Under revision DR 91177 D4p

AS 2276.1—1986
UDC 621.315.2:621.315.616:656.056.4

Superseded by AS 2276.1-1992

Australian Standard®
2276.1—1986

CABLES FOR TRAFFIC SIGNAL INSTALLATIONS
Part 1—MULTICORE POWER CABLES

[Title allocated by Defence Cataloguing Authority:
CABLE, POWER, ELECTRICAL (For Traffic Signal Installations 0.6/1 kV PVC Insulated and Sheathed)]

STANDARDS ASSOCIATION OF AUSTRALIA
Incorporated by Royal Charter

C

This Australian standard was prepared by Committee EL/3—Electric Wires and Cables. It was approved on behalf of the Council of the Standards Association of Australia on 17 April 1986 and published on 7 July 1986.

The following interests are represented on Committee EL/3:

Australian Electrical and Electronic Manufacturers' Association

Confederation of Australian Industry

Department of Aviation

Department of Defence

Department of Industrial Relations (New South Wales)

Electrical Contractors Associations of Australia

Electrical Regulatory Authorities

Electrical Supply Association of Australia

Electrical Testing Laboratories

Railways of Australia Committee

Telecom Australia

This standard was issued in draft form for comment as DR 85120.

AUSTRALIAN STANDARD

CABLES FOR TRAFFIC SIGNAL INSTALLATIONS

Part 1
MULTICORE POWER CABLES

AS 2276.1—1986

First published 1979
Second edition.....1986

PUBLISHED BY THE STANDARDS ASSOCIATION OF AUSTRALIA
STANDARDS HOUSE, 80 ARTHUR ST, NORTH SYDNEY, N.S.W.
ISBN 0 7262 4222 5

PREFACE

This edition of this standard was prepared by the Association's Committee on Electric Wires and Cables to supersede AS 2276, Part 1—1979.

The nominal cross-sectional areas of the conductors specified herein are taken from AS 1125, Conductors in Insulated Electric Cables and Flexible Cords.

The insulation compound specified is V-75 PVC and the sheath material 4V-75 PVC, each complying with the appropriate sections of AS 3147, Approval and Test Specification for PVC Insulated Cables and Flexible Cables for Working Voltages up to and including 0.6/1 kV. Nylon jackets, where required for extra protection, are specified.

The thickness of insulation and sheath comply with the requirements of AS 3147.

This standard differs from the previous edition as follows:

(a) The average radial thickness of insulation for the 2.5 mm^2 earthing core is amended to allow a value below that specified in Table 1, Thickness of Insulation. (See Clause 8.2.)

(b) Table 2, PVC Sheath Thickness and Cable Overall Diameter (excluding nylon jacketed cable). Owing to the lack of demand, the option for heavy duty cables is withdrawn.

(c) Details for packaging requirements are included (see Clause 17).

(d) A test requirement for the overall diameter of cable is included. (See Clause 14.3).

(e) Appendix A, Information Required with Enquiry and Order. A 'standard' drum length of cable is now specified as 500 m.

(f) Information on manufacturer's identification threads is now cross-referenced to SAA MP49, Register of Colours of Manufacturers' Identification Threads for Electric Cables and Flexible Cords. Hitherto it was in an appendix. SAA MP49 covers the information fully.

CONTENTS

STANDARDS ASSOCIATION OF AUSTRALIA

Australian Standard
for
CABLES FOR TRAFFIC SIGNAL INSTALLATIONS

PART 1—MULTICORE POWER CABLES

1 SCOPE. This standard specifies requirements for multicore PVC insulated and PVC sheathed underground power cable rated at 0.6/1 kV for the interconnection of traffic signal posts and the associated control equipment.

NOTE: Appendix A lists information that the purchaser should supply with an enquiry or order.

2 REFERENCED DOCUMENTS. The following documents are referred to in this standard:

AS 1125	Conductors in Insulated Electric Cables and Flexible Cords
AS 3147	Approval and Test Specification for PVC Insulated Electric Cables and Flexible Cables for Working Voltages of 0.6/1 kV
AS 1660	Methods of Test of Electric Cables and Flexible Cords (Including Conductors, Insulation and Sheath)
SAA MP49	Register of Colours of Manufacturers' Identification Threads for Electric Cables and Flexible Cords
IEC 304	Standard Colours for Insulation for Low-frequency Cables and Wires.

3 DEFINITIONS. For the purpose of this standard, the definitions given in AS 1125 and the following apply:

3.1 Core—conductor with its insulation but not including any protective covering.

3.2 Maximum conductor temperature—maximum temperature at which the conductor of the cable may be operated continuously and which is the temperature resulting from the combined effects of the ambient temperature and the current loading of the conductor.

3.3 Length of lay—axial distance between each successive crest of the waveform or turns of the helix formed by a core of a multicore cable.

3.4 Lay-up—assembling of cores in a waveform or helical configuration.

3.5 Pitch circle diameter—diameter of a circle which passes through the mid-points of the cores of a layer.

3.6 Voltage designation—for cables for a.c. systems, the rated voltages U_o and U expressed in the form U_o/U where—

U_o is the r.m.s. power frequency voltage to earth of the supply system for which the cable is designed; and

U is the r.m.s. power frequency voltage between phases of the supply system for which the cable is designed.

3.7 Routine tests—tests made by the manufacturer on all finished cable lengths to demonstrate the integrity of the cable.

3.8 Special tests—tests made by the manufacturer on samples of completed cable, or components taken from the completed cable, so as to verify that the finished product meets the design specifications.

3.9 Type tests—tests required to be made by the manufacturer before supplying on a general commercial basis a type of cable covered by this standard in order to demonstrate satisfactory performance characteristics to meet the intended application. These tests are of such a nature that, after they have been made, they need not be repeated, unless changes are made in the cable materials or design which might change the performance characteristics.

4 DESIGNATED VOLTAGE. The rated voltage U_o/U recognized for the purpose of this standard is 0.6/1 kV.

5 MAXIMUM CONDUCTOR TEMPERATURE. The maximum conductor temperature of cables shall be 75 °C.

6 CONDUCTORS. Conductors shall be of stranded annealed copper complying with the appropriate requirements of AS 1125.

7 NUMBER AND SIZES OF CORES. The recommended numbers of cores and combinations of core sizes shall be as follows:

(a) 13 cores—3 of 2.5 mm^2 and 10 of 1.5 mm^2.

(b) 19 cores—3 of 2.5 mm^2 and 16 of 1.5 mm^2.

(c) 29 cores—3 of 2.5 mm^2 and 26 of 1.5 mm^2.

(d) 51 cores—3 of 4.0 mm^2 and 48 of 1.5 mm^2.

8 INSULATION.

8.1 Material. Insulation shall be of V-75 PVC complying with the appropriate requirements of AS 3147.

8.2 Thickness. The average thickness of insulation and the thickness at any point when determined in accordance with AS 1660, shall be not less than the values given in Table 1.

Notwithstanding the thickness of insulation specified in Table 1, the average thickness of insulation for 2.5 mm^2 earthing conductor may be reduced to but not below 0.7 mm and the minimum thickness at any point may be reduced to 0.53 mm.