B922 - INSTALLATION OF BEARINGS

(As Specified in OPSS 922 and SSP 922S04)

922.1 GENERAL

Bearings are systems used to support and transfer loads to the substructure, while accommodating translations and rotations between the substructure and the superstructure.

922.2 REFERENCES

- Structural Manual
- Designated Sources for Materials
- CSA-S6 Canadian Highway Bridge Design Code (CHBDC)
- OPSS 1202 - Material Specification for Bearings - Elastomeric Plain and Steel Laminated
- OPSS 1203 - Material Specification for Bearings - Rotational and Sliding Surface

922.3 TENDER ITEMS

Item Code	Title	Col Type	U.O.M.	PQP
0922-0020	Bearings - Elastomeric, Plain	Normal	lump sum	No
0922-0030	Bearings - Elastomeric, Laminated	Normal	each	Yes
0922-0040	Bearings - Rotational	Normal	each	Yes

The item Bearings - Elastomeric, Plain shall be used for all plain elastomeric bearings that are required, including approach slab and ballast wall elastomers.

The item Bearings - Elastomeric, Laminated shall be used for all laminated elastomeric bearings that are required.

The item Bearings - Rotational shall be used for all pot, spherical, or disc bearings that are required.

When bridge jacking is specified as part of bearing work, the relevant tender item and specifications for jacking must be included in the contract. This includes jacking to replace bearings for a bridge rehabilitation, resetting bearings for certain types of new bridges when required by design, or other instances where jacking is anticipated and required.

922.4 SPECIFICATIONS

The requirements for the above tender items are contained in OPSS 922.

Material specifications for the hardware of bearings can be found in OPSS 1202 and OPSS 1203.

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922.5 SPECIAL PROVISIONS

MTO completes destructive testing of elastomeric bearings, both plain and laminated, unless the bearings are encased in concrete in their permanent condition. Standard Special Provisions (SSP 922F01) define the requirements for additional bearings to be provided for quality assurance testing, which the designer must fill in.

SSP 922S04 is always with OPSS 922 and includes requirements for testing of grout used with bearings.

922.6 STANDARD DRAWINGS

Standard Design tables and drawing notes for bearings are found in the Structural Manual.

922.7 DESIGN

The design requirements for bearings are contained in the Canadian Highway Bridge Design Code (CHBDC) and MTO Structural Manual.

922.8 COMPUTATION

922.8.1 Item Payment Basis

a) Bearings - Elastomeric, Plain

b) Bearings - Elastomeric, Laminated

c) Bearings - Rotational

The labour, equipment, and material associated with bearing installation and destructive testing shall be included in the tender.

When new structural steel shoe or base plates are required for plain or laminated elastomeric bearings, a separate tender item and specifications must be included as this work is not included in OPSS 922.

922.8.2 Sources of Information

MTO uses approved suppliers of the Designated Sources for Material (DSM) for bearings in list # 9.15.

MTO Bridge Office maintains approved Product Drawings for all rotational bearings in the DSM.

Further information on the requirements for bearing hardware can be found in OPSS 1202 for elastomeric bearings and OPSS 1203 for rotational bearings.

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922.8.3 Method of Calculation

The unit of measurement for the Bearings - Elastomeric, Plain item is lump sum (LS).

The following two items are Plan Quantity Payment (PQP) items:

The unit of measurement for the Bearings - Elastomeric, Laminated item is each. The unit of measurement for the Bearings - Rotational item is each.

Additional bearings for destructive testing shall not be included in the final count of the total number of bearings required.

922.9 DOCUMENTATION

922.9.1 Contract Drawings

For all designs, a plan illustrating the bearing type, layout, spacing, and orientation shall be provided on the bearings drawing in the contract drawings.

The bearings drawing shall also include a section illustrating the bearing assembly and methods of attachment to surfaces above and below. When appropriate, a sequence of installation shall be included to ensure full bearing contact is made. For elastomeric bearings, positive attachment shall be detailed when required. Laminated bearings supporting steel superstructures shall be detailed with steel pintles.

The designer shall include design data in the standard table on the contract drawing, as per the Structural Manual. The designer shall also specify top and bottom plate details, including method of attachment, if required.

922.9.2 Quantity Sheets

Bearings are recorded on the Quantities-Structure Q-Sheet. For each tender item, enter the total quantity for each bridge. For multiple structures on the same contract, separate tender items are used for each applicable structure.

For contracts where there are a large number of bearings in various locations, each location may be identified in a separate line.

922.9.3 Non-Standard Special Provisions

A non-standard special provision shall be included for bearings that are not covered by the OPSS, such as bearings with uplift capability, elastomeric bearings with sliding surfaces, and seismic isolation bearings.

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