  
2-Bolt Base  
1-3/8" To 2-15/16"  
All In Either Expansion Or Non-Expansion

Hinged Cap S-1 Units  
1-3/8" To 2-15/16"



Traction Wheel

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# HOW TO ORDER

## Special Duty

There are two ways to specify DODGE Bearings. Most of the product offering have part numbers with listings shown throughout this catalog. Use of part numbers ensures accurate order processing.

When part numbers are not shown, the product may be specified by description or part name. This method is used when ordering units that include modifications or options. To order by description, use the nomenclature key shown on the next page and add any special instructions to the end of the description for options not covered by the nomenclature.

### SPECIAL BEARING REQUIREMENTS AND LUBRICANTS

DODGE Bearings are factory adjusted and pre-lubricated with lithium based NLGI Grade 2 grease. For applications where extreme ambient temperatures, high speeds or high loads are

expected, a variety of specialty lubricants and adjustments are available. Special lubricant options usually involve set-up charges and premiums. To order, specify type of lubricant required at the end of the product name or after the standard part number.

Example:

066231 except with Mobilith SHC 460 grease and .012-.015 Lateral End Play

or

P4B-SD-215 except with Mobilith SHC 460 grease and .012-.015 Lateral End Play

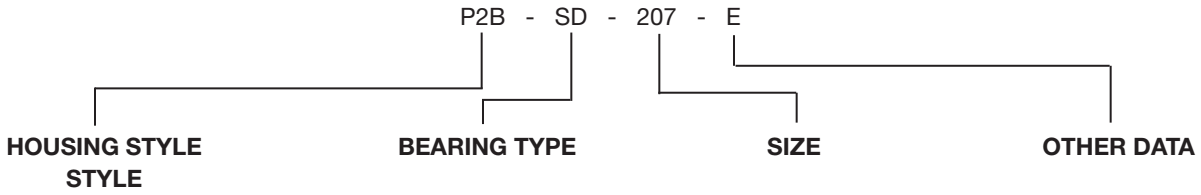
### OTHER SPECIAL REQUIREMENTS NOT LISTED

For applications requiring modifications not listed, we encourage you to contact our Customer Order Engineering Department for Bearings at 864-284-5700.

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## Specialty Tapered Products



P2B = PILLOW BLOCK  
2 BOLT, CAST IRON

P4B = PILLOW BLOCK  
4 BOLT, CAST IRON

SP4B = PILLOW BLOCK  
4 BOLT, CAST STEEL

F4B = FLANGE BEARING  
4 BOLT, CAST IRON

B1U = B-1 UNIT, CAST IRON

DU = D UNIT, CAST IRON

S1U = S-1 UNIT, CAST IRON

CRT = CARTRIDGE UNIT  
DUCTILE IRON END PLATES

NSTU = NARROW SLOT TAKE UP  
BEARING, CAST IRON

HNG = HANGER BEARING CAST IRON

C = TYPE C

SD = SPECIAL DUTY

HC = HINGED CAP

TRW - TRACTION WHEEL

AS = ALL STEEL

INCHES & 16TH

2 = 2 INCHES

07 = 7/16 INCHES

OR

207 = 2-7/16"

E = EXPANSION  
TYPE BEARING

IF E DOES NOT APPEAR  
AFTER SEAL TYPE, THEN  
BEARING IS NON-EXPANSION  
TYPE

FEATURES/BENEFITS PAGE B11-3	SPECIFICATION B11-20	SELECTION B11-23	SELECTION/DIMENSIONS PAGE B11-30
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# SELECTION

## Special Duty

### SPECIAL DUTY-DOUBLE ROW TAPERED ROLLER BEARINGS

DODGE Special Duty Double Row Tapered Roller Bearings have the highest capacity of all DODGE Tapered Roller Bearings. They carry heavy radial loads and combined radial and thrust loads. The maximum recommended load which can be applied is limited by various components in the system such as bearing, housing, shaft, shaft attachment, speed and life requirements as listed in this catalog. DODGE Special Duty Tapered Roller Bearings have been applied successfully even when these limits have been exceeded under controlled operating conditions. Contact DODGE Application Engineering (864) 284-5700 for applications which exceed the recommendations of this catalog.

**L<sub>10</sub> Hours Life\*** --- The life which may be expected from at least 90% of a given group of bearings operating under identical conditions.

$$L_{10} = \left( \frac{C_{90}}{P} \right)^{10/3} \times \left( \frac{1,500,000}{\text{RPM}} \right)$$

Where:

C<sub>90</sub> = Dynamic Capacity (Table 4, pg. B11-25), lbs

P = Equivalent Radial Load, lbs.

### GENERAL

**Heavy Service** --- For heavy shock loads, frequent shock loads, or severe vibrations, add up to 50% (according to severity of conditions) to the Equivalent Radial Load. Consult DODGE Application Engineering for additional selection assistance.

Thrust load values shown in the table below are recommended as a guide for general applications that will give adequate L<sub>10</sub> life for pillow blocks. The maximum thrust load should not exceed values shown on Table 6. Where substantial radial load is also present, it is advisable to calculate actual L<sub>10</sub> life to assure that it meets the requirements. The effectiveness of the shaft attachment to carry thrust load depends on proper tightening, shaft tolerance (see table below) and shaft deflections. Therefore, it is advisable to use auxiliary thrust carrying devices such as shaft shoulder, snap ring or a thrust collar to locate the bearing under thrust loads heavier than shown below, or where extreme reliability is desired.

RPM RANGE	20-200	201-2000	Over 2000
Recommended Thrust Load	C <sub>90</sub> /4	C <sub>90</sub> /8	C <sub>90</sub> /12

The shaft tolerances recommended below are adequate for normal radial and radial/thrust load applications. Since the

allowable load, especially at a low speed, is very large, the shaft should be checked to assure adequate shaft strength.

The magnitude and direction of both the thrust and radial load must be taken into account when selecting a housing. **When pillow blocks are utilized, heavy loads should be directed through the base. Where uplift loads are involved, see Table 9, pg. B11-29 for maximum values.** Where a load pulls the housing away from the mounting base, both the hold-down bolts and housing must be of adequate strength. Auxiliary load carrying devices such as shear bars are advisable for side or end loading of pillow blocks and radial load for flange units.

Shaft Size	Tolerance, Inches
Up To 1-1/2"	+.000-.002"
1-9/16 To 2-1/2"	+.000-.003"
2-1/2 To 4"	+.000-.004"
4-3/16 To 6"	+.000-.005"
6-7/16 To 8"	+.000-.006"

L<sub>10</sub> Life Adjustment - The calculated L<sub>10</sub> Life obtained from this procedure is subject to life adjustment factors in accordance with ABMA standards described on page B16-9. Consult Application Engineering for assistance.

### SELECTING BEARINGS SUPPORTING RADIAL LOADS ONLY

1. Define L<sub>10</sub> Life Hours desired.
2. Establish bearing radial load, F<sub>R</sub> (F<sub>R</sub> = P for Pure Radial Load Conditions). The DODGE program BEST can be used to find application loads.
3. Establish RPM.

Using the easy selection Table 5, pg. B11-26 find, under the RPM column, the equivalent radial load that equals or is higher than the application radial load for the desired life. The shaft size on the far left will be the minimum shaft size that you can use for your application. If the desired life is different than the values shown on the chart, use alternate Method A shown below.

Example:

1. L<sub>10</sub> Life = 30,000 Hours
2. Radial load = 3800 lbs.
3. RPM = 1,000

At the intersection of the 1,000 RPM column and the 30,000 hours L<sub>10</sub> life row, the equivalent radial load of 4362 lbs. Exceeds the 3800 lbs. Radial load for shaft sizes 2-1/8" to 2-1/4". A bearing with bore ranging from 2-1/8" to 2-1/4" may be used for this application.



# SELECTION

## Special Duty

### ALTERNATE METHOD A - SELECTING A BEARING FOR AN L<sub>10</sub> LIFE VALUE NOT SHOWN IN THE EASY SELECTION CHART.

The L<sub>10</sub> life equation can be rearranged so that the bearing dynamic capacity C is identified in terms of L<sub>10</sub>, RPM and P.

$$C_{90} = \left( \frac{L_{10} \times \text{RPM}}{1,500,000} \right)^{0.3} \times P$$

(P = F<sub>R</sub> for Pure Radial Load Conditions)

Since the L<sub>10</sub>, RPM, and P are known, solve for C<sub>90</sub>. Select from the dynamic capacity column on Table 4, pg. B11-25 the C<sub>90</sub> value equal to or greater than the C<sub>90</sub> value just calculated. The bore size on the far left represents the bore size selection. Check that the application RPM does not exceed the MAX. RPM on Table 4. When selecting an L<sub>10</sub> life of less than 30,000 hours, particular attention must be paid to shaft deflection and proper lubricant selection.

### SELECTING BEARINGS SUPPORTING COMBINATION RADIAL AND THRUST LOADS

When a bearing supports both a radial load and a thrust load, the loading on the two rows is shared unequally depending on the ratio of thrust to radial load. The use of the X (radial factor) and Y (thrust factor) from Table 4 converts the applied thrust load and radial loads to an equivalent radial load having the same effect on the life of the bearing as a radial load of this magnitude.

The equivalent radial load  $P = XF_R + YF_A$

Where:

- P = Equivalent radial load, lbs.
- FR = Radial load, lbs.
- FA = Thrust (axial) load, lbs.
- e = Thrust load to radial load factor (Table 4)
- X = Radial load factor (Table 4)
- Y = Thrust load factor (Table 4)

To find X and Y, calculate FA/FR and compare to e for the selected bore size. Determine X and Y from Table 4, pg. B11-25

depending on whether FA/FR is equal to or less than e, or FA/FR is greater than e. Substitute all known values into the equivalent radial load equation. P (equivalent radial load) can be used in the life formula to determine L<sub>10</sub>, or it can be compared to the allowable equivalent radial load ratings for the speed and hours life desired in the easy selection Table 5, pg. B11-26 & B11-27.

### SELECTING BEARINGS SUPPORTING ONLY THRUST LOADS

Tapered Roller Bearings perform extremely well under pure thrust load applications. Use  $P = YF_A$  for the equivalent radial load. The value of Y is obtained from Table 4, pg. B11-25 for FA/FR > e. Substitute Y and F<sub>A</sub> into the equivalent load equation. P (equivalent radial load) can be used in the life formula to determine L<sub>10</sub> or it can be compared to the allowable equivalent radial load ratings for the speed and hours life desired in the easy selection Table 5, pg. B11-26 & B11-27.

### LUBRICATION

DODGE Special Duty Tapered Roller Bearings are lubricated at the factory with Mobilgrease XHP222. This grease will adequately handle low and medium speeds with low and medium loads at normal temperatures as defined on Table 8, pg. B11-29 For very low and high speeds, for heavy loads and for low and high temperatures, special greases must be used. Contact DODGE Application Engineering (864) 284-5700. DODGE engineers will recommend bearings and lubricants for the above unusual conditions. DODGE also has the expertise to custom design and build special bearings for your needs. The only maintenance requirement for DODGE Tapered Roller Bearings is periodic relubrication at regular intervals as outlined in the appropriate instruction manuals.

### INSTALLATION AND MAINTENANCE

In nearly all applications good design practice requires two bearings supporting the shaft. In cases where three or more bearings are installed, unless precautions are taken to line the bearings up, both vertically and horizontally, it is possible to induce heavy loads. In the case of two bearings, alignment is not as critical, especially with DODGE Special Duty Tapered Roller Bearings. Special Duty bearings are designed to allow as

The DODGE Bearing Evaluation and Selection Technique (BEST) is a menu driven computer program that calculates bearing loads, fatigue life and operating temperature for a two bearing shaft system based on user supplied input parameters. This interactive program is available at [www.ptwizd.com](http://www.ptwizd.com) under the Product Selection area.

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## Special Duty

much as 2° to 5° of static misalignment up to 8" bore size. 1° to 1.5° for bore sizes greater than 8". To ensure good alignment, mounting surfaces must be checked for flatness and must lie in the same plane. When tightening base bolts and cap bolts, each

bolt should be alternately tightened in incremental torque values until full torque is achieved to prevent the angular shifting of the pillow block that occurs when one bolt is tightened to its full torque. Shimming may be required to minimize misalignment.

**Table 4: Special Duty Roller Bearings Radial/Thrust Factors**

Bore Size	e	$F_A/F_R \leq e$		$F_A/F_R \geq e$		Dynamic Capacity $C_{90}$ (TS)		Maximum RPM
		X	Y	X	Y	LBS.	NEWTONS	
1-3/8 to 1-11/2	0.31	1	0	0.40	1.97	7,717	34,337	3250
1-9/16 to 1-3/4	0.43	1	0	0.40	1.39	8,177	36,373	2900
1-7/8 to 2	0.46	1	0	0.40	1.31	8,266	36,769	2700
2-1/8 to 2-1/4	0.49	1	0	0.40	1.23	10,716	47,681	2300
2-3/8 to 2-1/2	0.51	1	0	0.40	1.18	11,010	48,990	2180
2-5/8 to 3	0.27	1	0	0.40	2.23	21,331	94,912	1830
3-3/16 to 3-1/2	0.43	1	0	0.40	1.39	23,553	104,800	1510
3-11/16 to 4	0.43	1	0	0.40	1.41	35,145	156,380	1330
4-7/16 to 4-1/2	0.49	1	0	0.40	1.23	35,145	156,380	1120
4-15/16 to 5	0.46	1	0	0.40	1.31	43,550	214,339	1040
5-7/16 to 6	0.48	0.87	1.80	0.70	2.18	62,000	275,873	860
6-1/2 to 7	0.54	0.87	1.61	0.70	1.95	68,700	305,685	760
7-15/16 to 8	0.34	0.87	2.55	0.70	3.08	79,200	352,406	700
8-1/2 to 10	0.45	0.87	1.90	0.70	2.30	76,500	340,392	550
11 to 12	0.34	0.87	2.53	0.70	3.06	124,000	551,746	490

### COMPARING SPHERICAL TO TAPER ROLLER BEARING

The dynamic capacity C (spherical) and  $C_{90}$  (taper) are not to the same base.

To compare basic dynamic capacities, multiply C x .259 and compare to  $C_{90}$ .

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**Table 5: Dodge Special Duty Tapered Roller Bearings**

Bore Size	Hours Life	Allowable Equivalent Radial Load Rating (Lbs.) At Various Revolutions Per Minute												
		50	100	250	500	750	1000	1250	1500	1750	2000	2500	3000	3500
1-3/8	5,000	13210	10730	8151	6621	5862	5378	5029	4762	4546	4368	4085	3868	3693
	10,000	10730	8715	6621	5378	4762	4368	4085	3868	3693	3548	3318	3142	3000
	<b>30,000</b>	<b>7717</b>	<b>6268</b>	<b>4762</b>	<b>3868</b>	<b>3425</b>	<b>3142</b>	<b>2938</b>	<b>2782</b>	<b>2656</b>	<b>2552</b>	<b>2386</b>	<b>2259</b>	<b>2157</b>
	50,000	6621	5378	4085	3318	2938	2695	2521	2386	2279	2189	2047	1938	1851
1-7/16	5,000	13997	11369	8637	7015	6212	5698	5329	5045	4817	4628	4329	4098	
	10,000	11369	9235	7015	5698	5045	4628	4329	4098	3913	3759	3516	3329	
	<b>30,000</b>	<b>8177</b>	<b>6642</b>	<b>5045</b>	<b>4098</b>	<b>3629</b>	<b>3329</b>	<b>3113</b>	<b>2948</b>	<b>2814</b>	<b>2704</b>	<b>2529</b>	<b>2394</b>	
	50,000	7015	5698	4329	3516	3113	2856	2671	2529	2414	2320	2169	2054	
1-11/16	5,000	14149	11493	8731	7092	6279	5760	5387	5100	4870	4679	4376		
	10,000	11493	9335	7092	5760	5100	4679	4376	4143	3956	3800	3554		
	<b>30,000</b>	<b>8266</b>	<b>6714</b>	<b>5100</b>	<b>4143</b>	<b>3668</b>	<b>3365</b>	<b>3147</b>	<b>2980</b>	<b>2845</b>	<b>2733</b>	<b>2556</b>		
	50,000	7092	5760	4376	3554	3147	2887	2700	2556	2441	2345	2193		
2	5,000	18343	14899	11318	9193	8140	7467	6984	6612	6313	6065			
	10,000	14899	12102	9193	7467	6612	6065	5673	5371	5128	4927			
	<b>30,000</b>	<b>10716</b>	<b>8704</b>	<b>6612</b>	<b>5371</b>	<b>4756</b>	<b>4362</b>	<b>4080</b>	<b>3863</b>	<b>3688</b>	<b>3543</b>			
	50,000	9193	7467	5673	4608	4080	3743	3500	3314	3164	3040			
2-1/8	5,000	18847	15308	11629	9446	8364	7672	7175	6794	6487	6232			
	10,000	15308	12434	9446	7672	6794	6232	5828	5518	5269	5062			
	<b>30,000</b>	<b>11010</b>	<b>8943</b>	<b>6794</b>	<b>5518</b>	<b>4886</b>	<b>4482</b>	<b>4192</b>	<b>3969</b>	<b>3789</b>	<b>3641</b>			
	50,000	9446	7672	5828	4734	4192	3845	3596	3405	3251	3123			
2-1/2	5,000	36514	29658	22530	18300	16204	14864	13902	13162	12567				
	10,000	29658	24090	18300	14864	13162	12074	11292	10691	10208				
	<b>30,000</b>	<b>21331</b>	<b>17326</b>	<b>13162</b>	<b>10691</b>	<b>9466</b>	<b>8684</b>	<b>8121</b>	<b>7689</b>	<b>7342</b>				
	50,000	18300	14864	11292	9172	8121	7450	6967	6597	6298				
3	5,000	40317	32748	24877	20207	17892	16413	15350	14533					
	10,000	32748	26600	20207	16413	14533	13331	12468	11804					
	<b>30,000</b>	<b>23553</b>	<b>19131</b>	<b>14533</b>	<b>11804</b>	<b>10452</b>	<b>9588</b>	<b>8967</b>	<b>8490</b>					
	50,000	20207	16413	12468	10127	8967	8226	7693	7284					
3-1/2	5,000	60160	48865	37121	30152	26698	24491	22905						
	10,000	48865	39691	30152	24491	21686	19893	18604						
	<b>30,000</b>	<b>35145</b>	<b>28547</b>	<b>21686</b>	<b>17614</b>	<b>15597</b>	<b>14307</b>	<b>13381</b>						
	50,000	30152	24491	18604	15112	13381	12274	11480						
4	5,000	60160	48865	37121	30152	26698	24491							
	10,000	48865	39691	30152	24491	21686	19893							
	<b>30,000</b>	<b>35145</b>	<b>28547</b>	<b>21686</b>	<b>17614</b>	<b>15597</b>	<b>14307</b>							
	50,000	30152	24491	18604	15112	13381	12274	10869	9970	9324				
4-1/2	5,000	74548	60551	45998	37362	33083	30348							
	10,000	60551	49183	37362	30348	26872	24650							
	<b>30,000</b>	<b>43550</b>	<b>35374</b>	<b>26872</b>	<b>21827</b>	<b>19327</b>	<b>17729</b>							
	50,000	37362	30348	23054	18726	16581	15210							
5	5,000	74548	60551	45998	37362	33083	30348							
	10,000	60551	49183	37362	30348	26872	24650							
	<b>30,000</b>	<b>43550</b>	<b>35374</b>	<b>26872</b>	<b>21827</b>	<b>19327</b>	<b>17729</b>							
	50,000	37362	30348	23054	18726	16581	15210							
UNIFIED SAF	5,000	24491	19893	15112	12274	10869	9970							
	10,000	19893	15112	12274	10869	9970								
	<b>30,000</b>	<b>14307</b>	<b>11480</b>	<b>9324</b>	<b>7342</b>	<b>5828</b>	<b>4608</b>	<b>3500</b>	<b>2695</b>	<b>2189</b>	<b>1778</b>	<b>1386</b>	<b>1054</b>	<b>800</b>
	50,000	11480	9324	7342	5828	4608	3500	2695	2189	1778	1386	1054	800	



**Table 5: Dodge Special Duty Tapered Roller Bearings**

Bore Size	Hours Life	Allowable Equivalent Radial Load Rating (Lbs.) At Various Revolutions Per Minute												
		50	100	250	500	750	1000	1250	1500	1750	2000	2500	3000	3500
5-7/16 5-15/16 6	5,000	106130	86205	65485	53190	47100								
	10,000	86205	70020	53190	43205	38255								
	<b>30,000</b>	<b>62000</b>	<b>50360</b>	<b>38255</b>	<b>31075</b>	<b>27515</b>								
	50,000	53190	43205	32820	26660	23605								
100,000	43205	35090	26660	21655	19175									
6-1/2 6-15/16 7	5,000	117600	95520	72560	58940	52190								
	10,000	95520	77585	58940	47575	42390								
	<b>30,000</b>	<b>68700</b>	<b>55800</b>	<b>42390</b>	<b>34430</b>	<b>30490</b>								
	50,000	58940	47875	36365	29540	26155								
100,000	47875	38885	29540	23995	21245									
7-15/16 8	5,000	135570	110120	83650	67945	60165								
	10,000	110120	89445	67945	55190	48870								
	<b>30,000</b>	<b>79200</b>	<b>64330</b>	<b>48870</b>	<b>39695</b>	<b>35145</b>								
	50,000	67945	55190	41925	34055	30155								
100,000	55190	44830	34055	27660	24490									
8-1/2 9 9-1/2 10	5,000	130950	106365	80800	65630									
	10,000	106365	86395	65630	53310									
	<b>30,000</b>	<b>76500</b>	<b>62135</b>	<b>47250</b>	<b>38340</b>									
	50,000	65630	53310	40495	32895									
100,000	53310	43300	32895	26715										
11 12	5,000	212260	172410	130970	106380									
	10,000	172410	140040	106380	86410									
	<b>30,000</b>	<b>124000</b>	<b>100720</b>	<b>76510</b>	<b>62145</b>									
	50,000	106380	86410	65640	53315									
100,000	86410	70185	53315	43305										

Bearing Reference Guide  
 E-Family Roller Bearings  
 Specialty Tapered Products  
 S-2000  
 UNISPHERE II  
 IMPERIAL  
 UNIFIED SAF

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**Special Duty**

**Table 6: Special Duty Pillow Blocks Housing Permissible Thrust Load, Lbs. \***

Shaft Size, Inches	2-Bolt	4-Bolt	Shaft Size, Inches	2-Bolt	4-Bolt
1-3/8	1521	---	3-11/16	---	8250
1-7/16			3-3/4		
1-1/2			3-7/8		
1-9/16	1772	---	3-15/16	---	10538
1-5/8			4		
1-11/16			4-7/16		
1-3/4	1964	---	4-1/2	---	12190
1-7/8			4-15/16		
1-15/16			5		
2	2325	---	5-7/16	---	17957
2-1/8			5-15/16		
2-3/16			6		
2-1/4	3122	3122	6-1/2	---	24115
2-3/8			6-15/16		
2-7/16			7		
2-1/2	4375	4375	7-15/16	---	27260
2-5/8			8		
2-11/16			8-1/2		
2-3/4	4375	4375	9	---	38138
2-13/16			9-1/2		
2-7/8			10		
2-15/16	6118	6118	11	---	50655
3			12		
3-3/16					
3-1/4					
3-3/8					
3-7/16					
3-1/2					

\* The limits above apply to pillow blocks. For thrust loads larger than listed or heavy thrust loading on other style housing, contact DODGE Engineering for recommendation.

**Table 7: Special Duty Maximum Total Axial Expansion**

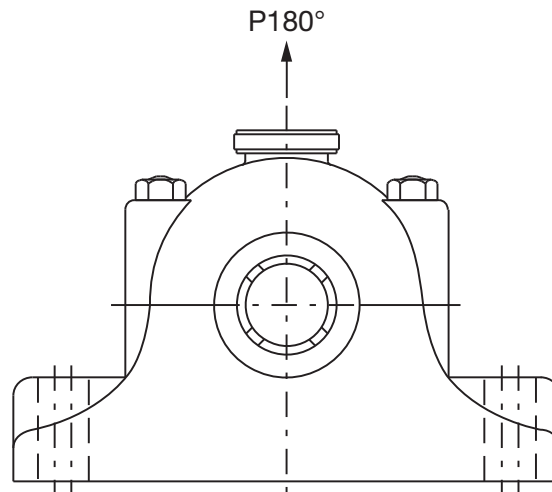
Shaft Size - Inches	Special Duty		
	2-Blt. P.B.	4-Blt. P.B.	Fig.
1-3/8 - 1-1/2	3/16	-	3/16
1-9/16 - 1-3/4	5/8	-	1/4
1-7/8 - 2	5/8	-	1/4
2-1/8 - 2-1/4	5/8	-	1/4
2-3/8 - 2-1/2	5/8	5/8	1/4
2-5/8 - 3	3/4	5/8	5/8
3-3/16 - 3-1/2	3/4	3/4	3/4
3-11/16 - 4	-	3/4	1/4
4-7/16 - 4-1/2	-	3/4	5/8
4-15/16 - 5	-	3/4	5/8
5-7/16 - 6	-	3/4	5/8
6-1/2 - 7	-	1-1/2	-
7-15/16 - 8	-	1-1/2	-
8-1/2 - 10	-	1-1/2	-
11 - 12	-	1-1/2	-



## Special Duty

**Table 8: Definition of Operating Conditions For Tapered Roller Bearings**

LOW SPEED	UP TO 20% OF MAX. RPM (TABLE 4)
MEDIUM SPEED	OVER 20% TO 80% OF MAX. RPM
HIGH SPEED	OVER 80% OF MAX. RPM
LIGHT LOAD	UP TO 30% OF C <sub>90</sub> (TABLE 4)
NORMAL LOAD	OVER 30% TO 70% OF C <sub>90</sub>
HEAVY LOAD	OVER 70% OF C <sub>90</sub>
LOW TEMPERATURE	-100°F TO 20°F
MEDIUM TEMPERATURE	OVER 20°F TO 200°F
HIGH TEMPERATURE	OVER 200°F TO 300°F
VERY HIGH TEMPERATURE	OVER 300°F TO 400°F



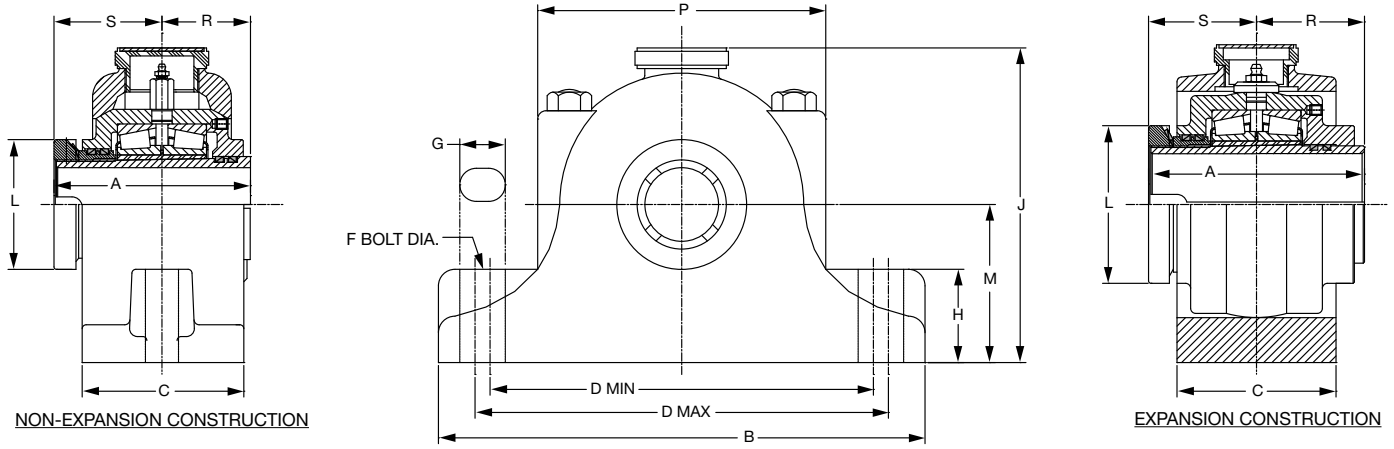
**Table 9: Pillow Block Housing Ratings, Special Duty**

Shaft Size (Inches)	Housing Strength Lbs. Gray Iron 180°
1-3/8 - 1-1/2	3,470
1-9/16 - 1-3/4	4,430
1-7/8 - 2	5,250
2-1/8 - 2-1/4	7,300
2-3/8 - 2-1/2	7,200
2-5/8 - 3	10,600
3-3/16 - 3-1/2	13,000
3-11/16 - 4	21,600
4-7/16 - 4-1/2	25,800
4-15/16 - 5	22,900
5-7/16 - 6	41,500
6-1/2 - 7	82,000
7-15/16 - 8	104,000

# SELECTION/DIMENSIONS



## Special Duty Pillow Block - Inch 2-BOLT BASE



Gray Iron Non-Expansion*				Gray Iron Expansion †			
Shaft Size Inches #	Part Number	Part Name	Weight Lbs (Approx)	Shaft Size Inches #	Part Number	Part Name	Weight Lbs (Approx)
1-3/8	<b>066213</b>	P2B-SD-106	20	1-3/8	<b>066249</b>	P2B-SD-106E	22
1-7/16	<b>066214</b>	P2B-SD-107	20	1-7/16	<b>066250</b>	P2B-SD-107E	22
1-1/2	<b>066300</b>	P2B-SD-108	20	1-1/2	<b>066306</b>	P2B-SD-108E	22
1-9/16	<b>066212</b>	P2B-SD-109	27	1-9/16	<b>066248</b>	P2B-SD-109E	28
1-5/8	<b>066228</b>	P2B-SD-110	27	1-5/8	<b>066243</b>	P2B-SD-110E	28
1-11/16	<b>066216</b>	P2B-SD-111	27	1-11/16	<b>066252</b>	P2B-SD-111E	28
1-3/4	<b>066301</b>	P2B-SD-112	27	1-3/4	<b>066307</b>	P2B-SD-112E	28
1-7/8	<b>066217</b>	P2B-SD-114	33	1-7/8	<b>066253</b>	P2B-SD-114E	33
1-15/16	<b>066218</b>	P2B-SD-115	32	1-15/16	<b>066254</b>	P2B-SD-115E	32
2	<b>066302</b>	P2B-SD-200	32	2	<b>066308</b>	P2B-SD-200E	32
2-1/8	<b>066215</b>	P2B-SD-202	48	2-1/8	<b>066257</b>	P2B-SD-202EE	50
2-3/16	<b>066220</b>	P2B-SD-203	47	2-3/16	<b>066256</b>	P2B-SD-203E	49
2-1/4	<b>066303</b>	P2B-SD-204	47	2-1/4	<b>066309</b>	P2B-SD-204	49
2-7/16	<b>066222</b>	P2B-SD-207	56	2-7/16	<b>066258</b>	P2B-SD-207E	60
2-1/2	<b>066246</b>	P2B-SD-208	56	2-1/2	<b>066247</b>	P2B-SD-208E	60
2-5/8	<b>066223</b>	P2B-SD-210	84	2-5/8	<b>066262</b>	P2B-SD-210E	80
2-11/16	<b>066304</b>	P2B-SD-211	84	2-11/16	<b>066310</b>	P2B-SD-211E	80
2-3/4	<b>066226</b>	P2B-SD-212	84	2-3/4	<b>066263</b>	P2B-SD-212E	80
2-15/16	<b>066230</b>	P2B-SD-215	82	2-15/16	<b>066266</b>	P2B-SD-215E	78
3	<b>066305</b>	P2B-SD-300	82	3	<b>066311</b>	P2B-SD-300E	78
3-3/16	<b>066232</b>	P2B-SD-303	120	3-3/16	<b>066269</b>	P2B-SD-303E	120
3-3/8	<b>066237</b>	P2B-SD-306	119	3-3/8	<b>066271</b>	P2B-SD-306E	119
3-7/16	<b>066234</b>	P2B-SD-307	118	3-7/16	<b>066270</b>	P2B-SD-307E	118
3-1/2	<b>066236</b>	P2B-SD-308	118	3-1/2	<b>066273</b>	P2B-SD-308E	118

\* Furnished Unless Otherwise Specified

# Consult DODGE For Sizes Not Listed

# Consult DODGE For Sizes Not Listed

† 4-Bolt Caps

FEATURES/BENEFITS PAGE B11-3	SPECIFICATION B11-20	HOW TO ORDER B11-21	SELECTION PAGE B11-23
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# SELECTION/DIMENSIONS



## Special Duty Pillow Block - Inch 2-BOLT BASE

Bearing Reference Guide  
 E-Family Roller Bearings  
 Specialty Tapered Products  
 S-2000  
 UNISPHERE II  
 IMPERIAL  
 UNIFIED SAF

Shaft Size Inches	A	B	C	D		F Bolt Dia.	G	H	J	L	M	P	R	S	Exp*
				Min.	Max.										
1-3/8	4.00	9.00	3.00	6.88	7.63	1/2	1.00	2.13	6.25	2.44	2.88	5.88	1.81	2.19	3/16
1-7/16															
1-1/2															
1-9/16	4.13	9.50	3.44	7.56	7.94	1/2	1.00	2.38	6.81	2.81	3.13	5.94	1.88	2.25	5/8
1-5/8															
1-11/16															
1-3/4															
1-7/8	4.25	11.00	3.50	8.25	9.25	5/8	1.25	2.50	7.13	3.06	3.25	7.25	1.94	2.31	5/8
1-15/16															
2															
2-1/8	4.56	12.00	4.00	9.13	10.38	5/8	1.25	2.88	8.00	3.44	3.75	7.25	2.06	2.50	5/8
2-3/16															
2-1/4															
2-7/16	5.06	13.25	4.25	10.00	11.50	3/4	1.50	3.00	8.56	3.81	4.00	7.81	2.31	2.75	5/8
2-1/2															
2-5/8	5.75	14.25	4.75	11.00	12.50	3/4	1.50	3.75	9.88	4.44	4.75	8.69	2.63	3.13	3/4
2-11/16															
2-3/4															
2-15/16															
3	6.38	16.75	5.50	13.25	14.25	7/8	1.50	4.00	11.38	5.06	5.50	11.25	2.94	3.44	3/4
3-3/16															
3-3/8															
3-7/16															
3-1/2															

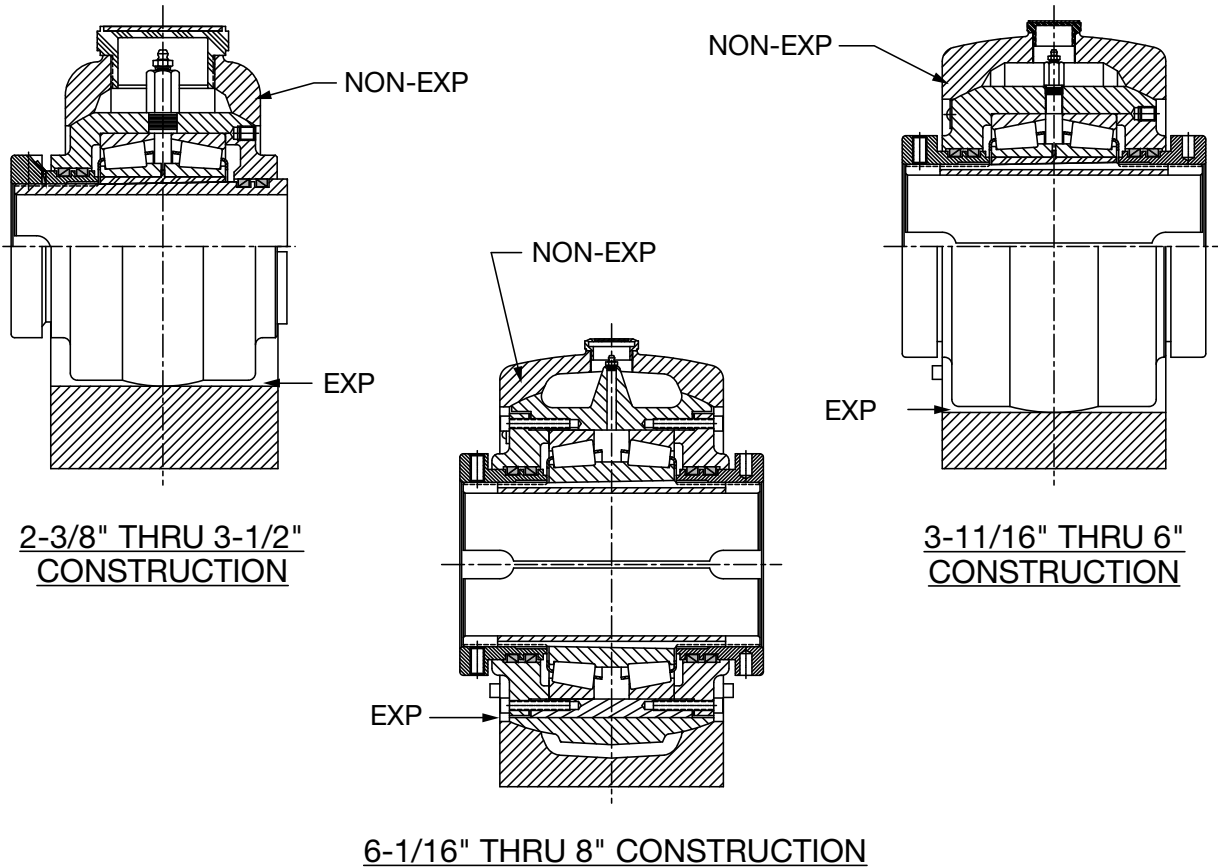
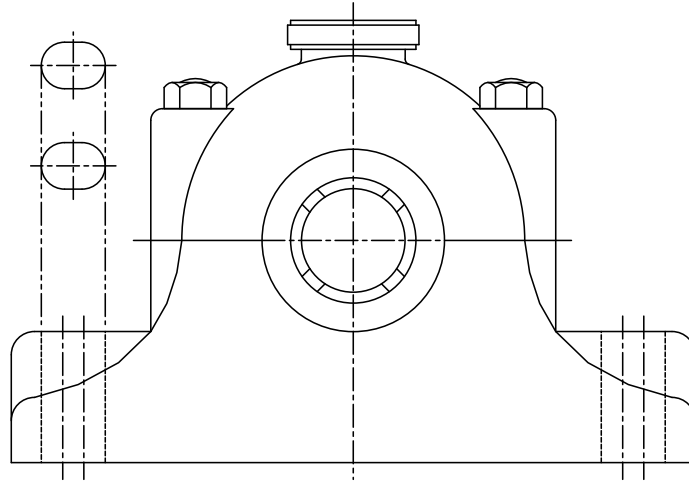
\* Total Expansion For Expansion Bearing Only

FEATURES/BENEFITS PAGE B11-3	SPECIFICATION B11-20	HOW TO ORDER B11-21	SELECTION PAGE B11-23
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# SELECTION/DIMENSIONS



## Special Duty Pillow Block - Inch 4-BOLT BASE



2-3/8" THRU 3-1/2"  
CONSTRUCTION

3-11/16" THRU 6"  
CONSTRUCTION

6-1/16" THRU 8" CONSTRUCTION

FEATURES/BENEFITS PAGE B11-3	SPECIFICATION B11-20	HOW TO ORDER B11-21	SELECTION PAGE B11-23
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# SELECTION/DIMENSIONS



## Special Duty Pillow Block - Inch 4-BOLT BASE

Gray Iron Non-Expansion *				Gray Iron Expansion			
Shaft Size Inches #	Part Number	Part Name	Weight Lbs (Approx)	Shaft Size Inches #	Part Number	Part Name	Weight Lbs (Approx)
2-3/8	<b>066360</b>	P4B-SD-206	60	2-3/8	<b>066400</b>	P4B-SD-206E	60
2-7/16	<b>066224</b>	P4B-SD-207	60	2-7/16	<b>066260</b>	P4B-SD-207E	60
2-1/2	<b>066244</b>	P4B-SD-208	60	2-1/2	<b>066245</b>	P4B-SD-208E	60
2-11/16	<b>066225</b>	P4B-SD-211	82	2-11/16	<b>066261</b>	P4B-SD-211E	82
2-3/4	<b>066363</b>	P4B-SD-212	82	2-3/4	<b>066403</b>	P4B-SD-212E	82
2-7/8	<b>066365</b>	P4B-SD-214	81	2-7/8	<b>066405</b>	P4B-SD-214E	81
2-15/16	<b>066231</b>	P4B-SD-215	80	2-15/16	<b>066268</b>	P4B-SD-215E	80
3	<b>066366</b>	P4B-SD-300	80	3	<b>066406</b>	P4B-SD-300E	80
3-3/16	<b>066367</b>	P4B-SD-303	124	3-3/16	<b>066407</b>	P4B-SD-303E	124
3-3/8	<b>066370</b>	P4B-SD-306	122	3-3/8	<b>066410</b>	P4B-SD-306E	122
3-7/16	<b>066235</b>	P4B-SD-307	120	3-7/16	<b>066272</b>	P4B-SD-307E	120
3-1/2	<b>066371</b>	P4B-SD-308	120	3-1/2	<b>066411</b>	P4B-SD-308E	120
3-11/16	<b>066372</b>	P4B-SD-311	215	3-11/16	<b>066412</b>	P4B-SD-311E	230
3-3/4	<b>066373</b>	P4B-SD-312	215	3-3/4	<b>066413</b>	P4B-SD-312E	230
3-7/8	<b>066374</b>	P4B-SD-314	215	3-7/8	<b>066414</b>	P4B-SD-314E	230
3-15/16	<b>066238</b>	P4B-SD-315	215	3-15/16	<b>066274</b>	P4B-SD-315E	230
4	<b>066375</b>	P4B-SD-400	215	4	<b>066415</b>	P4B-SD-400E	230
4-7/16	<b>066240</b>	P4B-SD-407	296	4-7/16	<b>066276</b>	P4B-SD-407E	296
4-1/2	<b>066377</b>	P4B-SD-408	296	4-1/2	<b>066417</b>	P4B-SD-408E	296
4-15/16	<b>066242</b>	P4B-SD-415	380	4-15/16	<b>066278</b>	P4B-SD-415E	380
5	<b>066378</b>	P4B-SD-500	380	5	<b>066418</b>	P4B-SD-500E	380
5-7/16	<b>066379</b>	P4B-SD-507	585	5-7/16	<b>066419</b>	P4B-SD-507E	585
5-15/16	<b>066381</b>	P4B-SD-515	585	5-15/16	<b>066421</b>	P4B-SD-515E	585
6	<b>066382</b>	P4B-SD-600	585	6	<b>066422</b>	P4B-SD-600E	585
6-1/2	<b>066384</b>	P4B-SD-608	1050	6-1/2	<b>066424</b>	P4B-SD-608E	1050
6-15/16	<b>066385</b>	P4B-SD-615	1050	6-15/16	<b>066425</b>	P4B-SD-615E	1050
7	<b>066386</b>	P4B-SD-700	1050	7	<b>066426</b>	P4B-SD-700E	1050
7-15/16	<b>066388</b>	P4B-SD-715	1550	7-15/16	<b>066428</b>	P4B-SD-715E	1550
8	<b>066389</b>	P4B-SD-800	1550	8	<b>066429</b>	P4B-SD-800E	1550

\* Furnished Unless Otherwise Specified

# Consult DODGE For Sizes Not Listed

# Consult DODGE For Sizes Not Listed

**Note:** When ordering sizes larger than 5", specify RPM

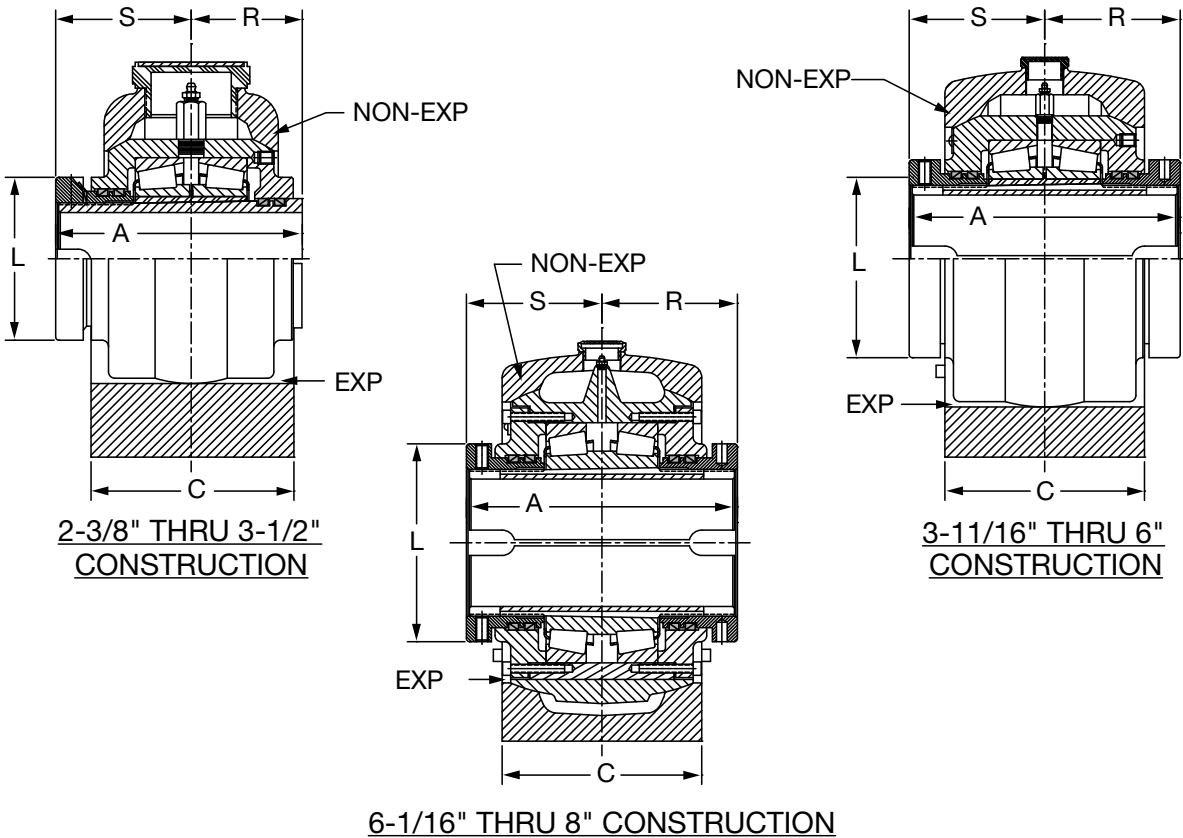
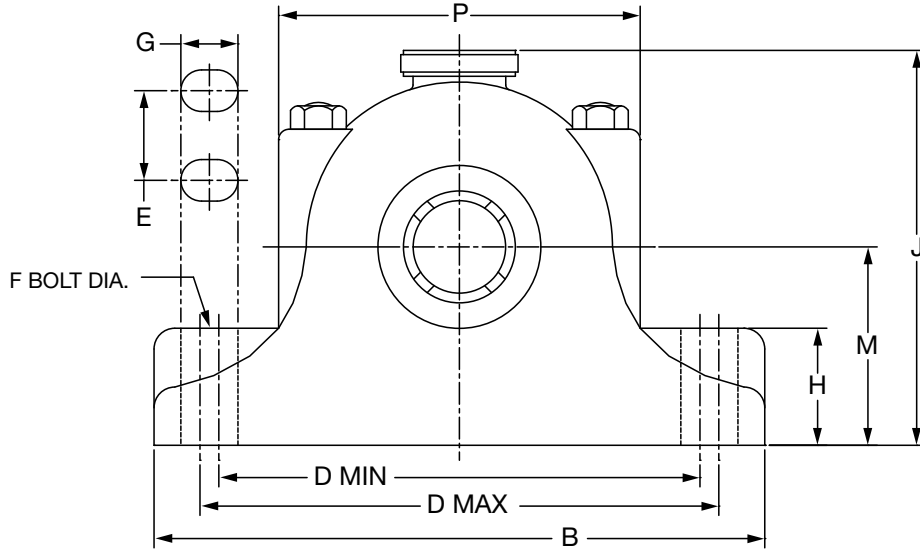
**Note:** All sizes use a 1/8 - 27 NPT hydraulic grease fitting

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# SELECTION/DIMENSIONS



## Special Duty Pillow Block - Inch 4-BOLT BASE



FEATURES/BENEFITS PAGE B11-3	SPECIFICATION B11-20	HOW TO ORDER B11-21	SELECTION PAGE B11-23
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# SELECTION/DIMENSIONS

## Special Duty Pillow Block - Inch 4-BOLT BASE

Shaft Size Inches	A	B*	C*	D		E	F Bolt Dia.	G*	H*	J	L	M	P*	R	S	Exp**
				Min.	Max.											
2-3/8	5.06	13.25	4.25	9.88	11.63	2.50	5/8	1.50	3.00	8.56	3.81	4.00	7.81	2.31	2.75	5/8
2-7/16																
2-1/2																
2-11/16	5.75	14.25	4.75	10.88	12.63	2.75	5/8	1.50	3.75	9.88	4.44	4.75	8.69	2.63	3.13	5/8
2-3/4																
2-7/8																
2-15/16																
3	6.38	16.75	5.50	13.00	14.50	3.25	3/4	1.50	4.00	11.38	5.06	5.50	10.25	2.94	3.44	3/4
3-3/16																
3-3/8																
3-7/16																
3-1/2																
3-11/16	8.50	19.00	7.00	15.00	16.00	3.25	7/8	1.50	4.00	13.38	6.25	6.38	13.75	4.25	4.25	3/4
3-3/4																
3-7/8																
3-15/16																
4	9.50	20.00	7.50	15.50	17.50	3.50	7/8	1.88	4.00	14.50	7.25	7.25	12.63	4.75	4.75	3/4
4-7/16																
4-1/2	10.50	23.00	8.25	17.75	19.75	3.75	1	2.13	4.25	15.68	8.00	7.50	16.50	5.25	5.25	3/4
4-15/16																
5																
5-7/16	12.00	26.75	9.25	21.38	23.63	5.00	1-1/8	2.25	5.00	19.00	9.50	9.00	17.38	6.00	6.00	3/4
5-15/16																
6	13.50	34.38	10.25	27.50	30.50	5.50	1-1/2	3.00	6.00	23.00	11.00	11.25	22.75	6.75	6.75	1-1/2
6-1/2																
6-15/16																
7	14.50	38.75	11.25	30.50	34.00	6.00	1-3/4	3.50	7.00	26.00	12.50	12.50	25.13	7.25	7.25	1-1/2
7-15/16																
8																

\* These Are As Cast Surfaces. Dimensions May Fluctuate Due To Draft Angles And Pattern Shifts

\*\* Exp-Total Expansion Divided Equally On Both Sides Of Bearing (Expansion Bearing Only)

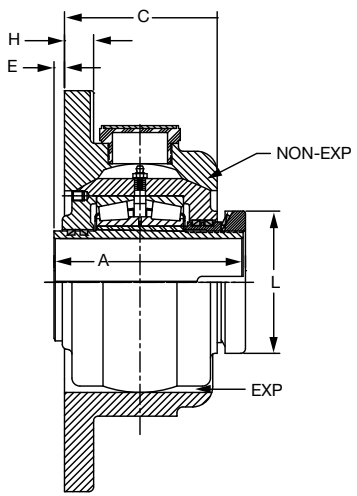
**Note:** All sizes use a 1/8 - 27 NPT hydraulic grease fitting

FEATURES/BENEFITS PAGE B11-3	SPECIFICATION B11-20	HOW TO ORDER B11-21	SELECTION PAGE B11-23
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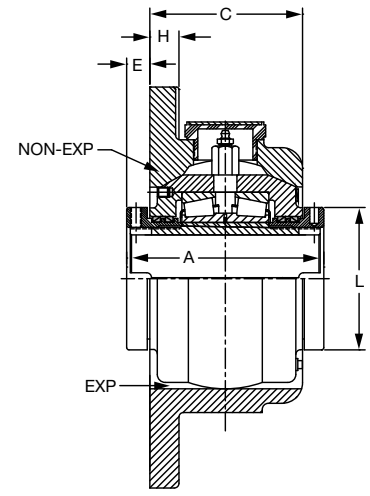
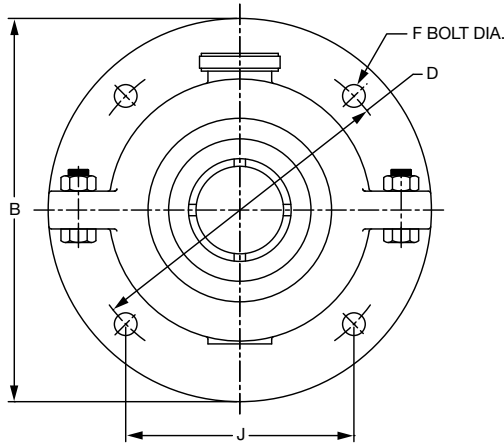
# SELECTION/DIMENSIONS



## Special Duty Flange Bearing - Inch



1-3/8" THRU 3-1/2" CONSTRUCTION



3-11/16" THRU 6" CONSTRUCTION

Gray Iron Non-Expansion*				Gray Iron Expansion			
Shaft Size Inches #	Part Number	Part Name	Weight Lbs (Approx)	Shaft Size Inches #	Part Number	Part Name	Weight Lbs (Approx)
1-3/8	104160	F4B-SD-106	21	1-3/8	104195	F4B-SD-106E	22
1-7/16	104020	F4B-SD-107	21	1-7/16	104030	F4B-SD-107E	22
1-1/2	104161	F4B-SD-108	21	1-1/2	104196	F4B-SD-108E	22
1-11/16	104021	F4B-SD-111	30	1-11/16	104031	F4B-SD-111E	30
1-3/4	104162	F4B-SD-112	30	1-3/4	104197	F4B-SD-112E	30
1-15/16	104022	F4B-SD-115	37	1-15/16	104032	F4B-SD-115E	37
2	104164	F4B-SD-200	37	2	104199	F4B-SD-200E	37
2-3/16	104023	F4B-SD-203	46	2-3/16	104033	F4B-SD-203E	49
2-3/8	104169	F4B-SD-206	62	2-3/8	104204	F4B-SD-206E	64
2-7/16	104024	F4B-SD-207	62	2-7/16	104034	F4B-SD-207E	64
2-1/2	104170	F4B-SD-208	62	2-1/2	104205	F4B-SD-208E	64
2-11/16	104172	F4B-SD-211	85	2-11/16	104207	F4B-SD-211E	88
2-3/4	104173	F4B-SD-212	83	2-3/4	104208	F4B-SD-212E	86
2-15/16	104025	F4B-SD-215	81	2-15/16	104035	F4B-SD-215E	85
3	104176	F4B-SD-300	81	3	104211	F4B-SD-300E	84
3-3/16	104177	F4B-SD-303	141	3-3/16	104212	F4B-SD-303E	145
3-7/16	104026	F4B-SD-307	139	3-7/16	104036	F4B-SD-307E	144
3-1/2	104181	F4B-SD-308	138	3-1/2	104216	F4B-SD-308E	143
3-15/16	104027	F4B-SD-315	230	3-15/16	104037	F4B-SD-315E	234
4	104010	F4B-SD-400	229	4	104003	F4B-SD-400E	234
4-7/16	104028	F4B-SD-407	325	4-7/16	104038	F4B-SD-407E	325
4-15/16	104029	F4B-SD-415	430	4-15/16	104039	F4B-SD-415E	430
5	104013	F4B-SD-500	428	5	104006	F4B-SD-500E	428
5-15/16	104016	F4B-SD-515	560	5-15/16	104017	F4B-SD-515E	560
6	104018	F4B-SD-600	560	6	104019	F4B-SD-600E	560

\* Furnished Unless Otherwise Specified

# Consult DODGE For Sizes Not Listed

**Note:** when ordering sizes larger than 5", specify RPM

FEATURES/BENEFITS PAGE B11-3	SPECIFICATION B11-20	HOW TO ORDER B11-21	SELECTION PAGE B11-23
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# SELECTION/DIMENSIONS



## Special Duty Flange Bearing - Inch

Bearing Reference Guide

E-Family Roller Bearings

Specialty Tapered Products

S-2000

UNISPHERE II

IMPERIAL

UNIFIED SAF

Shaft Size Inches	A	B	C	D	E	F Bolt Dia.	H	J	L	Exp*
1-3/8 1-7/16 1-1/2	4.00	8.25	3.00	7.00	0.31	1/2	0.63	4.95	2.44	3/16
1-11/16 1-3/4	4.13	9.00	3.38	7.63	0.19	1/2	0.69	5.39	2.81	1/4
1-15/16 2	4.25	10.00	3.50	8.38	0.19	5/8	0.75	5.92	3.06	1/4
2-3/16	4.50	10.75	4.00	9.13	0.06	5/8	0.81	6.45	3.44	1/4
2-3/8 2-7/16 2-1/2	5.06	12.00	4.25	10.25	0.19	3/4	0.88	7.25	3.81	1/4
2-11/16 2-3/4 2-15/16 3	5.75	13.00	4.63	11.25	0.31	3/4	1.00	7.96	4.44	5/8
3-3/16 3-7/16 3-1/2	6.38	14.50	5.38	12.50	0.25	7/8	1.13	8.84	5.06	1/4
3-15/16 4	8.50	18.00	6.75	15.75	0.88	1	1.25	11.14	6.25	1/4
4-7/16	9.50	19.50	7.25	17.00	1.13	1-1/8	1.38	12.02	7.25	5/8
4-15/16 5	10.50	21.50	8.25	19.00	1.00	1-1/8	1.75	13.44	8.00	5/8
5-15/16 6	12.00	25.50	9.00	22.50	1.50	1-1/4	1.75	15.91	9.50	5/8

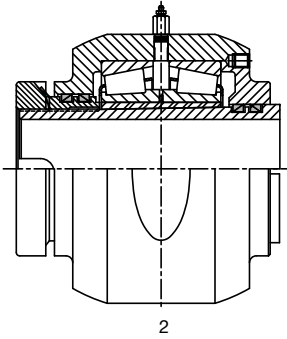
\* Exp-Total Expansion For Expansion Bearing Only

FEATURES/BENEFITS PAGE B11-3	SPECIFICATION B11-20	HOW TO ORDER B11-21	SELECTION PAGE B11-23
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# SELECTION/DIMENSIONS



## Special Duty Units - Inch



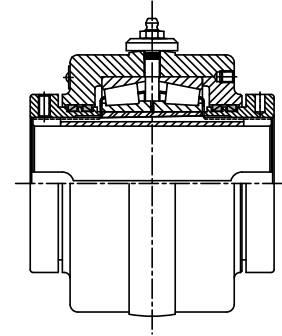
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D UNIT

1-3/8" THRU 3-1/2" CONSTRUCTION

NON-EXPANSION

3-11/16" THRU 12" NOT SHOWN  
CONSULT DODGE FOR DETAIL

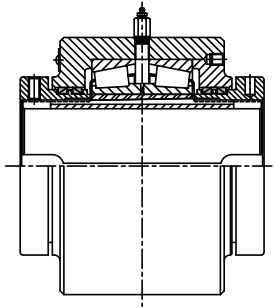


S-1 UNIT

3-11/16" THRU 6" CONSTRUCTION

EXPANSION

1-3/8" THRU 3-1/2" AND 6" THRU 12" NOT SHOWN  
CONSULT DODGE FOR DETAIL

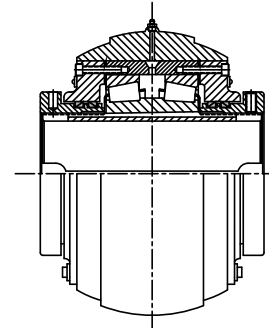


B-1 UNIT

3-11/16" THRU 6" CONSTRUCTION

CUSTOMER SUPPLIED HOUSING ONLY

1-3/8" THRU 3-1/2" AND 6-1/2" THRU 12" NOT SHOWN  
CONSULT DODGE FOR DETAIL



S-1 UNIT

6-1/16" THRU 8" CONSTRUCTION

EXPANSION

1-3/8" THRU 6" AND 8-1/2" THRU 12" NOT SHOWN  
CONSULT DODGE FOR DETAIL

FEATURES/BENEFITS PAGE B11-3	SPECIFICATION B11-20	HOW TO ORDER B11-21	SELECTION PAGE B11-23
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## Special Duty Units - Inch

Shaft Size Inches #	D Units - Non-Expansion		S-1 Units - Expansion		B-1 Units - Customer Supplied Housing		Weight Lbs (Approx)
	Part Number	Part Name	Part Number	Part Name	Part Number	Part Name	
1-3/8	066445	DU-SD-106	066500	S1U-SD-106	066560	B1U-SD-106	7
1-7/16	066280	DU-SD-107	066290	S1U-SD-107	066315	B1U-SD-107	7
1-1/2	066446	DU-SD-108	066501	S1U-SD-108	066561	B1U-SD-108	7
1-9/16	066444	DU-SD-109	066499	S1U-SD-109	066559	B1U-SD-109	10
1-5/8	066324	DU-SD-110	066312	S1U-SD-110	066314	B1U-SD-110	10
1-11/16	066281	DU-SD-111	066291	S1U-SD-111	066316	B1U-SD-111	10
1-3/4	066447	DU-SD-112	066502	S1U-SD-112	066562	B1U-SD-112	10
1-7/8	066448	DU-SD-114	066503	S1U-SD-114	066563	B1U-SD-114	12
1-15/16	066282	DU-SD-115	066292	S1U-SD-115	066317	B1U-SD-115	12
2	066464	DU-SD-200	066504	S1U-SD-200	066564	B1U-SD-200	12
2-1/8	066450	DU-SD-202	066506	S1U-SD-202	066566	B1U-SD-202	16
2-3/16	066283	DU-SD-203	066293	S1U-SD-203	066318	B1U-SD-203	16
2-1/4	066451	DU-SD-204	066507	S1U-SD-204	066567	B1U-SD-204	16
2-3/8	----	-----	066509	S1U-SD-206	066569	B1U-SD-206	20
2-7/16	066284	DU-SD-207	066294	S1U-SD-207	066319	B1U-SD-207	20
2-1/2	066285	DU-SD-208	066510	S1U-SD-208	066570	B1U-SD-208	20
2-5/8	066455	DU-SD-210	066511	S1U-SD-210	066571	B1U-SD-210	29
2-11/16	066279	DU-SD-211	066326	S1U-SD-211	066572	B1U-SD-211	29
2-3/4	066456	DU-SD-212	066512	S1U-SD-212	066573	B1U-SD-212	29
2-13/16	066457	DU-SD-213	066513	S1U-SD-213	066574	B1U-SD-213	29
2-7/8	066458	DU-SD-214	066514	S1U-SD-214	066575	B1U-SD-214	29
2-15/16	066286	DU-SD-215	066295	S1U-SD-215	066320	B1U-SD-215	29
3	066459	DU-SD-300	066515	S1U-SD-300	066576	B1U-SD-300	29
3-3/16	066460	DU-SD-303	066516	S1U-SD-303	066577	B1U-SD-303	47
3-1/4	066461	DU-SD-304	066517	S1U-SD-304	066578	B1U-SD-304	47
3-3/8	066463	DU-SD-306	066519	S1U-SD-306	066580	B1U-SD-306	47
3-7/16	066287	DU-SD-307	066296	S1U-SD-307	066321	B1U-SD-307	47
3-1/2	066465	DU-SD-308	066520	S1U-SD-308	066581	B1U-SD-308	47
3-11/16	066466	DU-SD-311	066521	S1U-SD-311	066582	B1U-SD-311	94
3-3/4	066467	DU-SD-312	066522	S1U-SD-312	066583	B1U-SD-312	94
3-7/8	066468	DU-SD-314	066523	S1U-SD-314	066584	B1U-SD-314	94
3-15/16	066288	DU-SD-315	066297	S1U-SD-315	066322	B1U-SD-315	94
4	066469	DU-SD-400	066524	S1U-SD-400	066585	B1U-SD-400	94
4-7/16	066289	DU-SD-407	066298	S1U-SD-407	066587	B1U-SD-407	116
4-1/2	066471	DU-SD-408	066526	S1U-SD-408	066588	B1U-SD-408	116
4-15/16	066325	DU-SD-415	066299	S1U-SD-415	066589	B1U-SD-415	175
5	066472	DU-SD-500	066527	S1U-SD-500	066590	B1U-SD-500	175
5-7/16	066473	DU-SD-507	066528	S1U-SD-507	066591	B1U-SD-507	300
5-15/16	066475	DU-SD-515	066530	S1U-SD-515	066593	B1U-SD-515	300
6	066476	DU-SD-600	066531	S1U-SD-600	066594	B1U-SD-600	300
6-1/2	066478	DU-SD-608	066533	S1U-SD-608	066596	B1U-SD-608	560
6-15/16	066479	DU-SD-615	066534	S1U-SD-615	066598	B1U-SD-615	560
7	066480	DU-SD-700	066535	S1U-SD-700	066607	B1U-SD-700	560
7-15/16	066482	DU-SD-715	066537	S1U-SD-715	066600	B1U-SD-715	800
8	066483	DU-SD-800	066538	S1U-SD-800	066601	B1U-SD-800	800
8-1/2	066484	DU-SD-808	066539	S1U-SD-808	066602	B1U-SD-808	1380
9	066485	DU-SD-900	066540	S1U-SD-900	066603	B1U-SD-900	1380
9-1/2	066486	DU-SD-908	066541	S1U-SD-908	----	-----	1380
10	066487	DU-SD-1000	066542	S1U-SD-1000	066604	B1U SD 1000	1380
11	066488	DU-SD-1100	066543	S1U-SD-1100	066605	B1U-SD-1100	1890
12	066489	DU-SD-1200	066544	S1U-SD-1200	066606	B1U-SD-1200	1890

# Consult DODGE For Sizes Not Listed

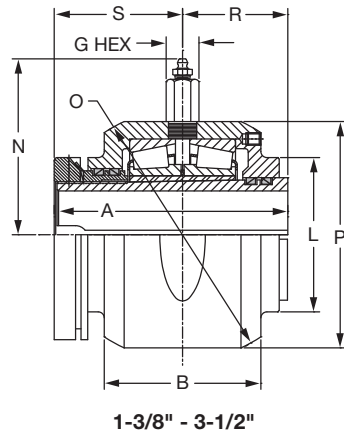
Note: When ordering sizes larger than 5", specify RPM

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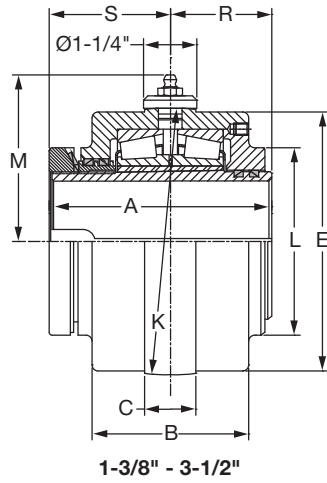
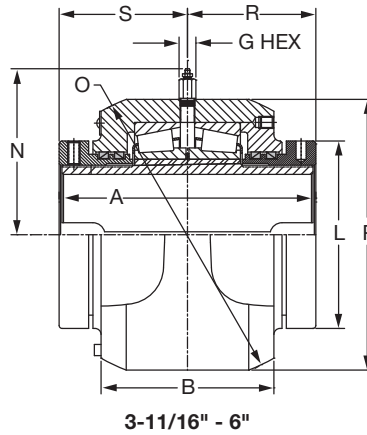
# SELECTION/DIMENSIONS



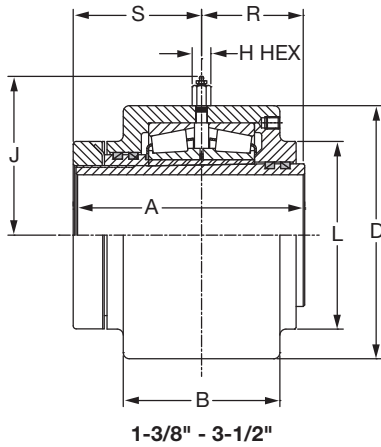
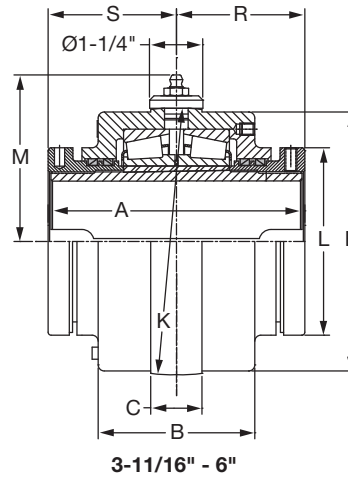
## Special Duty Units - Inch



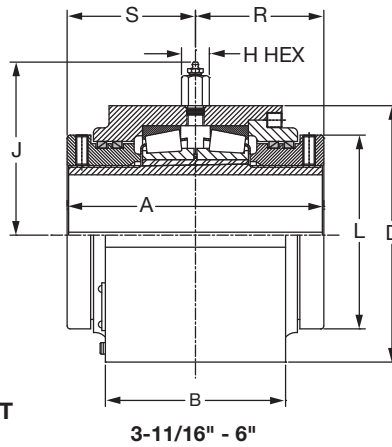
D-UNIT



S1-UNIT



B1-UNIT



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## Special Duty Units - Inch

Shaft Size Inches	A	B	C	D	E	F	G Hex	H Hex	J	K	L	M	N	O	P	R	S
1-3/8 1-7/16 1-1/2	4.00	2.69	0.75	3.875 ★	3.75	----	7/16	5/8	3.06	4.062 ★	2.44	2.69	2.50	4.438 ★	3.94	1.81	2.19
1-9/16 1-5/8 1-11/16 1-3/4	4.13	3.13	0.75	4.250 ★	4.13	----	7/16	5/8	4.25	4.438 ★	2.81	2.88	2.75	5.000 ★	4.50	1.88	2.25
1-7/8 1-15/16 2	4.25	3.25	0.88	4.750 ★	4.50	----	5/8	5/8	4.75	4.812 ★	3.06	3.06	2.88	5.313 ★	4.75	1.94	2.31
2-1/8 2-3/16 2-1/4	4.56	3.50	0.88	5.250 ★	5.06	----	5/8	5/8	5.25	5.375 ★	3.44	3.31	3.19	6.000 ★	5.38	2.06	2.50
2-3/8 2-7/16 2-1/2	5.06	4.00	1.00	5.750 ★	5.31	----	3/4	5/8	5.75	5.687 ★	3.81	3.50	4.09	6.375 ★	5.69	2.31	2.75
2-5/8 2-11/16 2-3/4 2-13/16 2-7/8 2-15/16 3	5.75	4.44	1.00	6.500 ★	6.19	----	3/4	3/4	6.50	6.562 ★	4.44	4.19	4.50	7.313 ★	6.50	2.63	3.13
3-3/16 3-1/4 3-3/8 3-7/16 3-1/2	6.38	5.00	1.25	7.750 ★	7-5/8	----	3/4	3/4	5.38	8.000 ♥	5.06	4.88	5.56	8.625 ♦	8.00	2.94	3.44
3-11/16 3-3/4 3-7/8 3-15/16 4	8.50	6.25	1.50	9.250 ★	9.00	----	3/4	3/4	6.13	9.500 ♥	6.25	5.63	6.38	10.250 ♦	9.75	4.25	4.25
4-7/16 4-1/2	9.50	6.63	1.75	10.500 ★	10-1/16	----	3/4	3/4	6.75	10.625 ♥	7.25	6.19	6.69	11.125 ♦	10.06	4.75	4.75
4-15/16 5	10.50	7.38	2.00	11.750 ★	10-7/8	----	3/4	3/4	7.38	11.500 ♥	8.00	6.63	7.44	12.500 ♦	11.88	5.25	5.25
5-7/16 5-15/16 6	12.00	8.50	2.25	13.500 ★	13.00	----	3/4	3/4	8.25	14.000 ♥	9.50	7.88	8.56	14.750 *	14.13	6.00	6.00
6-1/2 6-15/16 7	13.50	9.31	----	14.750 ★	----	9.81	1	1	8.88	----	11.00	----	10.88	18.000 *	17.00	6.75	6.75
7-15/16 8	14.50	9.94	----	16.250 ★	----	10.06	1	1	9.63	----	12.50	----	12.50	20.125 *	19.13	7.25	7.25
8-1/2 9 9-1/2 10	17.00	11.50	----	19.500 ★	----	11.75	1	1	11.25	----	14.63	----	14.50	24.000 *	23.50	8.50	8.50
11 12	18.50	12.75	----	23.000 ★	----	13.25	1	1	13.00	----	17.00	----	17.63	28.500 *	28.00	9.25	9.25

★ +.000 -.002"  
♥ -.000 -.004"

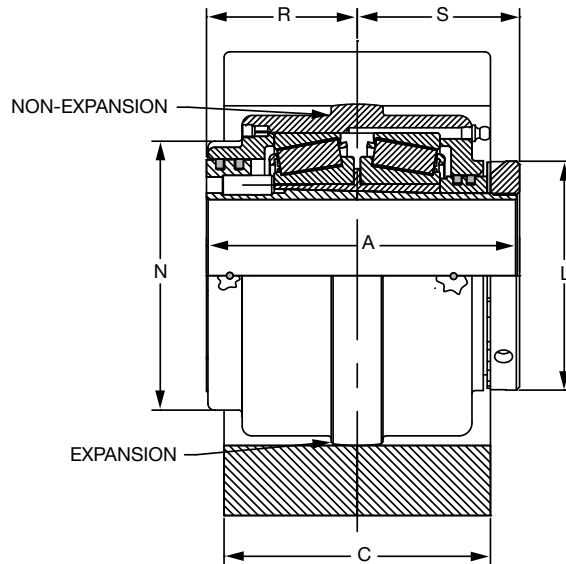
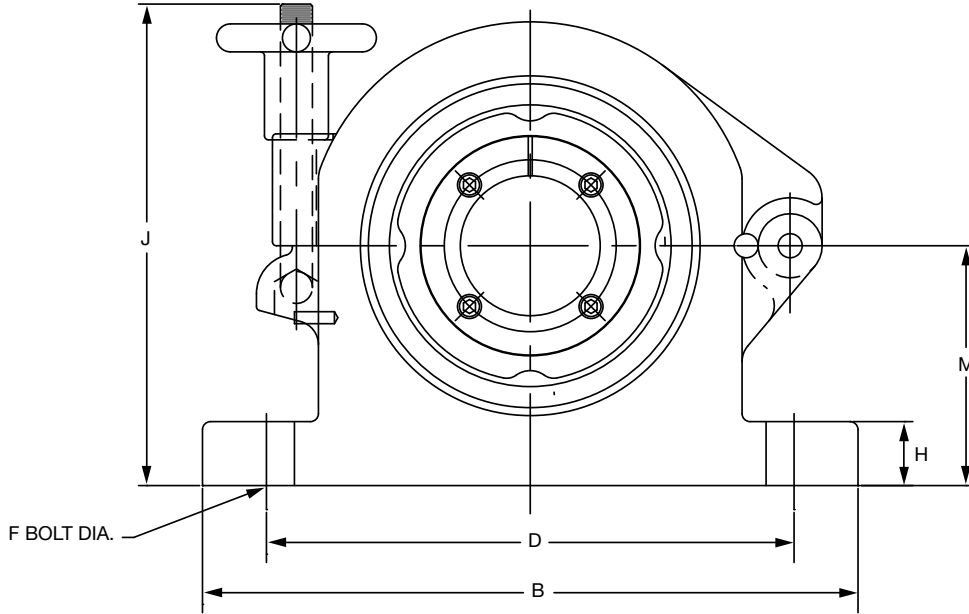
♦ +.000 -.003"  
\* +.000 -.004"

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# SELECTION/DIMENSIONS



## Special Duty Hinged Cap Pillow Block - Inch



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# SELECTION/DIMENSIONS

## Special Duty Hinged Cap Pillow Block - Inch

Pillow Block Assembly - Non-Expansion*				Pillow Block Assembly - Expansion			
Shaft Size Inches #	Part Number	Part Name	Weight Lbs (Approx)	Shaft Size Inches #	Part Number	Part Name	Weight Lbs (Approx)
1-3/8	<b>067054</b>	P2B-HC-106	20	1-3/8	<b>067055</b>	P2B-HC-106E	20
1-7/16	<b>067050</b>	P2B-HC-107	20	1-7/16	<b>067051</b>	P2B-HC-107E	20
1-1/2	<b>067056</b>	P2B-HC-108	20	1-1/2	<b>067057</b>	P2B-HC-108E	20
1-11/16	<b>067048</b>	P2B-HC-111	27	1-11/16	<b>067049</b>	P2B-HC-111E	27
1-3/4	<b>067042</b>	P2B-HC-112	27	1-3/4	<b>067043</b>	P2B-HC-112E	27
1-15/16	<b>067052</b>	P2B-HC-115	36	1-15/16	<b>067053</b>	P2B-HC-115E	36
2	<b>067060</b>	P2B-HC-200	36	2	<b>067061</b>	P2B-HC-200E	36
2-3/16	<b>067046</b>	P2B-HC-203	47	2-3/16	<b>067047</b>	P2B-HC-203E	47
2-7/16	<b>067044</b>	P2B-HC-207	60	2-7/16	<b>067045</b>	P2B-HC-207E	60
2-15/16	<b>067072</b>	P2B-HC-215	60	2-15/16	<b>067073</b>	P2B-HC-215E	60

\* Furnished Unless Otherwise Specified

# Consult DODGE For Sizes Not Listed.

Pillow Block Housing Only Non-Expansion				Pillow Block Housing Only Expansion			
Shaft Size Range Symbol#	Part Number	Part Name	Weight Lbs (Approx)	Shaft Size Range Symbol#	Part Number	Part Name	Weight Lbs (Approx)
106 TO 108	<b>067007*</b>	HS2-HC-406	13	106 TO 108	<b>067016</b>	HS2-HC-406E	13
111 TO 112	<b>067100*</b>	HS2-HC-444	16	111 TO 112	<b>067103</b>	HS2-HC-444E	16
115 TO 200	<b>067031*</b>	HS2-HC-481	23	115 TO 200	<b>067034</b>	HS2-HC-481E	23
203	<b>067120*</b>	HS2-HC-538	26	203	<b>067123</b>	HS2-HC-538E	26
207	<b>067135*</b>	HS2-HC-569	40	207	<b>067138</b>	HS2-HC-569E	40
215	<b>067078*</b>	HS2-HC-656	52	215	<b>067075</b>	HS2-HC-656E	52

\* Furnished Unless Otherwise Specified

# Consult DODGE For Sizes Not Listed.

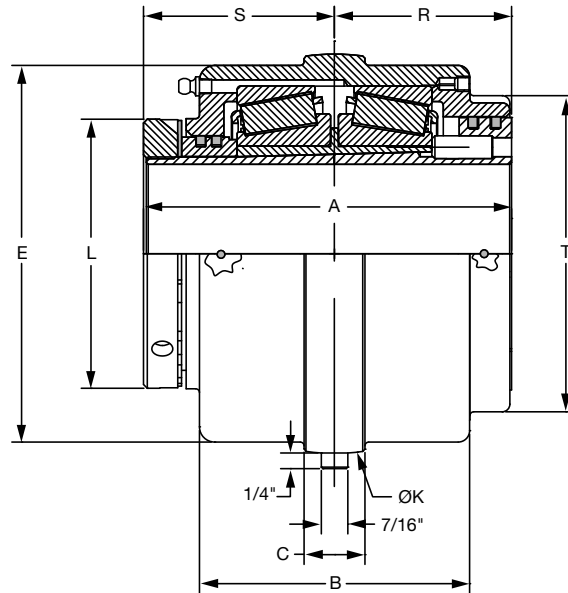
Shaft Size Inches	A	B	C	D	F Dia Bolt	H	J	L	M	N	R	S
1-3/8												
1-7/16	4.13	7.25	3.00	5.88	1/2	.75	6.88	2.44	2.88	3.25	1.94	2.19
1-1/2												
1-11/16	4.25	8.25	3.25	6.88	1/2	.75	6.88	2.81	3.13	3.53	2.00	2.25
1-3/4												
1-15/16	4.44	9.25	3.50	7.69	5/8	.88	7.63	3.06	3.25	3.81	2.13	2.31
2												
2-3/16	4.75	10.25	4.00	8.25	3/4	1.00	7.63	3.44	3.75	4.22	2.25	2.50
2-7/16	5.53	10.25	4.25	8.25	3/4	1.00	9.63	3.81	4.50	4.63	2.56	2.75
2-15/16	6.06	11.13	4.75	9.13	3/4	1.25	10.13	4.44	5.00	5.25	2.94	3.13

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# SELECTION/DIMENSIONS



## Special Duty Hinged Cap S-1 Units - Inch



Hinged Cap Pillow Block S-1 Units			
Shaft Size #	Part Number	Part Name	Weight Lbs Approx
1-3/8	<b>067149</b>	S1U406-HC-106	8
1-7/16	<b>067151</b>	S1U406-HC-107	8
1-1/2	<b>067152</b>	S1U406-HC-108	8
1-11/16	<b>067153</b>	S1U444-HC-111	10
1-3/4	<b>067154</b>	S1U444-HC-112	10
1-15/16	<b>067155</b>	S1U481-HC-115	11
2	<b>067156</b>	S1U481-HC-200	11
2-3/16	<b>067157</b>	S1U538-HC-203	16
2-7/16	<b>067159</b>	S1U569-HC-207	19
2-15/16	<b>067164</b>	S1U656-HC-215	30

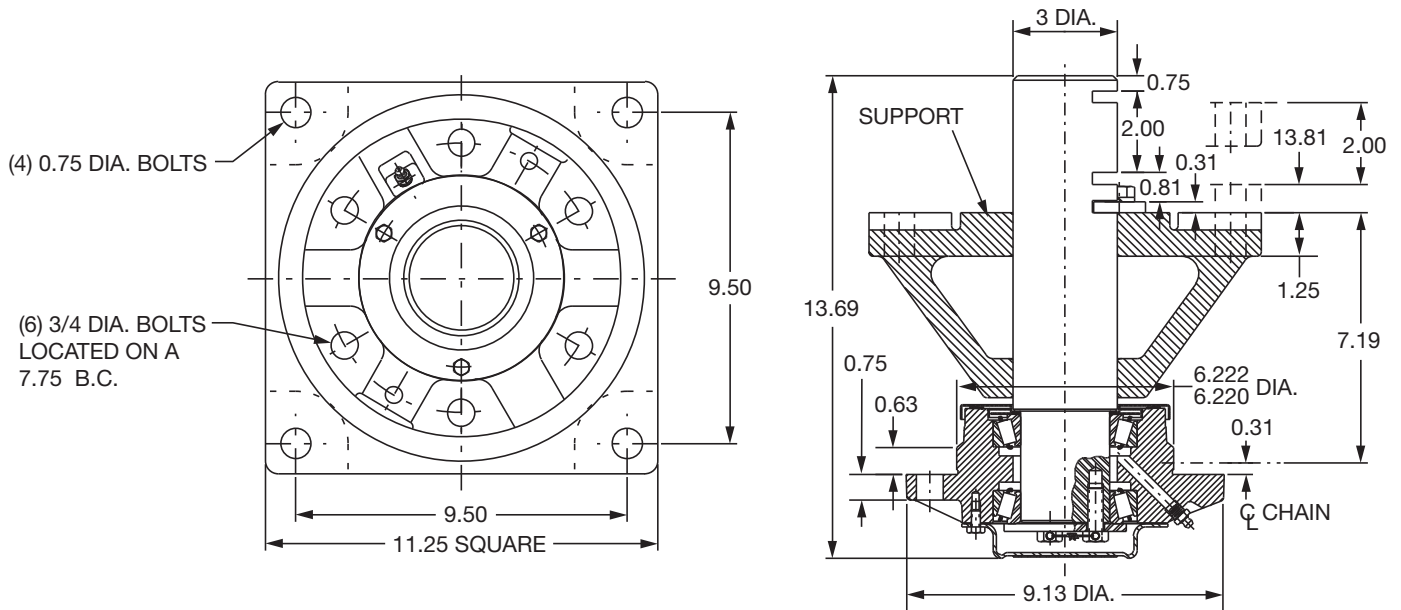
# Consult DODGE For Sizes Not Listed

Hinged Caps S-1 Units									
Shaft Size Inches	A	B	C	E	K	L	R	S	T
1-3/8									
1-7/16	4.13	2.69	0.75	3.75	4.06	2.44	1.94	2.19	3.25
1-1/2									
1-11/16	4.25	3.13	0.75	4.13	4.44	2.81	2.00	2.25	3.53
1-3/4									
1-15/16	4.44	3.25	0.88	4.50	4.81	3.06	2.13	2.31	3.81
2									
2-3/16	4.75	3.50	0.88	5.06	5.38	3.44	2.25	2.50	4.22
2-7/16	5.31	4.00	1.00	5.31	5.69	3.81	2.56	2.75	4.63
2-15/16	6.06	4.44	1.00	6.19	6.56	4.44	2.94	3.13	5.25

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## Special Duty Traction Wheel Hub Assemblies - Inch



Traction Wheel Hub Assemblies are constructed to operate with wheels (sprockets) ranging from two to six feet in diameter. Commonly used in overhead chain conveyors, the units bolt directly to the supporting structure and can be adjusted vertically to three different operating positions.

The hub utilizes combination seals to protect the tapered roller bearings from dust and dirt and retain lubricant.

A high temperature (700°F) unit using sleeve bearings is available. See part number 062070

Traction Wheel Hub Assemblies			
Size #	Part Number	Part Name	Weight Lbs (Approx)
#70	062040	TRW-70	100
#70LS*	422604	TRW-70LS	80
75HT	062070	TRW-75HT	100

Recommended For Conveyors With Chain Nos.	Operating Characteristics		
	RPM	Max. Resultant Load (Lbs)▲	L <sub>10</sub> Hours Life
348	10	3600	★
458	10	8000	
678	10	8000	

# Consult DODGE For Sizes Not Listed.

▲ Based on 180- Chain Wrap

★ More Than 100,000 Hrs. Life

\* (LS) Less Support - Support For Mounting To Structure Not Included With This Part

(HT) High Temperature Sleeve Bearing

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## SPECIFICATION

### All Steel

The standard housing material for All steel mounted bearings is cast steel having a minimum tensile strength of 70,000 psi. The housing is vertically split to enable servicing of the bearing internal components. All Steel pillow blocks are available in both expansion and non expansion types.

All Steel mounted bearings have duplex tapered roller mounted to the shaft with a tapered adaptor sleeve extending thru the

complete length of the pillow block. The tapered roller bearings used in the All Steel mounted bearings all have case carburized inner races (cones), outer race (cup) and rollers.

All Steel mounted bearings have two piston ring seals running in grooves in the adapter nuts at each end of the pillow block to seal the bearings both on and off the shaft.



ALL STEEL PILLOW BLOCKS AVAILABLE IN 4-BOLT BASE 2-11/16" TO 5"

ALL STEEL CARTRIDGE UNITS AVAILABLE IN 2-11/16" TO 4-7/16"



# HOW TO ORDER

## All Steel

There are two ways to specify DODGE Bearings. Most of the product offering have part numbers with listings shown throughout this catalog. Use of part numbers ensures accurate order processing.

When part numbers are not shown, the product may be specified by description or part name. This method is used when ordering units that include modifications or options. To order by description, use the nomenclature key shown on the next page and add any special instructions to the end of the description for options not covered by the nomenclature.

### SPECIAL BEARING REQUIREMENTS AND SPECIAL LUBRICANTS

DODGE All Steel Bearings are factory assembled and pre-lubricated. For applications where extreme ambient temperatures, high speeds or high loads are expected, a variety

of specialty lubricants and adjustments are available. Standard grease provided is Mobilgrease XHP222. Special lubricant options usually involve set-up charges and premiums. To order, specify type of lubricant required at the end of the product name or after the standard part number.

Example:

063360 except with Mobil Grease HTS #2 grease

and or

P4B-AS-215 except with Mobil Grease HTS #2 grease

### OTHER SPECIAL BEARING REQUIREMENTS NOT LISTED

For applications requiring modifications not listed, we encourage you to contact our Customer Order Engineering Department for Bearings at 864-284-5700.

Bearing Reference Guide

E-Family Roller Bearings

Specialty Tapered Products

S-2000

UNISPHERE II

IMPERIAL

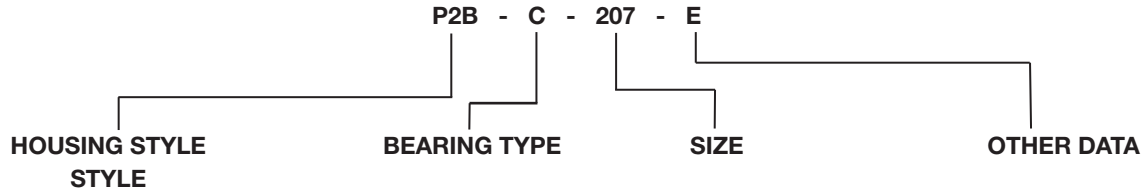
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# NOMENCLATURE



## Specialty Tapered Products



- HOUSING STYLE**
- P2B = PILLOW BLOCK  
2 BOLT, CAST IRON
  - P4B = PILLOW BLOCK  
4 BOLT, CAST IRON
  - SP4B = PILLOW BLOCK  
4 BOLT, CAST STEEL
  - F4B = FLANGE BEARING  
4 BOLT, CAST IRON
  - B1U = B-1 UNIT, CAST IRON
  - DU = D UNIT, CAST IRON
  - S1U = S-1 UNIT, CAST IRON
  - CRT = CARTRIDGE UNIT  
DUCTILE IRON END PLATES
  - NSTU = NARROW SLOT TAKE UP  
BEARING, CAST IRON
  - HNG = HANGER BEARING CAST IRON

- BEARING TYPE**
- C = TYPE C
  - SD = SPECIAL DUTY
  - HC = HINGED CAP
  - TRW - TRACTION WHEEL
  - AS = ALL STEEL

- SIZE**
- INCHES & 16TH
  - 2 = 2 INCHES
  - 07 = 7/16 INCHES
  - OR
  - 207 = 2-7/16"

- OTHER DATA**
- E = EXPANSION TYPE BEARING
  - IF E DOES NOT APPEAR AFTER SEAL TYPE, THEN BEARING IS NON-EXPANSION TYPE

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# SELECTION

## All Steel

### DODGE ALL-STEEL DOUBLE ROW TAPERED

**ROLLER BEARINGS** DODGE All-Steel Double Row Tapered Roller Bearings have the capacity to carry heavy radial loads and combined radial and thrust loads. The maximum recommended load which can be applied is limited by various components in the system such as bearing, housing, shaft, shaft attachment, speed and life requirements as listed in this catalog. DODGE tapered roller bearings have been applied successfully even when these limits have been exceeded under controlled operating conditions. Contact DODGE Application Engineering (864) 284-5700 for applications which exceed the recommendations of this catalog. **L<sub>10</sub> Hours Life** - The life which may be expected from at least 90% of a given group of bearings operating under identical conditions.

$$L_{10} = \left( \frac{C_{90}}{P} \right)^{10/3} \times \left( \frac{1,500,000}{\text{RPM}} \right)$$

Where:

C<sub>90</sub> = Dynamic Capacity (Table 10, pg. B11-52), lbs.

P = Equivalent Radial Load, lbs.

### GENERAL

**Heavy Service** - For heavy shock loads, frequent shock loads, or severe vibrations, add up to 50% (according to severity of conditions) to the Equivalent Radial Load. Consult DODGE Application Engineering for additional selection assistance.

Thrust load values shown in the table below are recommended as a guide for general applications that will give adequate L<sub>10</sub> life for pillow blocks. The maximum thrust load should not exceed values shown on Table 12. Where substantial radial load is also present, it is advisable

to calculate actual L<sub>10</sub> life to assure that it meets the requirements. The effectiveness of the shaft attachment to carry thrust load depends on proper tightening, shaft tolerance (see table below) and shaft deflections. Therefore, it is advisable to use auxiliary thrust carrying devices such as shaft shoulder, snap ring or a thrust collar to locate the bearing under thrust loads heavier than shown below, or where extreme reliability is desired.

RPM Range	20 - 200	201 - 2000
RECOMMENDED THRUST LOAD	C <sub>90</sub> /4	C <sub>90</sub> /8

The shaft tolerances recommended below are adequate for normal radial and radial/thrust load applications. Since the allowable load, especially at a low speed, is very large, the shaft should be checked to assure adequate shaft strength.

The magnitude and direction of both the thrust and radial load must be taken into account when selecting a housing. **When pillow blocks are utilized, heavy loads should be directed through the base. Where uplift loads are involved, see Table 15, pg. B11-53 for maximum values.** Where a load pulls the housing away from the mounting base, both the hold-down bolts and housing must be of adequate strength. Auxiliary load carrying devices such as shear bars are advisable for side or end loading of pillow blocks and radial load for flange units.

Shaft Size	Tolerance, Inches
2-11/16 - 4	+.000 To -.004"
4-7/16 - 5	+.000 To -.005"

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# SELECTION



## All Steel

### SELECTING BEARINGS SUPPORTING RADIAL LOADS ONLY

1. Define  $L_{10}$  Life Hours desired.
2. Establish bearing radial load,  $F_R$  ( $FR = P$  for Pure Radial Load Conditions).  
The DODGE program BEST™\* can be used to find application loads.
3. Establish RPM.

Using the easy selection Table 11, pg. B11-52 find, under the RPM column, the equivalent radial load that equals or is higher than the application radial load for the desired life. The shaft size on the far left will be the minimum shaft size that you can use for your application. If the desired life is different than the values shown on the chart, use alternate Method A shown below.

- Example:
1.  $L_{10}$  Life = 30,000 Hours
  2. Radial load = 3800 lbs.
  3. RPM = 1,000

At the intersection of the 1,000 RPM column and the 30,000 hours  $L_{10}$  life row, the equivalent radial load of 4478 lbs. Exceeds the 3800 lbs. Radial load for shaft sizes 2-11/16 -3". A bearing with bore ranging from 2-11/16 to 3" may be used for this application.

### ALTERNATE METHOD A - SELECTING A BEARING FOR AN $L_{10}$ LIFE VALUE NOT SHOWN IN THE EASY SELECTION CHART.

The  $L_{10}$  life equation can be rearranged so that the bearing dynamic capacity  $C$  is identified in terms of  $L_{10}$ , RPM and  $P$ .

$$C_{90} = \left( \frac{L_{10} \times \text{RPM}}{1,500,000} \right)^{0.3} \times P$$

( $P = FR$  for Pure Radial Load Conditions)

The DODGE Bearing Evaluation and Selection Technique (BEST) is a menu driven computer program that calculates bearing loads, fatigue life and operating temperature for a two bearing shaft system based on user supplied input parameters. This interactive program is available at [www.ptwizard.com](http://www.ptwizard.com) under the Product Selection area.

Since the  $L_{10}$ , RPM, and  $P$  are known, solve for  $C_{90}$ . Select from the dynamic capacity column on Table 10, pg. B11-52 the  $C_{90}$  value equal to or greater than the  $C_{90}$  value just calculated. The bore size on the far left represents the bore size selection. Check that the application RPM does not exceed the MAX. RPM on Table 10. When selecting an  $L_{10}$  life of less than 30,000 hours, particular attention must be paid to shaft deflection and proper lubricant selection.

### SELECTING BEARINGS SUPPORTING COMBINATION RADIAL AND THRUST LOADS

When a bearing supports both a radial load and a thrust load, the loading on the two rows is shared unequally depending on the ratio of thrust to radial load. The use of the X (radial factor) and Y (thrust factor) from Table 10 converts the applied thrust load and radial loads to an equivalent radial load having the same effect on the life of the bearing as a radial load of this magnitude.

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# SELECTION

## All Steel

The equivalent radial load  $P = XF_R + YF_A$

Where:

- $P$  = Equivalent radial load, lbs.
- $F_R$  = Radial load, lbs. (see Table 10 for allowable slip fit maximum)
- $F_A$  = Thrust (axial) load, lbs.
- $e$  = Thrust load to radial load factor (Table 10)
- $X$  = Radial load factor (Table 10)
- $Y$  = Thrust load factor (Table 10)

To find  $X$  and  $Y$ , calculate  $F_A/F_R$  and compare to  $e$  for the selected bore size. Determine  $X$  and  $Y$  from Table 10, depending on whether  $F_A/F_R$  is equal to or less than  $e$ , or  $F_A/F_R$  is greater than  $e$ . Substitute all known values into the equivalent radial load equation.  $P$  (equivalent radial load) can be used in the life formula to determine  $L_{10}$ , or it can be compared to the allowable equivalent radial load ratings for the speed and hours life desired in the easy selection Table 11, pg. B11-52.

### SELECTING BEARINGS SUPPORTING ONLY THRUST LOADS

Tapered Roller Bearings perform extremely well under pure thrust load applications. Use  $P = YF_A$  for the equivalent radial load. The value of  $Y$  is obtained from Table 1, pg. for  $F_A/F_R > e$ . Substitute  $Y$  and  $F_A$  into the equivalent load equation.  $P$  (equivalent radial load) can be used in the life formula to determine  $L_{10}$  or it can be compared to the allowable equivalent radial load ratings for the speed and hours life desired in the easy selection Table 11, pg. B11-52.

### LUBRICATION

DODGE All Steel Double Row Tapered roller bearings are lubricated at the factory with a superior industrial grease that uses a lithium hydroxystearate thickener and highly refined base oil. This grease will adequately handle low and medium speeds with low and medium loads at normal temperatures as defined on Table 14, pg. B11-53. For very low and high speeds, for heavy loads and for low and high temperatures, special greases must be used. Contact DODGE Application Engineering (864) 284-5700. DODGE engineers will recommend bearings and lubricants for the above unusual conditions. DODGE also has the expertise to custom design and build special bearings for your needs. The only maintenance requirement for DODGE Tapered roller bearings is periodic relubrication at regular intervals as outlined in the appropriate instruction manuals.

### INSTALLATION AND MAINTENANCE

In nearly all applications good design practice requires two bearings supporting the shaft. In cases where three or more bearings are installed, unless precautions are taken to line the bearings up, both vertically and horizontally, it is possible to induce heavy loads. In the case of two bearings, alignment is not as critical, especially with DODGE All Steel Double Row Tapered Roller Bearings. All Steel bearings are designed to allow as much as  $1^\circ$  to  $2^\circ$  of static misalignment depending on bore size. To ensure good alignment, mounting surfaces must be checked for flatness and must lie in the same plane. When tightening base bolts and cap bolts, each bolt should be alternately tightened in incremental torque values until full torque is achieved. Shimming may be required to minimize misalignment.

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## All Steel

**Table 10: All Steel Double Row Tapered Roller Bearings Radial and Thrust Factors**

Shaft Size	e	Fa/Fr ≤ e		Fa/Fr > e		Dynamic Capacity C <sub>90</sub> *		Maximum RPM
		X	Y	X	Y	Lbs.	Newtons	
2-11/16 - 3	0.43	0.87	2.02	0.70	2.44	11,000	48,945	1,880
3-1/4 - 3-1/2	0.49	0.87	1.77	0.70	2.14	21,000	93,441	1,520
3-15/16 - 4	0.34	0.87	2.53	0.70	3.06	23,000	102,340	1,340
4-7/16 - 4-1/2	0.36	0.87	2.45	0.70	2.96	34,500	153,510	1,210
4-15/16 - 5	0.34	0.87	2.53	0.70	3.06	35,400	157,515	1,070

**COMPARING SPHERICAL TO TAPER ROLLER BEARING**

The dynamic capacity C (spherical) and C<sub>90</sub> (taper) are not to the same base. To compare basic dynamic capacities, multiply C x .259 and compare to C<sub>90</sub>.

★ C<sub>90</sub>- Dynamic capacity based on a rated life of 90 million revolutions or 3000 hours at 500 RPM

**Table 11: Easy Selection Table Dodge All-steel Double Row Tapered Roller Bearings**

Shaft Size	Hours Life	Allowable Equivalent Radial Load Rating (Lbs.) at Various Revolutions Per Minute *															
		50	100	250	500	750	1000	1070	1210	1340	1520	1880	2180	2300	2700	2900	3250
2-11/16	5,000	18,829	15,294	11,618	9,437	8,356	7,665	7,511	7,239	7,021	6,760	6,343	6,067	5,971	5,690	5,569	5,382
	10,000	15,294	12,423	9,437	7,665	6,787	6,226	6,101	5,880	5,703	5,491	5,152	4,928	4,850	4,622	4,524	4,372
	<b>30,000</b>	11,000	8,935	6,787	5,513	4,882	4,478	4,388	4,229	4,102	3,949	3,705	3,544	3,488	3,324	3,254	3,144
	50,000	9,437	7,665	5,823	4,730	4,188	3,842	3,765	3,628	3,519	3,388	3,179	3,041	2,992	2,852	2,791	2,698
	100,000	7,665	6,226	4,730	3,842	3,402	3,120	3,058	2,947	2,858	2,752	2,582	2,470	2,431	2,316	2,267	2,191
3-1/4	5,000	35,947	29,198	22,181	18,016	15,953	14,634	14,340	13,820	13,404	12,906	12,109	11,583	11,398	10,863	10,633	10,275
	10,000	29,198	23,716	18,016	14,634	12,958	11,886	11,647	11,226	10,887	10,483	9,836	9,408	9,258	8,823	8,636	8,346
	<b>30,000</b>	21,000	17,057	12,958	10,525	9,319	8,549	8,377	8,074	7,830	7,540	7,074	6,767	6,659	6,346	6,211	6,003
	50,000	18,016	14,634	11,117	9,030	7,995	7,334	7,187	6,927	6,718	6,468	6,069	5,805	5,713	5,444	5,329	5,150
	100,000	14,634	11,886	9,030	7,334	6,494	5,957	5,838	5,626	5,457	5,254	4,929	4,715	4,640	4,422	4,328	4,183
3-15/16	5,000	39,371	31,979	24,293	19,732	17,472	16,027	15,705	15,137	14,680	14,135	13,262	12,686	12,484	11,897	11,645	11,254
	10,000	31,979	25,975	19,732	16,027	14,192	13,018	12,757	12,295	11,924	11,482	10,772	10,304	10,140	9,664	9,459	9,141
	<b>30,000</b>	23,000	18,682	14,192	11,527	10,207	9,363	9,175	8,843	8,576	8,258	7,748	7,411	7,293	6,950	6,803	6,574
	50,000	19,732	16,027	12,175	9,889	8,757	8,033	7,871	7,586	7,358	7,085	6,647	6,358	6,257	5,963	5,836	5,640
	100,000	16,027	13,018	9,889	8,033	7,113	6,525	6,394	6,162	5,976	5,754	5,399	5,164	5,082	4,843	4,741	4,581
4-7/16	5,000	59,056	47,968	36,440	29,598	26,208	24,041	23,558	22,705	22,020	21,203	19,893	19,029	18,726	17,846	17,468	16,881
	10,000	47,968	38,962	29,598	24,041	21,288	19,527	19,135	18,442	17,886	17,222	16,158	15,456	15,210	14,496	14,188	13,711
	<b>30,000</b>	34,500	28,023	21,288	17,291	15,311	14,045	13,762	13,264	12,864	12,387	11,622	11,117	10,939	10,426	10,204	9,862
	50,000	29,598	24,041	18,263	14,834	13,135	12,049	11,807	11,379	11,036	10,627	9,970	9,537	9,385	8,944	8,755	8,460
	100,000	24,041	19,527	14,834	12,049	10,669	9,787	9,590	9,243	8,964	8,632	8,098	7,747	7,623	7,265	7,111	6,872
4-15/16	5,000	60,597	49,220	37,390	30,370	26,892	24,668	24,173	23,297	22,595	21,756	20,412	19,526	19,214	18,312	17,923	17,321
	10,000	49,220	39,979	30,370	24,668	21,843	20,037	19,634	18,923	18,353	17,672	16,580	15,860	15,607	14,874	14,558	14,069
	<b>30,000</b>	35,400	28,754	21,843	17,742	15,710	14,411	14,121	13,610	13,200	12,710	11,925	11,407	11,225	10,698	10,471	10,119
	50,000	30,370	24,668	18,739	15,221	13,478	12,363	12,115	11,676	11,324	10,904	10,230	9,786	9,630	9,178	8,983	8,681
	100,000	24,668	20,037	15,221	12,363	10,947	10,042	9,840	9,484	9,198	8,857	8,310	7,949	7,822	7,455	7,296	7,051

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## All Steel

**Table 12: All-steel Pillow Block Housing Permissible Thrust Load, Lbs.**

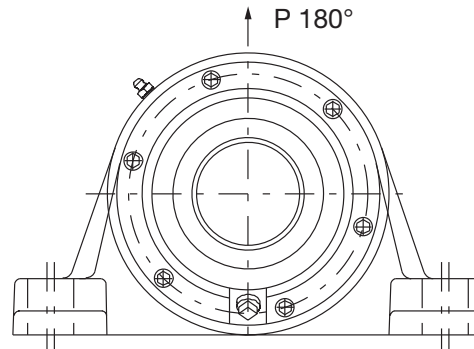
Bore Size, Inches	Max. Thrust (Lbs.)
2-11/16 - 3	9300
3-1/4 - 3-1/2	13800
3-15/16 - 4	13300
4-7/16 - 4-1/2	10400
4-15/16 - 5	14000

**Table 13: All-steel Pillow Block And Cartridge Total Expansion Capability**

Bore Size, Inches	Expansion (Inches)
2-11/16 - 3	3/8
3-1/4 - 3-1/2	3/8
3-15/16 - 4	3/8
4-7/16 - 4-1/2	3/8
4-15/16 - 5	25/64

**Table 14: Definition Of Operating Conditions For Tapered Roller Bearings**

Low Speed	Up To 20% Of Max. RPM (Table 10)
Medium Speed	Over 20% To 80% Of Max. RPM
High Speed	Over 80% Of Max. RPM
Light Load	Up To 30% Of C <sub>90</sub> (Table 10)
Normal Load	Over 30% To 70% Of C <sub>90</sub>
Heavy Load	Over 70% Of C <sub>90</sub>
Low Temperature	-100°F To 20°F
Medium Temperature	Over 20°F To 200°F
High Temperature	Over 200°F To 300°F
Very High Temperature	Over 300°F To 400°F



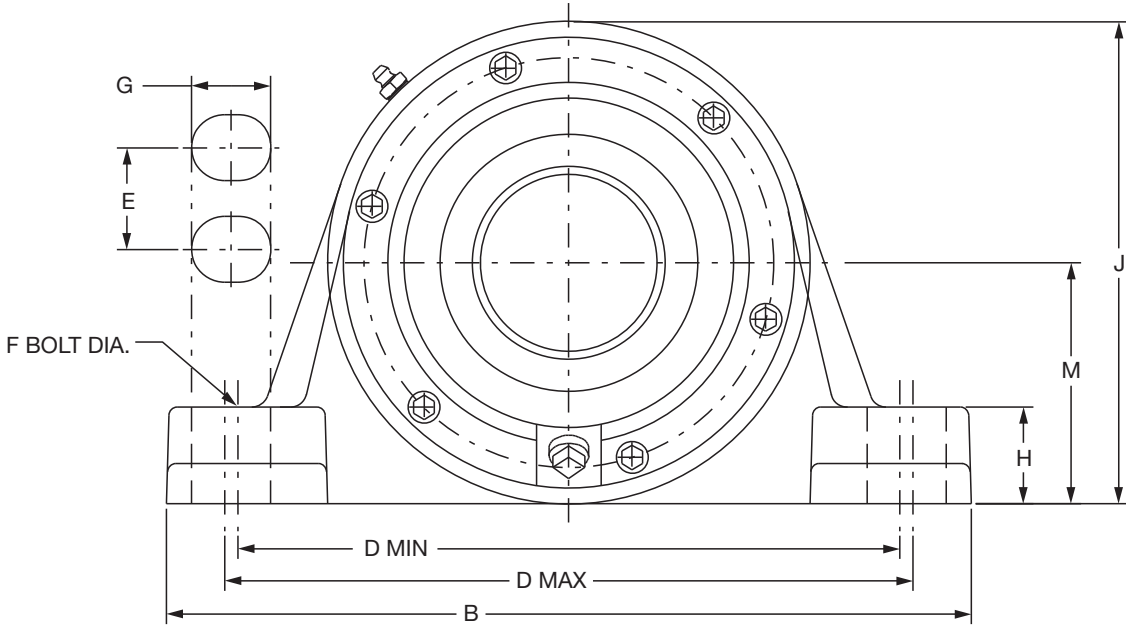
**Table 15: Housing Ratings All-steel Pillow Block**

SHAFT SIZE, (INCHES)	HOUSING STRENGTH, LBS.
	180°
2-11/16 - 3	30000
3-1/4 - 3-1/2	32000
3-15/16 - 4	34000
4-7/16 - 4-1/2	39000
4-15/16 - 5	39000

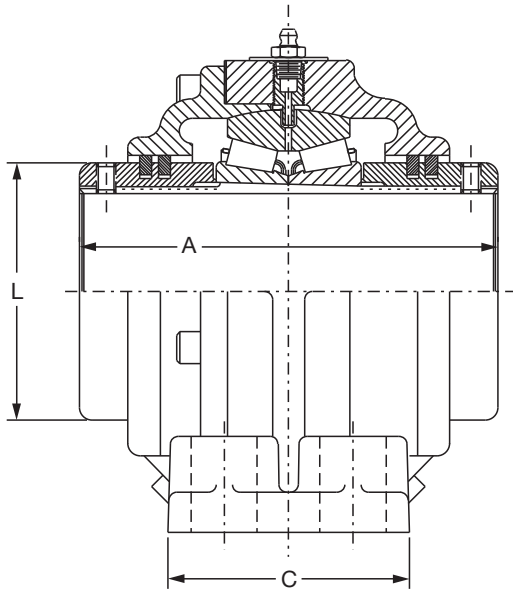
# SELECTION/DIMENSIONS



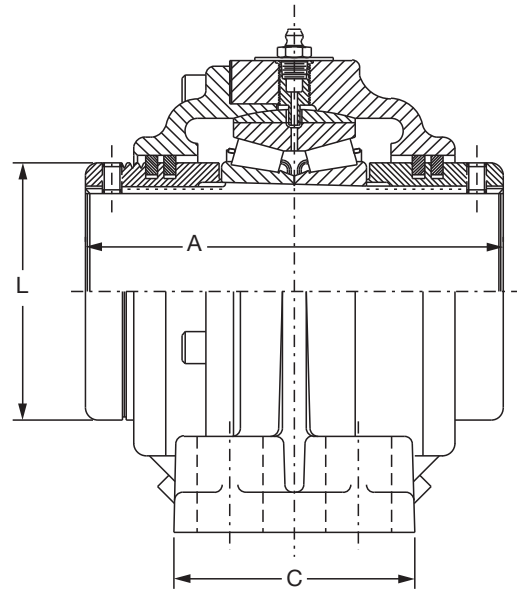
## All Steel Pillow Block - Inch 4-BOLT BASE



**NOTE:** All sizes use a 1/8 - 27 NPT hydraulic grease fitting



NON-EXPANSION CONSTRUCTION



EXPANSION CONSTRUCTION

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# SELECTION

## All Steel Pillow Block - Inch 4-BOLT BASE

Cast Steel Non-Expansion*				Cast Steel Expansion			
Shaft Size Inches #	Part Number	Part Name	Weight Lbs Approx	Shaft Size Inches #	Part Number	Part Name	Weight Lbs Approx
2-11/16	<b>063359</b>	SP4B-AS-211	45	2-11/16	<b>063389</b>	SP4B-AS-211E	45
2-15/16	<b>063360</b>	SP4B-AS-215	42	2-15/16	<b>063390</b>	SP4B-AS-215E	42
3	<b>063361</b>	SP4B-AS-300	41	3	<b>063411</b>	SP4B-AS-300E	41
3-7/16	<b>063362</b>	SP4B-AS-307	77	3-7/16	<b>063392</b>	SP4B-AS-307E	77
3-1/2	<b>063363</b>	SP4B-AS-308	77	3-1/2	<b>063393</b>	SP4B-AS-308E	77
4-7/16	<b>063366</b>	SP4B-AS-407	149	4-7/16	<b>063396</b>	SP4B-AS-407E	149

\* Furnished Unless Otherwise Specified

# Consult DODGE For Sizes Not Listed.

# Consult DODGE For Sizes Not Listed.

Shaft Size Inches	A	B	C	D		E	F Bolt Dia.	G	H	J	L	M	Exp*
				Min.	Max.								
2-11/16	6.50	12.50	3.75	10.31	10.69	2.00	5/8	0.94	1.63	7.50	4.00	3.75	3/8
2-15/16													
3													
3-7/16	7.75	14.50	4.50	11.88	12.63	2.38	3/4	1.13	1.88	9.00	4.69	4.50	3/8
3-1/2													
4-7/16													
4-7/16	9.75	18.75	5.25	14.81	15.69	3.25	7/8	1.31	2.25	11.38	6.00	5.75	3/8

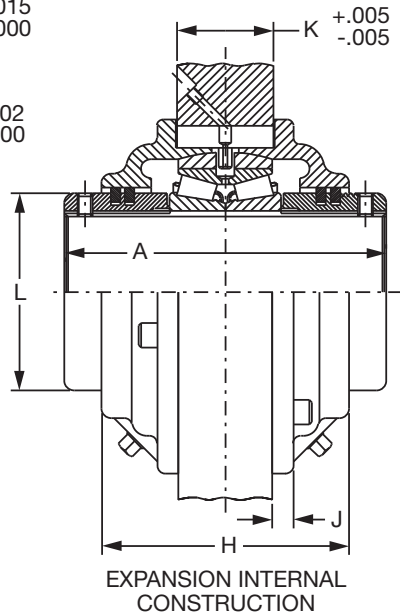
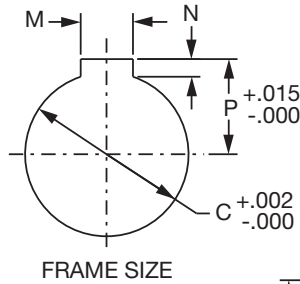
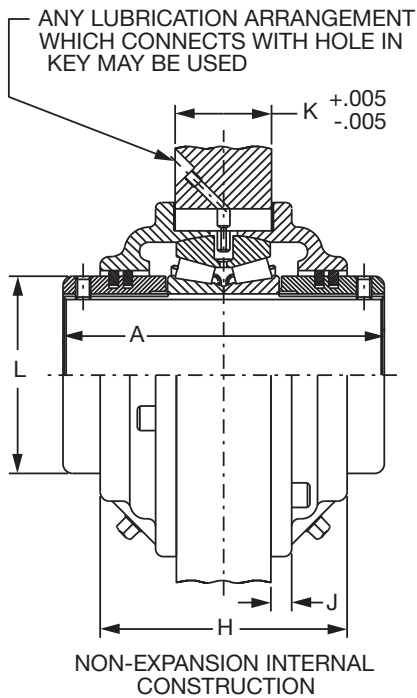
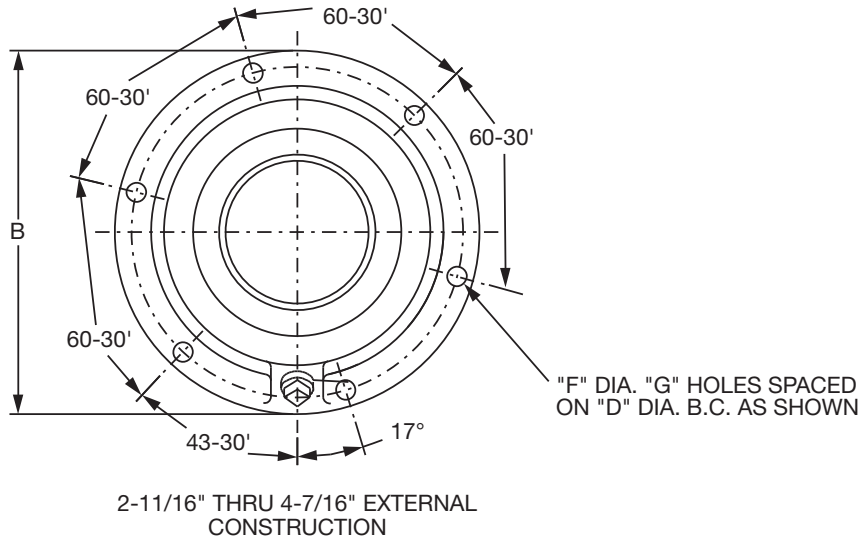
\* Total Expansion for Expansion Bearing Only

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# SELECTION/DIMENSIONS



## All Steel Cartridge Units - Inch



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# SELECTION/DIMENSIONS

## All Steel Cartridge Units - Inch

Cast Steel Non-Expansion*				Cast Steel Expansion			
Shaft Size Inches #	Part Number	Part Name	Weight Lbs Approx	Shaft Size Inches #	Part Number	Part Name	Weight Lbs Approx
2-11/16	<b>063420</b>	CRT-AS-211	30	2-11/16	<b>063450</b>	CRT-AS-211E	30
2-15/16	<b>063421</b>	CRT-AS-215	30	2-15/16	<b>063451</b>	CRT-AS-215E	30
3	<b>063422</b>	CRT-AS-300	30	3	<b>063452</b>	CRT-AS-300E	30
3-7/16	<b>063424</b>	CRT-AS-307	55	3-7/16	<b>063454</b>	CRT-AS-307E	55
3-15/16	<b>063426</b>	CRT-AS-315	65	3-15/16	<b>063456</b>	CRT-AS-315E	65
4-7/16	<b>063429</b>	CRT-AS-407	110	4-7/16	<b>063459</b>	CRT-AS-407E	110

\* Furnished Unless Otherwise Specified

# Consult DODGE For Sizes Not Listed.

# Consult DODGE For Sizes Not Listed.

Shaft Size Inches	A	B	C	D	F Bolt Dia.	G	H	J	K	L	M	N	P	Exp*
2-11/16														3/8
2-15/16	6.50	7.13	5.70	6.38	3/8	6.00	4.88	0.38	2.19	4.00	1.00	5/8	3.43	
3														
3-7/16	7.75	8.75	7.20	7.13	7/16	6.00	6.03	0.84	2.75	4.69	1.00	5/8	4.19	
3-15/16	8.00	9.50	7.89	8.53	7/16	6.00	5.97	0.84	3.13	5.44	1.00	5/8	4.54	
4-7/16	9.25	10.84	9.07	9.88	1/2	6.00	7.00	0.50	3.50	6.06	1.00	5/8	5.13	

\* Total Expansion for Expansion Bearing Only

Bearing Reference Guide

E-Family Roller Bearings

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# NOTES



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