

TIMKEN



AP™ Bearings for Industrial Applications



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When Timken introduced its revolutionary AP™ (All-Purpose) railroad bearings in 1954, it was a railroad industry milestone. Decades later, Timken is a leader in the friction management and power transmission industries and continues to lead in advancing bearing technology through continuous innovation and development.

In addition to railroad applications, AP bearings are successfully used in many types of industrial applications. This can be attributed to many factors including the bearing's high load carrying capacity and its adaptability to a wide variety of applications.

ADVANTAGES OF TIMKEN AP BEARINGS

- Self-contained unit provides substantial cost savings in design and installation. Many mounting parts are available with the bearing assembly.
- Pregreased unit reduces installation costs.
- Preassembled bearing reduces the number of separate parts to be applied and helps reduce the chance of incorrect assembly.

- High quality, tested and improved radial lip seals provide exceptional protection, minimum relubrication and low maintenance.
- Positive alignment of rollers is maintained in the bearing due to its basic tapered roller construction. This distributes the load over the entire roller length and helps to prevent rollers from skewing.
- On-apex design provides true rolling motion with less friction and more resistance to wear.
- Case-hardened and hardened cones, cups and rollers put hardness where it is needed at the working surfaces. The core of these parts, being more ductile, resists the propagation of fatigue cracks and spalls.
- AP bearings are adaptable to a wide range of applications in new designs and changeovers from other bearing types. AP bearings range in bore size from 101.6 to 203.2 mm (4 to 8 inches). Optional auxiliary parts can be added to suit a wide range of mounting configurations.

BEARING RECONDITIONING

Rail Bearing Service Corporation, a wholly owned subsidiary of Timken, reconditions bearings and related parts used in railroad rolling stock and industrial equipment. To learn more about repair for AP bearings, contact your Timken representative.



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TIMKEN® AP BEARING ASSEMBLY
DESCRIPTION OF PARTS

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- The narrow adapter shown in Fig. 1 can be used in many applications. Another type of mounting utilizes a full bore housing (see page 21). While this type of housing is currently unavailable through Timken, most bearing distributors provide a selection from other manufacturers.
 - The bearing assembly is pressed on the axle as a completely sealed unit. The axle end cap, cap screws and locking plate

can be applied to the axle as a unit. When the axle end cap, as shown in Fig. 1 is used, the locking plate provided locks the cap screws.

- The recessed end cap, not shown, reduces the overall bearing assembly width. A piece of soft wire is required to lock the drilled cap screw heads. A backing spacer can be used in place of a backing ring.

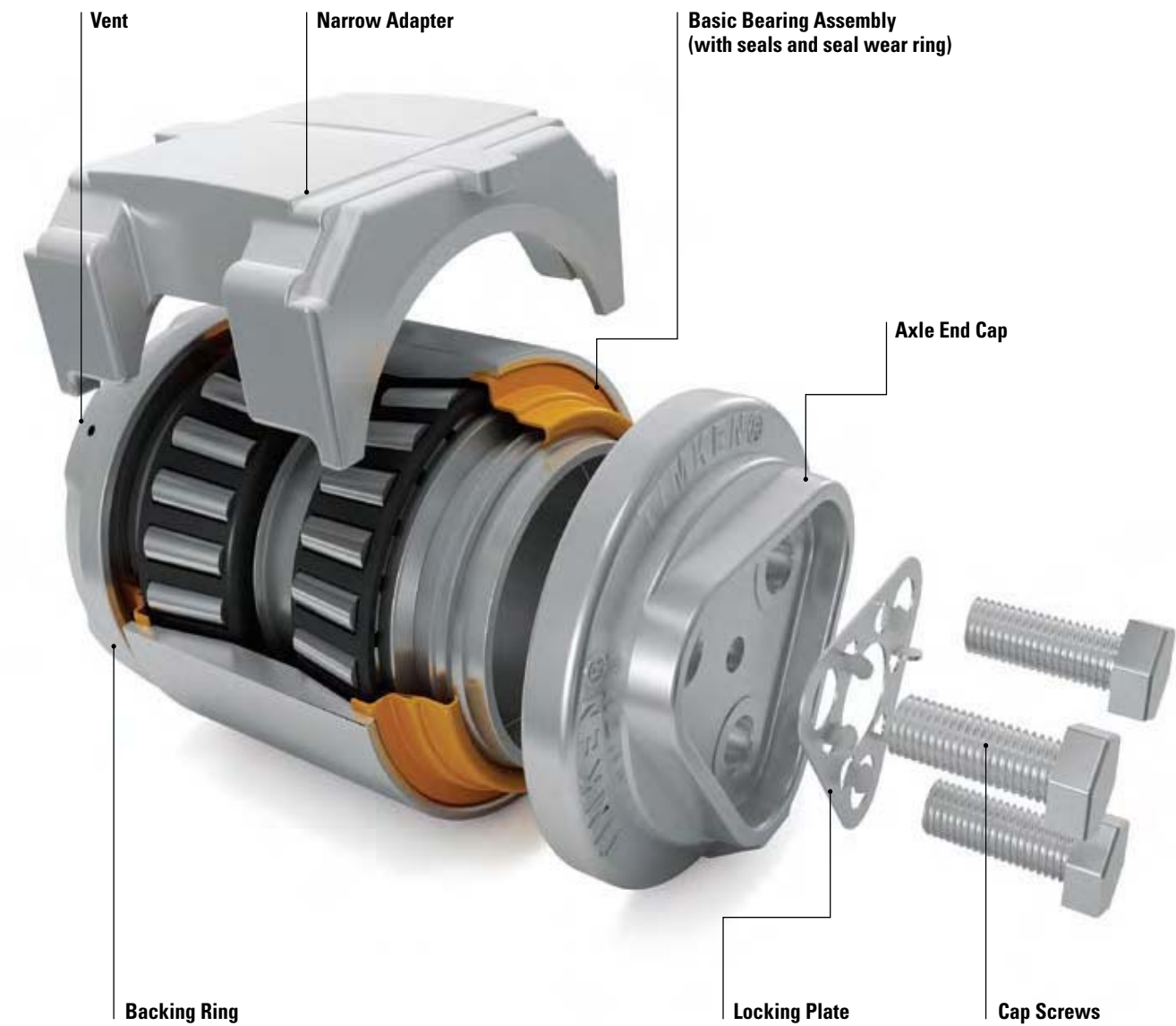
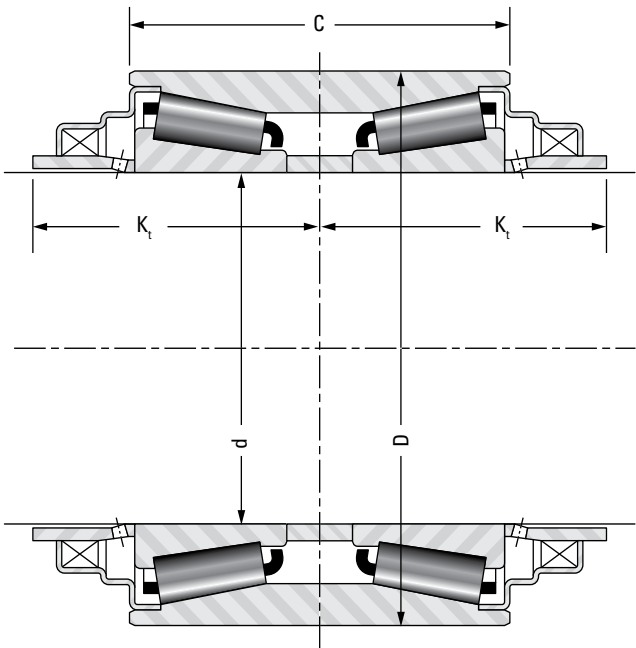


Fig. 1 3D illustration of AP bearing

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Basic Bearing Assembly Dimensions and Ratings

Class	Inner Race (Cone) Number Outer Race (Cup) Number	d ⁽¹⁾ Bore	D ⁽²⁾ Outside Diameter	K _t	C Outer Race Width	Dynamic Rating @ 500 RPM For 3000 hr L ₁₀		
		mm in.	mm in.	mm in.	mm in.	Radial, C ₉₀ N lbf	Thrust, C _{a90} N lbf	K Factor ⁽⁴⁾
B (4 ⅝ x 8)	HM120848 HM120817XD	101.600 4.0000	165.100 6.5000	91.3 3.59	114.300 4.5000	120000 26900	31000 7000	2.21
C (5 x 9)	HM124646 HM124618XD	119.062 4.6875	195.262 7.6875	108.7 4.28	142.875 5.6250	172000 38600	44500 10000	2.21
D (5 ⅝ x 10)	HM127446 HM127415XD	131.750 5.1870	207.962 8.1875	113.5 4.47	152.400 6.0000	186000 41800	48500 10900	2.21
E (6 x 11)	HM129848 HM129814XD	144.450 5.6870	220.662 8.6875	120.6 4.75	163.512 6.4375	195000 43800	50700 11400	2.21
F (6 ⅝ x 12)	HM133444 HM133416XD	157.150 6.1870	252.412 9.9375	136.5 5.38	184.150 7.2500	266000 59700	69000 15500	2.21
G (7 x 12)	HM136948 HM136916XD	177.787 6.9995	276.225 10.8750	134.9 5.31	185.725 7.3120	305000 68600	79200 17800	2.21
G (7 x 14)	HM136948 HM136916XD	177.787 6.9995	276.225 10.8750	134.9 5.31	185.725 7.3120	305000 68600	79200 17800	2.21
GG (7)	H337846 H337816XD ⁽³⁾	177.787 6.9995	301.701 11.8780	139.7 5.50	196.850 7.7500	388000 87300	132110 29700	1.69
K (8)	M241547 M241513XD	203.200 8.0000	301.625 11.8750	108.0 4.25	140.097 5.5156	266000 59700	86800 19500	1.76

⁽¹⁾ Cone bore tolerance + 0.025 – 0.000 mm (+ .0010 in. – .0000 in.)

⁽²⁾ Cup O.D. tolerance + 0.127 – 0.000 mm (+ .0050 in. – .0000 in.)

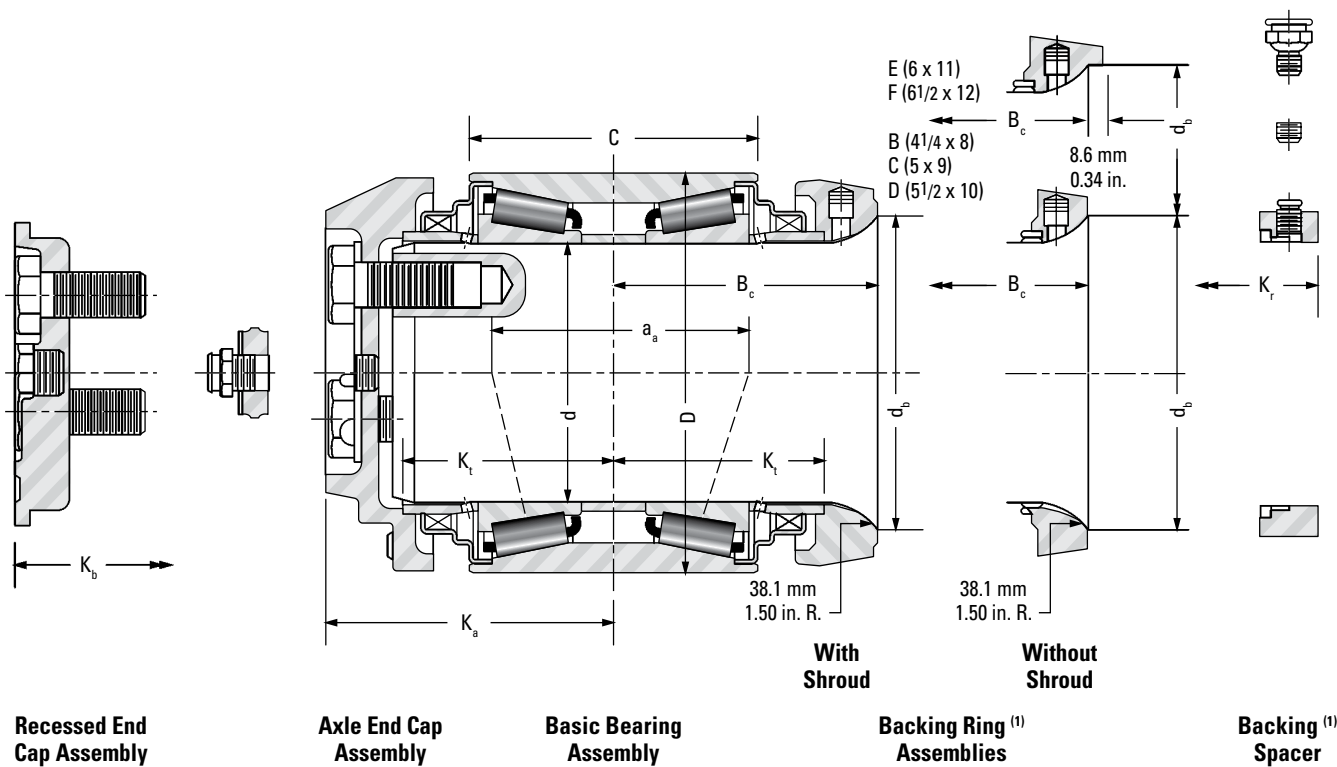
⁽³⁾ Cup H337816XD O.D. tolerance is +0.127 + 0.076 mm (+ .0050 in. + .0030 in.)

⁽⁴⁾ K Factor is defined as the tapered roller bearing radial to axial dynamic capacity ratio.

NOTE: Special cup O.D. tolerance +0.102 + 0.076 mm (+ .0040 in. + .0030 in.) also available.

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⁽¹⁾ Backing ring assemblies and/or backing spacer may be used on either side of the bearing.

Overall Dimensions for AP Bearings

Class	d Bore	D Outside Diameter	B _c	K _t	K _a Max	K _b Max	K _r	C Outer Race Width	d _b		Effective Spread a _a
									Backing Ring		
									With Shroud	Without Shroud	
									mm in.	mm in.	
B (4 ⅝x 8)	101.600 4.0000	165.100 6.5000	117.5 4.62	91.3 3.59	158.2 ⁽²⁾ 6.23	99.0 3.90	119.9 4.72	114.300 4.5000	127.0 5.00	127.0 5.00	79.8 3.14
C (5 x 9)	119.062 4.6875	195.262 7.6875	134.9 5.31	108.7 4.28	163.8 ⁽²⁾ 6.45	116.5 4.59	137.3 5.41	142.875 5.6250	149.2 5.88	149.2 5.88	105.7 4.16
D (5 ⅝x 10)	131.750 5.1870	207.962 8.1875	139.7 5.50	113.5 4.47	158.2 ⁽²⁾ 6.23	122.9 4.84	142.1 5.59	152.400 6.0000	161.9 6.38	161.9 6.38	116.8 4.60
E (6 x 11)	144.450 5.6870	220.662 8.6875	150.8 5.94	120.6 4.75	169.7 6.68	130.0 5.12	149.2 5.88	163.512 6.4375	177.8 7.00	178.56 7.03	127.5 5.02
F (6 ⅝x 12)	157.150 6.1870	252.412 9.9375	163.5 6.44	136.5 5.38	181.6 7.15	145.9 5.74	165.1 6.50	184.150 7.2500	190.5 7.50	191.26 7.53	143.3 5.64
G (7 x 12)	177.787 6.9995	276.225 10.8750	150.8 5.94	134.9 5.31	180.0 7.09	144.3 5.68	163.5 6.44	185.725 7.3120	203.2 8.00	—	144.8 5.70
G (7 x 14)	177.787 6.9995	276.225 10.8750	163.5 6.44	134.9 5.31	180.0 7.09	144.3 5.68	163.5 6.44	185.725 7.3120	203.2 8.00	—	144.8 5.70
GG (7)	177.787 6.9995	301.701 11.8780	155.6 6.12	139.7 5.50	184.8 7.28	149.1 5.87	168.3 6.62	196.850 7.7500	203.2 8.00	—	154.9 6.10
K (8)	203.200 8.0000	301.625 11.8750	—	108.0 4.25	—	122.2 4.81	—	140.097 5.5156	—	—	115.8 4.56

⁽²⁾ On Classes B, C, and D the lubricant fitting extends beyond the axle end cap. Dimensions given include the lubricant fitting.