

## Pressure

1 pascal	= 1 newton/metre <sup>2</sup>
1 kilopascal (kPa)	= 1000 pascals = 0.14504 psi = 0.336 feet head of water
1 megapascal (MPa)	= 1000 kilopascals = 10 bar = 145 psi
1 psi	= 6.89 kilopascals = 0.0068 megapascal = 0.069 bar = 2.3 feet head of water
PN6	= class B = 60 m head = 600 kPa = 0.6 MPa = 87 psi = 6 bar
PN9	= class C = 90m head = 900 kPa = .09 MPa = 131 psi = 9 bar
PN12	= class D = 120m head = 1200 kPa = 1.2 MPa = 174 psi = 12 bar
PN15	= class E = 150m head = 1500 kPa = 1.5 MPa = 218 psi = 15 bar
PN18	= class F = 180m head = 1800 kPa = 1.8 MPa = 261 psi = 18 bar

## Flow

1 litre/second	= 3.6 cubic metres/hour = 13.2 gallons/minute = 0.0353 cusecs = 0.086 megalitres/day
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## Volume

1 litre	= 1.76 imperial pints = 0.22 imperial gallons = 0.0353 cubic feet = 0.001 cubic metres
1 imperial pint	= 0.5672 litre
1 imperial gallon	= 0.00455 cubic metres = 1.2 US gallons
1 cubic foot	= 0.2832 cubic metres = 28.32 litres = 6.229 gallons

## Common Areas of Confusion - PVC

Nominal Size	Mean O/D series 1
175	200
225	250
250	280

Nominal size	New Size
Old system	Current system
110 O/D	100 I/D
160 O/D	150 I/D
200 O/D	175 I/D
250 O/D	225 I/D
315 O/D	300 I/D

### PVC Culvert Pipe

Solo Nominal size	Marley Agriduct	Iplex Farmtuff
175	175	200
225	225	250
300	300	315
375	375	400
475		500

## Pipe sizes

### PVC pressure Pipe to AS/NZS 1477:1999

Nominal size	Mean O/D Series 1	Mean O/D Series 2
10	17.2	
15	21.4	
20	26.8	
25	33.6	
32	42.3	
40	48.3	
50	60.4	
65	75.4	
80	88.9	
100	114.3	121.9
125	140.2	
150	160.3	177.4
175	200.3	
200	225.3	232.3
225	250.4	259.3
250	280.4	286.2
300	315.5	345.5
350	355.5	
375	400.5	426.2
400	450.5	

### PVC DWV and Stormwater

Nominal size	DWV Mean O/D	Stormwater Mean O/D
32	36.4	
40	43.0	
50	55.9	
65	68.9	
75		75.2
90	82.5	
90		90.2
100	110.2	110.2
150	160.3	160.3
175	200.3	200.3
225	250.4	250.4
250		280.4
300	315.5	315.5
375	400.5	400.5
475	500.5	500.5
600	630.5	630.5

All dimensions in mm

### Polyethylene Pipe to AS/NZS 4130:2003

The nominal size is the minimum outside diameter e.g.

Nominal size	Mean O/D
110	110 min 111 max
180	180 min 181.7 max

## Pressure Rating

This is based on a wall thickness, known as SDR (Standard Dimension Ratio)

Pressure rating also varies according to the compound used (PE 80 or PE 100)

Nominal working pressure (MPa)	Compound PE80	Compound PE 100
PN3.2	SDR41	
PN4	SDR33	SDR41
PN6.3	SDR21	SDR26
PN8	SDR17	SDR21
PN10	SDR13.6	SDR17
PN12.5	SDR11	SDR13.6
PN16	SDR9	SDR11
PN20	SDR7.4	SDR9
PN25		SDR7.4

If a line has a working pressure of PN12, the pipe could be PE 80 SDR11 or PE 100 SDR13.6 e.g.

For a 180mm dia line with a working pressure of PN12 :

PE 80 SDR11 pipe will have a wall thickness of  $180/11 = 16.4\text{mm}$

PE 100 SDR 13.6 pipe will have a wall thickness of  $180/13.6 = 13.3\text{mm}$

## Pressure Testing

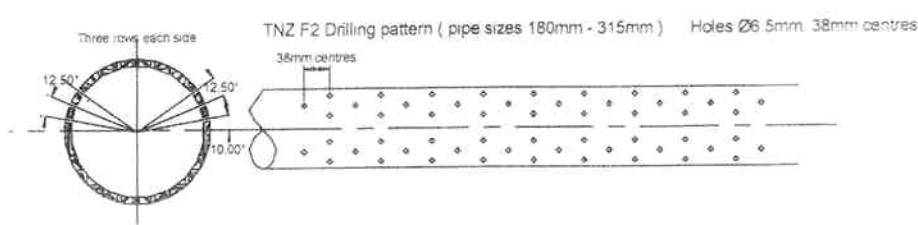
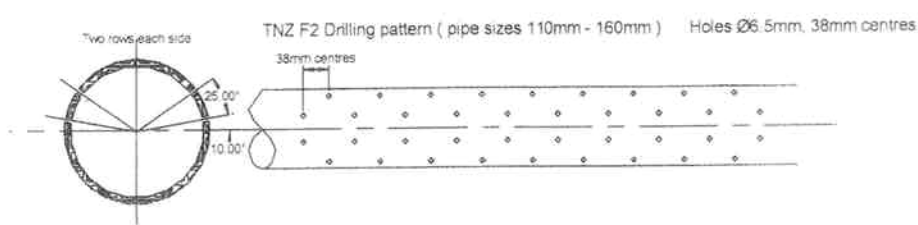
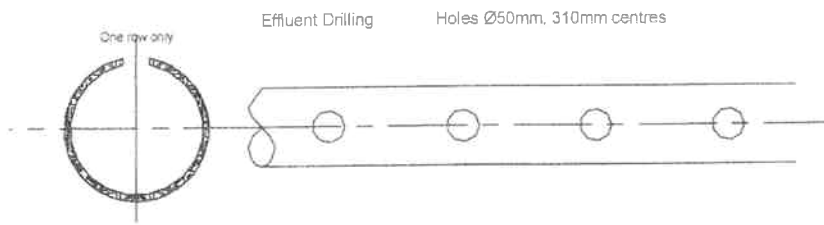
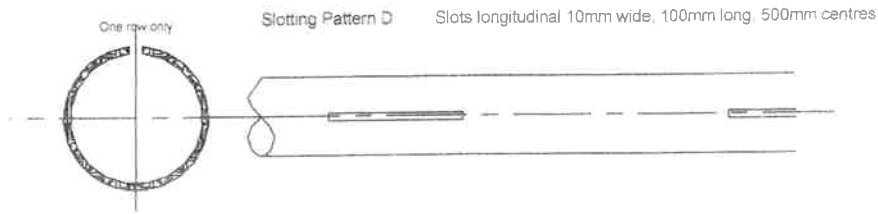
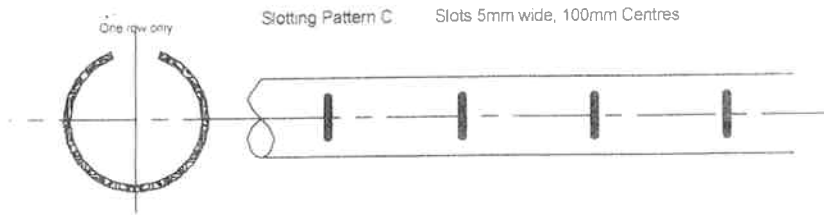
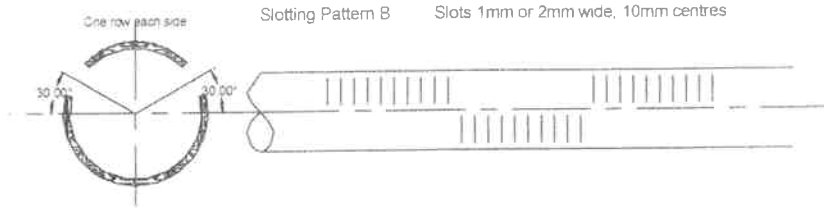
Polyethylene pipe expands under pressure, giving misleading test results. A pressure reduction occurs even if the line has no leaks.

Test procedures have been developed to interpret these effects. In practice it should not be necessary to test over 1.5 times the working pressure of the line

### When ordering PE Fittings please state:

Pipe Diameter  
SDR  
Compound Type (i.e. 80 or 100)  
Pressure rating required

# DRILLING AND SLOTTING PATTERNS



- Tolerances:
- Slotting - minimum O/D for pattern B is 42mm (32mm DWW)
  - maximum O/D for pattern B is 250mm
  - Drilling - minimum O/D for drilling is 100mm ( can do 42mm (32mm DWW) with special setup )
  - maximum O/D for drilling is 355mm