

MUNICIPAL SEWER PIPING SYSTEMS

PRODUCT INFORMATION BULLETIN

Perma-Loc™ PVC Sewer Piping Systems

**PVC Sewer Pipe manufactured to CSA and
ASTM standards**

**IPEX Perma-Loc™ Pipe (525mm - 900mm)
CSA B182.4 (Class V) and ASTM F794**

IPEX Perma-Loc PVC Pipe is designed for such municipal applications as conveying domestic sanitary sewage, industrial waste materials and stormwater. Manufactured from superior quality PVC, Perma-Loc provides advanced protection from cracking, leaking, corrosion and other threats that can compromise the integrity of municipal infrastructure.



Products are manufactured by IPEX Inc.
and distributed in the United States by IPEX USA LLC.
Perma-Loc® is a trademark of IPEX Branding Inc.

Features and Benefits:

Tight Joints & Lower Treatment Costs:

Infiltration and exfiltration are significantly reduced by specifying Perma-Loc. The factory installed gaskets mean that test allowances as low as 4.6 litres/mm dia/km/day (50 U.S. gal./inch/mile/day) can be specified. Class V is recommended for all applications where testing will be carried out.

High Flow Characteristics: The pipe's smooth interior, long lengths and factory-made close tolerance joints maintain a Manning "n" coefficient of 0.009, meaning minimum grades or smaller diameter pipes may be used in many applications.

Chemical Resistance: PVC is virtually immune to chemical attack from even the most aggressive effluents and is not vulnerable to H₂S attack.

Lightweight: A length of 525mm (21") Perma-Loc V weighs only 100kg (220 lbs.), allowing for maximum equipment and crew utilization, resulting in increased productivity and reduced installation costs.

Each Length Tested: Proper pipe spiral seam fusion is verified by subjecting each length of Perma-Loc to a low pressure air test in the factory.

Longer Lengths: Perma-Loc's standard 4m lay lengths allow for more pipe per truckload to be transported, resulting in reduced unloading and stringing time. Shorter lengths also mean fewer joints; therefore, less pipe to prepare, lower, lubricate, assemble, set to grade and test.

Canadian Customers call IPEX Inc.

Toll Free: (866) 473-9462
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US Customers call IPEX USA LLC

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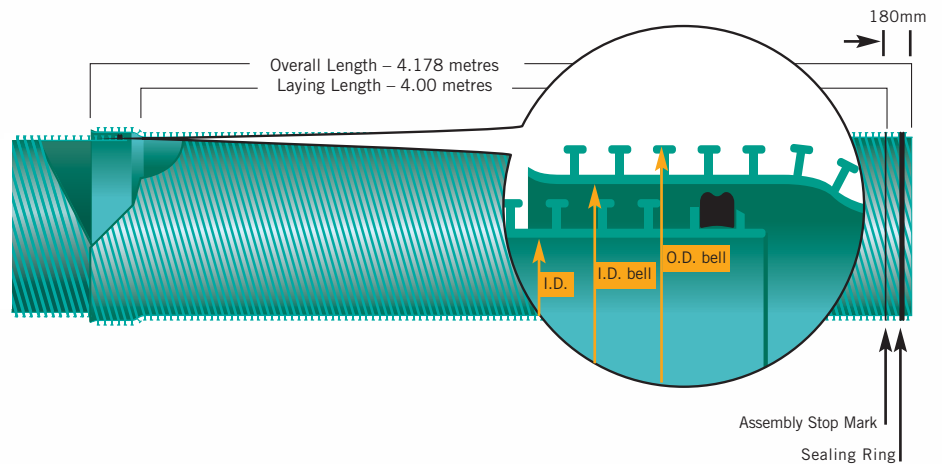
Percent (%) Deflection of Perma-Loc IV

SPD	Soil Stiffness E'	Depth of Cover, metres (feet)									
		0.3 (1.0)	1 (3.3)	2 (6.6)	3 (9.8)	4 (13.1)	6 (19.7)	8 (26.2)	10 (32.8)	12 (39.4)	15 (49.2)
< 85% slight	4 800 kPa (700 psi)	3.0	1.5	1.5	1.8	2.5	3.7	5.0	6.2	7.4	9.3
85-95% moderate	7 000 kPa (1 000 psi)	2.1	1.0	1.1	1.3	1.7	2.6	3.5	4.4	5.2	6.6
> 95% high	14 000 kPa (2 000 psi)	1.1	0.5	0.5	0.7	0.9	1.3	1.8	2.2	2.7	3.3

Percent (%) Deflection of Perma-Loc V

SPD	Soil Stiffness E'	Depth of Cover, metres (feet)									
		0.3 (1.0)	1 (3.3)	2 (6.6)	3 (9.8)	4 (13.1)	6 (19.7)	8 (26.2)	10 (32.8)	12 (39.4)	15 (49.2)
< 85% slight	4 800 kPa (700 psi)	2.7	1.3	1.4	1.7	2.2	3.3	4.4	5.5	6.6	8.3
85-95% moderate	7 000 kPa (1 000 psi)	2.0	1.0	1.0	1.2	1.6	2.4	3.2	4.0	4.8	6.0
> 95% high	14 000 kPa (2 000 psi)	1.0	0.5	0.5	0.6	0.8	1.3	1.7	2.1	2.5	3.2

The above tables express the long-term deflections for Perma-Loc IV and V, derived by the formulas in the example calculation. Calculations are based on a soil unit weight of 18 640 N/m³ (120 lbs./ft.³). Minimum pipe stiffnesses of Perma-Loc IV and V are 70 kPa (10 psi) and 320 kPa (46 psi) respectively. Deflection values shown include the effects of H:0 live loading.



DIMENSIONS

Nominal Pipe Size	Perma-Loc IV			Perma-Loc V		
	I.D.	I.D. Bell	O.D. Bell	I.D.	I.D. Bell	O.D. Bell
525	541.3	575.1	618.7	527.1	575.1	618.7
600	614.7	652.8	686.3	596.9	652.8	704.1
675	691.9	734.1	782.8	673.1	734.1	789.9
750	773.2	816.9	855.0	749.3	816.9	878.6
900	930.7	983.2	1 028.6	901.7	983.2	1 058.4

All dimensions in millimetres unless otherwise noted. For inches, divide mm by 25.4.
Note: Bell I.D.'s are compatible; hence Perma-Loc IV and V are interchangeable in the field.

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