



Corporate Office: (903) 677-2871 Sales Office: (508) 455-3290

INTRODUCTION — ROCKER BEARINGS

“Rocker” Bearings or “Built-up” Bearings are stout mechanical bearings using pins or “rockers” to permit rotation and translation (movement). (See Figure 1 for an example of a Pin Type Expansion Bearing). These bearings were once used extensively, but with more modern bearing designs are not as common today. However, these stout bearings are still used extensively on railroad structures due to their very durable nature and high impact load-carrying capabilities.

A moderate amount of periodic maintenance is required for this style of bearings in order to keep them in good working order.

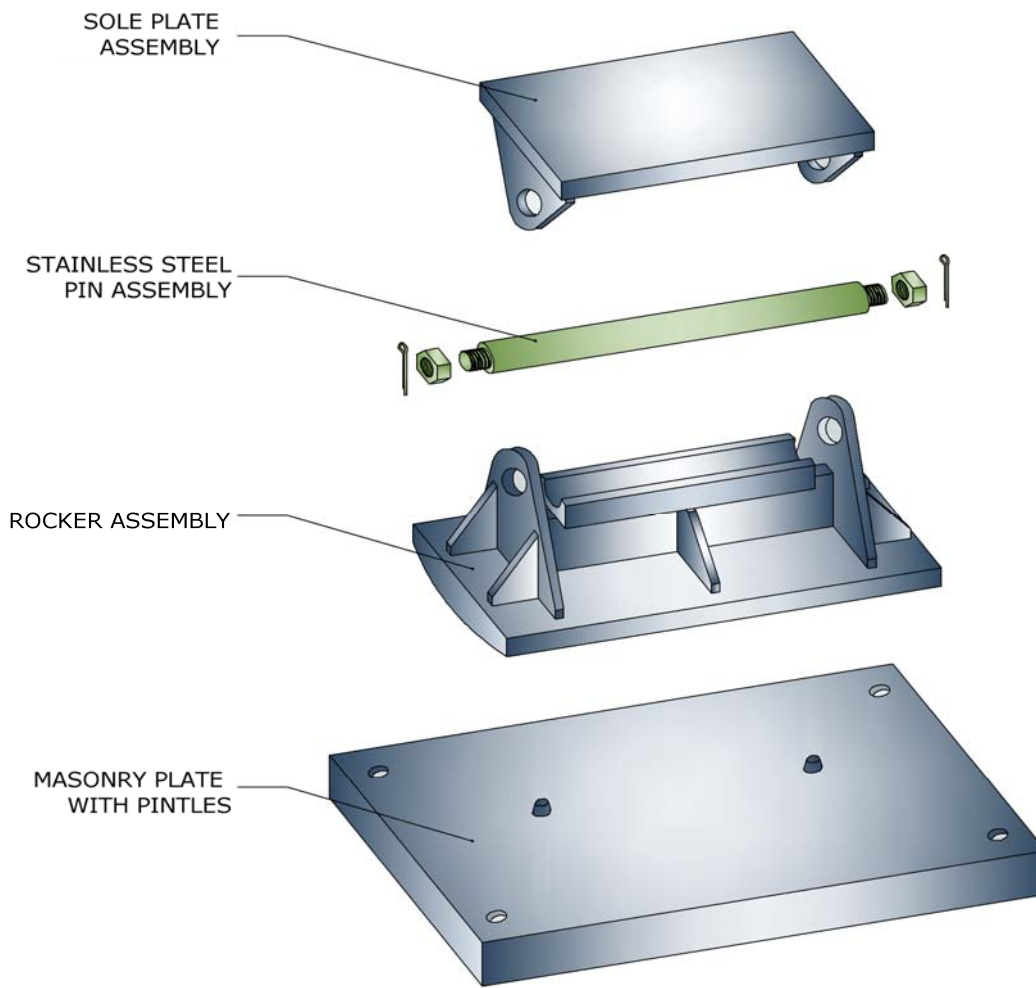
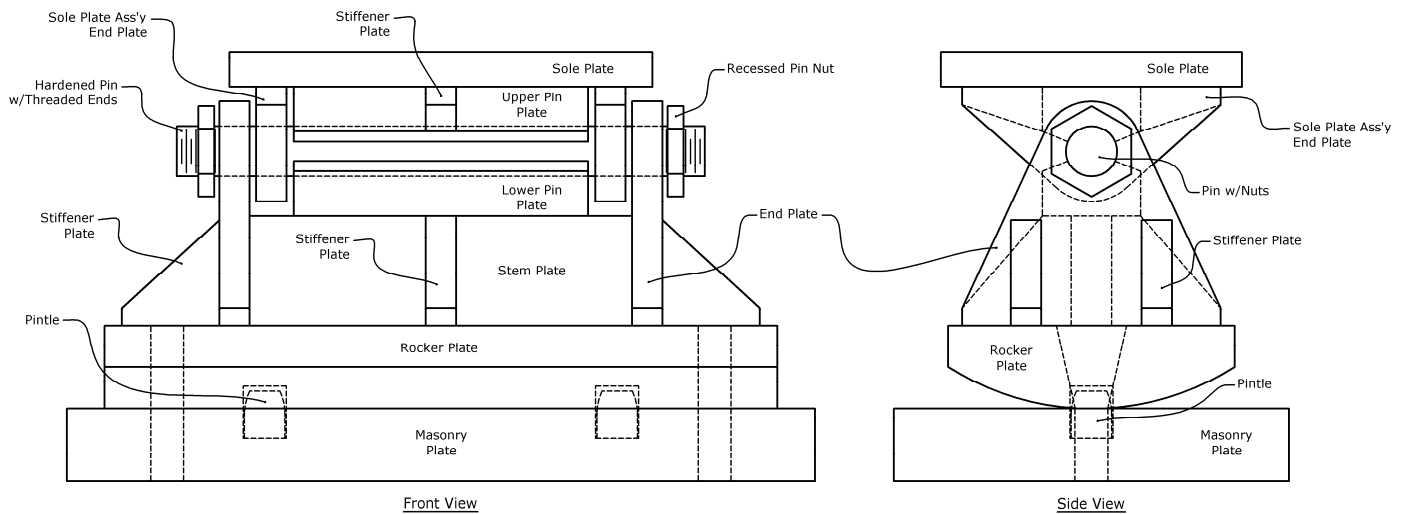


FIGURE 1: TYPICAL ROCKER "PIN" BEARING ASSEMBLY

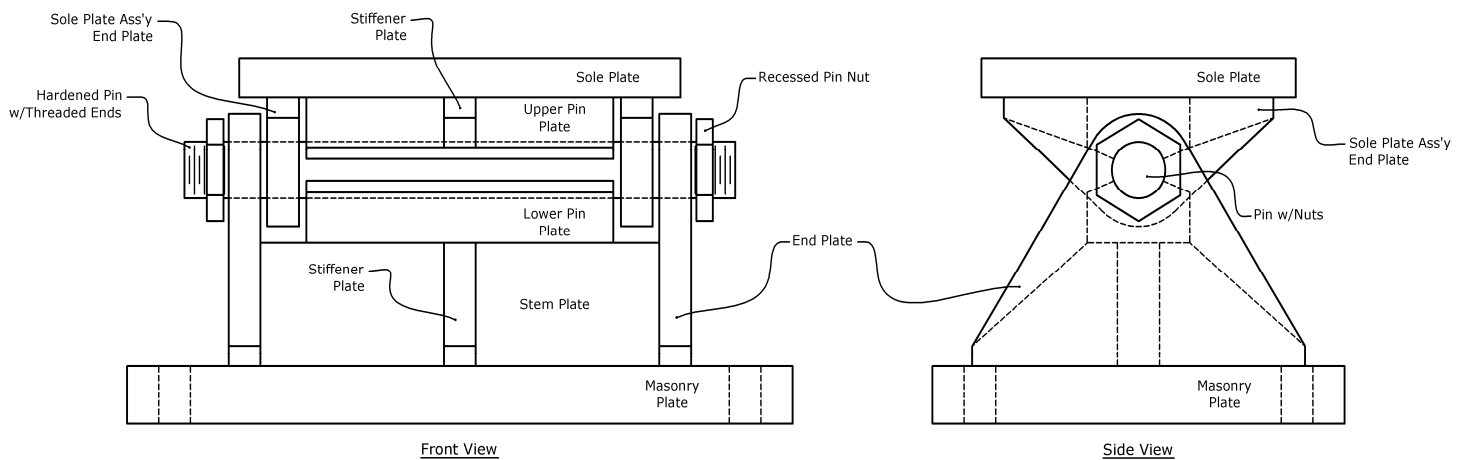
STANDARD BEARINGS — ROCKER FABRIC BEARINGS

Rocker Bearings are of many varied types and styles – they are limited only by the imagination of the Design Engineer! Some State DOT's and some railroad companies have "standard" types and sizes.

The following are some examples of standard Expansion and Fixed Pin Type Rocker Bearings:



EXPANSION "ROCKER" BEARING - PIN STYLE



FIXED "ROCKER" BEARING - PIN STYLE



DESIGN — ROCKER BEARINGS

These bearings are “built-up” by the welding of relatively large and thick pieces of plates. The design of these bearings must take into account the welding practicality and the access for the welder of all joints that require welding. Excessive weld sizes or the design of partial and full penetration groove welds when unnecessary should also be avoided. Over-done or unnecessary welding can add extensive costs to these bearings but add no durability or service life to the bearings.

Since these bearings are very “stiff” and do not have any compressibility under load, thick “shock pads”, such as ½ inch thick Preformed Fabric Bearing Pads, should be placed under these bearings between the concrete bearing seat and the masonry plate. This is especially recommended on railroad structures where large impact loads are possible.

Both AASHTO and AREMA have requirements for the design of these bearings which must be considered. As previously stated, many State DOT’s and railroad companies have “standards” for these types of bearings where sizes are varied by the amount of loads expected.



MATERIALS— ROCKER BEARINGS

The plates for these bearings can be ASTM A709 Grades 36, 50 and 50W (AASHTO M270 Grades 36, 50 and 50W). However, please be aware that for plates over 4 inches in thickness, yield and tensile strengths may be less or the required steel specification may have to be changed to provide the strength required. Please contact our Engineering Staff with any questions on steel over 4 inches thick. Forged or cast steel for the bearings will be considered on demand.

The pins may be simple cold-rolled steel such as C1018 or can be heat-treated forging such as ASTM 688 Classes B thru F. Nuts – recess pin nuts or plain pin nuts – should be of the same material as the steel plates. Cosmec will provide the pins and nuts threaded as required and various methods, such as the use of cotter pins, can be used to prevent the nuts from loosening with time and rotation.

Grease on the pins and mating parts should be a waterproof medium consistency grease. Grease fittings for the lubrication of hidden parts can be provided when necessary.

All materials for all US bearings will be certified domestic material manufactured and fabricated in the USA in accordance with the "buy American" requirements for all Federally funded work.

Coating on the bearings can be the latest high performance paints, including high-solids zinc primers, or the bearing assemblies can be metallized (zinc or zinc/aluminum thermal spray coatings). Galvanizing of the carbon steel components can be considered on demand. Coating recommendations can be made to insure a long-lasting product no matter what the environment.



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STRUCTURAL DESIGN CONSIDERATION — ROCKER BEARINGS

Often Rocker Bearings are large and heavy. Considerations must be made for the setting and installation of these bearings and for access for the maintenance of these bearings over time. Maintenance crews will require easy access to all lubrication points and grease fittings.



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INSTALLATION — ROCKER BEARINGS

Seat these bearings on flat, smooth concrete free of voids using preformed bearing pads as mentioned in the "Design Section". If a grout pad is specified it should be a high-strength non-shrink material. Epoxy grout may serve to correct seating inaccuracies.

These bearings "rock" quite easily and special fixtures or temporary structures may be required to prevent unwanted movement during the erection of all bridge structural elements.



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