Australian Standard®

PERFORATED PLASTICS DRAINAGE AND EFFLUENT PIPE AND FITTINGS

Part 1—PERFORATED DRAINAGE PIPE AND ASSOCIATED FITTINGS

[Title allocated by Defence Cataloguing Authority:
PIPE, PLASTICS (Perforated for site drainage)]

The following scientific, industrial and governmental organizations and departments were officially represented on the committee entrusted with the preparation of this standard:

CSIRO, Division of Horticultural Research

Department of Agriculture, N.S.W.

Department of Agriculture, Victoria

Health Commission of Victoria

National Association of Australian State Road Authorities

National Farmers Federation

Plastics Institute of Australia Incorporated

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PREFACE

This standard was prepared by the Association's Committee on Perforated Plastics Pipe under the direction of the Plastics Standards Board.

This is a performance standard and therefore all requirements and tests are related to end use. It is not the intention of the standard to establish how strong the product is, but rather to determine if the product is strong enough to fulfil the desired function.

The requirements and tests contained in this standard relate to field conditions as follows:

Bending—pipe is often bent at temperatures close to 0°C.

Straightening—coils are often unwound in cold conditions.

High temperature impact resistance—pipe laid out in the hot sun must not be so soft that it is damaged during backfilling.

Low temperature impact resistance—to determine that pipe will not fail due to handling, fill material or degradation in service.

Pipe stiffness—pipe must be stiff enough to withstand the design loads after back-filling and settlement.

Elongation—pipe must not excessively elongate during installation.

Joint separation—joints must not separate when subjected to tensile forces induced when laying.

In the preparation of this standard the committee gave consideration to the following documents:

ISO document	TC 138/WG1-330—Draft Standard for Corrugated Polyethylene Drainage Tubing
ASTM F 405	Specification for Corrugated Polyethylene (PE) Tubing and Fittings
BS 4962	Performance Requirements for Plastics Pipe for Use as Light Duty Sub-soil Drains
DIN 1187	Drain Pipes of Unplasticized PVC (Unplasticized Polyvinyl-chloride Dimensions, General Quality Requirements, Test Methods

as well as to specifications used by the Department of Main Roads, N.S.W.

The complete standard is in two parts. Part 1 covers plastics drainage pipe and fittings for both corrugated pipe (Type 1) and smooth wall pipe (Type 2). Part 2* sets out requirements for effluent pipe and fittings.

This standard may require reference to the following standards:

AS 1199	Sampling Procedures and Tables for Inspection by Attributes
AS 1327	Standard Environments for Conditioning and Testing Plastics Materials
AS 1399	Guide to AS 1199, Sampling Procedures and Tables for Inspection by Attributes
AS 1821 to AS 1823	Suppliers Quality Control Systems—Levels 1 to 3
AS 2000	Guide to AS 1821—1823, Suppliers Quality Control Systems

*In course of preparation

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STANDARDS ASSOCIATION OF AUSTRALIA

Australian Standard
for
PERFORATED PLASTICS DRAINAGE AND EFFLUENT PIPE AND FITTINGS

PART 1—PERFORATED DRAINAGE PIPE AND ASSOCIATED FITTINGS

1 SCOPE. This standard specifies requirements for perforated plastics pipe and associated fittings designed for use in the drainage of surface and sub-surface land, highways and building construction sites.

NOTE: Advisory information on the determination of compliance of a 'lot' with this standard is given in Appendix A.

2 TYPES AND CLASSIFICATION.

2.1 Types. Perforated plastics drainage pipe shall be classified into types as follows:

Type 1—corrugated pipe

Type 2—smooth wall pipe.

2.2. Classification. For each type of pipe the following classes shall apply, based on the ability to withstand the forces (see Clause 10.6), as indicated below:

(a) *Class 100* — at 5 percent deflection a minimum force of 100 kN and at 10 percent deflection a minimum force of 80 kN per metre deflection per metre length of pipe.

(b) *Class 200* — at 5 percent deflection a minimum force of 200 kN and at 10 percent deflection a minimum force of 160 kN per metre deflection per metre length of pipe.

(c) *Class 400* — at 5 percent deflection a minimum force of 400 kN and at 10 percent deflection a minimum force of 300 kN per metre deflection per metre length of pipe.

(d) *Class 1000* — at 5 percent deflection a minimum force of 1000 kN and at 10 percent deflection a minimum force of 800 kN per metre deflection per metre length of pipe.

NOTE: Class 100 pipe is intended for domestic usage; Class 200 pipe for surface land drainage; Class 400 pipe for road or civil engineering works not subjected to heavy vehicular traffic; and Class 1000 pipe for similar works where heavy vehicular traffic is involved.

3 MATERIAL. Any suitable plastics material may be used to manufacture the pipe or fitting, provided that the pipe or fitting so formed is capable of complying with the performance requirements of this standard at the time of manufacture and for a period of up to 6 months of outdoor exposure.

Any plastics material that would be unable to comply with the requirements of this standard after 6 months outdoor exposure shall be protected at the time of manufacture by suitable means in order to provide a satisfactory storage life of at least 6 months.

Re-work material may be used.

4 FREEDOM FROM DEFECTS. Pipe and fittings shall not contain any pores, bubbles, cracks, foreign matter or other faults that may affect the performance of the pipe or fitting.

5 DIMENSIONS.

5.1 Diameter. When measured in accordance with Paragraph B4(a) of Appendix B, the outside diameter of Type 1 pipe shall conform to the dimensions specified in Table 1 and the outside diameter of Type 2 pipe shall conform to the dimensions specified in Table 2.

TABLE 1

DIMENSIONS OF TYPE 1 PIPE

millimetres

Nominal outside diameter	Outside diameter	
	Minimum	Maximum
40	41.0	43.0
50	49.0	52.0
65	64.0	67.0
80	79.0	82.0
100	99.0	102.0
125	124.0	128.0
160	158.0	163.0
200	198.0	203.0

TABLE 2

DIMENSIONS OF TYPE 2 PIPE

millimetres

Nominal size	Outside diameter	
	Minimum	Maximum
40	48.1	48.4
50	60.2	60.5
90	90.0	90.3
100	110.0	110.4
150	160.0	160.5
225	250.0	250.7
300	315.0	315.9

NOTE: The nominal sizes given in Table 2 are not necessarily the same as the actual outside diameters, as Type 2 pipes before slotting may conform to other standards.

5.2 Length. Unless otherwise specified, pipe shall be supplied in standard lengths as follows:

Type 1 — 6, 20, 50, 100, 150 or 200 m
Type 2 — 6 m (excluding socket).

When pipe is measured in accordance with Paragraph B4(c) of Appendix B, it shall not be less than the specified standard length.