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**Specification (Measurement)**

**Transport and Main Roads Specifications  
MRS76 Supply and Erection of Steel Girders**

**July 2017**

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## 1 Introduction

This Specification applies to the supply and / or erection of steel girders for a bridge superstructure.

This Specification shall be read in conjunction with MRS01 *Introduction to Specifications*, MRS50 *Specific Quality System Requirements* and other Specifications as appropriate.

This Specification forms part of the Transport and Main Roads Specifications Manual.

## 2 Measurement of work

### 2.1 Standard Work Items

In accordance with the provisions of Clause 2.1.3 of MRS01 *Introduction to Specifications*, the Standard Work Items covered by this Specification are listed in Table 2.1.

**Table 2.1 – Standard Work Items**

Standard Item No.	Description	Unit of Measurement
<b>Steel girders</b>		
71901	Steel girders, supply on Site, [section] / ([flange width] mm wide, [depth]) mm deep, [length] metres long	each
71902	Steel cross bracing, supply on Site	lump sum
71903	Transport of steel girders to the Site, [section] / ([flange width] mm wide, [depth]) mm deep, [length] metres long	each
71904	Transport of steel cross bracing to the Site, ex works [location]	lump sum
71905	Erection of steel girders, [section] / ([flange width] mm wide, [depth]) mm deep, [length] metres long	each
71906	Erection of steel cross bracing	lump sum
71907	Installation of bearings for rolled steel girders	each
<b>Bearings</b>		
71931	Supply and installation of laminated elastomeric bearings, [length] x [breadth] x [depth]	each
71932	Supply and installation of pot-type bearings, [rated load capacity], [fixed   sliding]	each
<b>Girder restraints</b>		
71961	Supply and installation of girder restraints	each

### 2.2 Work Operations

**Item 71901 Steel girders, supply on Site, [section] / ([flange width] mm wide, [depth]) mm deep, [length] metres long**

**Item 71902 Steel cross bracing, supply on Site**

These items are used only where steel girders and / or steel cross bracing are supplied by the Contractor. Work Operations incorporated in the above items include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*
- b) manufacture of steel girders and / or steel cross bracing, as applicable

- c) manufacture of stainless steel / PTFE expansion bearings, where applicable
- d) transport to the Site
- e) preparation of the Site storage area
- f) unloading at the Site, and
- g) storage at the Site.

**Item 71903**      **Transport of steel girders to the Site, [section] / ([flange width] mm wide, [depth]) mm deep, [length] metres long**

**Item 71904**      **Transport of steel cross bracing to the Site, ex works [location]**

These items are used only where steel girders and / or steel cross bracing are supplied by the Principal for collection by the Contractor at the place of manufacture. Work Operations incorporated in the above items include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*
- b) taking delivery of girders (including expansion bearings, where applicable) and / or cross bracing at the location and by the mode nominated in the schedules
- c) transport to the Site
- d) unloading at the Site, and
- e) storage at the Site.

**Item 71905**      **Erection of steel girders, [section] / ([flange width] mm wide, [depth]) mm deep, [length] metres long**

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*
- b) removal of advertising labels, and
- c) installing girders on substructure.

**Item 71906**      **Erection of steel cross bracing**

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*
- b) erection of cross bracing, and
- c) welding of cross bracing to girders.

**Item 71907**      **Installation of bearings for rolled steel girders**

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*
- b) supply of cement mortar, and
- c) installation of bearing.

**Item 71931 Supply and installation of laminated elastomeric bearings, [length] x [breadth] x [depth]**

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*
- b) supply of bearings
- c) supply of epoxy putty
- d) preparation of bearing seat, and
- e) installation of bearing.

**Item 71932 Supply and installation of pot-type bearings, [rated load capacity], [fixed | sliding]**

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*
- b) supply and fabrication of bearings
- c) supply of holding-down bolts and sockets
- d) protective coating of bearings
- e) testing of bearings
- f) supply of epoxy putty
- g) preparation of bearing seat, and
- h) installation of bearing.

**Item 71961 Supply and installation of girder restraints**

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*
- b) supply and fabrication of girder restraint angles and fastening bolts, nuts and washers
- c) supply of epoxy putty
- d) temporary installation during erection of girders, and
- e) permanent installation after completion of deck.

**2.3 Steel girders supplied by the Principal**

**2.3.1 Supply of girders**

Where listed in the Principal Supplied Materials List (Form C6827), steel girders, cross girders and / or expansion bearings shall be supplied by the Principal. Where not so listed, steel girders, cross bracing and / or expansion bearings shall be supplied by the Contractor.

**2.3.2 Supply location**

Steel girders, cross bracing and or expansion bearings supplied by the Principal will be made available at the point of delivery and by the transport mode shown in the Principal Supplied Materials List (Form C6827).

### 2.3.3 Time of delivery

The time of delivery shall generally conform to the construction program supplied by the Contractor with its tender.

Should on-site construction be delayed, the Contractor may be required to accept delivery of the girders at any time after the programmed date and to store the girders at no cost to the Principal.

### 2.3.4 Acceptance of the girders by the Contractor

The Contractor shall check the girders, cross bracing and / or expansion bearings for quantity and condition upon taking delivery and shall immediately report to the Superintendent any defect or deficiency. **Nonconformance**

### 2.3.5 Damage to girders

In the event of a girder, any cross bracing or expansion bearing sustaining damage after the item has been accepted by the Contractor, such as damage to coatings or surface quality, the item shall be set aside until it has been inspected by the Superintendent. **Nonconformance** The cost of repairs to damaged girders, cross bracing and / or expansion bearings and the cost of replacing rejected girders, cross bracing and / or expansion bearings shall be borne by the Contractor.

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