

The Naylor Denline underground drainage system of DN100, 150, 225, 300 plain-end, vitrified clay perforated pipes with flexible polyethylene sleeve joints, was specifically developed for groundwater and surface water drainage of all types, including

- Motorways
- Roads
- Sports grounds
- Land reclamation
- Retaining walls
- Land and landfill drainage.

## Description

### Clayware

Vitrified clay perforated pipes and unperforated fittings manufactured in accordance with BS EN295-1.



### Sleeve Couplings

Injected moulded in polyethylene to BS 3412.

### Joint Performance

The Denline sleeve coupling is a friction fit joint. It locates the joints and prevents the ingress of debris. It is not intended to provide a watertight seal.

### Aggressive Environments

The pipes, fittings and couplings are resistant to attack from chemicals, aggressive soils and bacteria. In addition they have a high abrasion resistance.

# Denline



## Specification

The following statement is a suitable clause for inclusion in contract specification.

### Perforated Pipes

Vitrified clay plain-end pipes to BS EN295-5 with plastic sleeve joints, (Denline type as manufactured by Naylor Drainage Ltd. Clough Green, Cawthorne, Barnsley, S75 4AD, England).

## Availability

Denline is available directly from the manufacturer. Contact the Naylor Sales Department for details.

# Pipes and Fittings

## Structural Performance

### Crushing Strengths

BS EN295-5 includes a variety of crushing strengths for each nominal size of pipe, as it takes into account the strength requirements available in various parts of Europe. As it is impracticable for any single manufacturer to offer pipes and fittings in the full range of strengths, Naylor has standardised on the strengths shown in the table below.

### Range

Perforated pipes from DN100 to DN300 with a range of unperforated bends and junctions. The details above are standard at the time of publication but these may vary due to changes in manufacturing facilities.

Pipe Nominal Size (DN)	Crushing Strength kN/m	Class	Standard Length (metres)	Rows of 8mm Holes	Number (per pack) Approx	Weight (tonnes per pack)
150	22		1.75	4	41	1.6
225	28	120	1.6	6	20	1.45
300	36	120	1.75	6	12	1.75

## Advantages

### Flexibility

The flexible joints ensure that the pipeline will accommodate minor settlement and ground movement.

### Strength

Vitrified clay pipes and fittings are rigid and do not distort under loading. Their high inherent strength ensures stability under even the highest loadings, eg deep landfill sites.

### Chemical Resistance

Denline pipes and couplings are unaffected by chemicals and bacteria normally found in sewerage and have high resistance to attack from aggressive soils.

### Durability

The Denline system is extremely durable. For design purposes, a vitrified clay pipeline can be considered to have an unlimited life.

### Temperature Resistance

Denline pipes and joints will not distort, soften or embrittle, even when subject to extremes of temperature likely to be experienced in service.

### Quick Installation

Pipe jointing is a straightforward operation. Backfilling can start immediately.

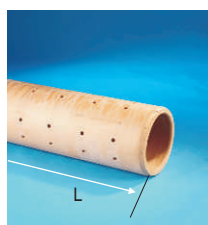
### Pipe Lengths and Delivery

Naylor Pipes are supplied in easy-to-handle lengths. They are delivered in convenient packs with optional mechanical offloading equipment available on the delivery vehicle.

### Easy Cutting

Where shorter lengths of pipes are required, pipes may be cut on site and jointed into the sleeve coupling.

## Pipes & Bends



### Pipes

DN	CODE	L
150	25009	1.75
225	25001	1.75
300	25008	1.75



### Bends (90°)

DN	CODE	L	R
150	27002	230	200
225	27003	310	250
300	27004	310	300

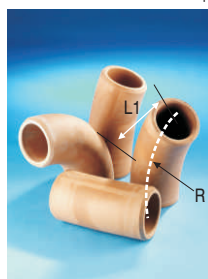
### (45°)

DN	CODE	L	R
150	27006	230	450
225	27007	310	600
300	27008	310	600

### (22½°)

DN	CODE	L	R
150	27010	145	900
225	27011	245	1200
300	27012	245	1200

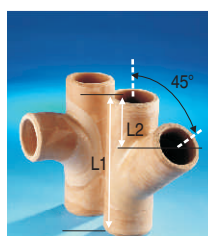
These radiuses do not apply to fabricated products.



### Bends (11¼°)

DN	CODE	L	R
150	27014	145	1750
225	27015	245	2400
300	27016	245	2400

## Junctions



### Oblique (45°)

DN	CODE	L1	L2	L3
150 x 150	27019	450	330	350
225 x 150	27021	500	360	420
225 x 225	27022	700	530	500
300 x 150	27024	600	480	490
300 x 225	27025	750	530	550
300 x 300	27026	900	600	615

### Curved Square (90°)

DN	CODE	L1	L2	L3
150 x 150		450	185	225
225 x 150	27031	600	220	290
225 x 225		700	290	300
300 x 150	27034	600	240	320
300 x 225	27035	750	330	370
300 x 300		900	350	550