

C MOUNTING DESIGNS

C MOUNTING DESIGNS

Typical Applications 17

Crane Bridge and Trolley Axles 18

Moveable Stadium Roof..... 20

Table Rolls 21

Continuous Casting Machine Guide Rollers 22

Elevator Sheaves 23

Ingot Cars 24

Sintering Car Wheels 26

Coal Crushers 26

Wood Pulp Beater Spindles 27

Furnace Wheels 27

MOUNTING DESIGNS

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MOUNTING DESIGNS

MOUNTING DESIGNS

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.

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| <ul style="list-style-type: none">• Apron Feeders• Auto Shredders• Band Saws• Barking Drums – Thrust Rollers• Billet Ejectors• Bucket Unloaders• Calender Rolls• Cam Rollers• Cars<ul style="list-style-type: none">- 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 | <ul style="list-style-type: none">• Chippers• Choppers – Land Clearing• Clay Gun Carriages• Coal Crushing Machines<ul style="list-style-type: none">- Breaker Shafts- Conveyor Drums- Eccentric Shafts• Coal Pulverizers• Compactor Presses<ul style="list-style-type: none">- Backshafts- Flywheels• Continuous Casters<ul style="list-style-type: none">- Apron Guide Rollers- Runout Table Rolls- Cut Off Conveyors• Continuous Miner Drives<ul style="list-style-type: none">- Cutter Heads- Trackwheel Sprockets• Conveyors<ul style="list-style-type: none">- Head and Tail Drums• Cranes<ul style="list-style-type: none">- Bridge Wheels- Trolley Wheels- Drum Supports• Davit – Anchors• Digesters• Docks – Loaders and Unloaders• Draglines• Drum Hoists• Dynamometers• Feeders• Film Evaporators• Flanging Machines• Furnaces<ul style="list-style-type: none">- Roof Swing Guides- Walking Beam Wheels- Rotary• Gearless Elevators• Grate Bar Rappers• House Moving Dollies | <ul style="list-style-type: none">• Jaw Crushers• Laminators• Levellers• Line Shafts• Line Tension Drums• Locomotives• Locomotive Cranes• Log Rolls• Missile Transporters• Mobile Chargers• Moveable Stadium Roofs• Muckers• Paper Mill Rolls• Paper Reelers• Pig Casting Machines• Pillow Blocks• Pinch Rolls• Plate Benders• Presses<ul style="list-style-type: none">- Back Shafts- Fly Wheels• Press Rolls• Pulp Beaters• Pumping Units<ul style="list-style-type: none">- Saddles- Equalizers• Radiation Chamber Doors• Ram Rollers• Reeler Bars• Rod Mill Roll Necks• Rotary Wheels• Saw Mill Carriages• Shears• Sheaves<ul style="list-style-type: none">- Elevators- Fairleads- Hoistings- Idlers- Mine Heads• Ski Lifts• Slab Extractors | <ul style="list-style-type: none">• Soaking Pit Covers• Stackers<ul style="list-style-type: none">- Axles- Conveyor Drums- Hopper Cars- Triple Cables• Table Rolls<ul style="list-style-type: none">- Bar Mills- Billet Mills- Blooming Mills- Furnace Feeds- Merchant Mills- Pipe Conveyor- Rod Mills- Slab Mills- Strip Mills- Structural Mills• Table Roll Line Shafts• Target Transporters• Temper Mill 2 Stands• Trunnion Rollers<ul style="list-style-type: none">- Barking Drums- Copper Converters- Dryers- Kilns- Scrubbers- Turntables• Water Purification Drums• Welding Positioners• Wire Spool Support Heads |
|--|---|--|---|

MOUNTING DESIGNS

CRANE BRIDGE AND TROLLEY AXLE

This illustrates a 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 Fig. 3.

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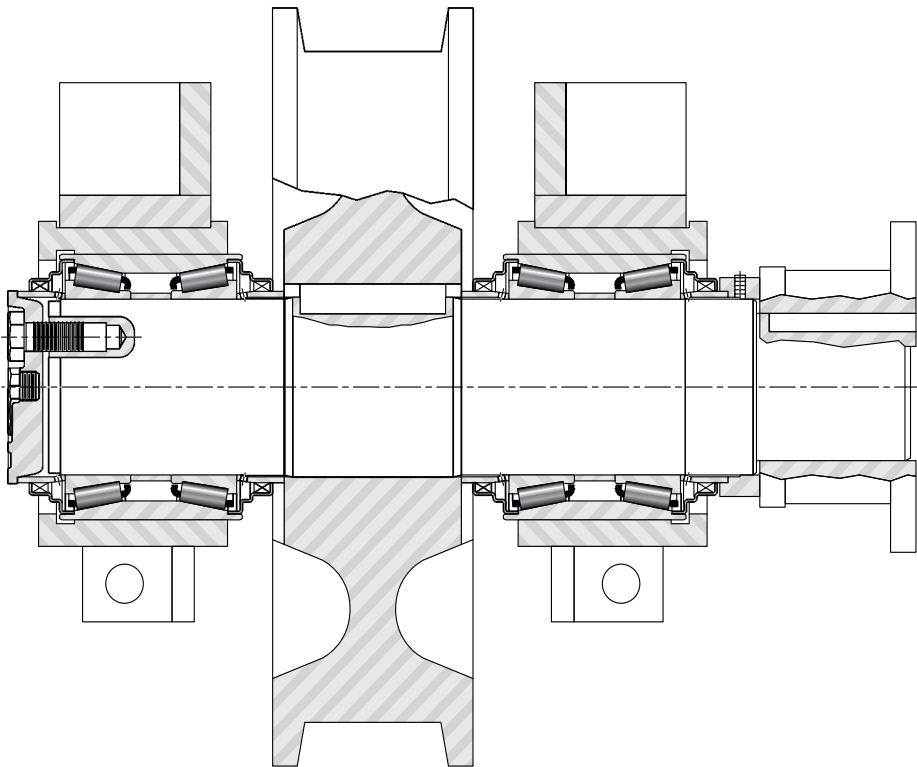


Fig. 3 Cross section of AP bearing on a drive axle

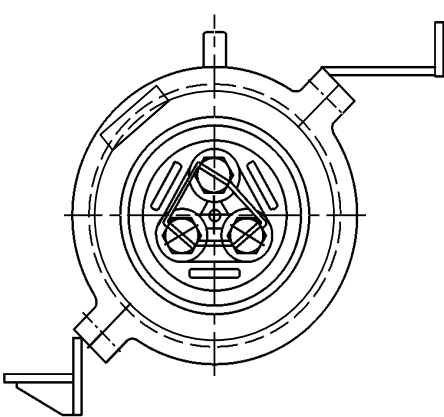


Fig. 4a

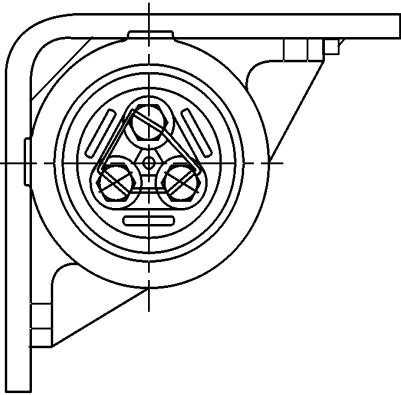


Fig. 4b

Typical full bore housing designs for crane wheel applications

MOUNTING DESIGNS

Crane Bridge and Trolley Axle

The crane bridge and trolley axle photos below illustrate an example of a standard and recessed end cap.



Fig. 5 Standard end cap design



Fig. 6 Trolley utilizing AP bearings with recessed end cap for wheel and drum drive

MOUNTING DESIGNS

Moveable Stadium Roof



Fig. 7 The Toronto Blue Jays Stadium uses Timken bearings in the moveable stadium roof

Narrow Adapter Mounting



Fig. 8 Narrow adapter mounting on trolley safety bar

MOUNTING DESIGNS

TABLE ROLLS

Line Shaft Drive Full Bore Housing

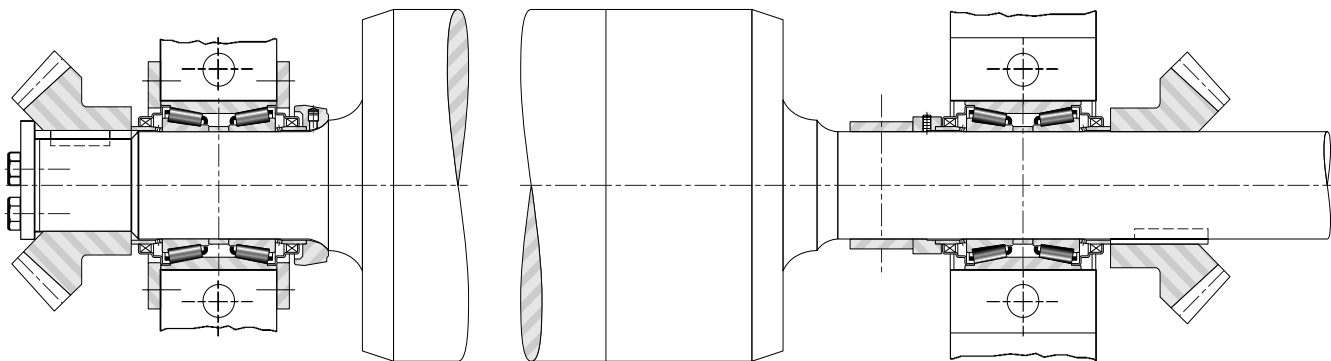


Fig. 9a Fixed side

Fig. 9b Float side

Ram Roller - Adapter Mounting



Fig. 10 A standard narrow adapter is used at both positions to ensure positive radial location of the AP bearing cups. A close clearance is provided between thrust lugs and the sides of the adapters to keep axial movement of the roll to a minimum.

MOUNTING DESIGNS

CONTINUOUS CASTING MACHINE GUIDE ROLLERS
AND RUNOUT TABLES

Used on both original and conversion guide roller applications, AP bearings provide a low maintenance, economical mounting arrangement.

Close tolerance adapters are used in the lower design. Caster AP bearings are available with or without a narrow adapter or solid housing.



Fig. 11 AP bearing equipped runout tables

PILLOW BLOCK

Greasing systems may not be required with the prelubricated AP bearing used in certain pillow block applications. Contact your Timken service representative for more information.



Fig. 12 AP bearings used in pillow block application

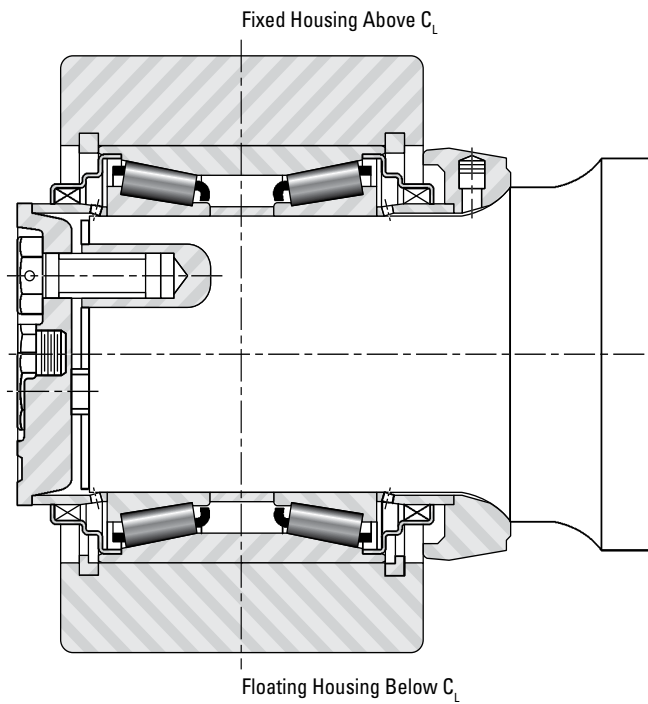


Fig. 13 Cross section of AP bearing in housing

MOUNTING DESIGNS

ELEVATOR SHEAVE

The cup of this AP bearing is mounted directly into the sheave hub with a tight fit. Snap rings are required 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 satisfactory for this specific application.

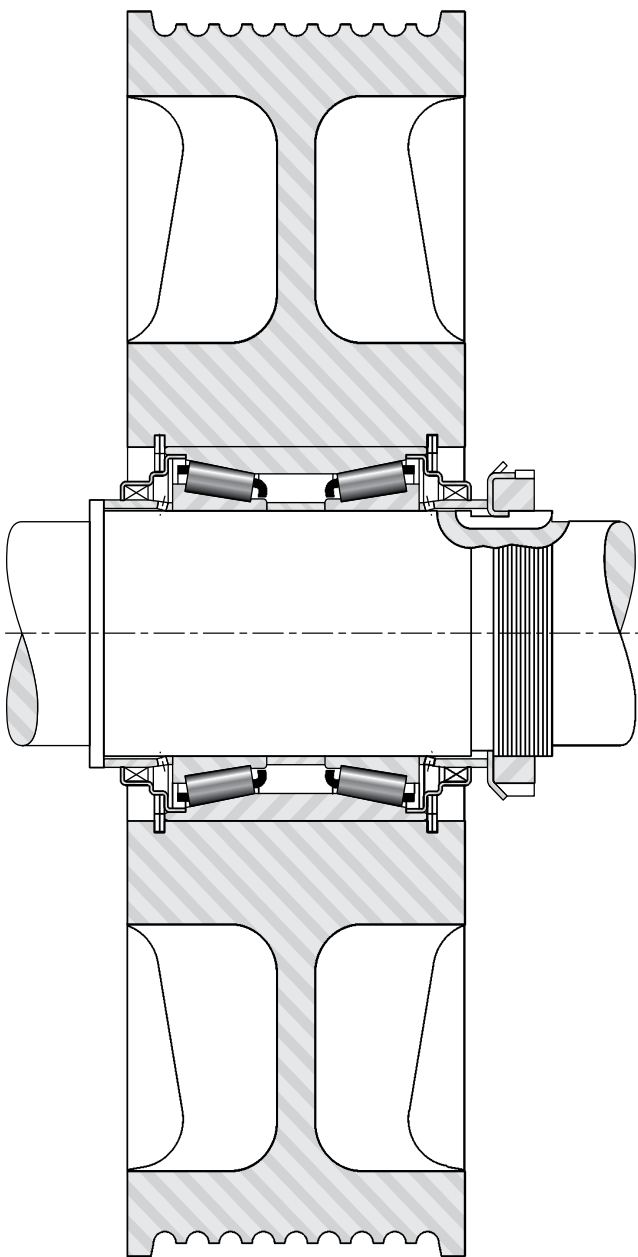


Fig. 14 Section view of elevator sheave



Fig. 15 AP bearings shown on typical elevator sheave application

MOUNTING DESIGNS

INGOT CARS

Thousands of AP bearing-equipped ingot cars in various capacity ratings are in service in steel plants around the world.

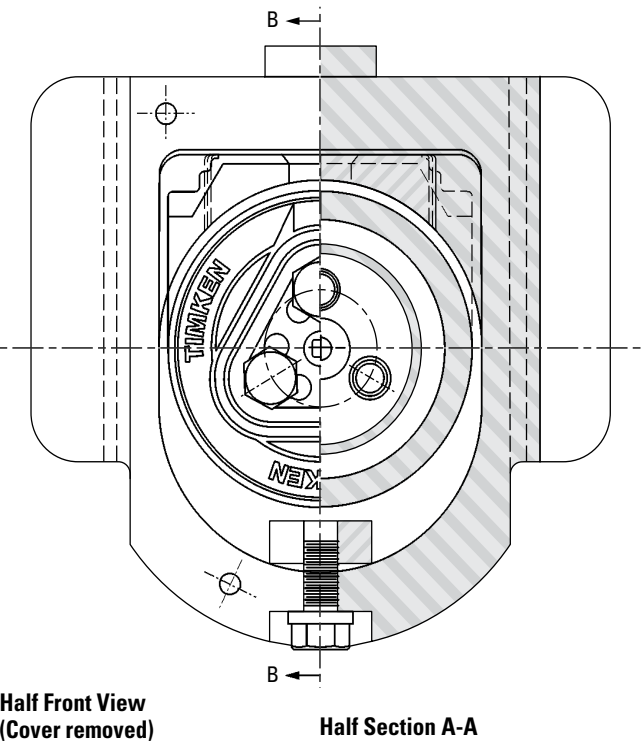


Fig. 17 Bottom pour ingot car equipped with Timken AP bearings

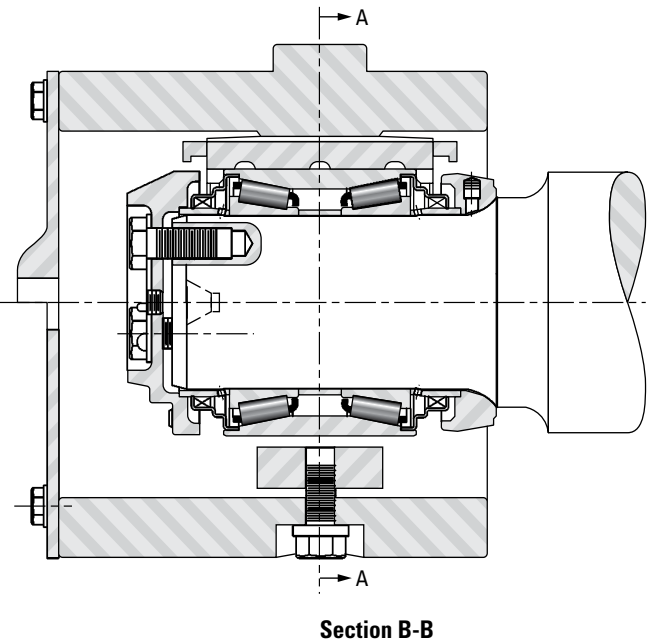


Fig. 16 Cross section of AP bearing in ingot car

MOUNTING DESIGNS



Fig. 18 Coil transfer car equipped with AP bearings on axles

COIL TRANSFER CAR

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 of Fig. 19.

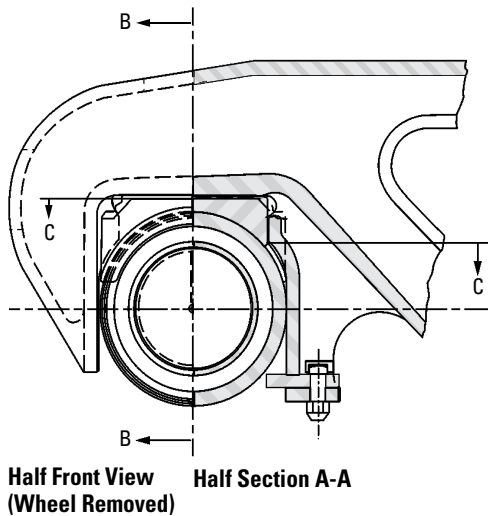
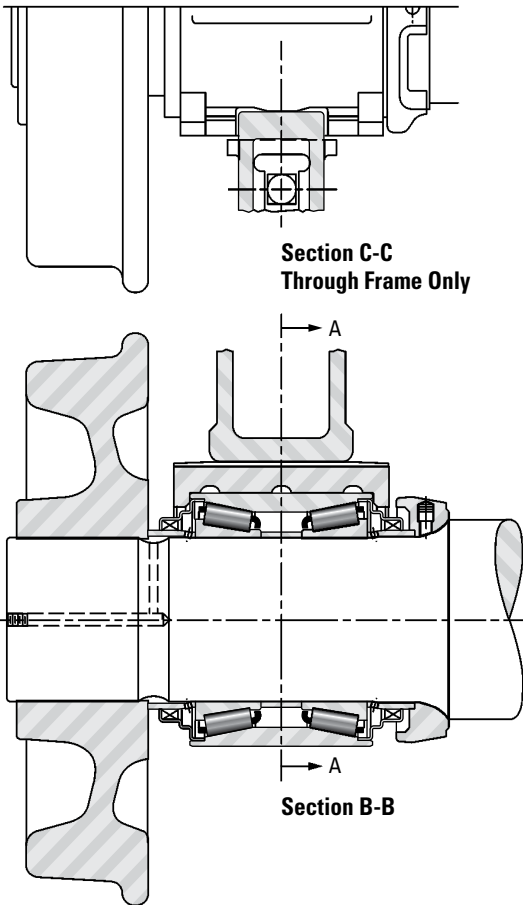


Fig. 19



MOUNTING DESIGNS

SINTERING CAR WHEEL

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



Fig. 20 Coke transfer car equipped with AP bearings

COAL CRUSHER

AP bearings are used on the breaker shaft as well as in the conveyor drive head and tail drums of this coal crusher (Fig. 21a and Fig. 21b).



Fig. 21a Coal crusher shaft

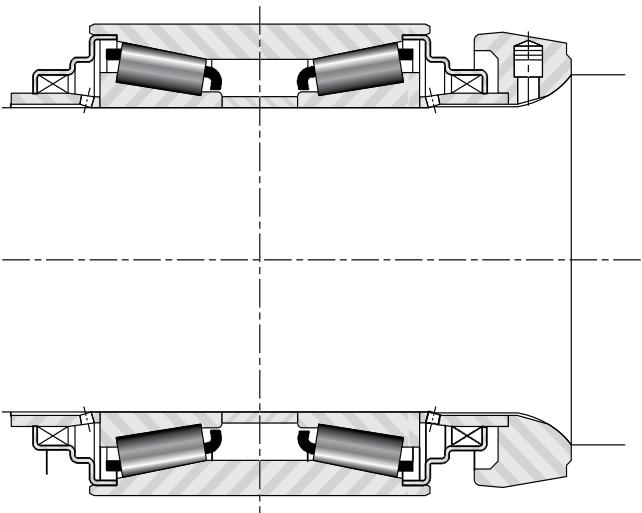


Fig. 21b Cross section of AP bearing in coal crusher

MOUNTING DESIGNS

WOOD PULP BEATER SPINDLE

This beater spindle uses all standard parts of the AP bearing unit with exception of the special housing (Fig. 22a and Fig. 22b). 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.

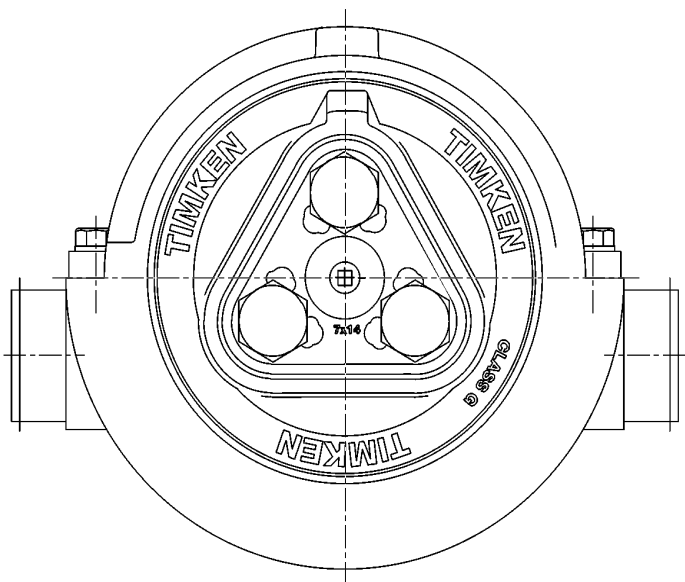


Fig. 22a Wood pulp beater spindle

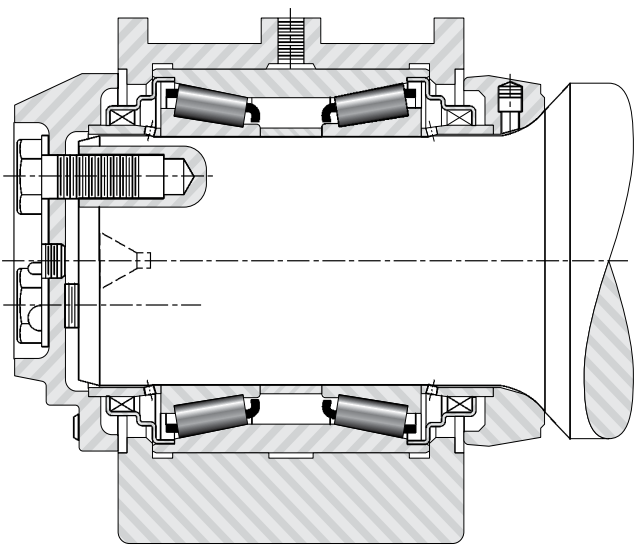


Fig. 22b Cross section of wood pulp beater spindle

FURNACE WHEEL

This design 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 clamp up the bearing assembly (Fig. 23).

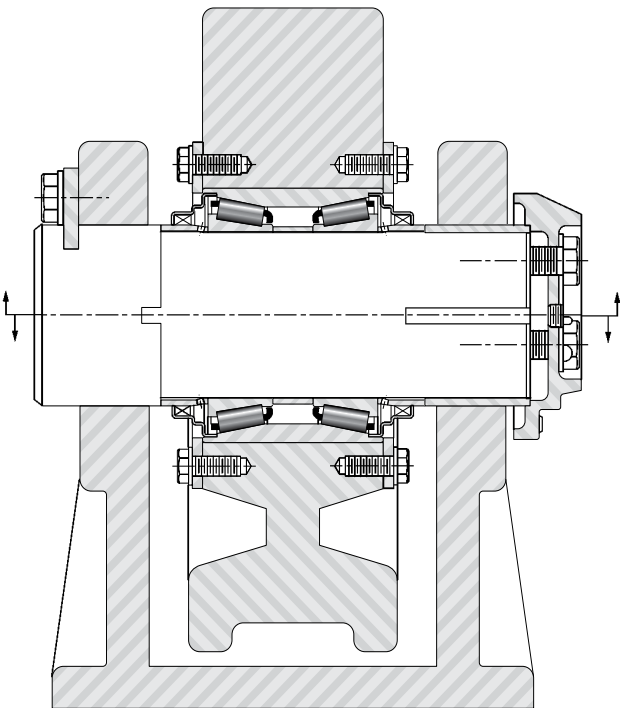


Fig. 23 Furnace wheel

MOUNTING DESIGNS

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