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Australian Standard 1762—1979

DESIGN AND INSTALLATION OF HELICAL LOCK-SEAM CORRUGATED STEEL PIPES

STANDARDS ASSOCIATION OF AUSTRALIA
Incorporated by Royal Charter

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THE FOLLOWING SCIENTIFIC, INDUSTRIAL AND GOVERNMENTAL organizations and departments were officially represented on the committee entrusted with the preparation of this standard:

Confederation of Australian Industry

Departments of Public Works

Metal Trades Industry Association of Australia

Metropolitan Water Sewerage and Drainage Board, Sydney

Municipal Association of Victoria

National Association of Australian State Road Authorities

Railways of Australia Committee

State Rivers and Water Supply Commission, Victoria

University of Adelaide

University of New South Wales

This standard, prepared by Committee WS/11, Corrugated Metal Drainage Pipes and Arches, was approved on behalf of the Council of the Standards Association of Australia, on 30 March 1979, and was published on 1 June 1979.

To keep abreast of progress in industry, Australian standards are regularly reviewed. Suggestions for improvements to published standards, addressed to the head office of the Association, are welcomed.

This standard was issued in draft form for public review as DR 78083.

AUSTRALIAN STANDARD

CODE FOR THE DESIGN AND INSTALLATION OF HELICAL LOCK-SEAM CORRUGATED STEEL PIPES

AS 1762– 1979

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PREFACE

This standard was prepared by the Association's Committee on Corrugated Metal Drainage Pipes, Pipe Arches and Arches. The main purpose of the standard is to lay down the essential requirements for the installation of helical lock-seam corrugated steel pipes manufactured in accordance with AS 1761, as distinct from riveted, nestable and bolted corrugated steel structures referred to in AS 2042.

Users of this standard are advised that a research program relating to aspects of design and installation of corrugated steel structures has been initiated by a Statutory Authority and financed by a grant from the Commonwealth Government. It is anticipated that progress reports will be made available to the Association's committee in order to keep this standard in line with any significant developments. For the guidance of users of the standard, technical data relating to the load capacity of the pipes is included.

This standard may require reference to the following standards:

AS 1289 Methods of Testing Soils for Engineering Purposes

1289.E1.1—Part E—Soil Compaction and Density Tests—Determination of the Dry Density/Moisture Content Relation of a Soil Using Standard Compaction—Standard Method

1289.E1.2—Part E—Soil Compaction and Density Tests—Determination of the Dry Density/Moisture Content Relation of a Soil Using Standard Compaction—Subsidiary Method

AS 1761 Helical Lock-seam Corrugated Steel Pipes

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CODE FOR THE DESIGN AND INSTALLATION OF HELICAL LOCK-SEAM CORRUGATED STEEL PIPES

SECTION 1. SCOPE AND GENERAL

1.1 SCOPE. This standard applies to the design and installation of helical lock-seam corrugated steel pipes.

1.2 DEFINITIONS. For the purpose of this standard the following definition applies:

Cover—the vertical distance between the top of the structure and—

(a) pavement surface of road;

(b) top of rail;

(c) top of fill where (a) and (b) are not applicable.

1.3 MATERIALS. Helical lock-seam corrugated steel pipes to which this standard is intended to apply shall comply with AS 1761.

1.4 NOTATION. Unless a contrary intention appears, the notation used in this standard shall have the following meaning with respect to helical lock-seam pipes:

A = area of corrugated steel section per unit length (mm^2/mm)
C = ring compression (kN/m)
E = modulus of elasticity for steel, taken as 205×10^3 MPa
F_a = allowable compressive strength (MPa)
F_c = ultimate compressive wall strength (MPa)
F_y = minimum yield strength (MPa)
F_F = flexibility value (mm/N)
H = height of cover (m)
I_c = second moment of area of the corrugated section per unit length (mm^4/mm)
K_f = load factor (see Clause 2.3)
P_{DL} = dead load pressure (kPa)
P_{LL} = live load pressure (kPa)
P = design pressure (kPa)
r = radius of gyration of corrugated steel section (mm)
S_i = internal diameter of pipe (mm)
t = thickness (mm)
w = unit load of fill (kN/m^3)
Z = section modulus of corrugated steel section (mm^3/mm)