

Superseded

**Specification (Measurement)**

**Transport and Main Roads Specifications  
MRS89 Post-tensioned Concrete**

**October 2016**

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## 1 Introduction

This Specification sets out the requirements for the supply, installation, stressing, grouting and corrosion protection of post-tensioned, internal prestressing tendons and their anchorages and other components for construction of post-tensioned concrete.

This Specification does not fully specify post-tensioning systems comprising ungrouted internal tendons or stay cables.

This Specification shall be read in conjunction with MRS01 *Introduction to Specifications* 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 of MRS01 *Introduction to Specifications*, the Standard Work Items incorporated in this Specification are listed in Table 2.1.

**Table 2.1 - Standard Work Items**

Standard Item No	Description	Unit of Measurement
<b>Post-tensioned Concrete</b>		
8391	Concrete Class [ <i>compressive strength</i> ] MPa/20 in slab deck/superstructure.	m <sup>3</sup>
8392	Anchorage Type [ <i>type</i> ].	each
8393	Ducts, [ <i>diameter</i> ] mm diameter.	m
8394	Strand tendons, [ <i>number</i> ], [ <i>size</i> ] mm diameter.	tonne
8395	Post-tensioned stressing bar units, [ <i>size</i> ] mm diameter.	each
8396	Stressing bars/tendons Type [ <i>type</i> ].	each
8397	Grouting duct, [ <i>diameter</i> ] mm diameter.	m
8398	Capping anchorage recesses and anchorage.	each

### 2.2 Work Operations

#### Item 8391 Concrete Class [*compressive strength*] MPa/20 in slab deck/superstructure

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*
- b) supply of concrete
- c) transport of concrete
- d) construction of formwork and falsework, including formwork for voids, block outs, junction boxes and recesses
- e) placing and compacting concrete
- f) finishing and curing concrete
- g) removal of formwork and falsework

- h) dressing of concrete
- i) fillers and sealants, unless measured separately, and
- j) embedded and attached items, unless measured separately.

**Item 8392      Anchorages Type [type]**

**Item 8393      Ducts, [diameter] mm diameter**

**Item 8394      Strand tendons, [number], [size] mm diameter**

**Item 8398      Capping anchorage recesses and anchorage**

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*
- b) supply of materials
- c) transport to site, and
- d) installation of all materials.

**Item 8395      Post-tensioned stressing bar units, [size] mm diameter**

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*
- b) manufacture of stressing units
- c) transport to site
- d) installation of stressing bar units
- e) provision of stressing jack, and
- f) stressing operations.

**Items 8396      Stressing bars/tendons Type [type]**

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*
- b) supply and installation of all materials
- c) provision of stressing jacks, and
- d) carrying out all stressing operations.

**Items 8397      Grouting duct, [diameter] mm diameter**

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*
- b) supply and installation of all materials
- c) provision of grouting equipment, and
- d) carrying out all grouting operations.

## **2.3      Calculation of quantities**

### **2.3.1      Concrete**

The quantity of concrete shall be calculated in accordance with Clause 2.3 of MRS70 *Concrete*.

### **2.3.2      Anchorages**

Anchorage shall be measured as the number of each type shown in the Standard Drawings.

### **2.3.3 Ducts**

Ducts shall be measured as the length of duct required as measured from the Standard Drawings.

### **2.3.4 Strand tendons**

Strand tendons shall be measured in tonnes of strand used to make up the tendons as shown in the Standard Drawings. The length of tendon considered in determining the mass shall be the length from face to face of anchorage plates plus 200 mm.

### **2.3.5 Stressing bar units**

Stressing bar units shall be measured as the number of each size shown in the Standard Drawings.

### **2.3.6 Stressing operations**

Stressing bars and tendons shall be measured as the number stressed as specified.

### **2.3.7 Grouting**

Grouting shall be measured in metres of ducts grouted.

### **2.3.8 Capping anchorage recesses**

Capping anchorage recesses and anchorages shall be measured as the number shown in the Standard Drawings.

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