Specification (Measurement)

Transport and Main Roads Specification
MRS228 Electrical Switchboards

April 2016
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1 Introduction

This Specification applies to the supply and installation of switchboards for the supply of electrical power to electrical installations including traffic signal installations and Rates 2 and 3 road lighting installations.

This Specification shall be read in conjunction with MRS01 *Introduction to Specifications*, MRTS228 *Electrical Switchboards* and other Specifications as appropriate.

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

2 Measurement of works

2.1 Standard Work Items

In accordance with the provisions of Clause 2 of MRS01 *Introduction to Specifications*, the Standard Work Items covered by this Specification are listed in Table 2.1.

<table>
<thead>
<tr>
<th>Standard Item No.</th>
<th>Description</th>
<th>Unit of Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>6802</td>
<td>Supply of top mounted switchboard and ancillary components</td>
<td>each</td>
</tr>
<tr>
<td>6803</td>
<td>Supply and construction of a concrete pad for the erection of switchboard post</td>
<td>lump sum</td>
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<tr>
<td>6804</td>
<td>Installation of top mounted switchboard and ancillary components</td>
<td>each</td>
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<tr>
<td>6637</td>
<td>Supply and installation of joint use traffic signal and road lighting pole, [length] metres long</td>
<td>each</td>
</tr>
<tr>
<td>6831</td>
<td>Supply of mains connection equipment including the supply of mains connection cable, [length], [usage], [conductor size], [number of cores] cores, [core insulation], [sheath insulation], [conductor material]</td>
<td>each</td>
</tr>
<tr>
<td>6832</td>
<td>Installation of mains connection including mains connection cable</td>
<td>each</td>
</tr>
</tbody>
</table>

2.2 Work Operations

Item 6802 Supply of top mounted switchboard and ancillary components

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 switchboard post as per Standard Drawing 1628

c) supply of top mounted switchboard enclosure

d) supply of electrical components including din rail, mains isolation switch, circuit breakers, change over switch and contactors

e) supply of photoelectric control switch and socket

f) supply of earth stake, cable and clip

Superseded
g) supply of circular electrical pit, pit collar and cover (as per Standard Drawing 1417) 100 mm PVC conduit to switchboard

h) supply of Type 3 electrical pit, pit cover, and 20 mm HD PVC conduit to switchboard, and

i) supply of ragbolt sub-assembly as per Standard Drawing 1422.

**Item 6803  Construction of a concrete pad for the erection of switchboard post**

Work Operations incorporated in the above item include:

a) Work Operations listed in Clause 2.1.5 of MRS01 Introduction to Specifications, and

b) supply and construction of a 150 mm thick, N25/20 concrete pad for the erection of the switchboard post as per Standard Drawing 1627.

**Item 6804  Installation of top mounted switchboard and ancillary components**

Work Operations incorporated in the above item include:

a) Work Operations listed in Clause 2.1.5 of MRS01 Introduction to Specifications

b) installation of switchboard post

c) installation of switchboard enclosure on switchboard post

d) installation of pits and conduits as per Standard Drawing 1627

e) installation of ragbolt sub-assembly and concrete as per Standard Drawing 1421

f) installation and mounting of switchboard electrical components

g) installation of photoelectric control switch and cabling to switchboard

h) installation and cabling of earth stake

i) connection of mains connection cabling and road lighting cabling to switchboard

j) testing of installation, and

k) installation of switchboard cover.

**Item 6637  Supply and installation of joint use traffic signal and road lighting pole, [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) supply, fabrication and installation of pole

c) mortar grouting of base plate

d) supply and installation of traffic signal terminal panel and road lighting terminal panel

e) supply and installation of road lighting cable from pit to luminaire and supply and installation of road lighting junction box in pit

f) supply of all fixing bolts, nuts and washers, and

g) testing of road lighting installation.
Item 6831  Supply of mains connection equipment including the supply of mains connection cable, [length], [usage], [conductor size], [number of cores] cores, [core insulation], [sheath insulation], [conductor material]

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 mains connection equipment
c) supply of mains connection cable from pole to switchboard (for Rate 3) or road lighting pole/cable joint (for Rate 2), and
d) supply of UV stabilised 50 mm PVC conduit and fittings.

Item 6832  Installation of mains connection including mains connection cable

Work Operations incorporated in the above item include:

a) Work Operations listed in Clause 2.1.5 of MRS01 Introduction to Specifications
b) installation of mains connection equipment on pole
c) installation of conduit on pole and to pit
d) installation of conduit from pit to switchboard (for Rate 3) or road lighting pole/cable joint (for Rate 2)
e) installation of cable from pit to switchboard (for Rate 3) or road lighting pole/cable joint (for Rate 2), and
f) testing of installation.