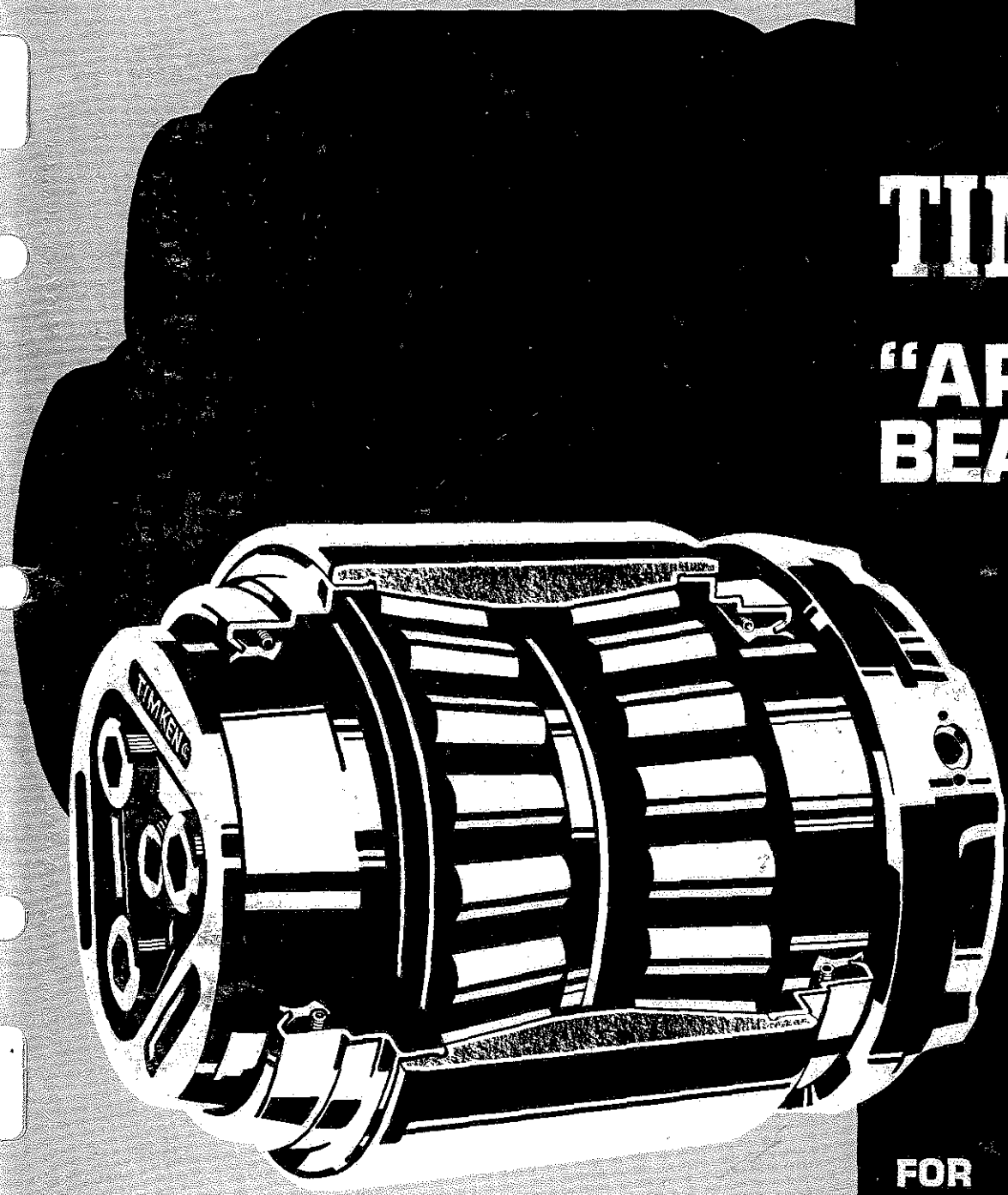
TIMKEN®

REGISTERED TRADEMARK

"AP" BEARINGS



FOR INDUSTRIAL APPLICATIONS

TIMKEN "AP" BEARINGS FOR INDUSTRIAL APPLICATIONS

NOTE: Dimension tables in this catalog show metric dimensions in millimetres directly below the same dimension in inches

TIMKEN "AP" BEARINGS FOR INDUSTRIAL APPLICATIONS
INTRODUCTION

The Timken "AP" bearing is the original self-contained tapered roller bearing for railroad use. Proved successful on railroads by rolling millions of trouble-free car miles, "AP" bearings are finding more and more uses in industrial applications. This can be attributed to the bearings' low cost, long life and adaptability to a wide variety of applications.

Consider these characteristics of "AP" bearings:

1. **Self-contained unit** provides substantial cost savings in design and installation. Separate purchasing or fabrication of most auxiliary parts is eliminated.

2. **Pregreased unit** reduces installation costs.

3. **Preassembled bearing** reduces the number of separate parts to be applied to the axle to a minimum, as illustrated by the photos on page 3.

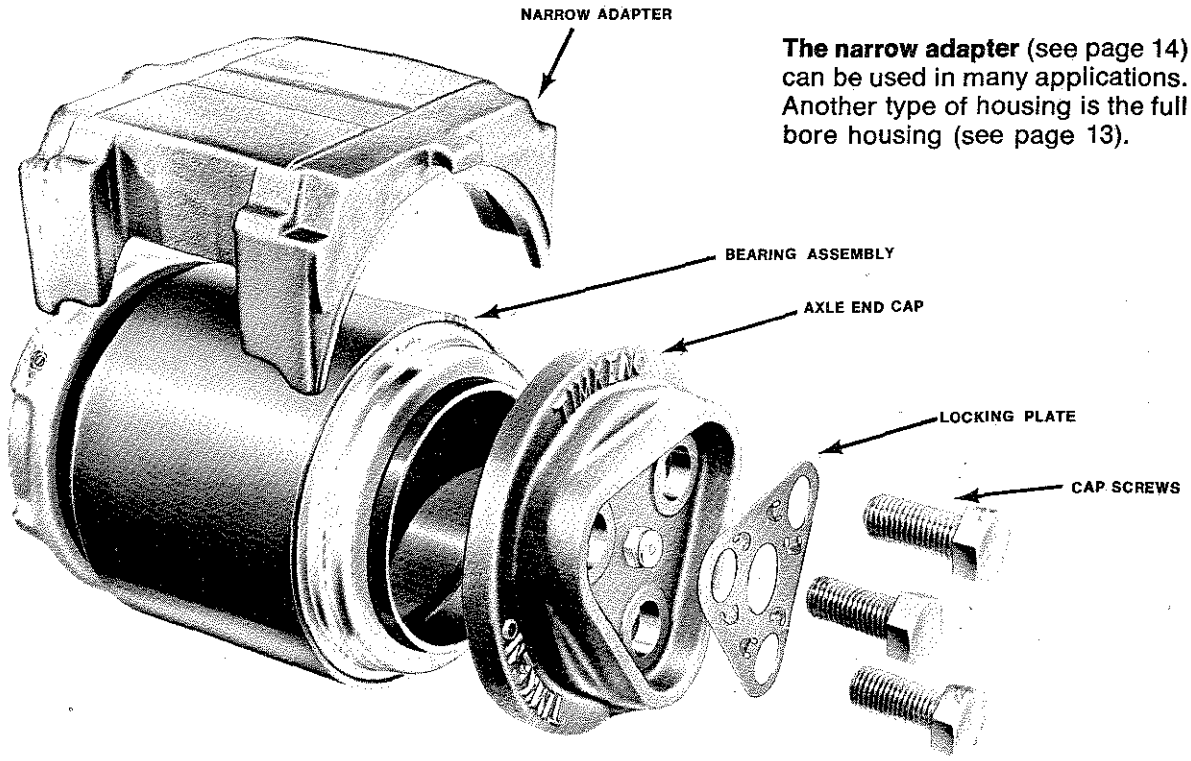
4. **High quality, thoroughly tested radial lip seals** provide exceptional protection, minimum relubrication and low maintenance.

5. **Positive alignment of rollers** is maintained by the cone rib. This distributes the load over the entire roller length, and prevents the rollers from skewing.

6. **On-apex design** provides true rolling motion with minimum friction and maximum resistance to wear.

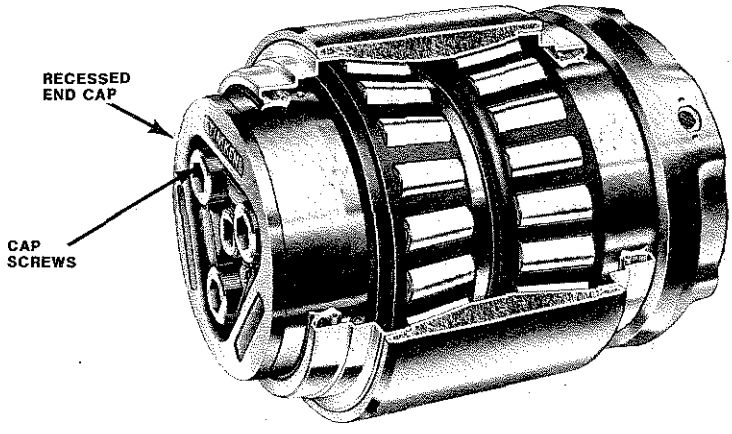
7. **Case-carburized and hardened cups, cones and rollers** put hardness where it is needed – at the working surfaces. The core of these parts, being more ductile, resists the propagation of fatigue cracks and spalls.

8. **Adaptability to a wide range of applications** in new designs and in changeovers from other bearing types. "AP" bearing bores range from 101.6 mm to 203.2 mm (4" to 8"), with each size available as two basic bearing assemblies with optional auxiliary parts (see pages 4 and 5) which can be added to suit the application.



The narrow adapter (see page 14) can be used in many applications. Another type of housing is the full bore housing (see page 13).

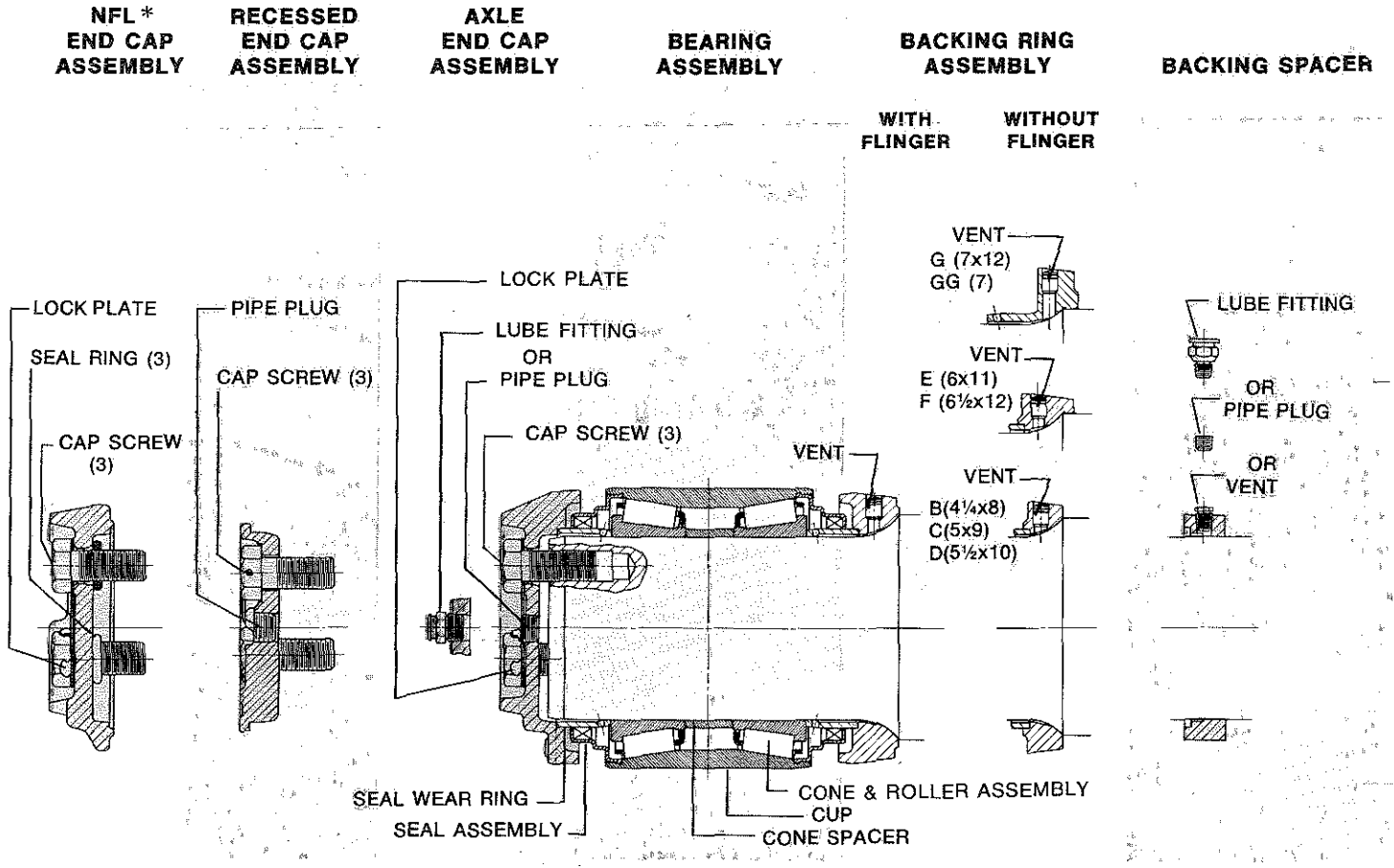
The bearing assembly is pressed on the axle as a completely sealed unit. The axle endcap, capscrews and locking plate can be applied to the axle as a unit. When the axle endcap as shown in the upper photograph is used, the locking plate provided locks the capscrews.



The recessed endcap, shown in this photograph, reduces the overall bearing assembly width. A piece of soft wire is required to lock the drilled capscrew heads.

For further typical "AP" bearing arrangements, see pages 4 and 5.

NOMENCLATURE

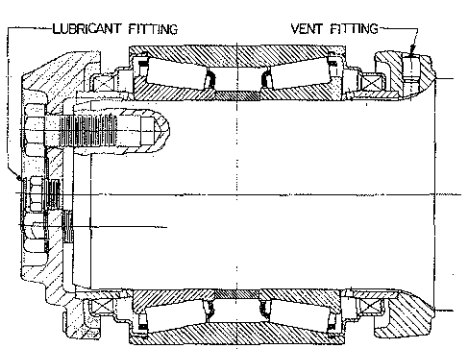


* No Field Lubrication

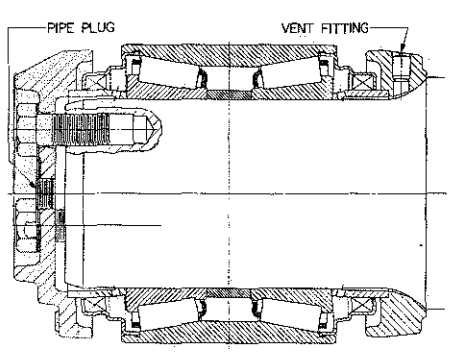
TYPICAL "AP" BEARING MOUNTING ARRANGEMENTS

The following illustrations (below and page 5) show typical combinations of basic "AP" bearings, and auxiliary parts (shaded). See pages 8 and 9 for parts identification.

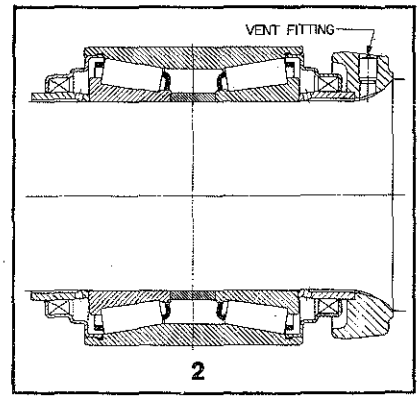
When making up a mounting arrangement, a **provision for relubrication should be made on one side of the bearing, with a vent at the opposite side.** If an auxiliary part is not used, these provisions should be made in the parts adjacent the bearing.



1



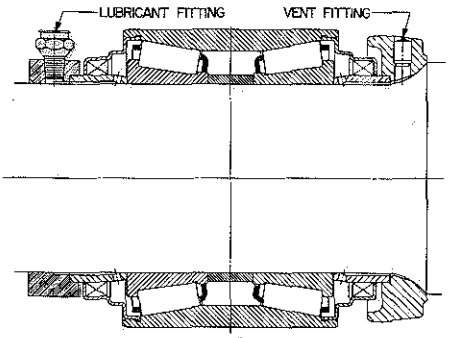
1-A



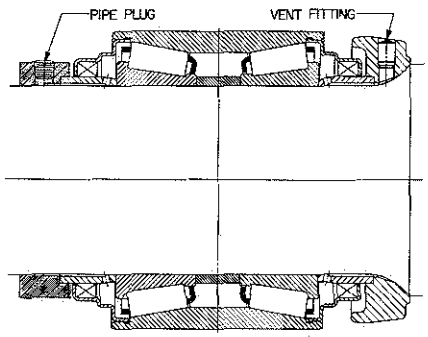
2

NOTE: Shaded items are ordered separately from basic bearing (2 or 4).

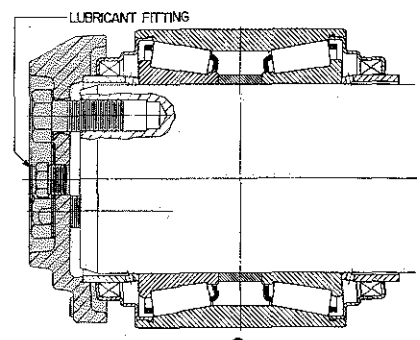
TYPICAL "AP" BEARING MOUNTING ARRANGEMENTS continued . . .



2-A



2-B



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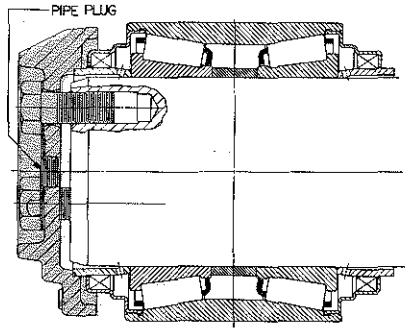
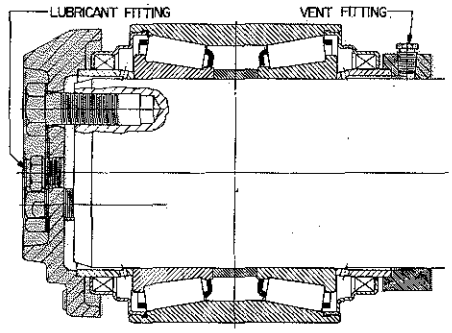
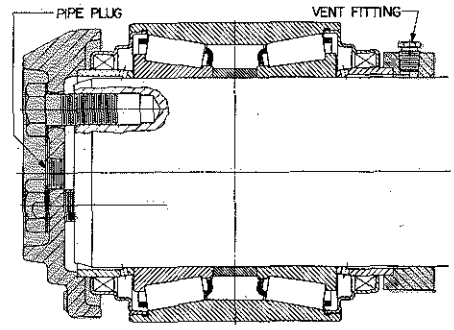


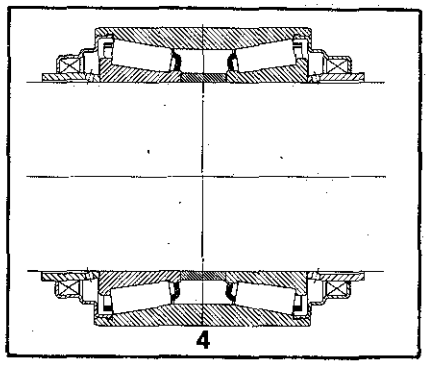
3-A



3-B



3-C



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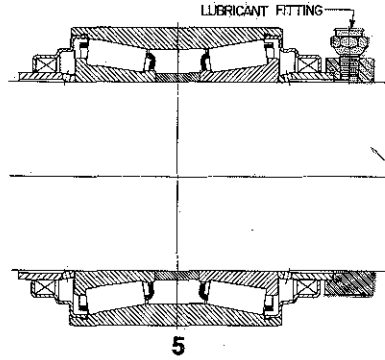

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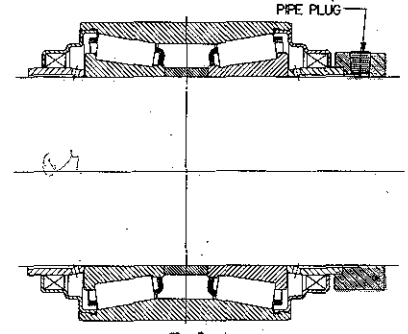
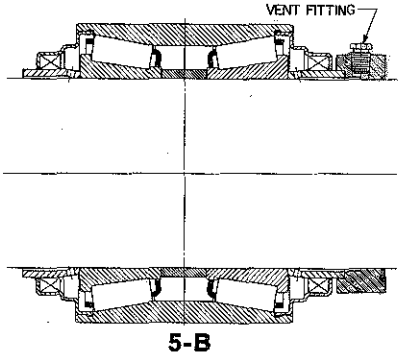
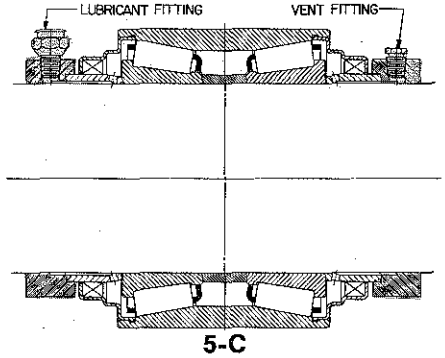


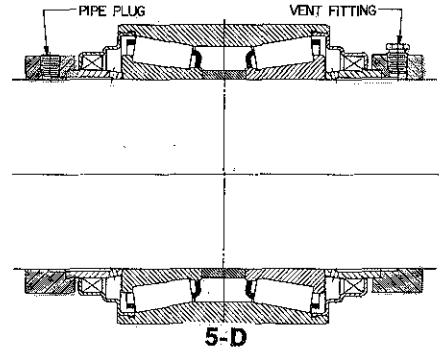
5-A



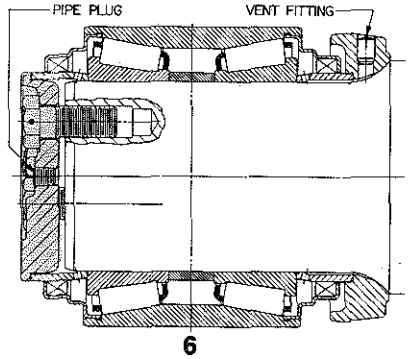
5-B



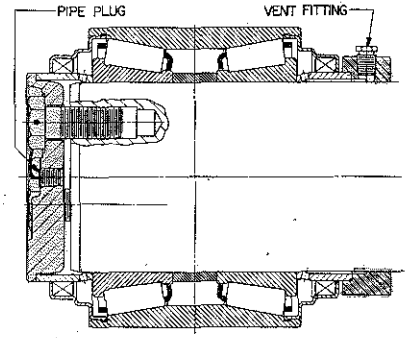
5-C



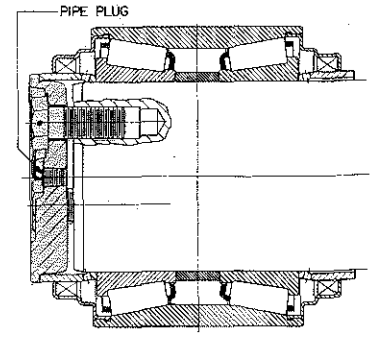
5-D



6



6-A



6-B

NOTE: Shaded items are ordered separately from basic bearing (2 or 4).

"AP" BEARING ORDERING PROCEDURE

To facilitate order entry, identify the bearing assembly and required auxiliary parts by specifying the following details from the tables shown on pages 8 and 9. Also specify the quantity of each sub-assembly required to make up the assembly to suit your application.

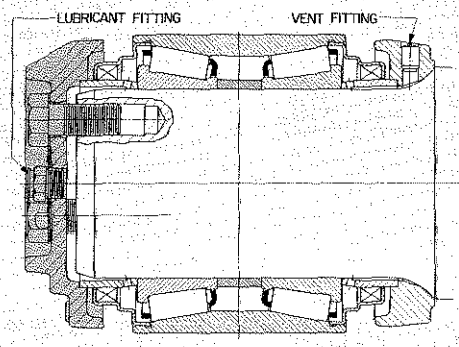
Quantity - "AP" bearing class (Page 8)

Each consisting of:

Cone number - assembly number - quantity per bearing (page 8)
Axle endcap part number - assembly number - quantity per bearing (page 9)
Backing spacer number - quantity per bearing (page 9)
Pipe plug - quantity per bearing
or Lubricant fitting - quantity per bearing
or Vent fitting - quantity per bearing

Examples:

1. To order eight of the assemblies shown in class D:

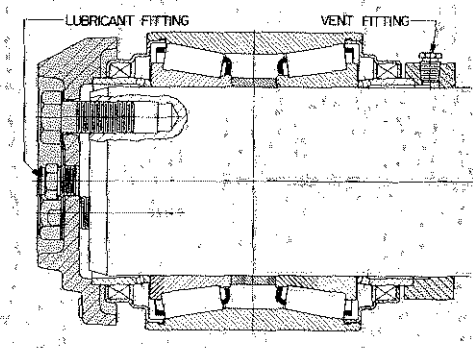


Eight "AP" bearing assembly class D
Each consisting of:

HM127446 90012 - one per bearing (page 8)

K85521 90011 axle endcap assembly - one per bearing (page 9)

2. To order ten of the assemblies shown in class D:



Ten - "AP" bearing assembly class D
Each consisting of:

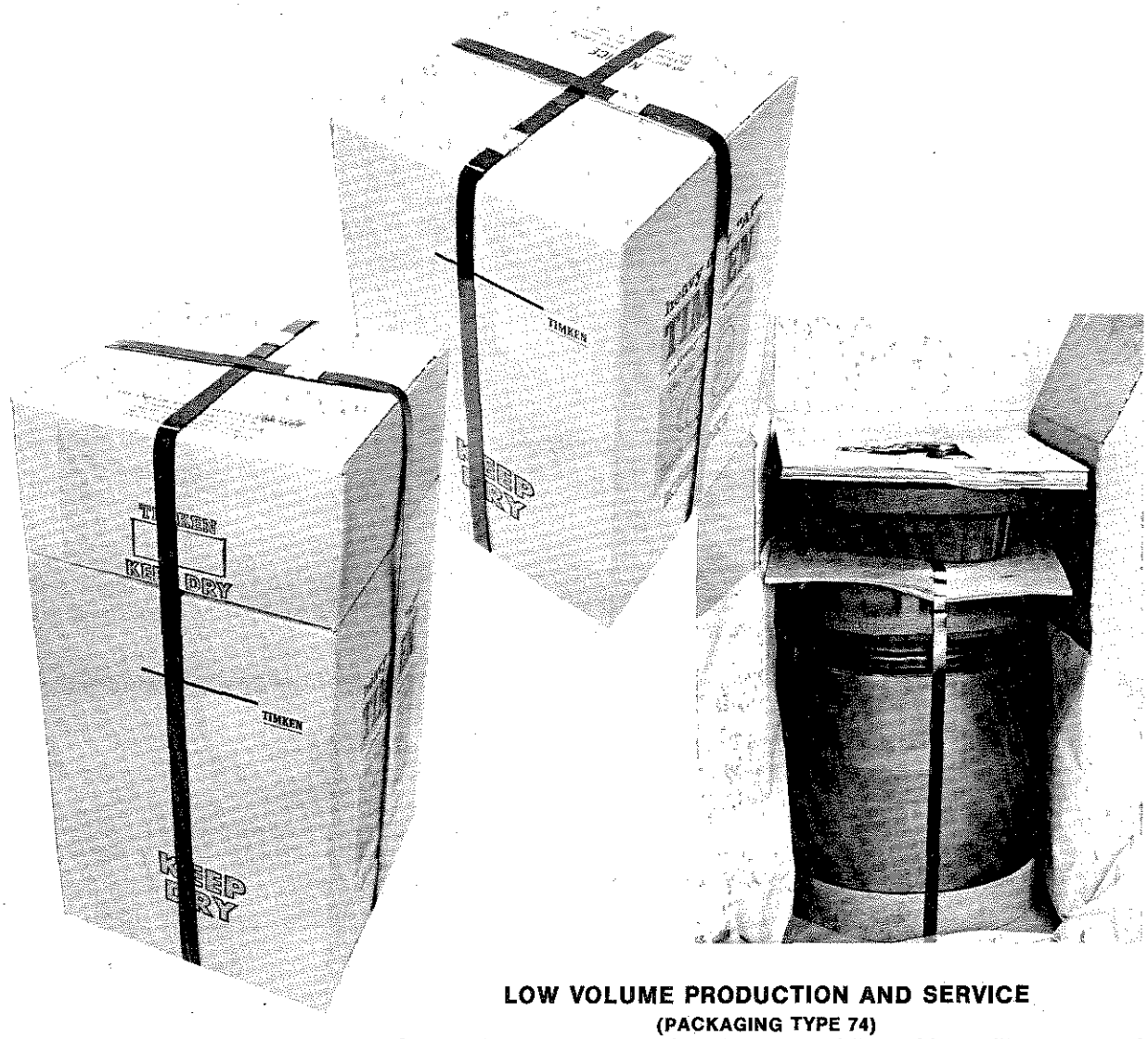
HM127446 90048 - one per bearing (page 8)

K85521 90011 axle endcap assembly - one per bearing (page 9)

K120178 backing spacer - one per bearing (page 9)

K83093 vent fitting - one per bearing (page 9)

3. Adapters are not part of the bearing assembly and should be ordered separately giving:
Quantity - bearing class - part number (page 14).

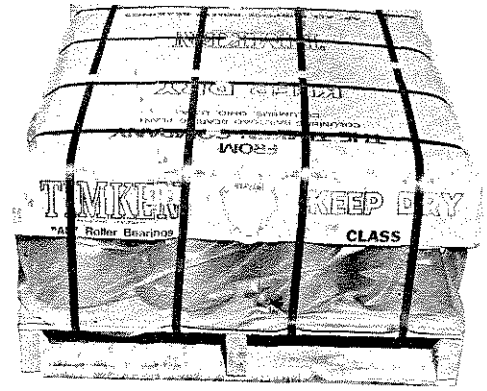


LOW VOLUME PRODUCTION AND SERVICE
(PACKAGING TYPE 74)

Orders for one to three bearing assemblies with auxiliary parts, if applicable, are packaged for shipping as shown above. All of the parts of an assembly will be packed together in one box, or in two boxes fastened together. Orders for four or more assemblies are packaged as shown above and shipped on pallets.

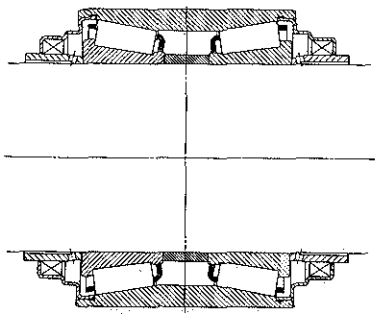
LARGE VOLUME PRODUCTION
(PACKAGING TYPE 81)

Bearing assemblies and end cap assemblies are shipped on separate pallets. The bearing assemblies are not individually boxed and are palletized as shown at right. The end cap assemblies are stacked and palletized in a similiar manner.



BASIC BEARINGS

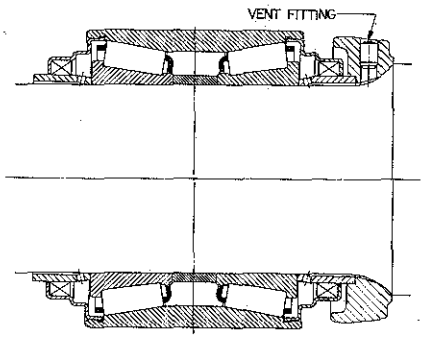
BASIC "AP" BEARING



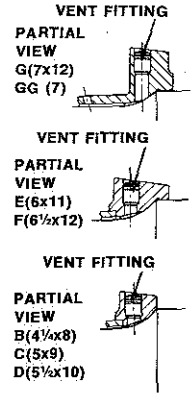
BASIC "AP" BEARING WITH BACKING RING PRESSED ON *

Backing Ring Assembly

WITH FLINGER
B thru F; G(7x14)



WITHOUT FLINGER



* Specify Backing Ring With or Without Flinger. Backing Rings Without Flinger- **except G(7x12) and GG(7)** - have reduced O.D. to facilitate assembly in some housing designs. Backing Rings With Flinger provide added seal protection where required.

Determine Basic "AP" Bearing Assembly required and specify from the following table (include CONE NUMBER as shown with bearing class):

EXAMPLE: If a class D bearing with a backing ring with flinger is required, specify: "AP" bearing class D HM127446 90012

CLASS CONE NUMBER	BASIC "AP" BEARING ASSEMBLY NUMBER	BASIC "AP" BEARING WITH BACKING RING PRESSED ON (ASSEMBLY NUMBER)	
		BACKING RING WITH FLINGER	BACKING RING WITHOUT FLINGER
B (4¼x8) HM120848	90014	90012	N.A. **
C(5x9) HM124646	90056	90014	N.A. **
D(5½x10) HM127446	90048	90012	90202
E(6x11) HM129848	90054	90012	90200
F(6½x12) HM133444	90076	90012	90206
G(7x12) HM136948	N.A.	N.A.	90048
G(7x14) HM136948	90082	90012	N.A.
GG(7) H337846	90120	N.A.	90076
K(8) M241547	90028	N.A.	N.A.

N.A. Not Available

* * Consult The Timken Company for availability.

NOTE: Cup O.D. tolerances of 0.025 mm(.0010"), reduced width assemblies, assemblies with provision for relubrication through the center of the cup, and assemblies without seal parts are available in some bearing classes. Consult The Timken Company for availability.

Add Auxiliary Parts to Basic "AP" Bearings as required.

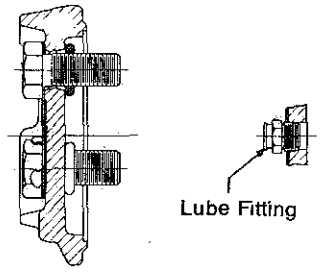
NOTE: Provide for relubrication on one side of bearing with vent at opposite side. If an Auxiliary Part is not used, these provisions should be made in parts adjacent the bearing.

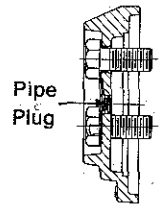
NFL* END CAP ASSEMBLY INCLUDES:
(1) END CAP
(3) CAP SCREWS
(3) SEAL RINGS
(1) LOCK PLATE

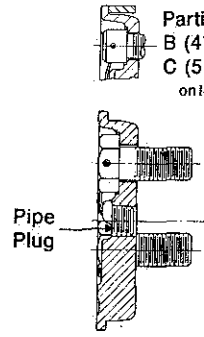
AXLE END CAP ASSEMBLY INCLUDES:
(1) END CAP
(3) CAP SCREWS
(1) LOCK PLATE
(1) FITTING

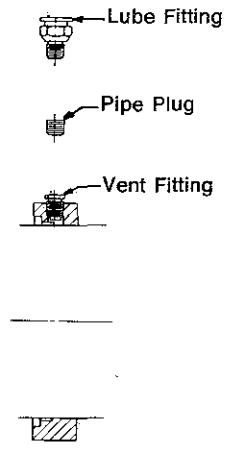
RECESSED END CAP ASSEMBLY INCLUDES:
(1) END CAP
(3) CAP SCREWS
(1) PIPE PLUG

BACKING SPACER









Determine Auxiliary Part(s) required and specify from the following table:

CLASS	NFL* END CAP ASSEMBLY		AXLE END CAP ASSEMBLY			RECESSED END CAP ASSEMBLY		BACKING SPACER	LUBE FITTING PIPE PLUG VENT FITTING Select One Per Backing Spacer
	PART NO.	ASSY. NO.	PART NO.	ASSY. NO. ASSY. NO.	INCL. PIPE PLUG INCL. LUBE FITTING	PART NO.	ASSY. NO.		
B(4¼x8)	N.A.**		K86877 K86877	90010 90012	incl. Pipe Plug incl. Lube Fitting	K399069	90010	K118891	K78880 K46462 K83093
C(5x9)	N.A.**		K86003 K86003	90010 90015	incl. Pipe Plug incl. Lube Fitting	K399070	90010	K120198	K78880 K46462 K83093
D(5½x10)	K523744	90010	K85521 K85521	90010 90011	incl. Pipe Plug incl. Lube Fitting	K399071	90010	K120178	K78880 K46462 K83093
E(6x11)	K523746	90010	K85510 K85510	90010 90011	incl. Pipe Plug incl. Lube Fitting	K399072	90010	K120190	K78880 K46462 K83093
F(6½x12)	K523748	90010	K85517 K85517	90010 90012	incl. Pipe Plug incl. Lube Fitting	K399073	90010	K120160	K78880 K46462 K83093
G(7x12)	K523750	90010	K95199 K95199	90010 90011	incl. Pipe Plug incl. Lube Fitting	K399074	90010	K118866	K78880 K46462 K83093
G(7x14)	N.A.		K412057 K412057	90010 90011	incl. Pipe Plug incl. Lube Fitting	K399074	90010	K118866	K78880 K46462 K83093
GG(7)	N.A.		K462064 K462064	- 90010	incl. Pipe Plug incl. Lube Fitting	K399074	90010	K118866	K78880 K46462 K83093
K(8)	N.A.		N.A.			K504075	90010	N.A.	

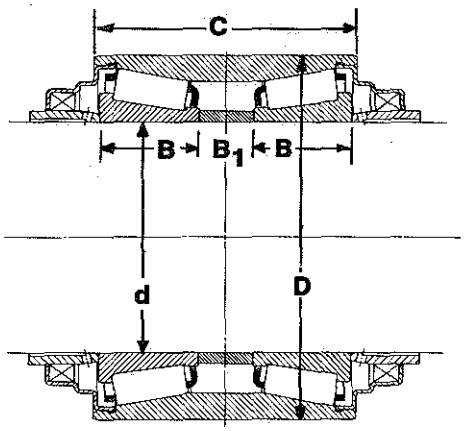
* No Field Lubrication

** Consult The Timken Company for availability.

N.A. - Not Available

BASIC "AP" BEARING DIMENSIONS AND RATINGS

CLASS	BEARING PART NO.		CONE BORE	CUP O.D.	CUP WIDTH	CONE LENGTH	SPACER LENGTH	RATING @ 500 RPM FOR 3000 HR.L-10		
								RADIAL	THRUST	
	CONE CONE SPACER	CUP	d	D	C	B	B_1	lb. daN	lb. daN	Factor K
B(4¼x8)	HM120848 HM120848XA	HM120817XD	**4.0000** 101.600	**6.5000** 165.100	**4.5000** 114.300	**1.9375** 49.212	**.3120** 7.925	**24300** 10800	**5800** 2580	2.21
C(5x9)	HM124646 HM124646XA	HM124618XD	**4.6875** 119.062	**7.6875** 195.262	**5.6250** 142.875	**2.2500** 57.150	**.8750** 22.225	**35000** 15600	**8300** 3700	2.21
D(5½x10)	HM127446 HM127446XA	HM127415XD	**5.1870** 131.750	**8.1875** 207.962	**6.0000** 152.400	**2.2500** 57.150	**1.2500** 31.750	**38500** 17150	**9150** 4060	2.21
E(6x11)	HM129848 HM129848XA	HM129814XD	**5.6870** 144.450	**8.6875** 220.662	**6.4375** 163.512	**2.3125** 58.738	**1.5000** 38.100	**41000** 18200	**9700** 4320	2.21
F(6½x12)	HM133444 HM133444XA	HM133416XD	**6.1870** 157.150	**9.9375** 252.412	**7.2500** 184.150	**2.7500** 69.850	**1.5000** 38.100	**55500** 24800	**13200** 5900	2.21
G(7x12) G(7x14)	HM136948 HM136948XA	HM136916XD	**6.9995** 177.787	**10.8750** 276.225	**7.3120** 185.725	**2.9375** 74.612	**1.2500** 31.750	**64500** 28800	**15400** 6850	2.21
GG(7)	H337846 H337846XA	H337816XD	**6.9995** 177.787	**11.8780** 301.701	**7.7500** 196.850	**3.4375** 87.312	**.6250** 15.875	**81500** 36200	**25200** 11250	1.69
K(8)	M241547 M241547XA	M241513XD	**8.0000** 203.200	**11.8750** 301.625	**5.5156** 140.097	**2.2812** 57.944	**.3750** 9.525	**57000** 25400	**16200** 7200	1.76



ENGLISH SYSTEM (inches & pounds)
METRIC SYSTEM (millimetres & dekanewtons)

BEARING LOADING ANALYSIS FORMULAE

$$SF \text{ (speed factor)} = \left(\frac{500}{RPM}\right)^{3/10}$$

$$LF \text{ (life factor)} = \left(\frac{L_{10}}{3000}\right)^{3/10} = \frac{C(90) \times SF}{P}$$

WHERE:

C(90) = Basic Dynamic Radial Load Rating

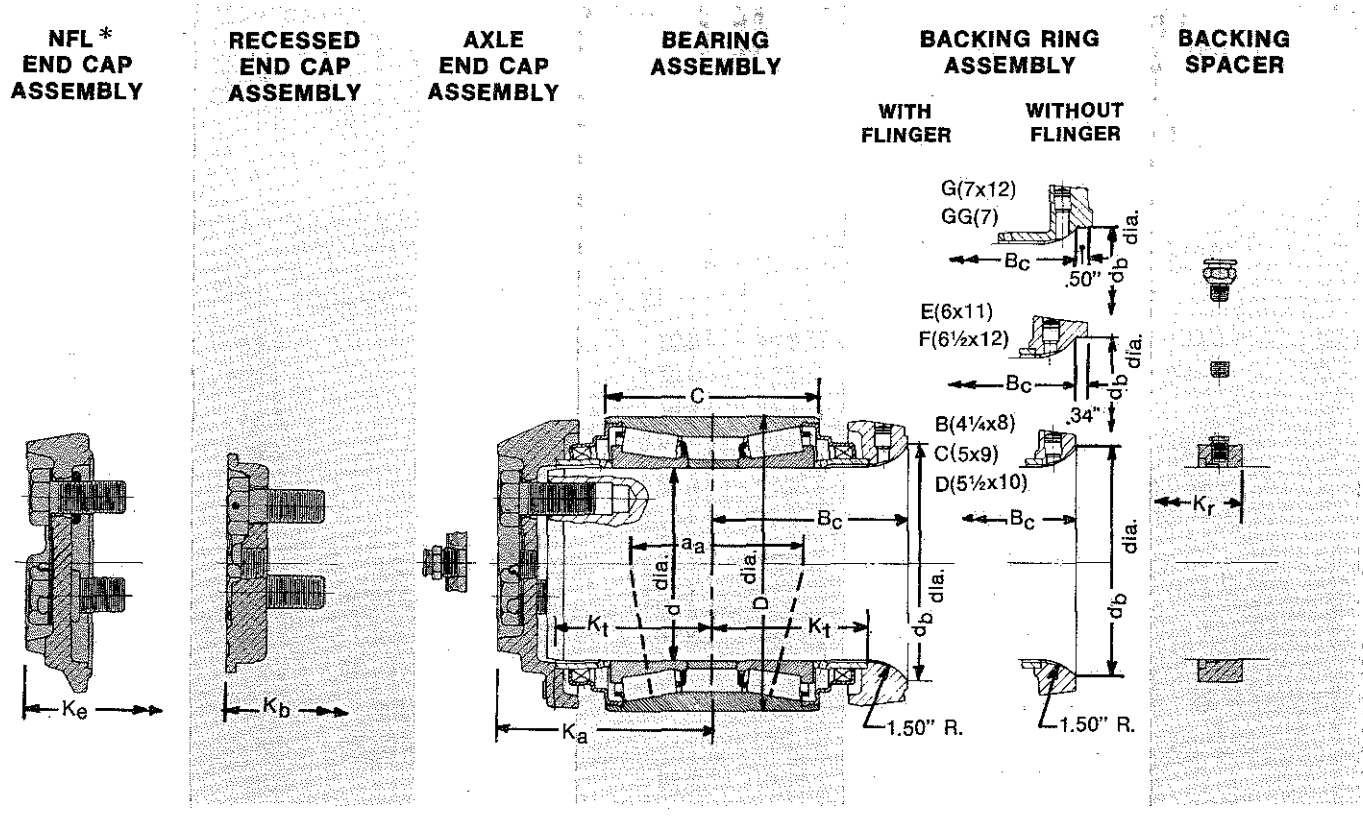
P = Dynamic Equivalent Radial Load from a combination of radial and thrust loads.

$$C(90)R \text{ (required dynamic radial load rating at 500 RPM and 3000 hours } L_{10}) = \frac{P \times LF}{SF}$$

$$L_{10} \text{ (Rated life in hours)} = \left(\frac{C(90) \times SF}{P}\right)^{10/3} \times 3000$$

Reference Timken Engineering Journal for Speed Factor (SF) and Life Factor (LF) tables.

OVERALL DIMENSIONS FOR "AP BEARINGS



All drawings are shown in inch dimensions.

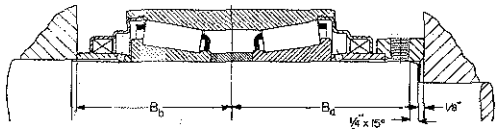
CLASS	d	D	B_c	K_t	K_a (Max.)	K_b (Max.)	K_e (Max.)	K_r	C	d_b Bkg. Ring w/Flinger	d_b Bkg. Ring w/o Flinger	a_a
B	**4.0000**	**6.5000**	**4.62**	**3.59**	**6.23** **	**3.90**	**5.62**	**4.72**	**4.5000**	**5.00**	**5.00**	**3.14**
(4¼x8)	101.600	165.100	117.5	91.3	158.2 **	99.0	142.7	119.9	114.300	127.0	127.0	79.8
C	**4.6875**	**7.6875**	**5.31**	**4.28**	**6.45** **	**4.59**	**6.12**	**5.41**	**5.6250**	**5.88**	**5.88**	**4.16**
(5x9)	119.062	195.262	134.9	108.7	163.8 **	116.5	155.4	137.3	142.875	149.2	149.2	105.7
D	**5.1870**	**8.1875**	**5.50**	**4.47**	**6.23** **	**4.84**	**6.24**	**5.59**	**6.0000**	**6.38**	**6.38**	**4.60**
(5½x10)	131.750	207.962	139.7	113.5	158.2 **	122.9	158.6	142.1	152.400	161.9	161.9	116.8
E	**5.6870**	**8.6875**	**5.94**	**4.75**	**6.68**	**5.12**	**6.68**	**5.88**	**6.4375**	**7.00**	**7.030**	**5.02**
(6x11)	144.450	220.662	150.8	120.6	169.7	130.0	169.7	149.2	163.512	177.8	178.56	127.5
F	**6.1870**	**9.9375**	**6.44**	**5.38**	**7.15**	**5.74**	**7.18**	**6.50**	**7.2500**	**7.50**	**7.530**	**5.64**
(6½x12)	157.150	252.412	163.5	136.5	181.6	145 9	182.4	165.1	184.150	190.5	191.26	143.3
G	**6.9995**	**10.8750**	**5.94**	**5.31**	**7.09**	**5.68**	**7.21**	**6.44**	**7.3120**	-	**8.000**	**5.70**
(7x12)	177.787	276.225	150.8	134.9	180.0	144.3	183.2	163.5	185.725		203.20	144.8
G	**6.9995**	**10.8750**	**6.44**	**5.31**	**7.09**	**5.68**	-	**6.44**	**7.3120**	**8.00**	-	**5.70**
(7x14)	177.787	276.225	163.5	134.9	180.0	144.3		163.5	185.725	203.2		144.8
GG	**6.9995**	**11.8780**	**6.12**	**5.50**	**7.28**	**5.87**	-	**6.62**	**7.7500**	-	**8.000**	**6.10**
(7)	177.787	301.701	155.6	139.7	184.8	149.1		168.3	196.850		203.20	154.9
K	**8.0000**	**11.8750**	-	**4.25**	-	**4.81**	-	-	**5.5156**	-	-	**4.56**
(8)	203.200	301.625		108.0		122.2			140.097			115.8

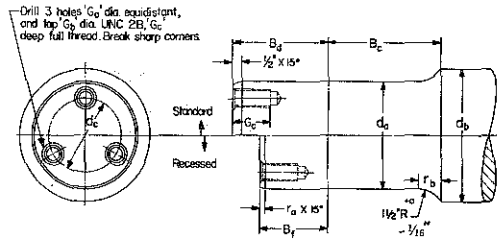
* No Field Lubrication

** On classes B,C, and D the lubricant fitting extends beyond the axle end cap. Dimensions given include the lubricant fitting.

ENGLISH SYSTEM (inches & pounds)
METRIC SYSTEM (millimetres & dekanewtons)

AXLE DETAILS





All drawings are shown in inch dimensions.

CLASS		BACKING SPACER		BACKING RINGS			
				db			
	d_a**	B_a	B_b	With Flinger	Without Flinger	B_c	r_b
B	**4.0040-4.0030**	**4.59**	**3.59**	**5.00**	**5.00**	**4.62**	**1.118**
(4¼x8)	101.702-101.676	116.7	91.3	127.0	127.0	117.5	28.40
C	**4.6915-4.6905**	**5.28**	**4.28**	**5.88**	**5.88**	**5.31**	**1.195**
(5x9)	119.164-119.138	134.1	108.7	149.2	149.2	134.9	30.35
D	**5.1915-5.1905**	**5.47**	**4.47**	**6.38**	**6.38**	**5.50**	**1.195**
(5½x10)	131.864-131.838	138.9	113.5	161.9	161.9	139.7	30.35
E	**5.6915-5.6905**	**5.75**	**4.75**	**7.00**	**7.032-7.030**	**5.94**	**1.240**
(6x11)	144.564-144.538	146.0	120.6	177.8	178.61-178.56	150.8	31.50
F	**6.1915-6.1905**	**6.38**	**5.38**	**7.50**	**7.532-7.530**	**6.44**	**1.240**
(6½x12)	157.264-157.238	161.9	136.5	190.5	191.31-191.26	163.5	31.50
G	**7.0040-7.0030**	**6.31**	**5.31**	–	**8.002-8.000**	**5.94**	**1.118**
(7x12)	177.902-177.876	160.3	134.9		203.25-203.20	150.8	28.40
G	**7.0040-7.0030**	**6.31**	**5.31**	**8.00**	–	**6.44**	**1.118**
(7x14)	177.902-177.876	160.3	134.9	203.2		163.5	28.40
GG	**7.0040-7.0030**	**6.50**	**5.50**	–	**8.002-8.000**	**6.12**	**1.118**
(7)	177.902-177.876	165.1	139.7		203.25-203.20	155.6	28.40
K	**8.0050-8.0040**	–	**4.25**	–	–	–	–
(8)	203.327-203.301		108.0				

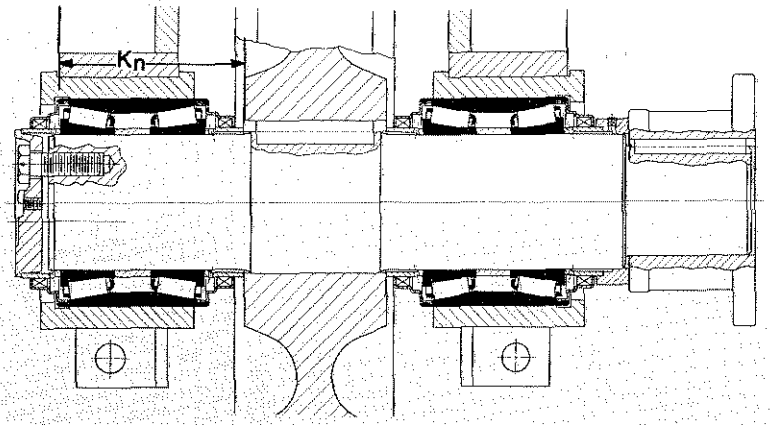
CLASS	AXLE END CAP AND NFL* END CAP						RECESSED END CAP						
	B_d	d_c	G_a	G_b	G_c	Torque lb-ft N·m	B_f	r_a	d_c	G_a	G_b	G_c	Torque lb-ft N·m
B	**4.00**	**2.44**	**.656**	**¾-10**	**1.62**	**110-120**	**2.69**	**.25**	**2.38**	**.531**	**⅝-11**	**1.50**	**110-120**
(4¼x8)	101.6	61.9	17		41.3	149-163	68.3	6.4	60.3	13		38.1	149-163
C	**4.44**	**3.00**	**.766**	**⅞-9**	**1.88**	**140-150**	**3.31**	**.25**	**3.00**	**.531**	**⅝-11**	**1.50**	**110-120**
(5x9)	112.7	76.2	19		47.6	190-203	84.1	6.4	76.2	13		38.1	149-163
D	**4.56**	**3.50**	**.766**	**⅞-9**	**1.88**	**140-150**	**3.50**	**.25**	**3.00**	**.766**	**⅞-9**	**1.88**	**140-150**
(5½x10)	115.9	88.9	19		47.6	190-203	88.9	6.4	76.2	19		47.6	190-203
E	**5.00**	**3.88**	**.875**	**1-8**	**2.00**	**250-270**	**3.62**	**.25**	**3.25**	**.875**	**1-8**	**2.00**	**250-270**
(6x11)	127.0	98.4	22		50.8	339-366	92.1	6.4	82.6	22		50.8	339-366
F	**5.31**	**4.25**	**.984**	**1⅛-7**	**2.12**	**360-390**	**4.19**	**.25**	**3.50**	**.875**	**1-8**	**2.00**	**250-270**
(6½x12)	134.9	108.0	25		54.0	488-529	106.4	6.4	88.9	22		50.8	339-366
G	**5.12**	**4.62**	**1.109**	**1¼-7**	**2.25**	**430-460**	**4.06**	**.19**	**4.00**	**.984**	**1⅛-7**	**2.12**	**360-390**
(7x12)	130.2	117.5	28		57.2	583-624	103.2	4.8	101.6	25		54.0	488-529
G	**5.12**	**4.62**	**1.109**	**1¼-7**	**2.25**	**430-460**	**4.06**	**.19**	**4.00**	**.984**	**1⅛-7**	**2.12**	**360-390**
(7x14)	130.2	117.5	28		57.2	583-624	103.2	4.8	101.6	25		54.0	488-529
GG	**5.31**	**4.62**	**1.109**	**1¼-7**	**2.25**	**430-460**	**4.25**	**.19**	**4.00**	**.984**	**1⅛-7**	**2.12**	**360-390**
(7)	134.9	117.5	28		57.2	583-624	108.0	4.8	101.6	25		54.0	488-529
K	–	–	–	–	–	–	**3.06**	**.19**	**4.88**	**.984**	**1⅛-7**	**2.12**	**360-390**
(8)							77.8	4.8	123.8	25		54.0	488-529

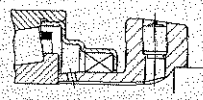
* No Field Lubrication

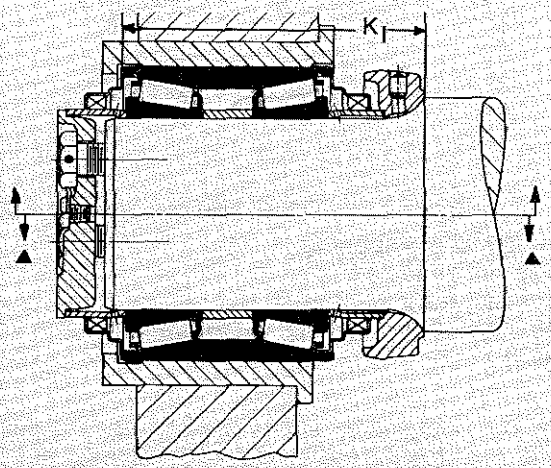
** For normal rotating shaft applications.
For other conditions, see fitting practice tables, page 19.

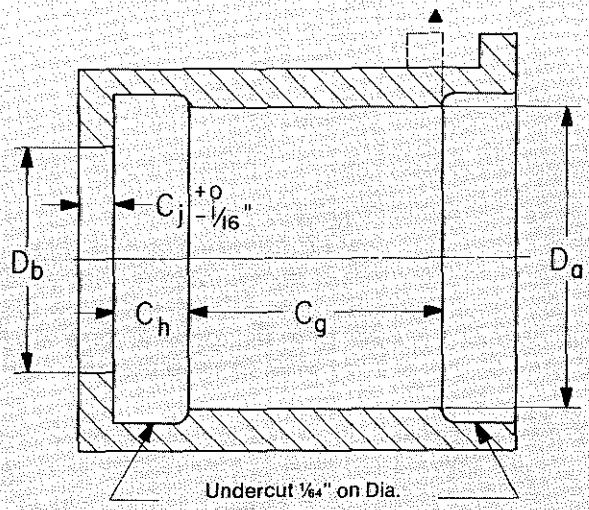
ENGLISH SYSTEM (inches & pounds)
METRIC SYSTEM (millimetres & dekanewtons)

FULL BORE HOUSING DIMENSIONS









All drawings are shown in inch dimensions.

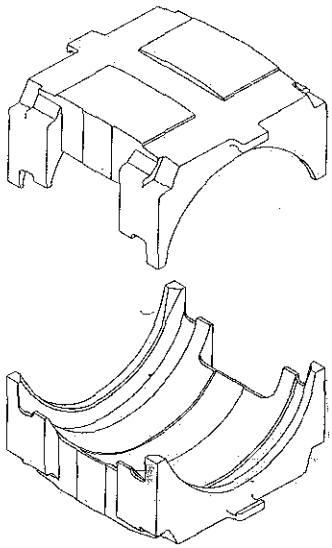
Class	Cg	Ch	Cj	Da*	Db	** +.040" Kl 1.02mm -0	** +.030" Kn 0.76mm -0
B (4¼x8)	**3.38** 85.7	**.62** 15.9	**.50** 12.7	**6.5060 - 6.5080** 165.252 - 165.303	**6.06** 154.0	**6.8595** 174.231	**5.8285** 148.044
C (5x9)	**4.50** 114.3	**.62** 15.9	**.50** 12.7	**7.6935 - 7.6955** 195.414 - 195.465	**7.19** 182.6	**8.1100** 205.994	**7.0790** 179.807
D (5½x10)	**4.88** 123.8	**.62** 15.9	**.50** 12.7	**8.1935 - 8.1955** 208.114 - 208.165	**7.75** 196.8	**8.4860** 215.544	**7.4550** 189.357
E (6x11)	**5.25** 133.4	**.62** 15.9	**.56** 14.3	**8.6935 - 8.6955** 220.814 - 220.865	**8.25** 209.6	**9.1422** 232.212	**7.9552** 202.062
F (6½x12)	**6.00** 152.4	**.75** 19.0	**.56** 14.3	**9.9435 - 9.9455** 252.564 - 252.615	**9.38** 238.1	**10.0500** 255.270	**8.9870** 228.270
G (7x12)	**6.00**	**.75**	**.56**	**10.8810 - 10.8830**	**10.28**	**9.5739** 243.177	-
G (7x14)	152.4	19.0	14.3	276.377 - 276.428	261.1	**10.0805** 256.045	**8.9555** 227.470
GG (7)	**6.12** 155.6	▲▲ -	**.56** 14.3	**11.8840 - 11.8860** 301.853 - 301.904	**11.19** 284.2	**9.9791** 253.469	**9.3607** 237.762
K (8)	**3.88** 98.4	▲▲ -	**.56** 14.3	**11.8810 - 11.8830** 301.777 - 301.828	**11.19** 284.2	-	**7.0008** 177.820

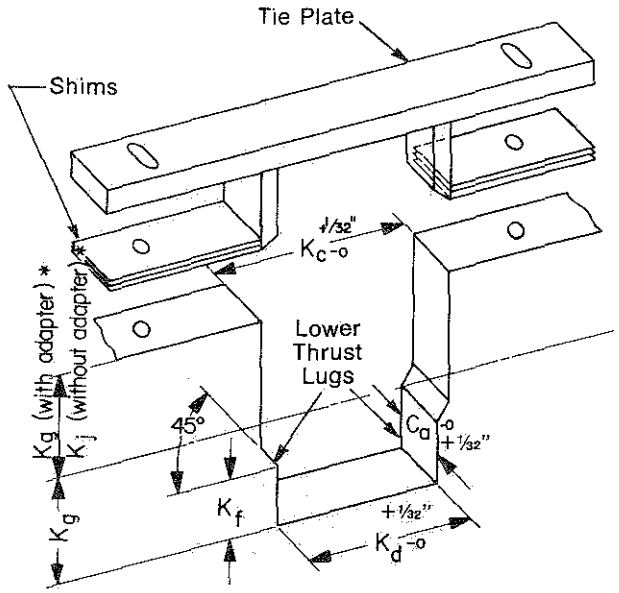
▲ Outer undercut can be eliminated if housing is shortened to end of the "Cg" dimension.
▲▲ Relief machined on cup o.d.; housing undercut not required.
* See page 19 for complete fitting practice information.
** Bearing width dimensions.

NOTE: Full bore housings are not furnished by The Timken Company

ENGLISH SYSTEM (inches & pounds)
METRIC SYSTEM (millimetres & dekanewtons)

MOUNTING DIMENSIONS FOR NARROW ADAPTERS





All drawings are shown in inch dimensions.

NOTE:

1. Lower thrust lugs could be welded or machined into opening.
2. If no top adapter, thrust lugs on tie plate not required.
3. Class G and K adapter do not require thrust lugs.

*4. Provide shim to give 0.25 mm to 0.38 mm (.010" to .015") clearance between tie plate and cup O.D. or adapter.

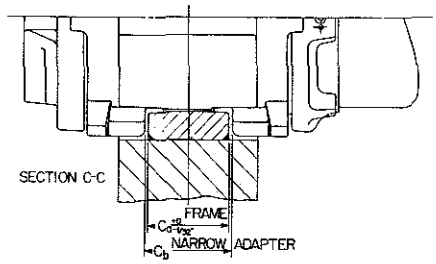
BEARING CLASS & NARROW ADAPTER PART NUMBER	K_c	K_d	K_f	K_g	K_h ●	K_j	K_k ●	C_a FIXED	C_a FLOAT	C_b ●	C_c ●
B(4¼x8)	**6.69**	**4.94**	**1.44**	**4.00**	**3.38**	**3.25**	**4.91**	**2.69**	**2.38**	**2.69**	**4.62**
K86888	169.9	125.4	36.5	101.6	85.7	82.6	124.6	68.3	60.3	68.3	117.5
C (5x9)	**7.88**	**5.69**	**1.69**	**4.62**	**3.97**	**3.84**	**5.66**	**2.94**	**2.62**	**2.94**	**5.75**
K85581	200.0	144.5	42.9	117.5	100.8	97.6	143.7	74.6	66.7	74.6	146.0
D (5½x10)	**8.38**	**6.19**	**1.81**	**4.88**	**4.22**	**4.09**	**6.16**	**2.94**	**2.62**	**2.94**	**6.12**
K85530	212.7	157.2	46.0	123.8	107.2	104.0	156.4	74.6	66.7	74.6	155.6
E (6x11)	**8.88**	**7.19**	**2.31**	**5.38**	**4.47**	**4.34**	**7.16**	**3.81**	**3.50**	**3.81**	**6.56**
K85073	225.4	182.6	58.7	136.5	113.5	110.3	181.8	96.8	88.9	96.8	166.7
F (6½x12)	**10.12**	**7.69**	**2.38**	**6.00**	**5.09**	**4.97**	**7.66**	**3.81**	**3.50**	**3.81**	**7.38**
K85524	257.2	195.3	60.3	152.4	129.4	126.2	194.5	96.8	88.9	96.8	187.3
G (7x12) G (7x14)	**11.06**	-	-	**6.62**	**5.56**	**5.44**	**11.00**	**7.12** **	**6.75** **	**7.12**	**7.47**
K83138	281.0			168.3	141.3	138.1	279.4	181.0	171.4	181.0	189.7
K (8)	**12.06**	-	-	**7.75**	**6.06**	**5.94**	**12.00**	**5.62** **	**5.25** **	**5.62**	**5.62**
K522803	306.4			196.8	154.0	150.8	304.8	142.9	133.4	142.9	142.9

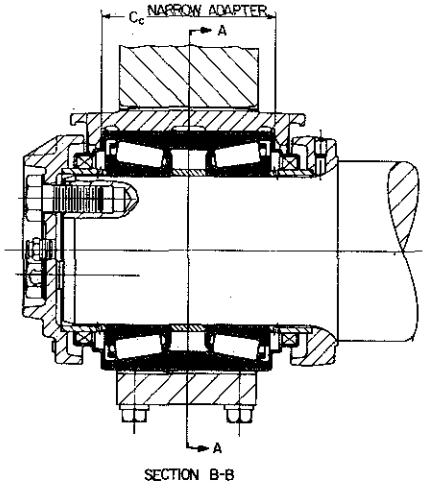
ENGLISH SYSTEM (inches & pounds)
METRIC SYSTEM (millimetres & dekanewtons)

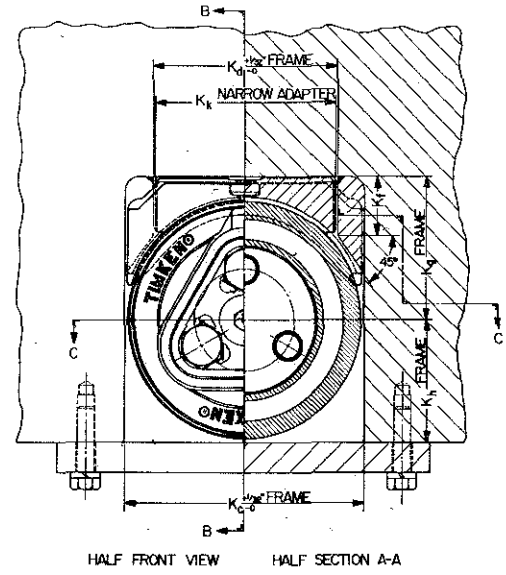
● See opposite page
** Adapter with thrust lugs at top - see opposite page

NOTE: If existing frame design will not accommodate a narrow adapter, consult The Timken Company for possible use of a wide adapter - see page 23 for application photos.

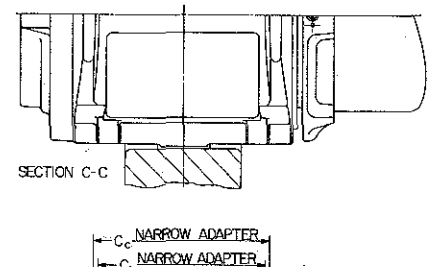
CLASS B,C,D,E, AND F NARROW ADAPTER

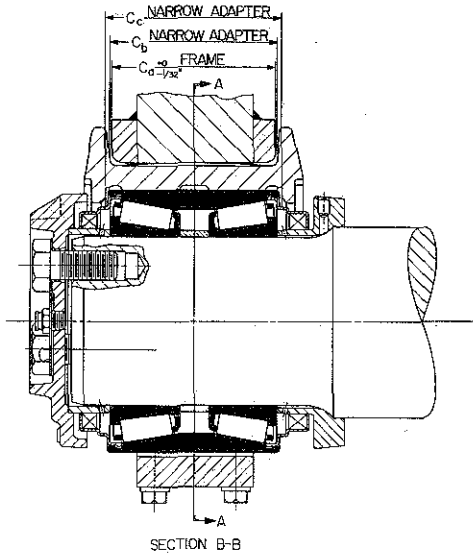


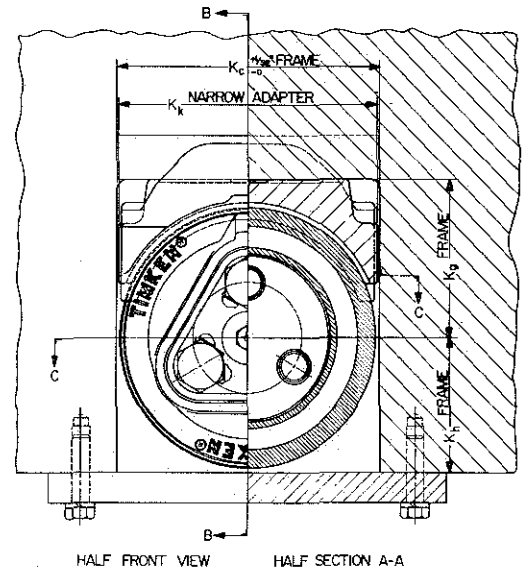




CLASS G AND K NARROW ADAPTER



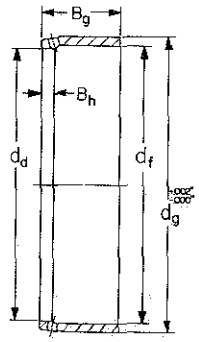




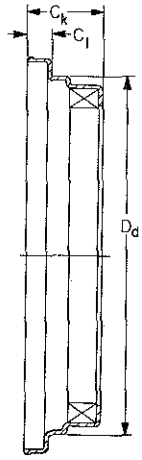
All drawings are shown in inch dimensions.

AUXILIARY PARTS DETAIL DIMENSIONS

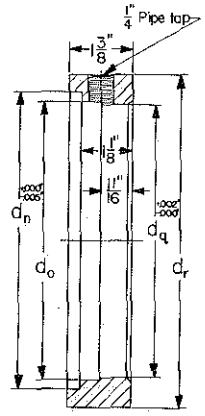
SEAL WEAR RING



SEAL CASE



BACKING SPACER



All drawings are shown in inch dimensions.

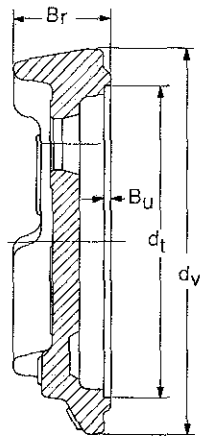
	SEAL WEAR RING						SEAL CASE				BACKING SPACER				
CLASS	PART NUMBER	d_d	d_f	d_g	B_g	B_h	PART NUMBER	D_d	C_k	C_l	PART NUMBER	d_n	d_o	d_q	d_r
B(4¼x8)	K86890	**4.0000**	**4.12**	**4.437**	**1.490**	**.188**	K86895	**5.577**	**1.500**	**.495**	K118891	**4.474**	**4.120**	**4.0030**	**5.25**
		101.600	104.8	112.70	37.85	4.78		141.66	38.10	12.57		113.64	104.65	101.676	133.4
C(5x9)	K86002	**4.6868**	**4.81**	**5.187**	**1.584**	**.219**	K85600	**6.494**	**1.609**	**.487**	K120198	**5.224**	**4.807**	**4.6905**	**6.00**
		119.045	122.2	131.75	40.23	5.56		164.95	40.87	12.37		132.69	122.10	119.139	152.4
D(5½x10)	K85507	**5.1863**	**5.31**	**5.687**	**1.584**	**.219**	K86860	**6.994**	**1.609**	**.487**	K120178	**5.724**	**5.307**	**5.1905**	**6.50**
		131.732	134.9	144.45	40.23	5.56		177.65	40.87	12.37		145.39	134.80	131.839	165.1
E(6x11)	K85508	**5.6858**	**5.81**	**6.187**	**1.678**	**.250**	K86861	**7.432**	**1.639**	**.518**	K120190	**6.224**	**5.807**	**5.6905**	**7.00**
		144.419	147.6	157.15	42.62	6.35		188.77	41.63	13.16		158.09	147.50	144.539	177.8
F(6½x12)	K85509	**6.1853**	**6.31**	**6.812**	**1.866**	**.375**	K85520	**8.382**	**1.889**	**.550**	K120160	**6.849**	**6.307**	**6.1905**	**7.50**
		157.107	160.3	173.02	47.40	9.52		212.90	47.98	13.97		173.96	160.20	157.239	190.5
G(7x12)	K95188	**6.9970**	**7.12**	**7.687**	**1.741**	**.250**	K96501	**9.444**	**1.843**	**.558**	K118866	**7.724**	**7.120**	**7.0030**	**8.25**
		177.724	181.0	195.25	44.22	6.35		239.88	46.81	14.17		196.19	180.85	177.876	209.6
G(7x14)	K95188	**6.9970**	**7.12**	**7.687**	**1.741**	**.250**	K96501	**9.444**	**1.843**	**.558**	K118866	**7.724**	**7.120**	**7.0030**	**8.25**
		177.724	181.0	195.25	44.22	6.35		239.88	46.81	14.17		196.19	180.85	177.876	209.6
GG(7)	K95188	**6.9970**	**7.12**	**7.687**	**1.741**	**.250**	K99424	**10.288**	**1.952**	**.745**	K118866	**7.724**	**7.120**	**7.0030**	**8.25**
		177.724	181.0	195.25	44.22	6.35		261.32	49.58	18.92		196.19	180.85	177.876	209.6
K(8)	K504074	**7.9960**	**8.12**	**8.625**	**1.781**	**.313**	K504073	**10.288**	**1.952**	**.745**	-	-	-	-	-
		203.098	206.4	219.08	45.24	7.95		261.32	49.58	18.92					

ENGLISH SYSTEM (inches & pounds)

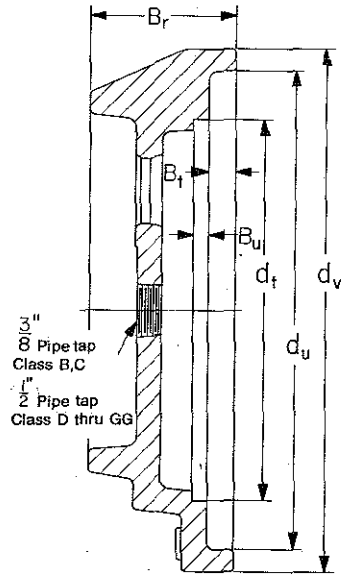
METRIC SYSTEM (millimetres & dekanewtons)

AUXILIARY PARTS DETAIL DIMENSIONS

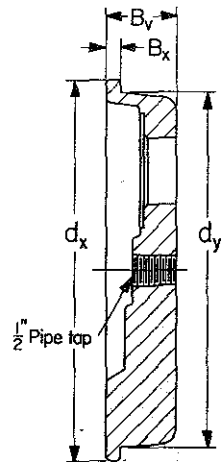
NFL* END CAP



AXLE END CAP



RECESSED END CAP



All drawings are shown in inch dimensions.

CLASS	NFL* END CAP					AXLE END CAP							RECESSED END CAP				
	PART NUMBER	d_t	d_v max.	B_r	B_u	PART NUMBER	d_t	d_u	d_v max.	B_r	B_t	B_u	PART NUMBER	d_x	d_y	B_v	B_x
B(4¼x8)	** -	**4.474**	**5.94**	**2.06**	**.09**	K86877	**4.474**	**5.75**	**6.22**	**2.31**	**.31**	**.22**	K399069	**4.50**	**4.09**	**.94**	**.19**
		113.64	150.8	52.4	2.4		113.64	146.0	158.0	58.7	7.9	5.6		114.3	104.0	23.8	4.8
C(5x9)	** -	**5.224**	**6.88**	**1.88**	**.09**	K86003	**5.224**	**6.81**	**7.41**	**2.25**	**.44**	**.22**	K399070	**5.25**	**4.78**	**1.00**	**.19**
		132.69	174.6	47.6	2.4		132.69	173.0	188.1	57.2	11.1	5.6		133.4	121.4	25.4	4.8
D(5½x10)	K523744	**5.724**	**7.44**	**1.81**	**.09**	K85521	**5.724**	**7.31**	**7.91**	**2.19**	**.44**	**.22**	K399071	**5.75**	**5.28**	**1.06**	**.25**
		145.39	188.9	46.0	2.4		145.39	185.7	200.8	55.6	11.1	5.6		146.0	134.1	27.0	6.4
E(6x11)	K523746	**6.224**	**7.81**	**2.00**	**.12**	K85510	**6.224**	**7.81**	**8.53**	**2.44**	**.44**	**.25**	K399072	**6.25**	**5.78**	**1.19**	**.25**
		158.09	198.4	50.8	3.2		158.09	198.4	216.7	61.9	11.1	6.4		158.8	146.8	30.2	6.4
F(6½x12)	K523748	**6.849**	**8.75**	**1.88**	**.12**	K85517	**6.849**	**8.88**	**9.59**	**2.50**	**.66**	**.25**	K399073	**7.00**	**6.28**	**1.25**	**.25**
		173.96	222.2	47.6	3.2		173.96	225.4	243.7	63.5	16.7	6.4		177.8	159.5	31.8	6.4
G(7x12)	K523750	**7.724**	**9.81**	**1.94**	**.09**	K95199	**7.724**	**9.88**	**10.62**	**2.25**	**.44**	**.22**	K399074	**7.75**	**7.09**	**1.31**	**.25**
		196.19	249.2	49.2	2.4		196.19	250.8	269.9	57.2	11.1	5.6		196.8	180.2	33.3	6.4
G(7x14)	-	-	-	-	-	K412057	**7.724**	**9.88**	**10.62**	**2.25**	**.44**	**.22**	K399074	**7.75**	**7.09**	**1.31**	**.25**
							196.19	250.8	269.9	57.2	11.1	5.6		196.8	180.2	33.3	6.4
GG(7)	-	-	-	-	-	K462064	**7.724**	**9.88**	**10.62**	**2.25**	**.44**	**.22**	K399074	**7.75**	**7.09**	**1.31**	**.25**
							196.19	250.8	269.9	57.2	11.1	5.6		196.8	180.2	33.3	6.4
K(8)	-	-	-	-	-	-	-	-	-	-	-	-	K504075	**8.75**	**8.09**	**1.38**	**.47**
														222.2	205.6	34.9	11.9

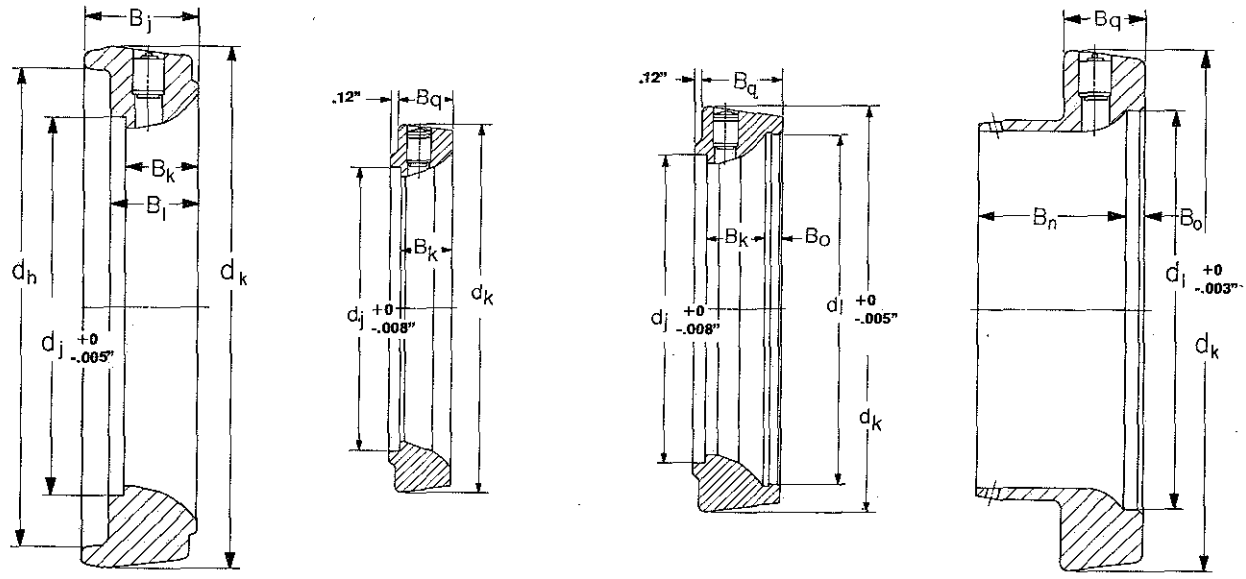
* No Field Lubrication
** Consult The Timken Company for availability.

ENGLISH SYSTEM (inches & pounds)
METRIC SYSTEM (millimetres & dekanewtons)

AUXILIARY PARTS DETAIL DIMENSIONS

BACKING RING WITH FLINGER

BACKING RINGS WITHOUT FLINGER



Class B, C, D — Class E, F — Class G (7x12), GG (7)

All drawings are shown in inch dimensions.

	BACKING RINGS														
	BACKING RING WITH FLINGER							BACKING RING WITHOUT FLINGER							
CLASS	PART NUMBER	d_h	d_j	d_k max.	B_j	B_k	B_l	PART NUMBER	d_j	d_k max.	d_l	B_k	B_n	B_o	B_q
B(4¼x8)	K86874	**5.75** 146.0	**4.436** 112.67	**6.19** 157.2	**1.56** 39.7	**1.031** 26.19	**1.25** 31.8	*	**4.436** 112.67	**6.03** 153.2	–	**1.031** 26.19	–	–	**1.12** 28.6
C(5x9)	K85588	**6.84** 173.8	**5.186** 131.72	**7.38** 187.3	**1.69** 42.9	**1.031** 26.19	**1.25** 31.8	*	**5.186** 131.72	**6.94** 176.2	–	**1.031** 26.19	–	–	**1.12** 28.6
D(5½x10)	K85525	**7.31** 185.7	**5.686** 144.42	**7.88** 200.0	**1.69** 42.9	**1.031** 26.19	**1.25** 31.8	K127205	**5.686** 144.42	**7.44** 188.9	–	**1.031** 26.19	–	–	**1.12** 28.6
E(6x11)	K85095	**7.84** 199.2	**6.186** 157.12	**8.50** 215.9	**1.88** 47.6	**1.187** 30.15	**1.44** 36.5	K127206	**6.186** 157.12	**8.19** 208.0	**7.028** 178.51	**1.187** 30.15	–	**.34** 8.7	**1.66** 42.1
F(6½x12)	K85516	**8.94** 227.0	**6.811** 173.00	**9.56** 242.9	**1.97** 50.0	**1.063** 27.00	**1.31** 33.3	K125685	**6.811** 173.00	**8.69** 220.7	**7.528** 191.21	**1.063** 27.00	–	**.34** 8.7	**1.53** 38.9
G(7x12)	-	-	-	-	-	-	-	-	K83160	-	**10.50** 266.7	**7.996** 203.10	-	**2.380** 60.45	**.50** 12.7	**1.31** 33.3
G(7x14)	K95200	**9.88** 250.8	**7.686** 195.22	**10.50** 266.7	**1.91** 48.4	**1.125** 28.58	**1.34** 34.1	-	-	-	-	-	-	-	-
GG(7)	-	-	-	-	-	-	-	-	K83160	-	**10.50** 266.7	**7.996** 203.10	-	**2.380** 60.45	**.50** 12.7	**1.31** 33.3
K(8)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

* Consult The Timken Company for availability.

ENGLISH SYSTEM (inches & pounds)
METRIC SYSTEM (millimetres & dekanewtons)

INDUSTRIAL EQUIPMENT - FITTING PRACTICE FOR "AP" BEARINGS (INCHES)

	Bearing Part Number		Cone Fitting Practice						Cup Fitting Practice			
			Rotating Cone				Stationary Cone		* Stationary Cup		** Rotating Cup	
			Heavy Loads, Moderate Speed		Hot Applications, Table Rolls, Etc.							
Class	Cone	Cup	Cone Seat d_a	Resultant Fit	Cone Seat d_a	Resultant Fit	Cone Seat d_a	Resultant Fit	Cup Seat D_a	Resultant Fit	Cup Seat D_a	Resultant Fit
B(4¼x8)	HM120848	HM120817XD	4.0040 4.0030	0.0040T 0.0020T	4.0030 4.0020	0.0030T 0.0010T	3.9990 3.9980	0.0010L 0.0030L	6.5060 * 6.5080	0.0010L 0.0080L	6.5000 ** 6.5010	0.0040T 0.0020T
C(5x9)	HM124646	HM124618XD	4.6915 4.6905	0.0040T 0.0020T	4.6905 4.6895	0.0030T 0.0010T	4.6865 4.6855	0.0010L 0.0030L	7.6935 * 7.6955	0.0010L 0.0080L	7.6875 ** 7.6885	0.0040T 0.0020T
D(5½x10)	HM127446	HM127415XD	5.1915 5.1905	0.0045T 0.0025T	5.1905 5.1895	0.0035T 0.0015T	5.1865 5.1855	0.0005L 0.0025L	8.1935 * 8.1955	0.0010L 0.0080L	8.1875 ** 8.1885	0.0040T 0.0020T
E(6x11)	HM129848	HM129814XD	5.6915 5.6905	0.0045T 0.0025T	5.6905 5.6895	0.0035T 0.0015T	5.6865 5.6855	0.0005L 0.0025L	8.6935 * 8.6955	0.0010L 0.0080L	8.6875 ** 8.6885	0.0040T 0.0020T
F(6½x12)	HM133444	HM133416XD	6.1915 6.1905	0.0045T 0.0025T	6.1905 6.1895	0.0035T 0.0015T	6.1865 6.1855	0.0005L 0.0025L	9.9435 * 9.9455	0.0010L 0.0080L	9.9375 ** 9.9385	0.0040T 0.0020T
G(7)	HM136948	HM136916XD	7.0040 7.0030	0.0045T 0.0025T	7.0030 7.0020	0.0035T 0.0015T	6.9990 6.9980	0.0005L 0.0025L	10.8810 * 10.8830	0.0010L 0.0080L	10.8750 ** 10.8760	0.0040T 0.0020T
GG(7)	H337846	H337816XD	7.0040 7.0030	0.0045T 0.0025T	7.0030 7.0020	0.0035T 0.0015T	6.9990 6.9980	0.0005L 0.0025L	11.8840 * 11.8860	0.0010L 0.0050L	11.8780 ** 11.8790	0.0040T 0.0020T
K(8)	M241547	M241513XD	8.0050 8.0040	0.0050T 0.0030T	8.0040 8.0030	0.0040T 0.0020T	7.9990 7.9980	0.0010L 0.0030L	11.8810 * 11.8830	0.0010L 0.0080L	11.8750 ** 11.8760	0.0040T 0.0020T

* Cup O.D. tolerance +**0.0050** to **-0.0000** (cup No. H337816XD O.D. tolerance +**0.0050** to +**0.0030**) (T) - Tight (L) - Loose
** Rotating cup applications require **0.0010** cup O.D. tolerance +**0.0040** to +**0.0030** (Consult The Timken Company for availability).

INDUSTRIAL EQUIPMENT - FITTING PRACTICE FOR "AP" BEARINGS (MICROMETRES, μm)

Class	Cone	Cup	Cone Fitting Practice						Cup Fitting Practice			
B(4¼x8)	HM120848	HM120817XD	101.702 101.676	102T 51T	101.676 101.650	76T 25T	101.575 101.549	25L 76L	165.252 * 165.303	25L 203L	165.100 ** 165.125	102T 51T
C(5x9)	HM124646	HM124618XD	119.164 119.138	102T 51T	119.138 119.112	76T 25T	119.037 119.011	25L 76L	195.414 * 195.465	25L 203L	195.262 ** 195.287	102T 51T
D(5½x10)	HM127446	HM127415XD	131.864 131.838	114T 64T	131.838 131.812	89T 38T	131.737 131.711	13L 64L	208.114 * 208.165	25L 203L	207.962 ** 207.987	102T 51T
E(6x11)	HM129848	HM129814XD	144.564 144.538	114T 64T	144.538 144.512	89T 38T	144.437 144.411	13L 64L	220.814 * 220.865	25L 203L	220.662 ** 220.687	102T 51T
F(6½x12)	HM133444	HM133416XD	157.264 157.238	114T 64T	157.238 157.212	89T 38T	157.137 157.111	13L 64L	252.564 * 252.615	25L 203L	252.412 ** 252.437	102T 51T
G(7)	HM136948	HM136916XD	177.902 177.876	114T 64T	177.876 177.850	89T 38T	177.775 177.749	13L 64L	276.377 * 276.428	25L 203L	276.225 ** 276.250	102T 51T
GG(7)	H337846	H337816XD	177.902 177.876	114T 64T	177.876 177.850	89T 38T	177.775 177.749	13L 64L	301.853 * 301.904	25L 127L	301.701 ** 301.726	102T 51T
K(8)	M241547	M241513XD	203.327 203.302	127T 76T	203.302 203.276	102T 51T	203.175 203.149	25L 76L	301.777 * 301.828	25L 203L	301.625 ** 301.650	102T 51T

* Cup O.D. tolerance +0.127 to -0.000 (cup No. H337816XD O.D. tolerance + 0.127 to + 0.076) (T)-Tight (L)-Loose
** Rotating cup applications require 0.025 cup O.D. tolerance +0.102 to + 0.076 (Consult The Timken Company for availability).

ENGLISH SYSTEM (inches & pounds)
METRIC SYSTEM (millimetres & dekanewtons)

PRESS FIT FORCE REQUIRED TO APPLY COLLARS, GEARS, OR COUPLINGS USED TO RETAIN AN "AP" BEARING

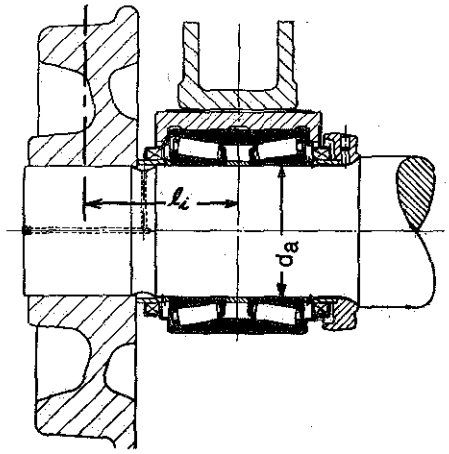
BEARING CLASS	FORCE (MIN.)	
	TONS	KILONEWTONS
B,C	**40**	356
D,E,F,K	**50**	445
G,GG	**60**	534

The clamping force resulting from a press fit is equal to:

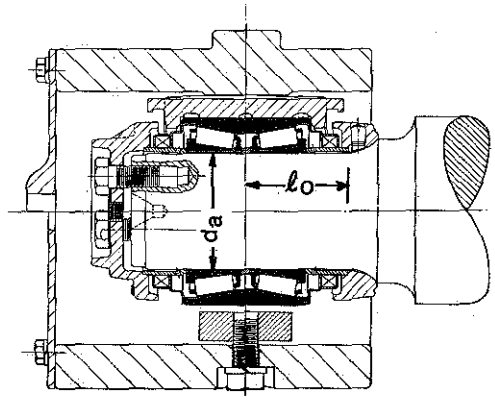
$$F = \tfrac{1}{2}\pi f L \mathscr{d} E \left[1 - \left(\frac{b}{c}\right)^2\right]$$

Where: F = Clamping Force - newton (lb.)
f = Coefficient of Friction - .17
L = Length of Clamping Part - metre (in.)
$\mathscr{d}$ = Fit on Dia. - metre (in.)
E = 2.068×10^{11} pascal (**30×10^6** lb/in²)
b = I.D. of Clamping Part - metre (in.)
c = O.D. of Clamping Part - metre (in.)

AXLE STRESS FOR CARS AND ROLLING STOCK



INBOARD JOURNAL



OUTBOARD JOURNAL

$$S = \frac{10.2 \times P \times \ell}{(d_a)^3}$$

Where: S = Axle Stress - pascal (lb/in²)
P = Bearing Load - newton (lb.)
d_a = Cone Seat - metre (in.)
ℓ_i, ℓ_o = Moment Arm - metre (in.)

Inboard Journal - ℓ_i = Distance from bearing centerline to wheel load centerline

Outboard Journal - ℓ_o = Distance from bearing centerline to point on d_a tangent to shaft radius.

Class	d_a	$(d_a)^3$	ℓ_o
B (4¼x8)	**4.0000** 101.600	**64** 105×10^4	**3.51** 89.2
C (5x9)	**4.6875** 119.062	**103** 169×10^4	**4.12** 104.6
D (5½x10)	**5.1870** 131.750	**140** 229×10^4	**4.31** 109.5
E (6x11)	**5.6870** 144.450	**184** 301×10^4	**4.70** 119.4
F (6½x12)	**6.1870** 157.150	**237** 388×10^4	**5.20** 132.1
G (7x12)	**6.9995** 177.787	**343** 562×10^4	**4.82** 122.4
G (7x14)	**6.9995** 177.787	**343** 562×10^4	**5.32** 135.1
GG (7)	**6.9995** 177.787	**343** 562×10^4	**5.01** 127.3
K (8)	**8.0000** 203.200	**512** 839×10^4	**3.97** 100.8

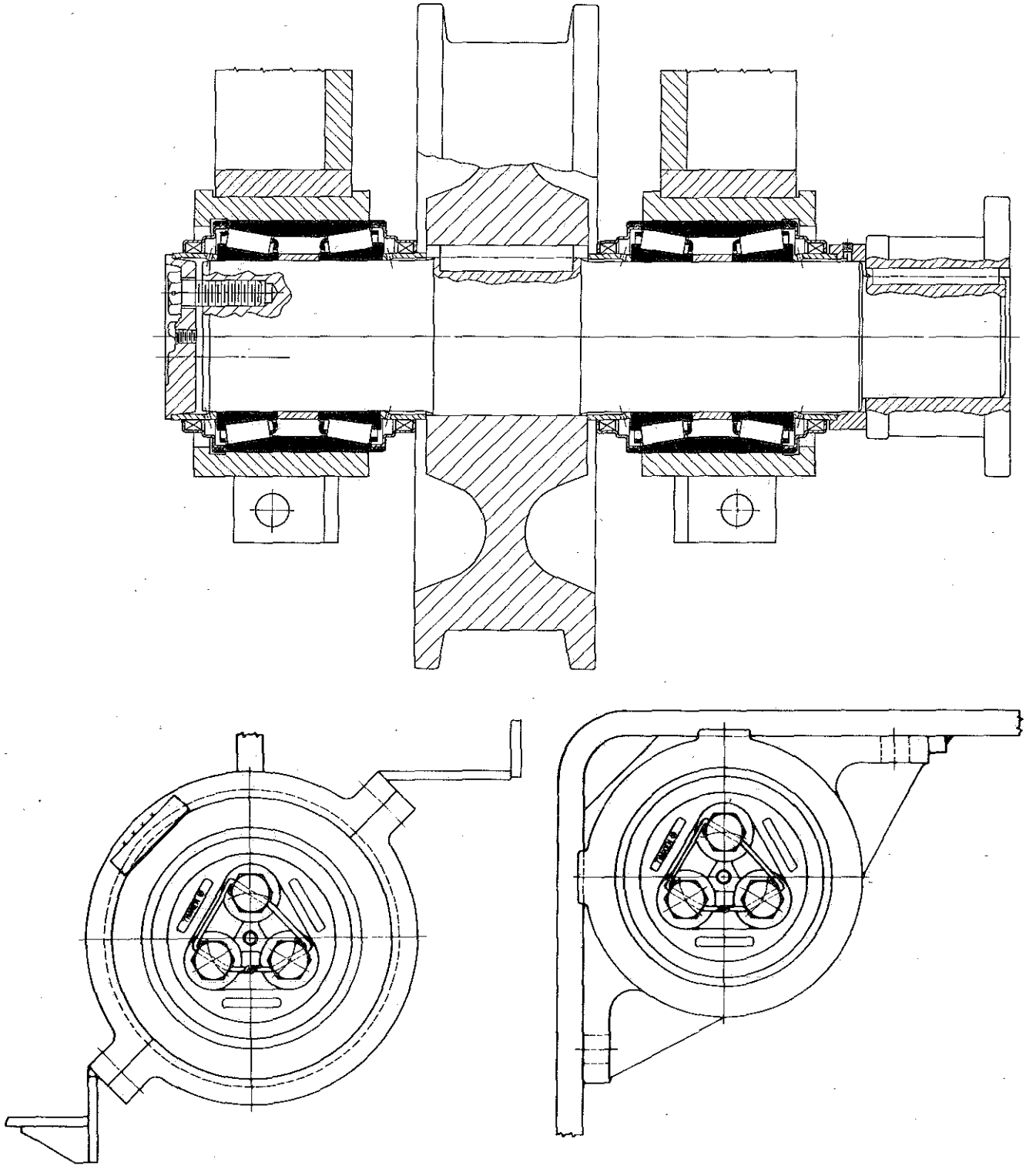
ENGLISH SYSTEM (inches & pounds)
METRIC SYSTEM (millimetres & dekanewtons)

TYPICAL APPLICATIONS

Listed below are some of the various applications on which "AP" bearings are presently being used. Photographs and/or line drawings of some of these designs are shown on the following pages.

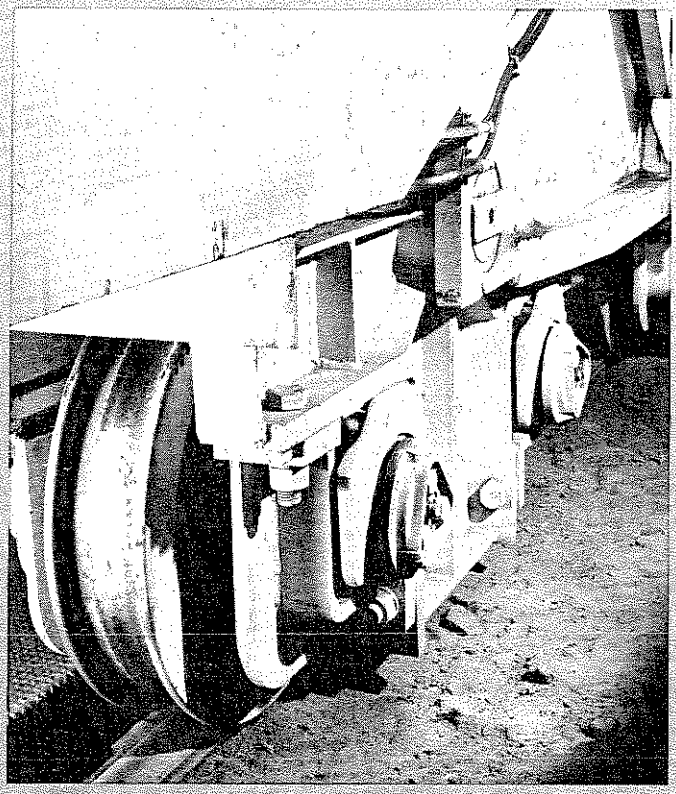
- APRON FEEDER
- AUTO SHREDDER
- BAND SAW
- BARKING DRUM -
  - THRUST ROLLERS
- BILLET EJECTOR
- BUCKET UNLOADER
- CALENDER ROLLS
- CAM ROLLER
- CARS
  - BILLET GRINDER CARS
  - CABLE CARS
  - CANE CARS
  - CHARGING BOX CARS
  - COKE GUIDE CARS
  - COKE QUENCH CARS
  - COKE SCREENING CARS
  - FURNACE CARS
  - FURNACE HEAT SHIELD CARS
  - HOT METAL CARS
  - INGOT CARS
  - INGOT TRANSFER CARS
  - LADLE TRANSFER CARS
  - LARRY CARS
  - LOOP CARS
  - MANIPULATOR CARS
  - ORE TRANSFER CARS
  - ORIENTER CARS
  - SCALE CARS
  - SCRAP CHARGING CARS
  - SHEET PILER CARS
  - SHOT BLAST CARS
  - SINTERING PALLET CARS
  - SKIP CARS
  - SLAB RETURN CARS
  - SLAG POT CARS
  - TRANSFER CARS
  - TRANSFORMER CARS
  - TUNDISH CARS
  - WEIGHT CARS
  - WORK ROLL CHANGER CARS
  - X-RAY CARS
- CHIPPERS
- CHOPPER-LAND CLEARING
- CLAY GUN CARRIAGE
- COAL CRUSHING MACHINE
  - BREAKER SHAFT
  - CONVEYOR DRUM
  - ECCENTRIC SHAFT
- COAL PULVERIZER
- COMPACTOR PRESS
  - BACKSHAFT
  - FLYWHEEL
- CONTINUOUS CASTERS
  - APRON GUIDE ROLLERS
  - RUNOUT TABLE ROLLS
  - CUT OFF CONVEYOR
- CONTINUOUS MINER
  - DRIVE
  - CUTTER HEAD
  - TRACKWHEEL SPROCKET
- CONVEYORS
  - HEAD AND TAIL DRUMS
- CRANE
  - BRIDGE WHEELS
  - TROLLEY WHEELS
  - DRUM SUPPORTS
- DAVIT - ANCHOR
- DIGESTER
- DOCK - LOADER & UNLOADER
- DRAGLINE
- DRUM HOISTS
- DYNAMOMETER
- FEEDERS
- FILM EVAPORATORS
- FLANGING MACHINE
- FURNACE
  - ROOF SWING GUIDE
  - WALKING BEAM WHEELS
  - ROTARY
- GEARLESS ELEVATOR
- GRATE BAR RAPPER
- HOUSE MOVING DOLLY
- JAW CRUSHERS
- LAMINATORS
- LEVELLERS
- LINE SHAFT
- LINE TENSION DRUM
- LOCOMOTIVES
- LOCOMOTIVE CRANES
- LOG ROLLS
- MISSILE TRANSPORTER
- MOBILE CHARGER
- MOVEABLE STADIUM STANDS
- MUCKERS
- PAPER MILL ROLLS
- PAPER REELERS
- PIG CASTING MACHINE
- PILLOW BLOCKS
- PINCH ROLLS
- PLATE BENDER
- PRESS
  - BACK SHAFT
  - FLY WHEEL
- PRESS ROLLS
- PULP BEATERS
- PUMPING UNIT
  - SADDLE
  - EQUALIZER
- RADIATION CHAMBER DOOR
- RAM ROLLERS
- REELER BAR
- ROD MILL ROLL NECKS
- ROTATORY WHEELS
- SAW MILL CARRIAGE
- SHEAR
- SHEAVES
  - ELEVATOR
  - FAIRLEAD
  - HOISTING
  - IDLER
  - MINE HEAD
- SKI LIFT
- SLAB EXTRACTOR
- SOAKING PIT COVER
- STACKERS
  - AXLES
  - CONVEYOR DRUMS
  - HOPPER CAR
  - TRIPLE CABLE
- TABLE ROLLS
  - BAR MILLS
  - BILLET MILLS
  - BLOOMING MILLS
  - FURNACE FEED
  - MERCHANT MILLS
  - PIPE CONVEYOR
  - ROD MILLS
  - SLAB MILLS
  - STRIP MILLS
  - STRUCTURAL MILLS
- TABLE ROLL LINE SHAFT
- TARGET TRANSPORTER
- TEMPER MILL 2 STAND
- TRUNNION ROLLERS
  - BARKING DRUM
  - COPPER CONVERTER
  - DRYER
  - KILN
  - SCRUBBER
- TURN TABLES
- WATER PURIFICATION DRUM
- WELDING POSITIONERS
- WIRE SPOOL SUPPORT HEADS

CRANE BRIDGE AND TROLLEY AXLE

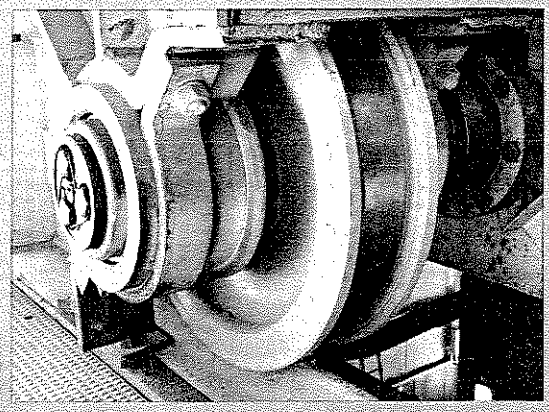


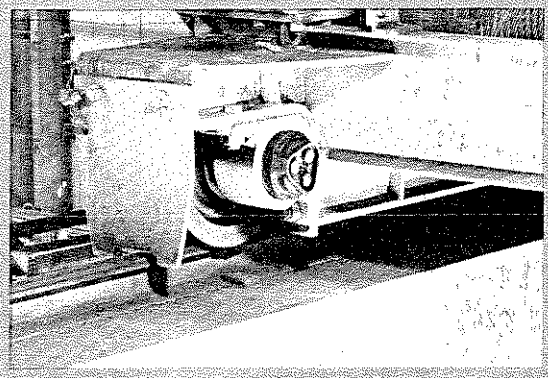
Typical "AP" bearing mounting for crane bridge and trolley axle using recessed end cap. This clamped wheel design is shown on a drive axle. The idler axle design is similar except both bearings are clamped in the same manner as the left-hand assembly shown in the upper drawing. The lower drawings show typical full bore housing designs for crane wheel applications.

CRANE BRIDGE AND TROLLEY AXLE



WIDE ADAPTER DESIGN

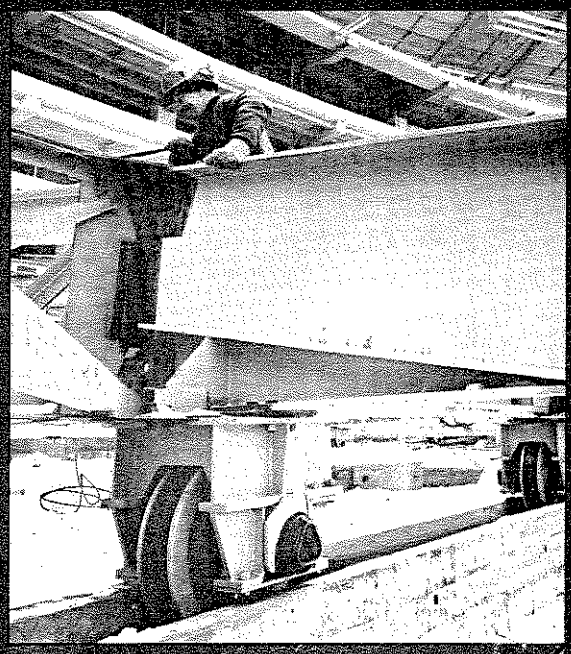




FULL BORE HOUSING DESIGNS

These bridge and trolley wheel applications illustrate both standard and recessed end caps.

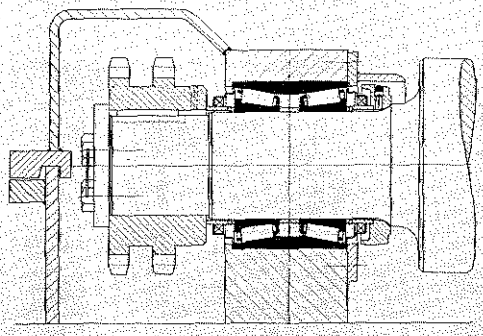
MOVEABLE STADIUM STANDS



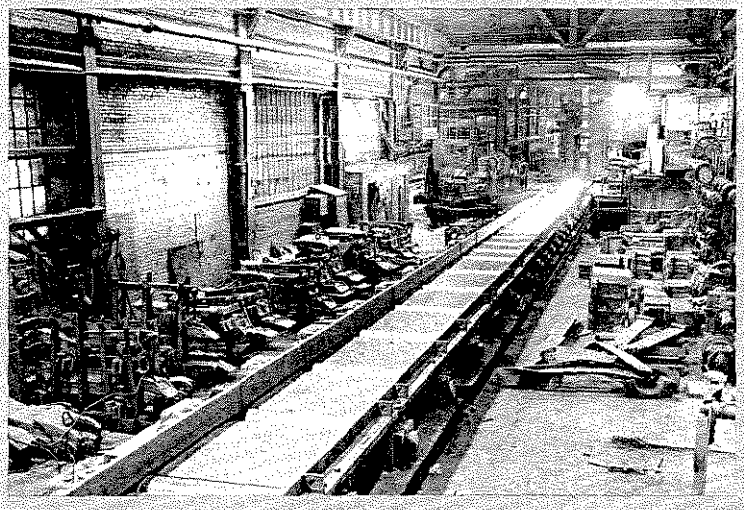
WIDE ADAPTER SHOWN.

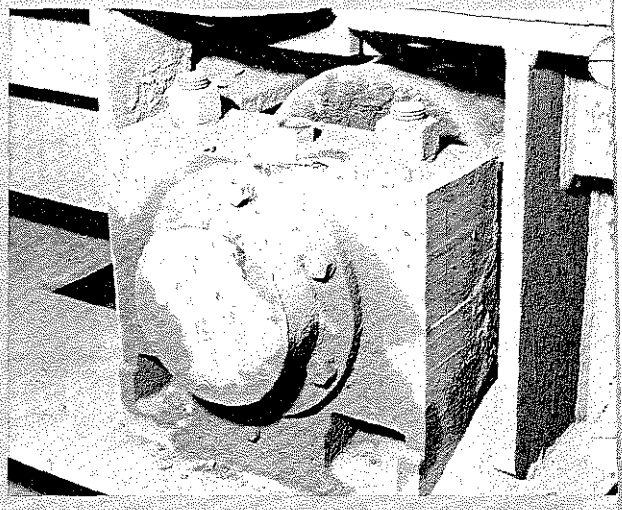
Timken "AP" bearings enable a section of stands of this stadium to be moved to provide better viewing angles for baseball and football games.

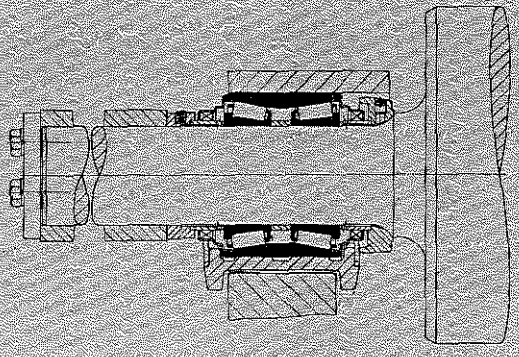
TABLE ROLLS



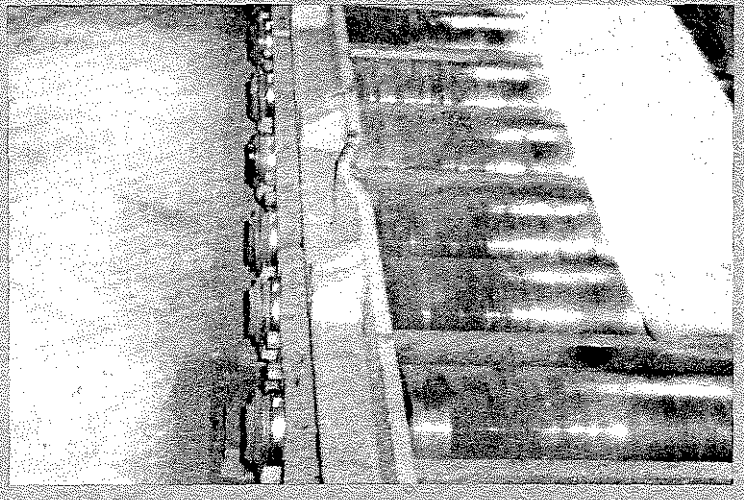
CHAIN DRIVE
FULL BORE HOUSING







TORQUE ARM DRIVE
FABRICATED HOUSING WITH ADAPTER



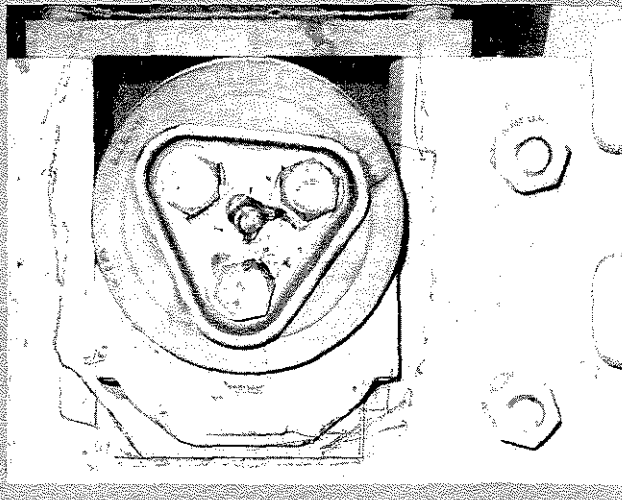
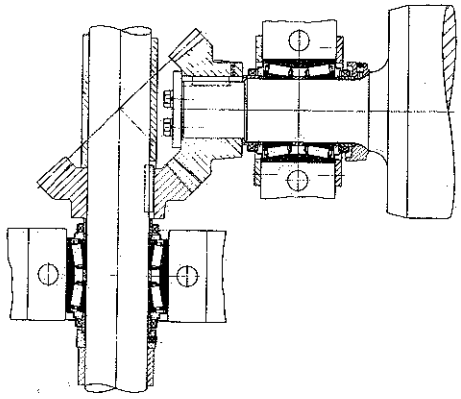
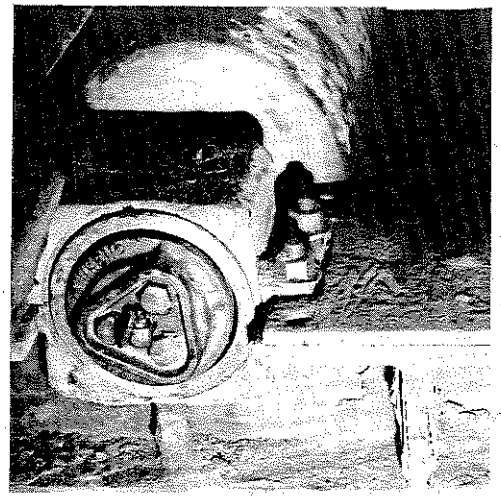
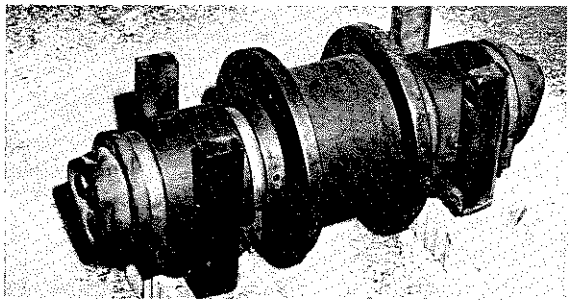


TABLE ROLLS



LINE SHAFT DRIVE
FULL BORE HOUSING

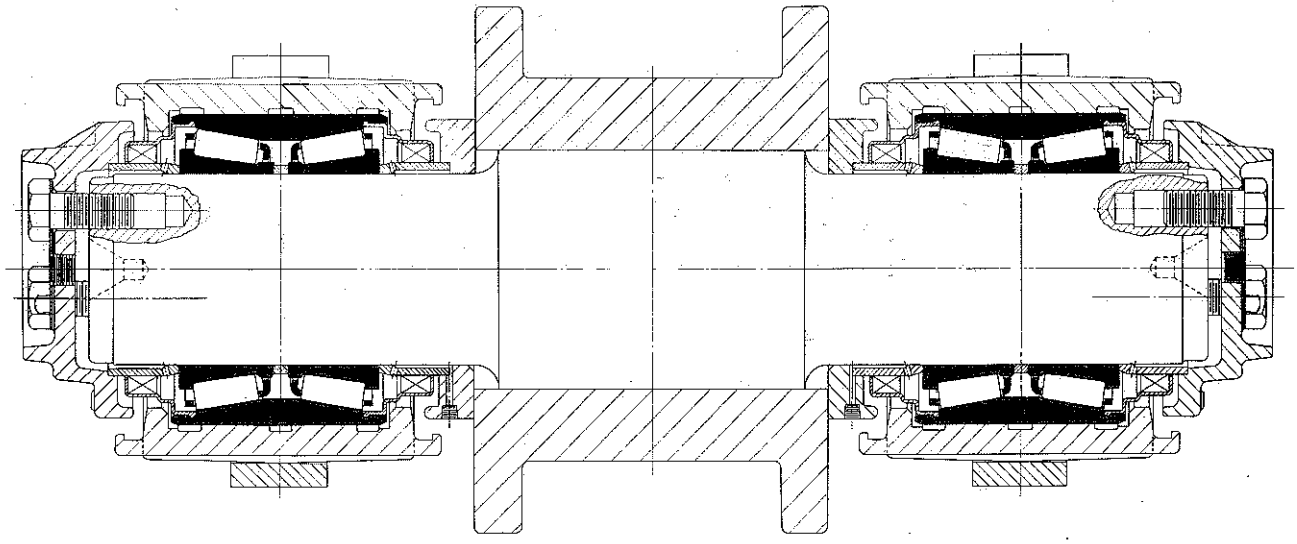




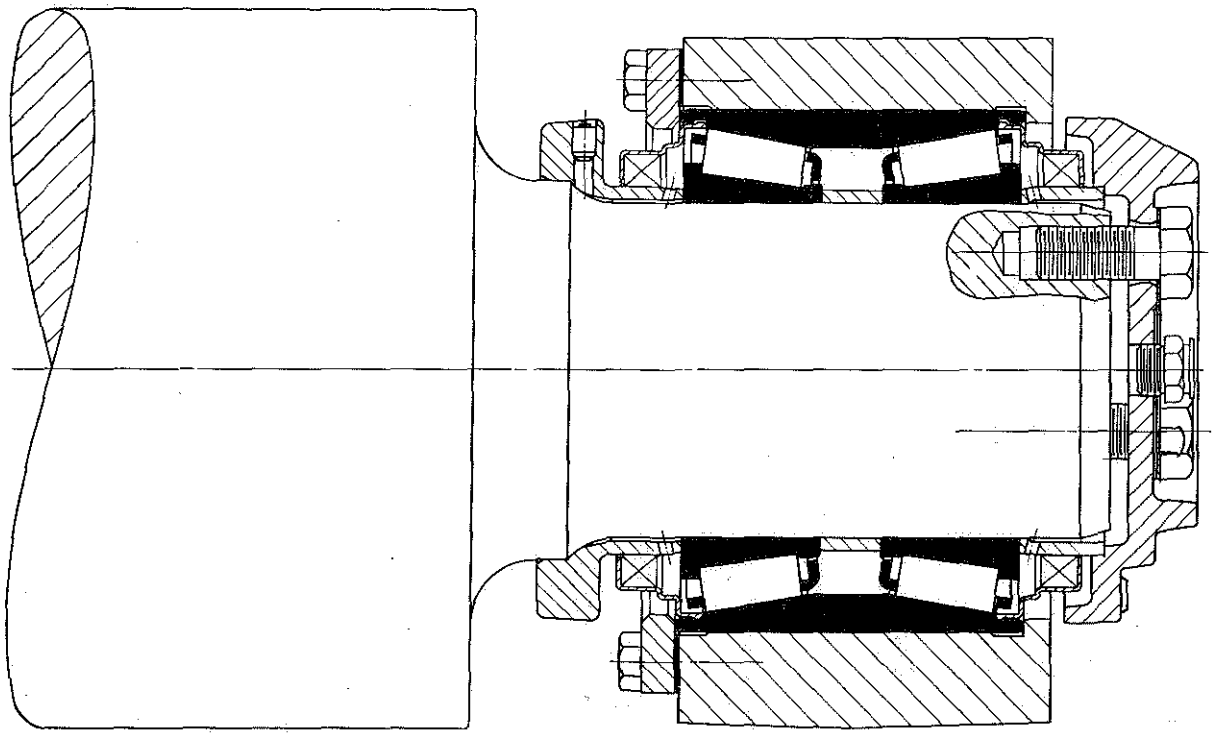
RAM ROLLER

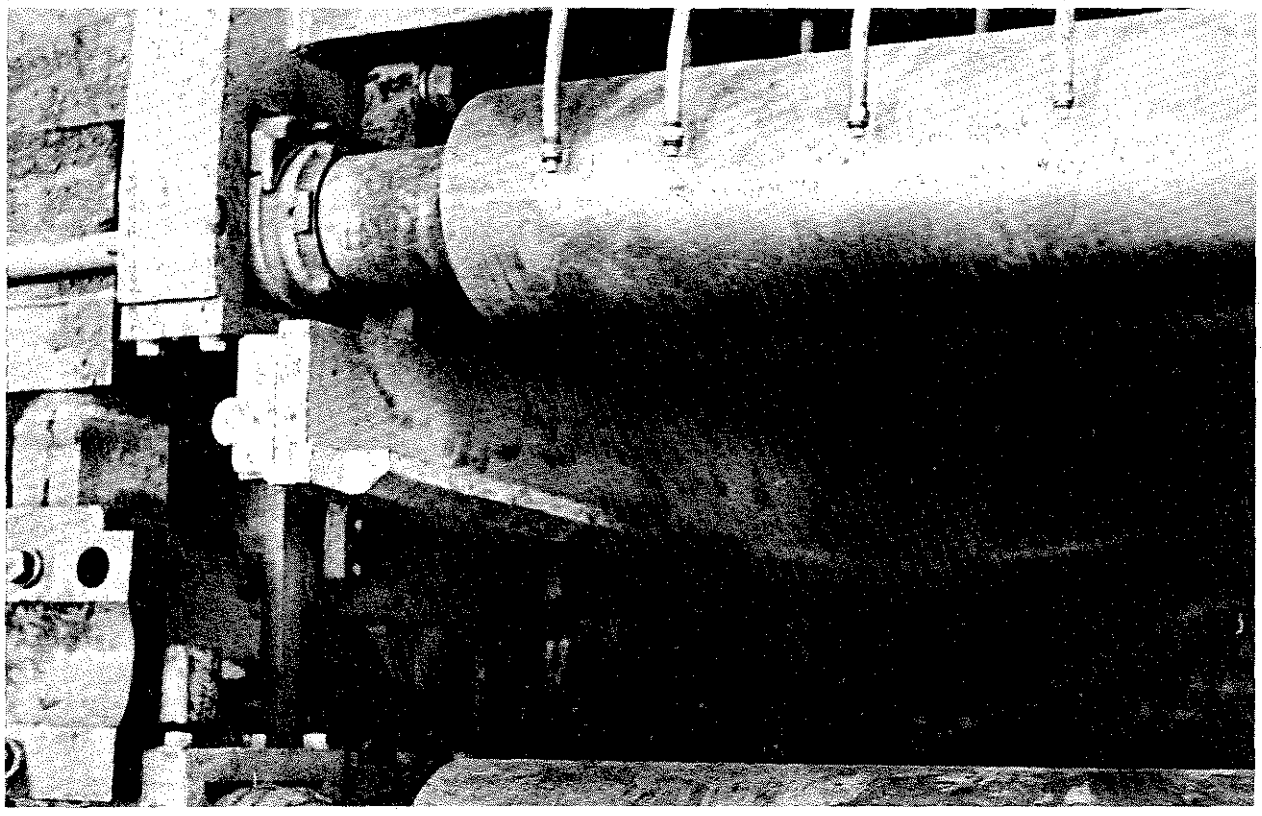
Two standard narrow adapters are used at both positions to insure positive radial location of the "AP" bearing cups.

A close axial clearance is provided between thrust lugs and the sides of the adapters to keep axial movement of the shaft to a minimum.



CONTINUOUS CASTING MACHINE GUIDE ROLLERS

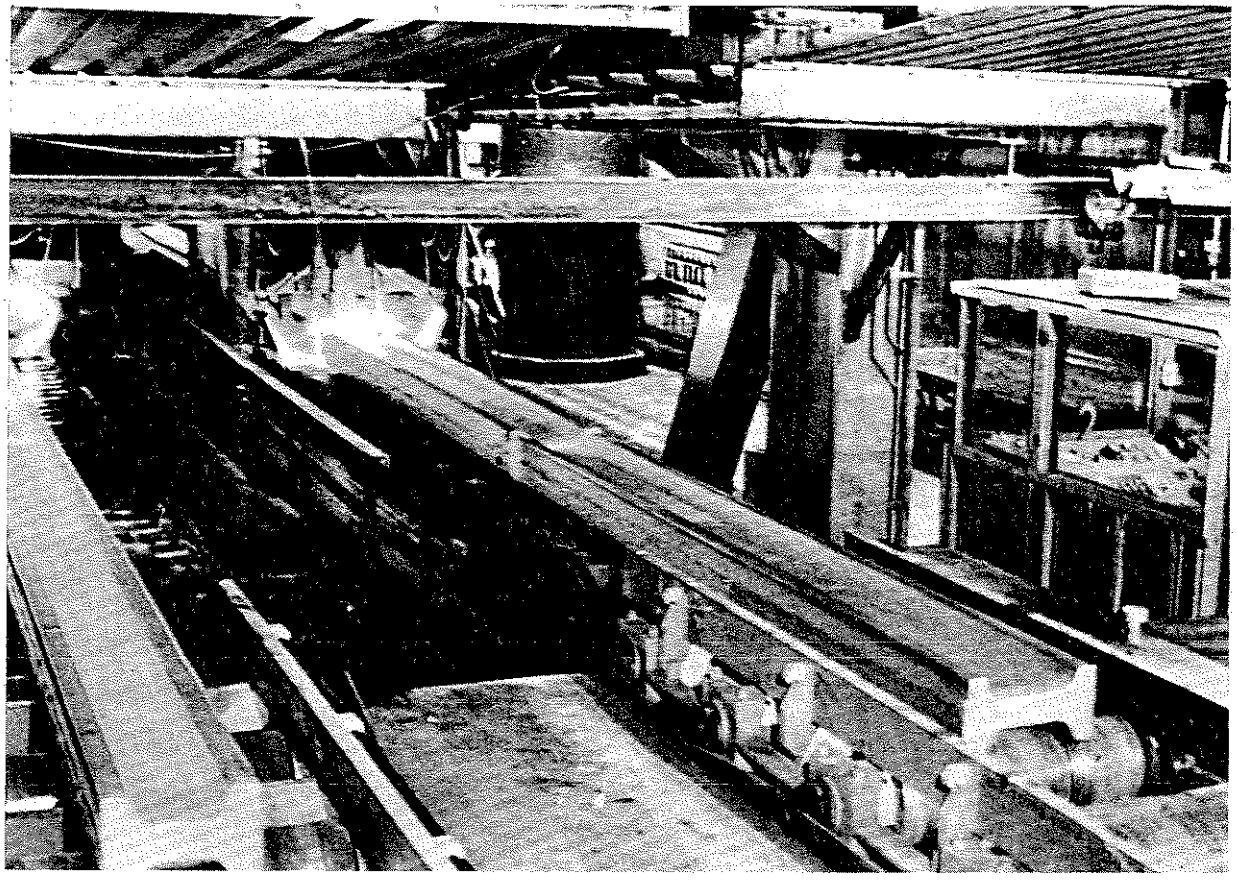




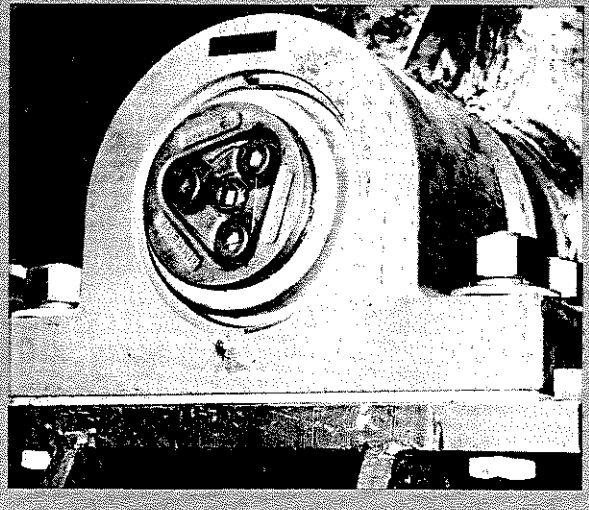
Used successfully on both original and conversion guide roller applications, "AP" bearings provide a maintenance free - and economical - mounting arrangement.

Close tolerance adapters are used in the lower design.

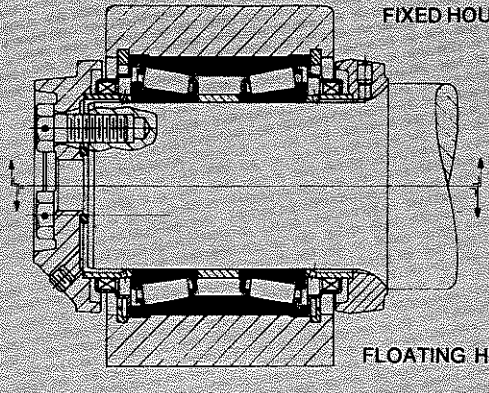
CONTINUOUS CASTING MACHINE RUNOUT TABLES



Continuous cast shapes roll on "AP" bearing equipped runout tables.

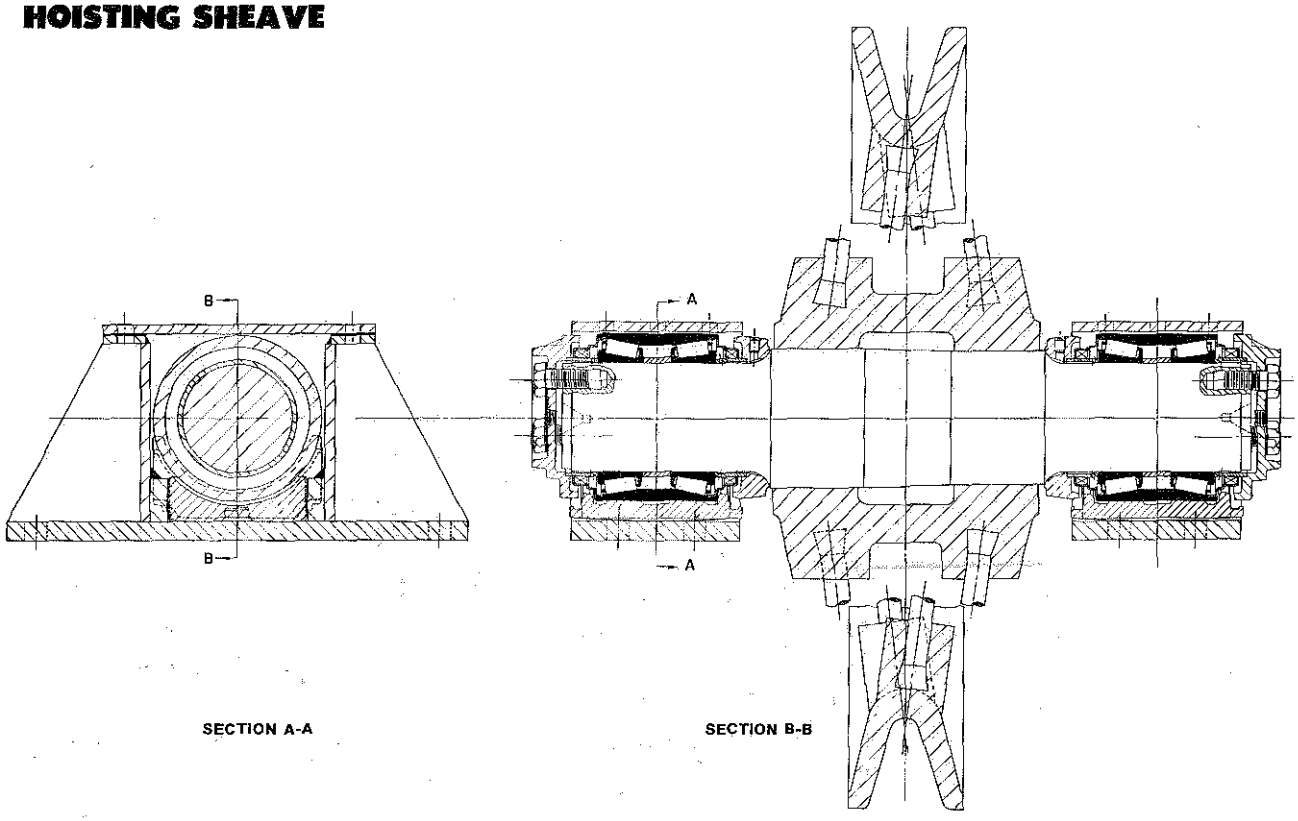


PILLOW BLOCK



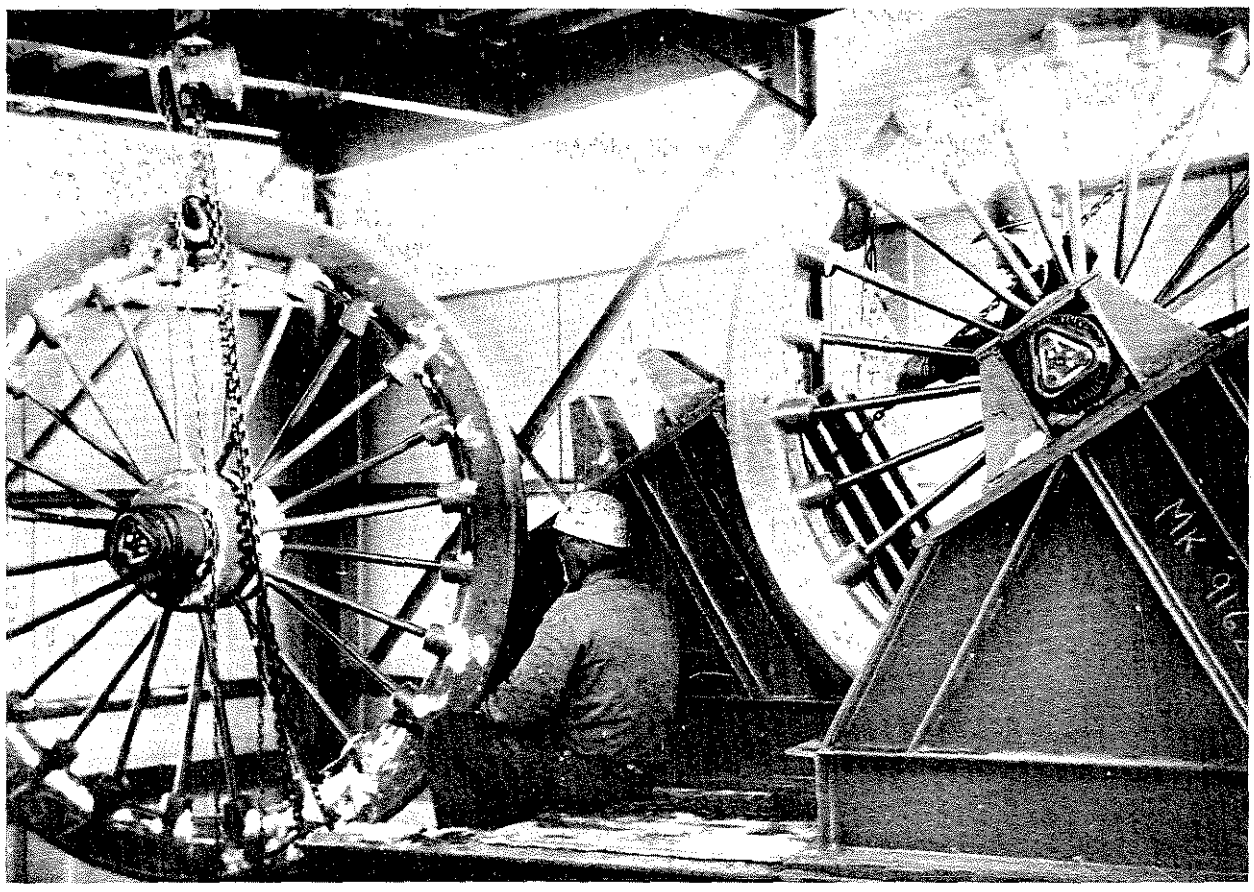
Greasing systems are not required with the prelubricated "AP" bearing used in this pillow block application - a substantial savings in initial cost as well as subsequent maintenance.

HOISTING SHEAVE

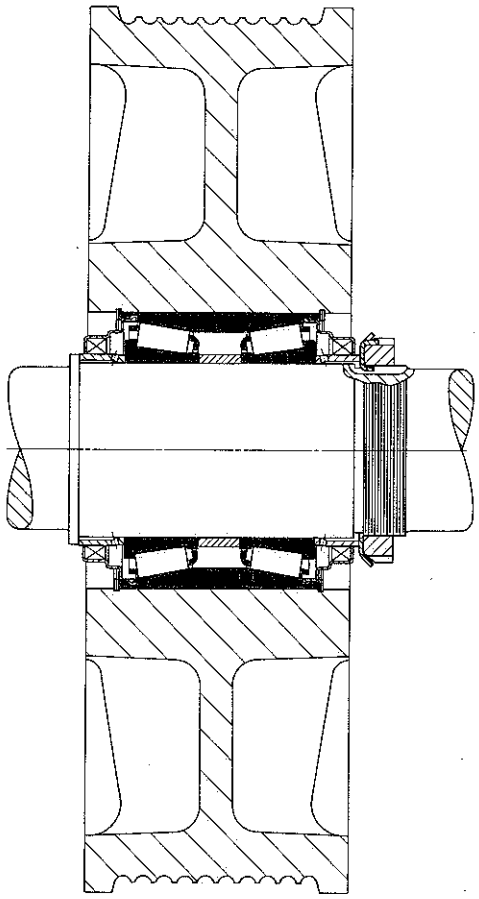


SECTION A-A

SECTION B-B



This mine head sheave is Timken Class C & E "AP" bearing equipped.

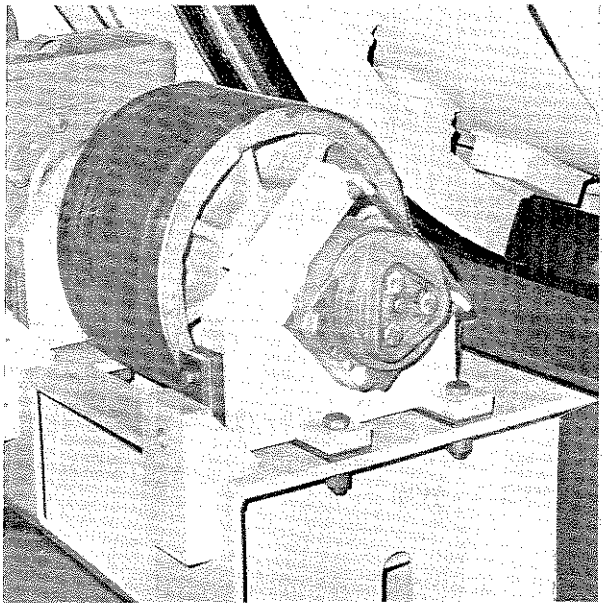


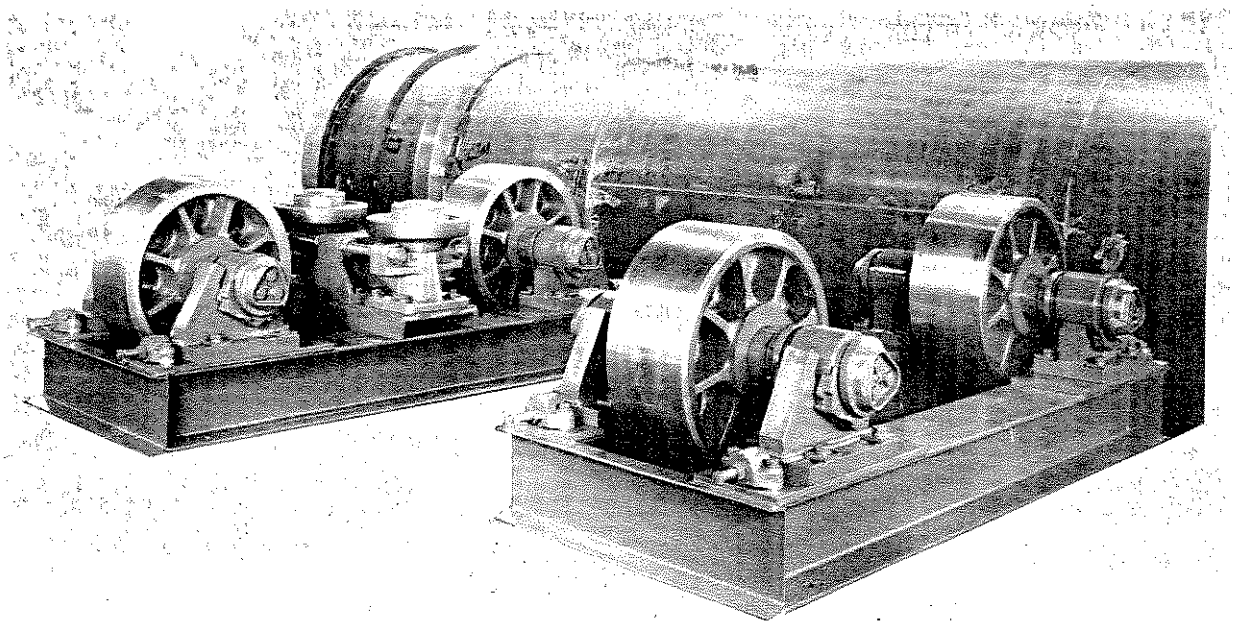
ELEVATOR SHEAVE

The cup of this "AP" bearing is mounted directly into the sheave hub with a tight fit. Snap rings are required only because of elevator safety regulations.

No provision for relubrication is made in this application. Some builders prefer to completely fill the bearing with grease at assembly while others depend on the initial charge of grease as supplied in a new bearing. Either practice is completely satisfactory for this application.

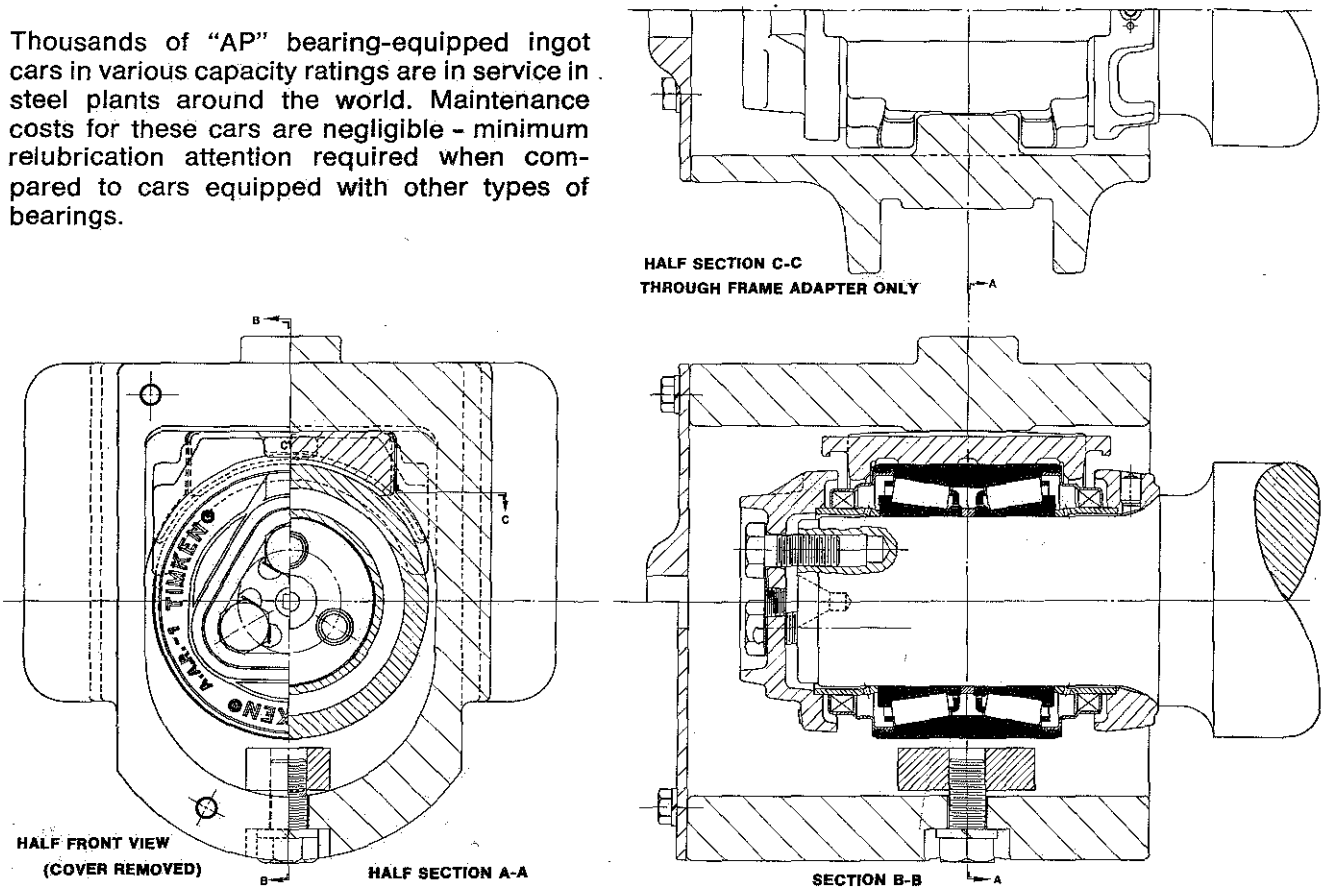
TRUNNION ROLLERS





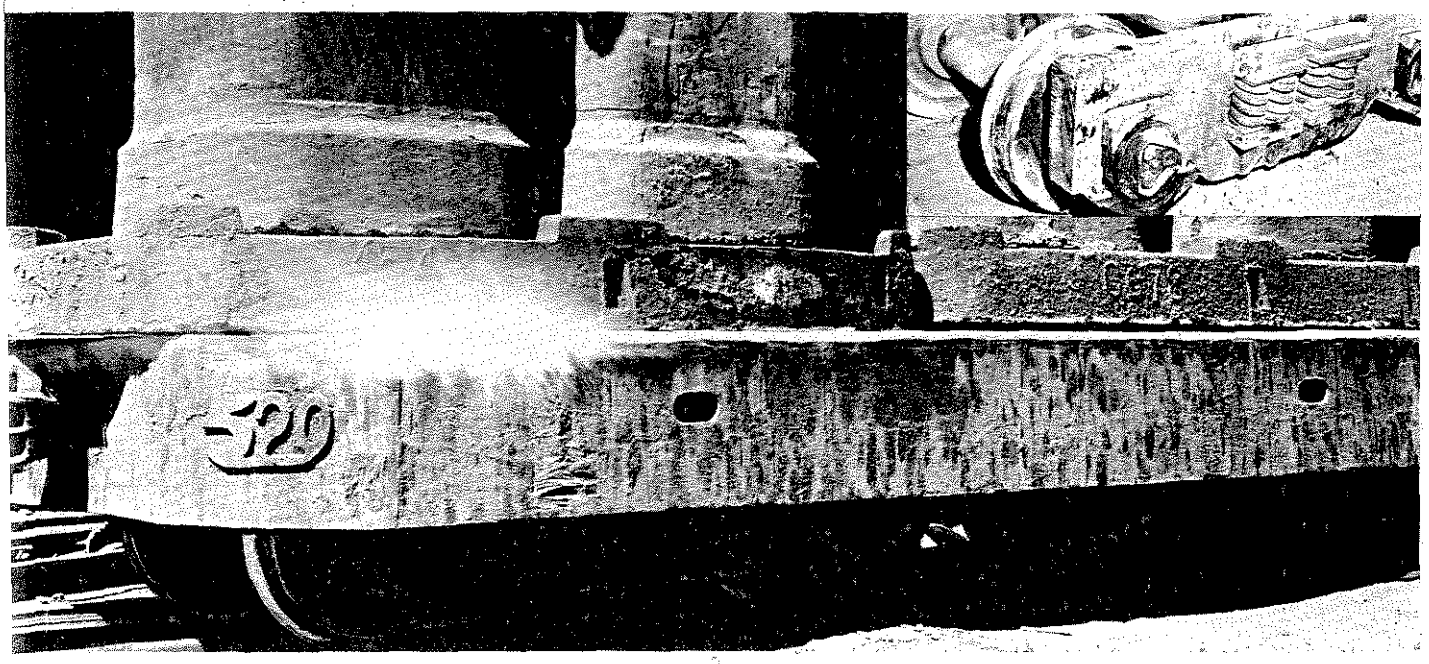
INGOT CARS

Thousands of "AP" bearing-equipped ingot cars in various capacity ratings are in service in steel plants around the world. Maintenance costs for these cars are negligible - minimum relubrication attention required when compared to cars equipped with other types of bearings.



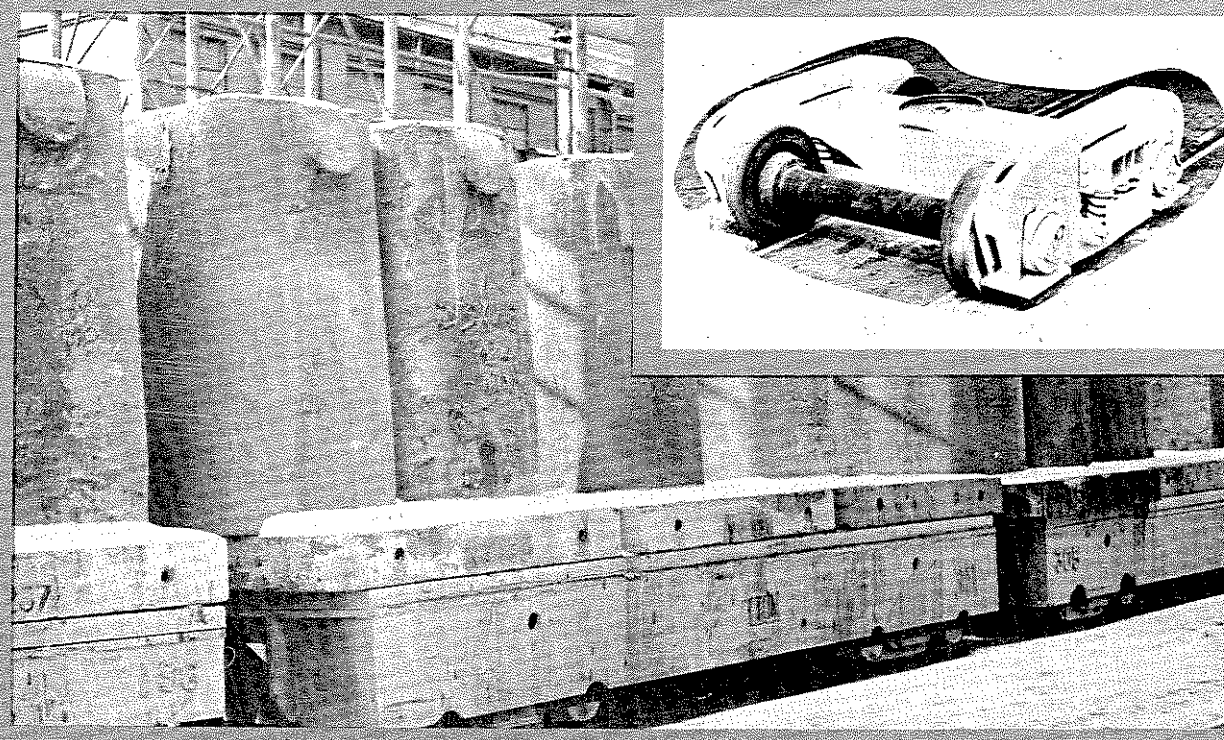
OUTBOARD JOURNAL - CAST JOURNAL BOX

The "AP" bearing with standard narrow adapter has been incorporated into a cast journal box with splash cover.



OUTBOARD JOURNAL - FABRICATED SIDE FRAME

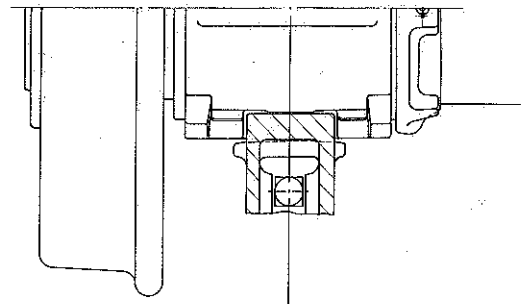
INGOT CARS



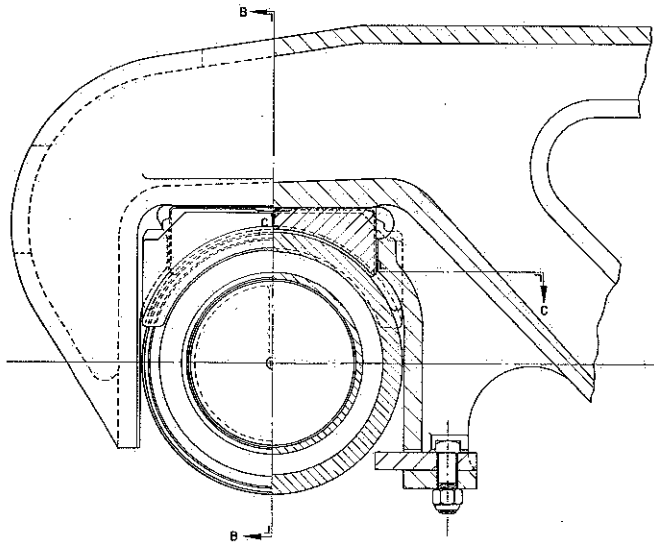
OUTBOARD JOURNAL - CAST SIDE FRAME

The cones in this inboard design are clamped on the shaft by the press fit of the wheel hub.

The adapter is mounted in a cast side frame and is restricted from axial movement as shown in Section C-C.

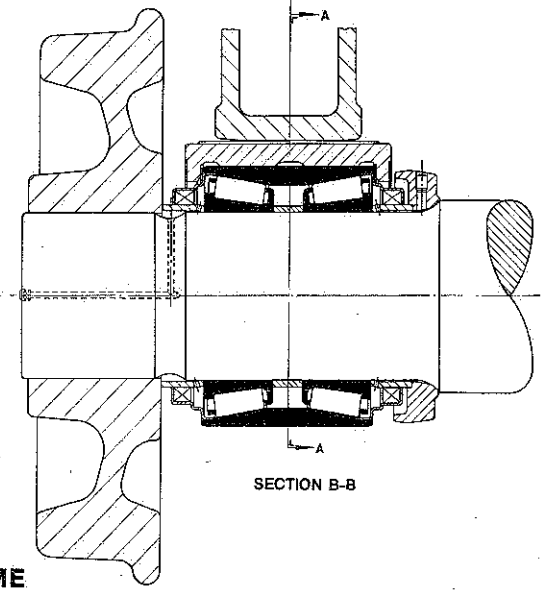


SECTION C-C
THROUGH
FRAME ONLY



HALF FRONT VIEW
(WHEEL REMOVED)

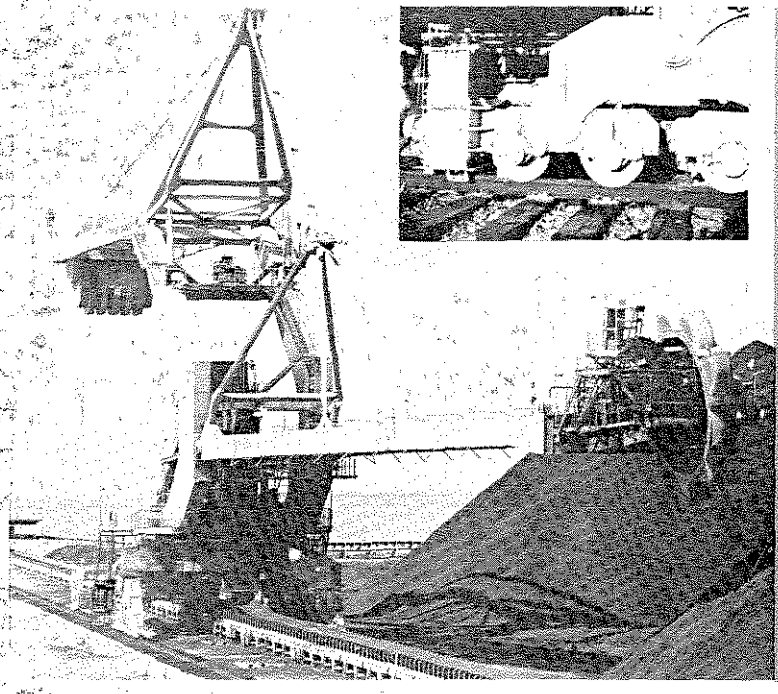
HALF SECTION A-A



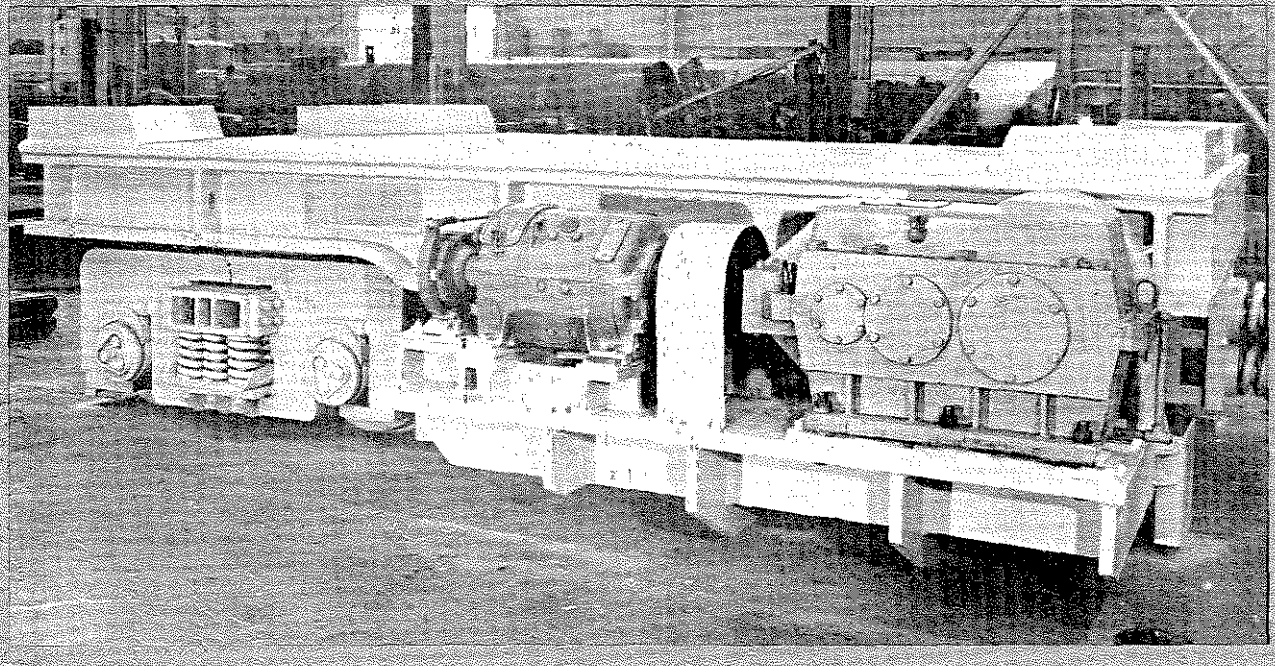
SECTION B-B

INBOARD JOURNAL - CAST SIDE FRAME

STACKER CRANE

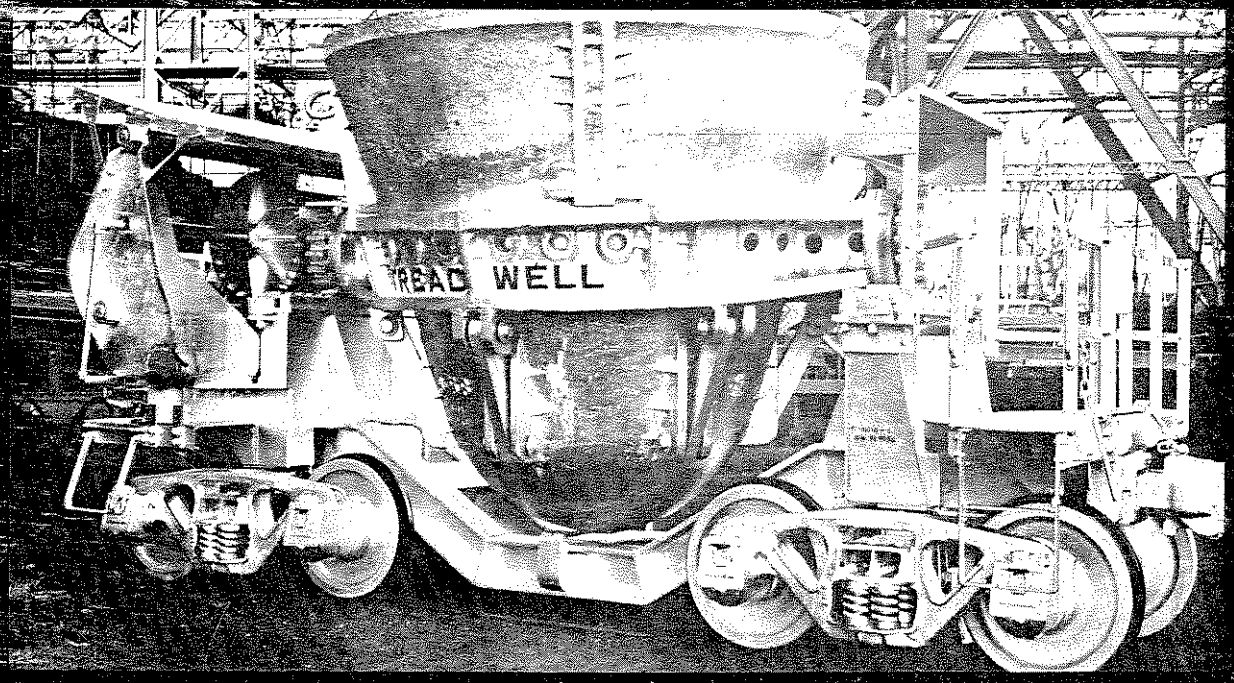


SCRAP TRANSFER CAR

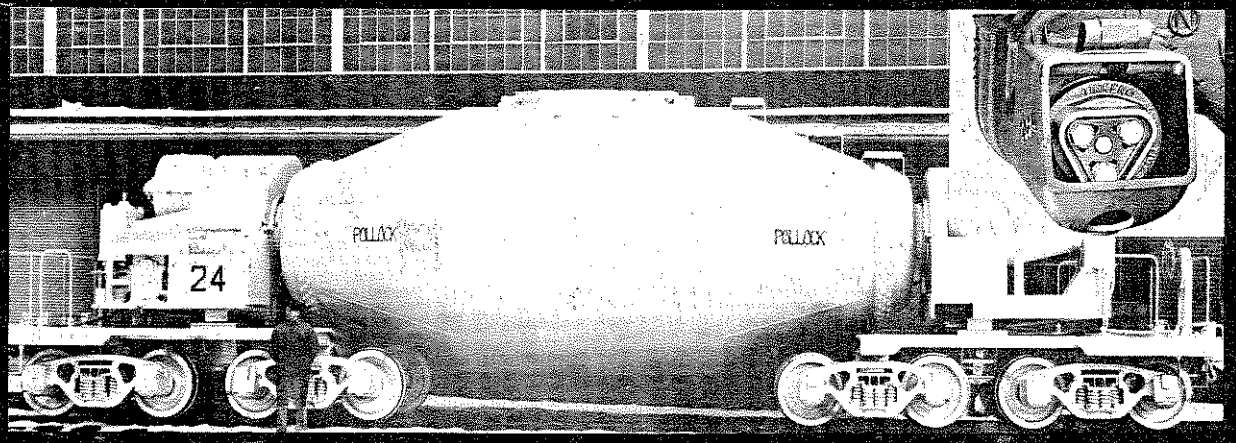


Ruggedly built to take the shock of scrap bucket handling, this car was designed for maximum strength in its rated capacity range.

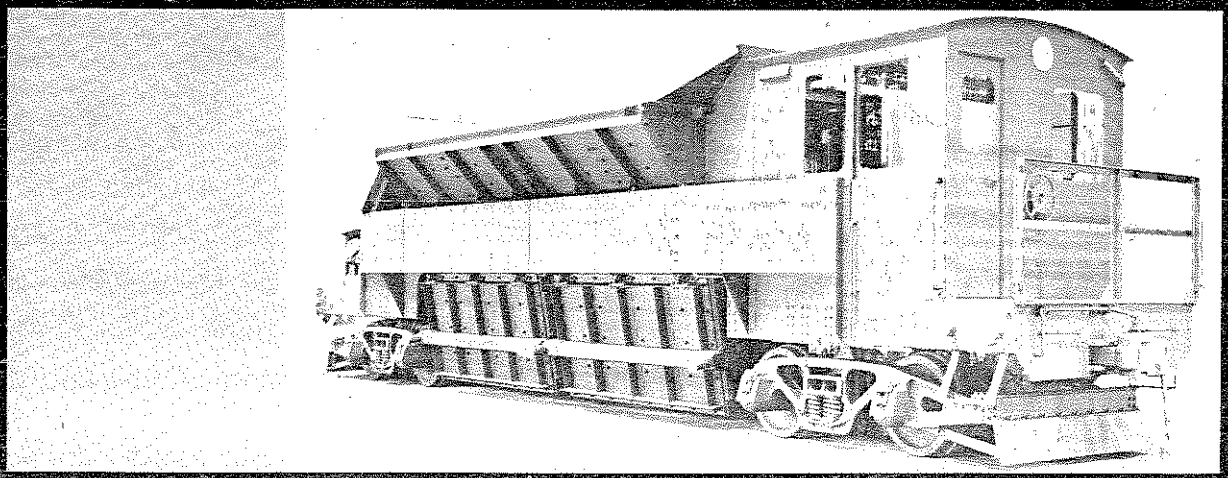
SLAG POT CAR



HOT METAL CAR

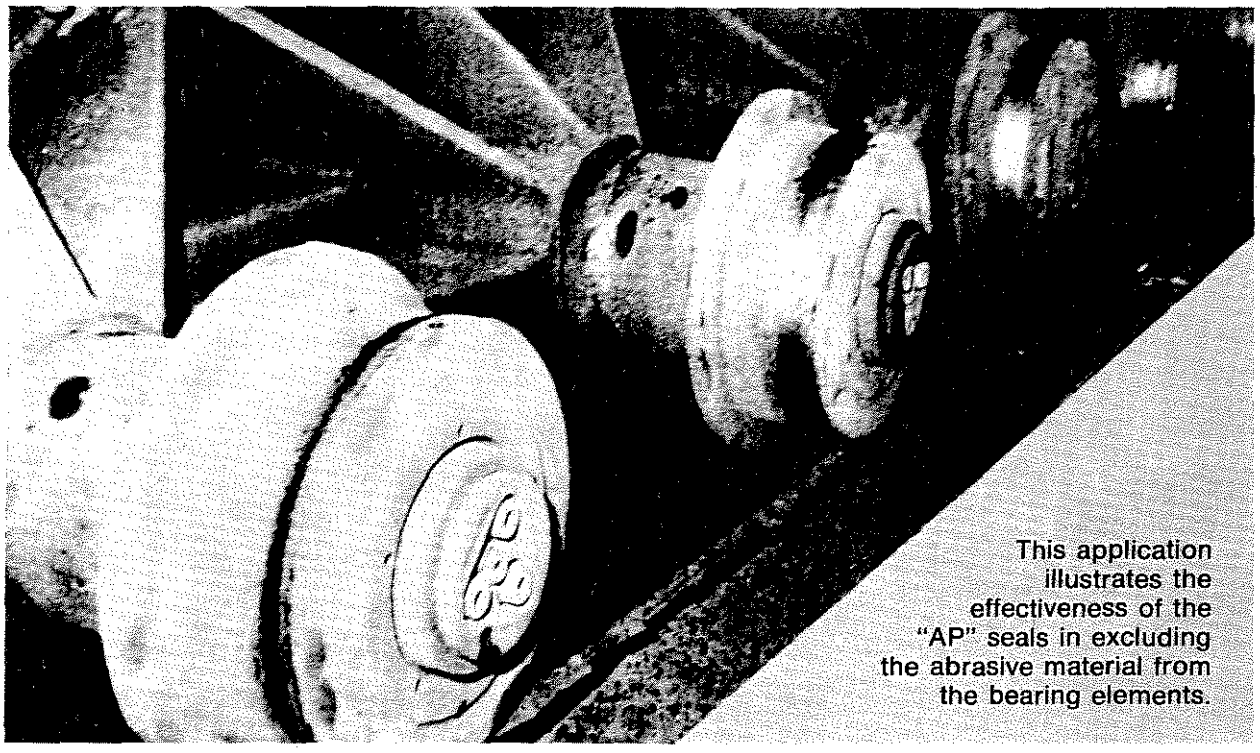


ORE TRANSFER CAR



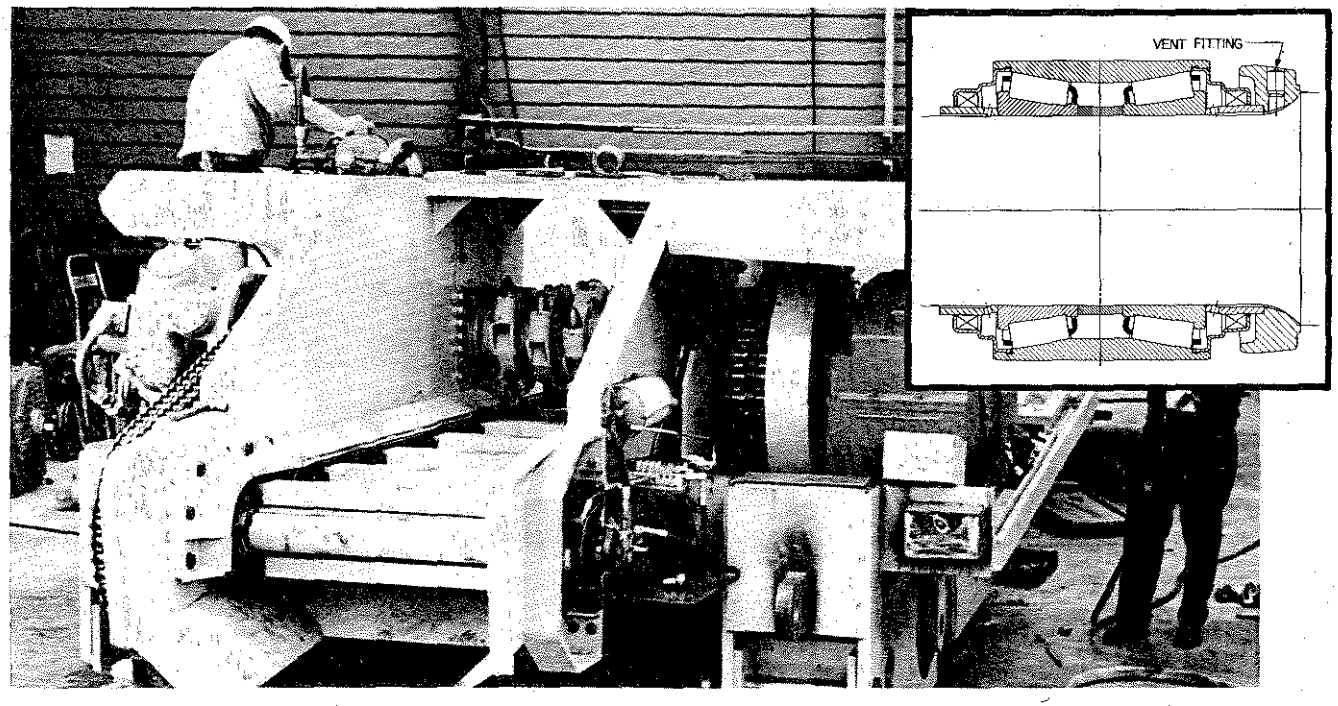
Each of these cars uses the "AP" bearing mounted in an integral box as shown in insert.

SINTERING CAR WHEEL



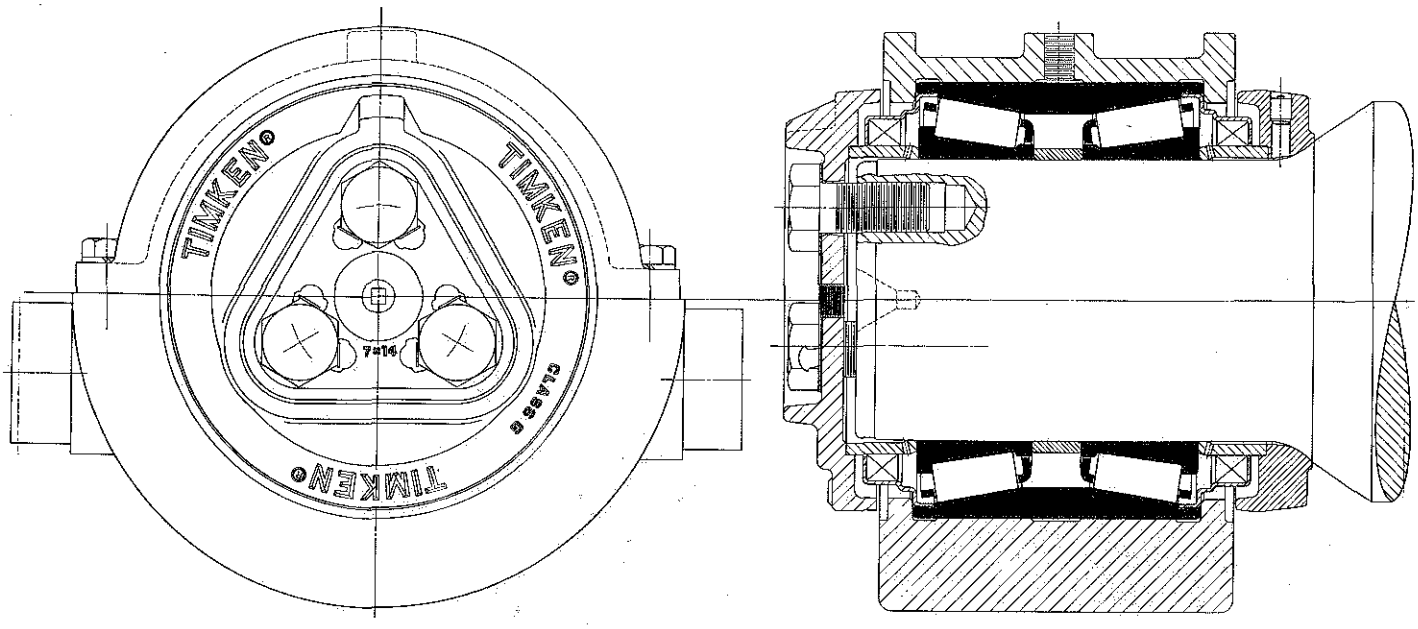
This application illustrates the effectiveness of the "AP" seals in excluding the abrasive material from the bearing elements.

COAL CRUSHER

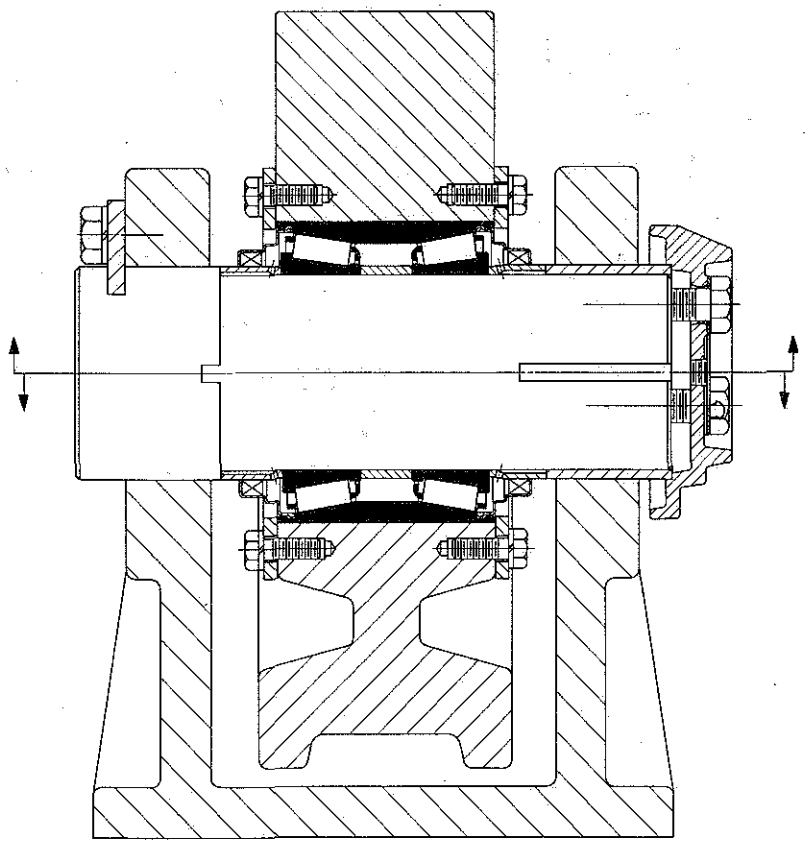


"AP" bearings are used on the breaker shaft (inset) as well as on the conveyor drive head and tail drums of this coal crusher.

WOOD PULP BEATER SPINDLE



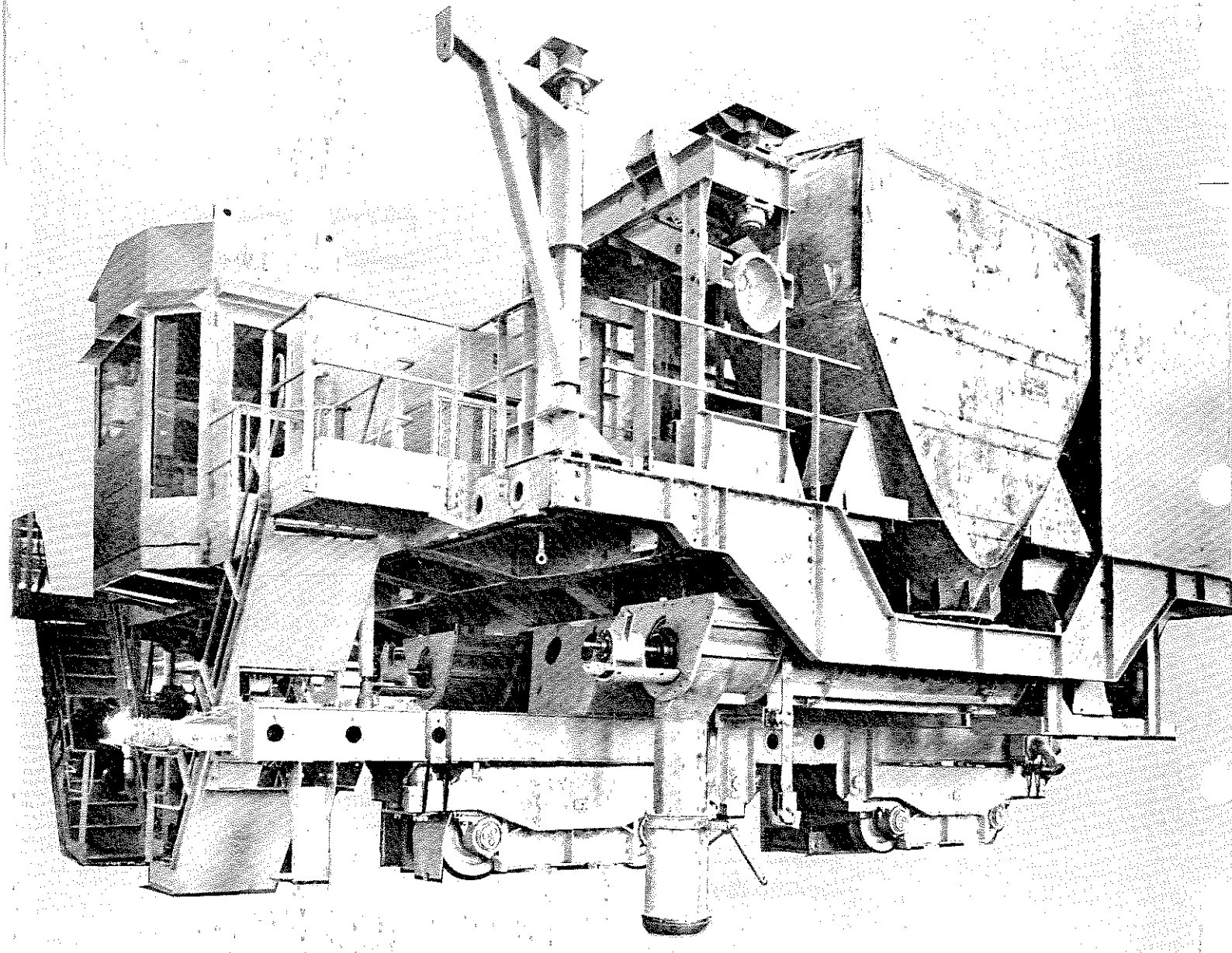
This beater spindle uses all standard parts of the "AP" unit with exception of the special housing. A clearance can be provided between the faces of the cup and housing shoulders to provide axial float as required. Note that this design uses a split housing.



FURNACE WHEEL

This design still takes advantage of the "package" portion of the "AP" bearing - seal wear ring to seal wear ring. The use of both the adapter and backing ring is eliminated. The end cap is applied after insertion of a special spacer backing against the seal wear ring to completely clamp up the bearing assembly.

COAL CHARGING CAR



Timken "AP" bearings with recessed end caps are used in a simple machined housing for the track wheel positions on this coal charging car. This car is a part of a new pollution control system that prevents the escape of coke oven gasses.

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