

back 50 millimeters from the end of the girder to avoid spalling of the girder ends.

Elastomeric pads should not be used in cases where deck joints or bearings limit vertical movements, such as in older style sliding steel plate joints or widenings where existing steel bearings are to remain.

Where elastomeric bearing pads with greased sliding plates are used on post-tensioned box girder bridges to limit the required thickness of the pad, the pad thickness should be determined based on temperature movements only, with the initial and long term shortening assumed to be taken by the sliding surface.

Elastomeric bearing pads are the preferred bearing type for new steel girders, precast prestressed girders and post-tensioned box girder bridges where neoprene strips are not appropriate.

603.04 STEEL BEARINGS

Steel bearings may consist of rockers or fixed or expansion assemblies which conform to the requirements specified in Section 10 of AASHTO.

Steel bearings are not a preferred bearing type and their use should normally be limited to situations where new bearings are to match the existing bearing type on bridge widening projects.

603.05 SLIDING ELASTOMERIC BEARINGS

Sliding elastomeric bearings consist of an upper steel bearing plate anchored to the superstructure, a stainless steel undersurface and an elastomeric pad with a teflon coated upper surface. The teflon surface shall be attached to a 10 millimeter minimum thick plate which is vulcanized to the elastomeric pad. The bearing accommodates horizontal movement through the teflon sliding surface and rotation through the elastomeric bearing with the thickness of the elastomeric bearing determined by the rotational and friction force requirements. Keepers may be used for horizontal restraint of the pads. Vertical restraint may be provided by anchor bolts with slotted keeper plates or individual vertical restrainers as

appropriate. The pad dimensions and all details of the anchorage and restraint systems shall be shown on the plans. The special provisions should allow for proprietary alternates.

Sliding elastomeric bearings should be considered for applications where regular elastomeric bearing pads would exceed 100 millimeters in height or where special access details would be required for other proprietary bearings in such places as hinges.

603.06 HIGH-LOAD MULTI-ROTATIONAL BEARINGS

603.06.01 Description

High-load multi-rotational fixed bearings consist of a rotational element of the Pot-type, Disc-type or Spherical-type. High-load multi-rotational expansion bearings consist of a rotational element of the Pot-type, Disc-type or Spherical-type, sliding surfaces to accommodate translation and guide bars to limit movement in specified directions when required.

Pot bearings consist of a rotational element comprised of an elastomeric disc totally confined within a steel cylinder. Disc bearings consist of a rotational element comprised of a polyether urethane disc confined by upper and lower steel bearing plates and restricted from horizontal movement by limiting rings and a shear restriction mechanism. Spherical bearings consist of a rotational element comprised of a spherical bottom convex plate and mating spherical top concave plate.

These design criteria were prepared for the broad range of normal applications and the specified limits of loads, forces and movements. The design and manufacture of multi-rotational bearings relies heavily on the principles of engineering mechanics and extensive practical experience in bearing design and manufacture. Therefore, in special cases where structural requirements fall outside the normal limits, a bearing manufacturer should be consulted.