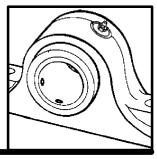


Type E, Type K, DOUBLE–INTERLOCK and TAF

Type E, Type K, DOUBLE-INTERLOCK and TAF mounted bearings are all general purpose high capacity tapered roller bearings capable of handling any combination of radial and thrust load within the capacity of the bearing.

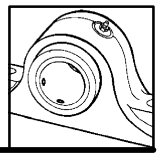
All of these bearings are mounted to the shaft by means of set screw collars having 65 degree set screw spacing for optimum clamping force. The Type E, DOUBLE-INTERLOCK, and TAF mounted bearings have a locking collar at each end of their extended inner races. Type K has a single locking collar. The tapered roller bearings for these mounted bearings all have case carburized inner races (cones), outer races (cups), and rollers.

Bearings are preassembled, prelubricated and factory adjusted. They are normally equipped with land riding contact type seals with a metal deflector guard.

The standard housing material for most of these mounted bearings is ASTM A48 Class 30 Iron having a minimum tensile strength of 30,000 psi. The outer housing for the Type K and DOUBLE-INTERLOCK flange bearings thru 4″ bore size utilize housings made of ductile iron (ASTM A536 Grade 65-45-12) with 65,000 psi tensile strength. Type E pillow blocks are also available with cast steel housing having a tensile strength of 70,000 psi for 2 bolt base thru 3-1/2″ bore size and 4 bolt base from 3-15/16″ thru 5″ bore size on an assembled or order basis.

The Type K, DOUBLE-INTERLOCK pillow blocks and flange bearings plus the TAF pillow blocks all have split outer housings used with completely assembled, lubricated and adjusted inner units simplifying replacement of the bearing in the pillow block or flange bearing. All Type E mounted bearings, Type K take up units and all D units, S-1 units, and B-1 units have solid one piece housings.

SELECTION/DIMENSIONS TYPE E PAGE B5–11/B5–22	SELECTION/DIMENSIONS TYPE K PAGE B5–11/B5–34	SELECTION/DIMENSIONS DOUBLE-INTERLOCK PAGE B5–11/B5–44	SELECTION/DIMENSIONS TAF PAGE B5–11/B5–52



Type E, Type K, DOUBLE–INTERLOCK and TAF

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 page B5–10 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 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 Shell Alvania #2 up to 5″, 125mm bore. Above 5″ bore Mobil Mobilux #2EP is standard. High temperature greases available include Moluballoy 896 HT and Mobilith SHC460. Other special lubricatns are available upon request. 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:

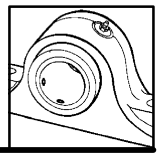
F4B-E-207 except with Mobilith SHC 460 grease and .012 to .015 lateral end play

or

023106 except with Mobilith SHC 460 grease and .012 to .015 lateral end play

OTHER SPECIAL REQUIREMENTS NOT LISTED

For applications requiring modifications not listed, we encourage you to contact out Application Engineering Department for Bearings at 864-297-4800.



Type E, Type K, DOUBLE–INTERLOCK and TAF

NOMENCLATURE

P2B – D I – 207 – RE*

HOUSING STYLE OPTIONS

- P2B=PILLOW BLOCK 2 BOLT, CAST IRON
- P4B=PILLOW BLOCK 4 BOLT, CAST IRON
- SP2B=PILLOW BLOCK 2 BOLT, CAST STEEL
- SP4B=PILLOW BLOCK 4 BOLT, CAST STEEL
- F4B=FLANGE BEARING 4 BOLT, CAST IRON
- FC=PILOTED FLANGE BEARING (FLANGED CARTRIDGE)
- B1U=B-1 UNIT, CAST IRON
- DU=D UNIT, CAST IRON
- S1U=S-1 UNIT, CAST IRON
- WSTU=WIDE SLOT TAKE UP BEARING, CAST IRON
- TP=TOP ANGLE TAKE UP BEARING, CAST IRON
- H2S=PILLOW BLOCK HOUSING ONLY 2 BOLT, CAST IRON
- H4S=PILLOW BLOCK HOUSING 4 BOLT, CAST IRON

BEARING TYPE OPTIONS

- E=TYPE E
- K=TYPE K
- DI=DOUBLE-INTERLOCK
- TAF=TAF

SIZE

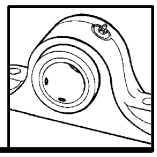
INCHES & 16TH
2=2 INCHES
07=7/16 INCHES
OR
207=2-7/16″

METRIC
060M=60 MILLIMETERS

OTHER OPTIONS

- R=LAND RIDING RUBBING SEAL
- T= E TECT SEAL
- E=EXPANSION TYPE BEARING. IF E DOES NOT APPEAR AFTER SEAL TYPE, THEN BEARING IS NON-EXPANSION TYPE
- SMART = DRILLED FOR SENSOR KITS

SELECTION/DIMENSIONS TYPE E PAGE B5–11/B5–22	SELECTION/DIMENSIONS TYPE K PAGE B5–11/B5–34	SELECTION/DIMENSIONS DOUBLE-INTERLOCK PAGE B5–11/B5–44	SELECTION/DIMENSIONS TAF PAGE B5–11/B5–52



Type E, Type K, DOUBLE–INTERLOCK And TAF Tapered Roller Bearings

DODGE Type E, K, DI and TAF 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) 297-4800 for applications which exceed the recommendations of this catalog.

L_{10} Hours Life --- The life which may be expected from at least 90% of a given group of bearings operating under identical conditions.

$$L10 = \left(\frac{C_{90}}{P}\right)^{10/3} x \left(\frac{1,500,000}{RPM}\right)$$

Where: C_{90} = Dynamic Capacity (Table 1, pg.B5–14), 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_{10} life for pillow blocks. The maximum thrust load should not exceed values shown on Table 3. Where substantial radial load is also present, it is advisable to calculate actual L_{10} life to assure that it meets the requirements. The effectiveness of the shaft attachment to carry thrust load depends on proper tightening of the setscrews, shaft tolerance 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.

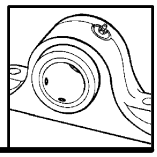
RPM RANGE		20-200	201-2000	over 2000
RECOMMENDED	E, DI, TAF	$C_{90}/4$	$C_{90}/8$	$C_{90}/12$
THRUST LOAD	K	$C_{90}/5$	$C_{90}/8$	$C_{90}/12$

The shaft tolerances recommended below are adequate for normal radial and radial/thrust load applications. The radial load is limited by the attachment to the shaft (see Table 1). Where the applied radial load (F_R) exceeds this limit (maximum allowable slip fit radial load), a snug-to-light press fit of the shaft is required. 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 Tables 6, 7, and, pg.B5–19 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″	+.0000-.0005″
1-5/8 TO 4	+.000 -.001″
4-7/6 TO 6	+.000-.0015″
6-7/16-8″	+.000-.002″

NOTE: The L_{10} life calculated using the above formula is subject to life adjustment factors in accordance with ABMA standards described on page B14–45.



Type E, Type K, DOUBLE–INTERLOCK And TAF Tapered Roller Bearings

SELECTING BEARINGS SUPPORTING RADIAL LOADS ONLY

1. Define L_{10} Life Hours desired.

2. Establish bearing radial load, F_R (F_R = 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 2, pg. B5–15 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 3910 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 L10 LIFE VALUE NOT SHOWN IN THE EASY SELECTION CHART.

The L_{10} life equation can be rearranged so that the bearing dynamic capacity $\mathbf{C_{90}}$ is identified in terms of L_{10}, RPM and P.

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

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

Since the L_{10}, RPM, and P are known, solve for C_{90}. Select from the dynamic capacity column on Table 1, pg.B5–14 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 1. Also check that the radial load does not exceed the Maximum Allowable Slip Fit Radial Load shown on Table 1. If it does, a line to line to light press fit of shaft is required. 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 1 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.

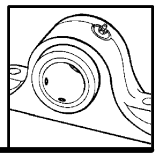
The equivalent radial load $P = XF_R + YF_A$

Where: P= Equivalent radial load, lbs.
F_R= Radial load, lbs.(see Table 1 for allowable slip fit maximum)
F_A= Thrust (axial) load, lbs.
e = Thrust load to radial load factor (Table 1)
X = Radial load factor (Table 1)
Y= Thrust load factor (Table 1)

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 1, pg. B5–14 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 2, pg. B5–15.

*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. To order, call (864) 287-4800.

SELECTION/DIMENSIONS TYPE E PAGE B5–11/B5–22	SELECTION/DIMENSIONS TYPE K PAGE B5–11/B5–34	SELECTION/DIMENSIONS DOUBLE-INTERLOCK PAGE B5–11/B5–44	SELECTION/DIMENSIONS TAF PAGE B5–11/B5–52



Type E, Type K, DOUBLE–INTERLOCK and TAF

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. B5–14 for $F_A/F_R > \mathbf{e}$. 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 2, pg. B5–15.

LUBRICATION

DODGE E, K, DI, and TAF tapered roller bearings up to 5″ bore are lubricated at the factory with Shell Alvania #2 grease. Above 5″ bore they are lubricated with Mobil Mobilux #2EP. Shell Alvania #2 and Mobil Mobilux #2EP greases are superior industrial greases using a lithium hydroxystearate thickener and highly refined base oil. These greases will adequately handle low and medium speeds with low and medium loads at normal temperatures as defined on Table 5, pg.B5–18. 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) 297-4800. 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.

RELUBRICATION SCHEDULE

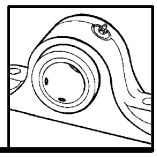
Hours Run per Day	SUGGESTED LUBRICATION PERIOD IN WEEKS							
	1 to 250 RPM	251 to 500 RPM	501 to 750 RPM	751 to 1000 RPM	1001 to 1500 RPM	1501 to 2000 RPM	2001 to 2500 RPM	2501 to 3000 RPM
8	12	12	10	7	5	4	3	2
16	12	7	5	4	2	2	2	1
24	10	5	3	2	1	1	1	1

High Speed Operation --- In the higher speed ranges too much grease will cause overheating. The amount of grease that the bearing will take for particular high speed application can only be determined by experience --- see “Operating Temperature” below. If excess grease in the bearing caused overheating, it will be necessary to remove grease fitting (also drain plug when furnished) to permit excess grease to escape. When establishing a relubrication schedule, note that a small amount of grease at frequent intervals is preferable to a large amount at infrequent intervals.

Operation in Presence of Dust, Water or Corrosive Vapors --- Under these conditions the bearing should contain as much grease as speed will permit, since a full bearing with consequent slight leakage is the best protection against entrance of foreign material. In the higher speed ranges too much grease will cause overheating --- see “High Speed Operation”. In the lower speed ranges, it is advisable to add extra grease to a new bearing before putting into operation. Bearings should be greased as often as necessary (daily if required) to maintain a slight leakage at the seals.

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 K, DI, and TAF Tapered Roller Bearings. K, DI, and TAF bearings are designed to allow as much as 2° to 7° 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 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.



Type E, Type K, DOUBLE–INTERLOCK and TAF

TABLE 1 – E, K, DI, AND TAF TAPERED ROLLER BEARINGS RADIAL AND THRUST FACTORS

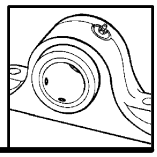
SHAFT SIZE	e	$F_A/F_R \leq e$		$F_A/F_R > e$		DYNAMIC CAPACITY C_{90}*		MAXIMUM RPM	MAXIMUM RPM	MAXIMUM ALLOWABLE SLIP FIT RADIAL LOAD, F_R **, LBS	
		X	Y	X	Y	LBS.	NEWTONS	R-SEAL	E-TECT	E,DI,&TAF	K
1-3/16 1-1/4	.49	.87	1.77	.70	2.14	2,980	13,260	4,490	3,100	3,100	2,100
1-3/8 1-7/16	.46	.87	1.89	.70	2.28	4,760	21,180	3,820	2,675	5,000	3,300
1-1/2 1 5/8 1-11/16	.44	.87	1.96	.70	2.37	6,140	27,320	3,320	2,325	6,400	4,300
1-3/4 1-7/8 1-15/16 2	.33	.87	2.64	.70	3.18	8,070	35,908	3,050	2,135	8,400	5,600
2-3/16	.36	.87	2.38	.70	2.87	8,550	38,044	2,730	1,900	8,900	5,900
2-1/4 2-7/16 2-1/2	.40	.87	2.17	.70	2.63	9,090	40,447	2,420	1,700	9,500	6,300
2-11/16 2-3/4 2-15/16 3	.46	.87	1.87	.70	2.26	9,600	42,716	2,060	1,440	10,000	6,700
3-3/16 3-1/4 3-7/16 3-1/2	.50	.87	1.71	.70	2.07	15,300	68,078	1,640	1,145	16,000	10,500
3-15/16 4	.49	.87	1.77	.70	2.14	21,000	93,440	1,530	1,070	22,000	14,600
4-7/16 4-1/2	.53	.87	1.63	.70	1.97	25,800	114,799	1,360	950	27,000	----
4-15/16 5	.47	.87	1.83	.70	2.21	35,500	157,959	1,200	840	35,000	----
5-7/16 5-15/16 6	.49	.87	1.76	.70	2.12	40,700	181,097	915	640	42,400	----
6-7/16 6-1/2 6-15/16 7	.54	.87	1.61	.70	1.95	69,200	307,910	790	550	72,000	----

Comparing Spherical To Taper Roller Bearings: The dynamic capacity C (spherical) and C90 (taper) are not to the same base. To compare basic dynamic capacities, multiply C x .259 and compare to C90.

* C_{90} – Dynamic capacity based on a rated life of 90 million revolutions or 3000 hours at 500 RPM.

** If load exceeds maximum allowable slip fit radial load, (F_R), line-to-line, to light press fit of shaft required. Application up to maximum slip fit radial load may be applied if recommended shaft tolerances are used.

SELECTION/DIMENSIONS TYPE E PAGE B5–11/B5–22	SELECTION/DIMENSIONS TYPE K PAGE B5–11/B5–34	SELECTION/DIMENSIONS DOUBLE-INTERLOCK PAGE B5–11/B5–44	SELECTION/DIMENSIONS TAF PAGE B5–11/B5–52



Type E, Type K, DOUBLE–INTERLOCK and TAF

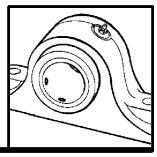
TABLE 2 – EASY SELECTION TABLE TYPE E, K, DI, AND TAF

Shaft Size	L10 Hours Life	Allowable Equivalent Radial Load Rating (Lbs.) at Various Revolutions Per Minute														
		50	100	150	250	500	750	1000	1250	1500	1750	2000	2500	2700	3000	3500
	10,000	4145	3365	2980	2555	2075	1840	1685	1575	1495	1425	1370	1280	1250	1215	1160
1-3/16	**30,000**	**2980**	**2420**	**2145**	**1840**	**1495**	**1320**	**1215**	**1135**	**1075**	**1025**	**985**	**920**	**900**	**870**	**835**
1-1/4	40,000	2735	2220	1965	1685	1370	1215	1110	1010	985	940	905	845	825	800	765
	60,000	2420	1965	1740	1495	1215	1075	985	920	870	835	800	750	730	710	675
	100,000	2075	1685	1495	1280	1040	920	845	790	750	715	685	640	625	610	580
	10,000	6620	5375	4760	4085	3315	2935	2695	2520	2385	2275	2190	2045	2000	1935	1850
1-3/8	**30,000**	**4760**	**3865**	**3425**	**2935**	**2385**	**2110**	**1935**	**1810**	**1715**	**1640**	**1575**	**1470**	**1440**	**1395**	**1330**
1-7/16	40,000	4365	3545	3140	2695	2190	1935	1775	1660	1575	1500	1445	1350	1320	1280	1220
	60,000	3865	3140	2780	2385	1935	1715	1575	1470	1395	1330	1280	1195	1170	1130	1080
	100,000	3315	2695	2385	2045	1660	1470	1350	1260	1195	1140	1095	1025	1000	970	925
	10,000	8535	6935	6140	5265	4280	3790	3475	3250	3075	2940	2820	2640	2580	2500	
1-1/2	**30,000**	**6140**	**4985**	**4415**	**3790**	**3075**	**2725**	**2500**	**2335**	**2215**	**2115**	**2030**	**1900**	**1855**	**1795**	
1-5/8	40,000	5630	4575	4050	3475	2820	2500	2290	2145	2030	1940	1860	1740	1700	1650	
1-11/16	60,000	4985	4050	3585	3075	2500	2215	2030	1900	1795	1715	1650	1540	1505	1460	
	100,000	4280	3475	3075	2640	2145	1900	1740	1630	1540	1470	1415	1325	1290	1250	
	10,000	11220	9115	8070	6925	5625	4980	4565	4270	4045	3860	3710	3470	3390	3285	
1-3/4	**30,000**	**8070**	**6555**	**5805**	**4980**	**4045**	**3580**	**3285**	**3070**	**2910**	**2775**	**2670**	**2495**	**2440**	**2360**	
1-7/8	40,000	7400	6010	5325	4565	3710	3285	3015	2820	2670	2545	2445	2290	2235	2165	
1-15/16	60,000	6555	5325	4715	4045	3285	2910	2670	2495	2360	2255	2165	2025	1980	1920	
2	100,000	5625	4565	4045	3470	2820	2495	2290	2140	2025	1935	1860	1740	1700	1645	
	10,000	11885	9655	8550	7335	5960	5275	4840	4525	4285	4090	3930	3675	2590		
	30,000	**8550**	**6945**	**6150**	**5275**	**4285**	**3795**	**3480**	**3255**	**3080**	**2940**	**2825**	**2645**	**2585**		
2-3/16	40,000	7845	6370	5640	4840	3930	3480	3190	2985	2825	2700	2595	2425	2370		
	60,000	6945	5640	4995	4285	3480	3080	2825	2645	2505	2390	2295	2145	2100		
	100,000	5960	4840	4285	3675	2985	2645	2425	2270	2145	2050	1970	1840	1800		
	10,000	12640	10265	9090	7800	6335	5610	5145	4810	4555	4350	4180	3910			
2-1/4	**30,000**	**9090**	**7385**	**6535**	**5610**	**4555**	**4035**	**3700**	**3460**	**3275**	**3130**	**3005**	**2810**			
2-7/16	40,000	8340	6770	5995	5145	4180	3700	3395	3175	3005	2870	2755	2580			
2-1/2	60,000	7385	5995	5310	4555	3700	3275	3005	2810	2660	2540	2440	2285			
	100,000	6335	5145	4555	3910	3175	2810	2580	2410	2285	2180	2095	1960			

For maximum RPM see Table 1 on page B5–14.

In the shaded area, E, DI, and TAF mounted units require a line-to-line to light press fit of shaft.

In the boxed area, Type K mounted units require a line-to-line to light press fit of shaft.



Type E, Type K, DOUBLE–INTERLOCK and TAF

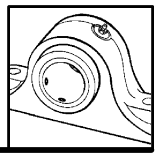
TABLE 2 (continued) – EASY SELECTION TABLE TYPE E, K, DI, AND TAF

Shaft Size	L10 Hours Life	Allowable Equivalent Radial Load Rating (Lbs.) at Various Revolutions Per Minute														
		50	100	150	250	500	750	1000	1250	1500	1750	2000	2500	2700	3000	3500
2-11/16 2-3/4 2-15/16 3	10,000	13345	10840	9600	8235	6690	5925	5435	5080	4810	4595	4415				
	30,000	**9600**	**7795**	**6905**	**5925**	**4810**	**4260**	**3910**	**3655**	**3460**	**3305**	**3175**				
	40.000	8805	7150	6335	5435	4415	3910	3585	3350	3175	3030	2910				
	60,000	7795	6335	5610	4810	3910	3460	3175	2970	2810	2685	2580				
	100,000	6690	5435	4810	4125	3350	2970	2725	2545	2410	2300	2210				
3-3/16 3-1/4 3-7/16 3-1/2	10,000	21370	17280	15300	13125	10665	9440	8660	8100	7670	7320					
	30,000	**15300**	**12425**	**11005**	**9440**	**7670**	**6790**	**7230**	**5825**	**5515**	**5625**					
	40.000	14035	11400	10095	8660	7035	5230	5715	5345	5060	4830					
	60,000	12425	10095	8940	7670	6230	5515	5060	4730	4480	4275					
	100,000	10660	8660	7670	6580	5345	4730	4340	4060	3845	3670					
3-15/16 4	10,000	29200	23715	21000	18015	14635	12955	11885	11115	10525						
	30,000	**21000**	**17055**	**15105**	**12955**	**10525**	**9320**	**8550**	**7995**	**7570**						
	40.000	19265	15645	13855	11885	9655	8550	7840	7335	6945						
	60,000	17055	13855	12270	10525	8550	7570	6945	6495	6150						
	100,000	14635	11885	10525	9030	7335	6495	5955	5570	5275						
4-7/16 4-1/2	10,000	35870	29135	25800	22135	17980	15920	14605	13655							
	30,000	**25800**	**20955**	**18555**	**15920**	**12930**	**11450**	**10500**	**9820**							
	40,000	23665	19225	17020	14605	11860	10500	9635	9010							
	60,000	20955	17020	15070	12930	10500	9300	8530	7980							
	100,000	17980	14605	12930	11095	9010	7980	7320	6845							
4-15/16 5	10,000	49360	40090	35500	30455	24740	21905	20095	18790							
	30,000	**35500**	**28835**	**25530**	**21905**	**17790**	**15755**	**14450**	**13515**							
	40,000	32565	26450	23420	20095	16320	14550	13255	12400							
	60,000	28835	23420	20740	17790	14450	12795	11740	10980							
	100,000	24740	20095	17790	15265	12400	10980	10070	9420							
5-7/16 5-15/16 6	10,000	56590	45965	40700	34915	28360	25115	23035								
	30,000	**40700**	**33060**	**29270**	**25115**	**20400**	**18060**	**16570**								
	40,000	37335	30325	26850	23035	18710	16570	15200								
	60,000	33060	26850	23775	20400	16570	14670	13455								
	100,000	28360	23035	20400	17500	14215	12585	11545								
6-7/16 6-1/2 6-15/16 7	10,000	96215	78150	69200	59365	48220	42700									
	30,000	**69200**	**56205**	**49770**	**42700**	**34680**	**30710**									
	40.000	63480	51560	45655	39170	31815	28170									
	60,000	56205	45655	40425	34680	28170	24945									
	100,000	48220	39170	34680	29755	24170	21400									

For maximum RPM see Table 1 on page B5–14.

In the shaded area, E, DI, and TAF mounted units require a line-to-line to light press fit of shaft.

In the boxed area, Type K mounted units require a line-to-line to light press fit of shaft.



Type E, Type K, DOUBLE–INTERLOCK and TAF

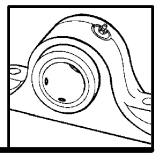
TABLE 3 – PERMISSIBLE THRUST LOAD, LBS. *

SHAFT SIZE INCHES	*E		K/DI		TAF	
	2-Bolt	4-Bolt	2-Bolt	4-Bolt	2-Bolt	4-Bolt
1-3/16	2000		2000			
1-1/4	2000		2000			
1-3/8	2590		2100			
1-7/16	2590		2100		2100	
1-1/2	2590		2100			
1-5/8	2590		2100			
1-11/16	2590		2100		2100	
1-3/4	3454		2900			
1-7/8	3454		2900			
1-15/16	3454		2900		2900	
2	3454		2900			
2-3/16	3454		2900		2900	
2-1/4	3454	3454	3454	3454		
2-7/16	3454	3454	3454	3454	3454	3454
2-1/2	3454	3454	3454	3454	3454	3454
2-11/16	5181	5181	5181	5181	5181	
2-3/4	5181	5181	5181	5181	5181	
2-15/16	5181	5181	5181	5181	5181	5181
3	5181	5181	5181	5181	5181	5181
3-3/16	5181	5181	5181	5181		
3-1/4	5181	5181	5181	5181		
3-7/16	5181	5181	5181	5181	5181	5181
3-1/2	5181	5181	5181	5181	5181	5181
3-15/16		6908		6908		6908
4		6908		6908		6908
4-7/16		6908		6908		6908
4-1/2		6908		6908		6908
4-15/16		6908		6908		6908
5		6908		6908		6908
5-7/16		8635		8635		8635
5-15/16		8635		8635		8635
6		8635		8635		8635
6-7/16		8635		12282		12282
6-1/2		8635		12282		12282
6-15/16		8635		12282		12282
7		8635		12282		12282

Note: The limits above apply to set screw shaft mounting or pillow block over turning force. Under heavy thrust loads it is always wise to use shear bars. At all times the L10 life of the bearing should be checked for proper selection and life requirements. For thrust loads larger than listed or heavy thrus loading on other style housing, contact DODGE Engineering for recommendation.

* Does not include Piloted Flange.

SELECTION/DIMENSIONS TYPE E PAGE B5–11/B5–22	SELECTION/DIMENSIONS TYPE K PAGE B5–11/B5–34	SELECTION/DIMENSIONS DOUBLE-INTERLOCK PAGE B5–11/B5–44	SELECTION/DIMENSIONS TAF PAGE B5–11/B5–52



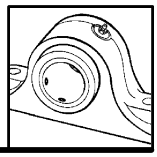
Type E, Type K, DOUBLE–INTERLOCK and TAF

TABLE 4 – K, DI, AND TAF MAXIMUM AXIAL EXPANSION (INCHES)

Bore Size (INCHES)	Type K DOUBLE-INTERLOCK		TAF
	Pillow Block	Flange	
1-3/16 - 1-1/4	.252	--	--
1-3/8 - 1-7/16	.188	.187	.188
1-1/2 - 1-11/16	.188	.187	.188
1-3/4 - 2	.562	.187	.562
2-3/16	.562	.138	.562
2-1/4 - 2-1/2	.562	.312	.562
2-11/16 - 3	.562	.312	.562
3-3/16 - 3-1/2	.562	.312	.562
3-15/16 - 4	.674	.312	.674
4-7/16 - 4-1/2	.674	.812	.674
4-15/16 - 5	.674	.812	.674
5-7/16 - 6	.500	--	.875
6-7/16 - 7	.500	--	.875

TABLE 5 – DEFINITION OF OPERATING CONDITIONS FOR TAPERED ROLLER BEARINGS

LOW SPEED	UP TO 20% OF MAX. RPM (TABLE 1)
MEDIUM SPEED	OVER 20% TO 80% OF MAX. RPM
HIGH SPEED	OVER 80% OF MAX. RPM
LIGHT LOAD	UP TO 30% OF C_{90} (TABLE 1)
NORMAL LOAD	OVER 30% TO 70% OF C_{90}
HEAVY LOAD	OVER 70% OF C_{90}
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 450°F



Type E, Type K, DOUBLE–INTERLOCK and TAF

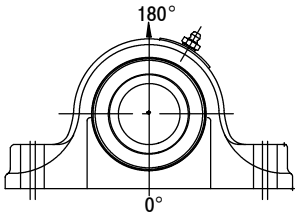
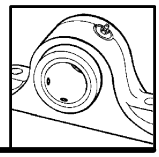


TABLE 6 – HOUSING RATINGS – TYPE E (SOLID HOUSING)

SHAFT SIZE (INCHES)	MAXIMUM RECOMMENDED HOUSING CAP LOADS, LBS. GRAY IRON 180°
1-3/16 - 1-1/4	1,600
1-3/8 - 1-7/16	3,150
1-1/2 - 1-11/16	3,000
1-3/4 - 2	5,150
2-3/16	3,500
2-1/4 - 2-1/2	6,550
2-11/16 - 3	7,000
3-3/16 - 3-1/2	15,700
3-15/16 - 4	16,250
4-7/16 - 4-1/2	21,000
4-15/16 - 5	22,860
5-7/16 - 6	43,600
6-7/16 - 7	46,000

*When utilizing heavy cap loads on pillow block housings, the installation must adhere to the following procedures.
1) The pillow block base bolts must be of Grade 8 strength with hardened washers and properly tightened to the mounting structure.
2) The use of stop bars (shear strips) against pillow block where side loads are encountered.
3) In all cases where loads are heavy, the L10 life of the bearing should be checked for proper selection and life requirements.



Type E, Type K, DOUBLE–INTERLOCK and TAF

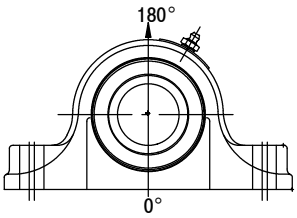


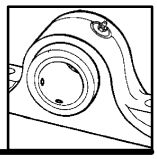
TABLE 7
HOUSING RATINGS
TYPE K AND DI HOUSING (SPLIT HOUSING)

SHAFT SIZE (INCHES)	MAXIMUM RECOMMENDED HOUSING CAP LOADS, LBS. 180°
1-3/16 - 1-1/4	4,300
1-3/8 - 1-7/16	5,060
1-1/2 - 1-11/16	5,940
1-3/4 - 2	8,660
2-3/16	10,100
2-1/4 - 2-1/2	10,100
2-11/16 - 3	11,220
3-3/16 - 3-1/2	16,170
3-15/16 - 4	19,580
4-7/16 - 4-1/2	20,130
4-15/16 - 5	24530
5-7/16 - 6	35,200
6-7/16 - 7	56,000

TABLE 8
HOUSING RATINGS
TAF (SPLIT HOUSING)

SHAFT SIZE (INCHES)	MAXIMUM RECOMMENDED HOUSING CAP LOADS, LBS. 180°
1-7/16	4,600
1-11/16	5,400
1-15/16	7,875
2-3/16	9,200
2-7/16 - 2-1/2	9,220
2-15/16 - 3	10,200
3-7/16 - 3-1/2	14,700
3-15/16 - 4	17,800
4-7/16 - 4-1/2	18,300
4-15/16 - 5	22,300
5-7/16 - 6	30,000
6-7/16 - 6-1/2	30,000
6-15/16 - 7	48,000

*When utilizing heavy cap loads on pillow block housings, the installation must adhere to the following procedures.
1) The pillow block base bolts must be of Grade 8 strength with hardened washers and properly tightened to the mounting structure.
2) The use of stop bars (shear strips) against pillow block where side loads are encountered.
3) In all cases where loads are heavy, the L10 life of the bearing should be checked for proper selection and life requirements.



Type E, Type K, DOUBLE–INTERLOCK and TAF

MOUNTED BEARINGS

APPLICATION DATA SHEET

Instructions: Complete all applicable information and mail or Fax to DODGE at P.O. Box 499, Greenville, SC 29620, Attn: Engineering, Fax 864-281-2317

DIST. ☐ USER ☐ OEM ☐

Company _____ Date _____

Address _____

Name _____ Phone _____ Fax _____

Type of Equipment (sketch drive on separate sheet) _____

Service Conditions:

Shaft Speed: Normal _____ Maximum _____

Loads: Radial _____ Thrust _____ Shock (frequency) _____

Shaft Size _____ Shaft Tolerance (specify if not commercial) _____

Duty Cycle: Hours/Day _____ Days/Week _____ Weeks/Year _____

Environment:

Ambient Temperature: Summer _____ °F Winter _____ °F

External Heat: Source of Heat _____

Temperature _____ °F Distance from Bearing _____

Air: Clean _____ Contaminated _____ Contamination Type _____

Gas: Clean _____ Contaminated _____ Contamination Type _____

Liquid: Type _____ Concentration _____

Other: (include washdowns) _____

Experience: (If applicable)

Type of Bearing Currently Used: _____

Life Realized _____ Type of Failure _____

Other Pertinent Data:

_____

_____

_____

L-10 Hours Rqd: _____

Dimensional Restrictions: Centerline Height _____

Bolt Pattern _____

Other _____

FEATURES/BENEFITS PAGE B5–2	SPECIFICATIONS PAGE B5–7	HOW TO ORDER PAGE B5–8	NOMENCLATURE PAGE B5–10