

TECHNICAL SHEET

VERSAPIPE® HD100 PW

High Density Polyethylene DIPS Pipe for Potable Applications

Manufactured from PE4710. Certified to NSF pw, CSA B137.1 and NSF 14/61.



Scope

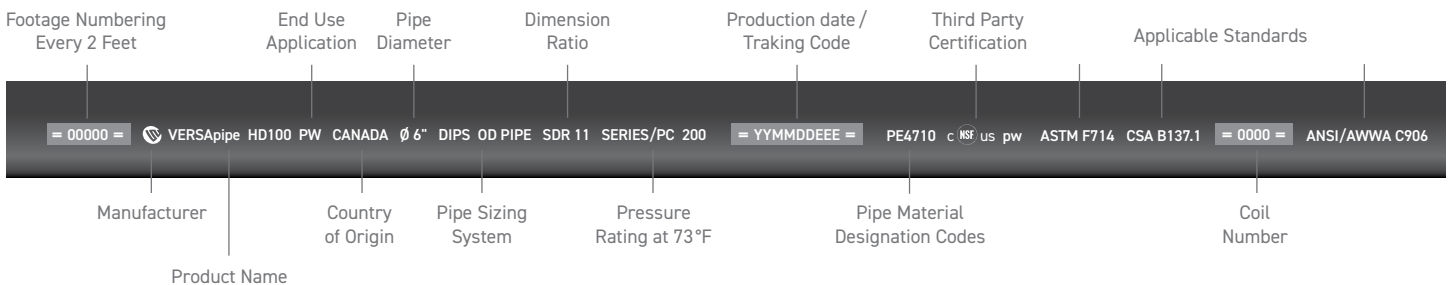
This specification sheet designates the requirements of **VERSAPIPE® HD100 PW** high density polyethylene water pipe based on outside diameter "Ductile Iron Pipe Size" (DIPS) SDR and third party certified to CSA B137.1 and NSF 14/61 standards. It describes the minimum requirements for the fabrication of **VERSAPIPE® HD100 PW** pipe for potable water and wastewater transport applications at operating pressure up to 1,38 MPa (200 psi). The maximum recommended operating temperature for pressure service is 60°C (140°F).

Raw Material

All **VERSAPIPE® HD100 PW** high density polyethylene pipe are manufactured from PE4710 high density polyethylene resin listed in the Plastics Pipe Institute (PPI) TR-4 listing and meeting the cell classification 445574, or equivalent, as per ASTM D3350. The raw material is filled with carbon black as an ultra violet inhibitor allowing the pipe to be stored outside. (See the tables below for more information.)

Printline

Versaprofiles VERSAPIPE® HD100 PW pipe is identified with permanent marking and sequential footage numbering every two (2) feet.



Handling, joining and installation

Do not drag or roll DIPS **VERSAPIPE® HD100 PW** pipe across rocks or rough ground. Installation and backfill practices for DIPS **VERSAPIPE® HD100 PW** pipe in trenched should comply with guidelines prepared by the Plastics Pipe Institute (PPI)¹, and according to the installation recommendations found in CSA B137.1 standards. DIPS **VERSAPIPE® HD100 PW** pipe is connected by heat fusions in accordance with ASTM F2620 and Plastics Pipe Institute (PPI)² recommendations. The fittings have to be made of the same type of polyethylene as the pipe itself.

¹ <http://plasticpipe.org/pdf/chapter07.pdf> ² <http://plasticpipe.org/pdf/chapter09.pdf>

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RAW MATERIAL PROPERTIES AND CELL CLASSIFICATION¹ (PER ASTM D3350)

Properties	Cell Classification (445574)	ASTM Test Method	Typical Values	
			Imperial Units	SI Units
Density (natural)	4	D 792	0,949 g / cm ³	0,949 g / cm ³
Melt Index (190°C / 2,16 kg)	4	D 1238	0,075 g / 10 min	0,075 g / 10 min
Flexural Modulus (2% secant)	5	D 790	150 000 psi	1 034 MPa
Tensile Strength at Yield	5	D 638	3 500 psi	24,1 MPa
Resistance to Slow Crack Growth (SCG), h (PENT)	7	F 1473	> 5 000 h	> 5 000 h
Hydrostatic Design Basis @ 73°F (23°C)	4	D 2837	1 600 psi	11,0 MPa
Carbon Black Concentration	C	-	2%	2%
Elongation at Break		D 638	> 800%	> 800%
IZOD Impact Strength, Notched		D 256	> 8,0 pi-lb / po	> 427 J / m
Brittleness Temperature		D 746	< -180 °F	< -118 °C
Environmental Stress Crack Resistance		D 1693 (C Condition)	> 1 000 h	> 1 000 h
Thermal Conductivity		-	0,23 BTU / (h pi °F)	0,40 W / (m °K)
Specific Heat Capacity		-	0,54 BTU / (lb °F)	2,25 kJ / (kg °C)

¹ Material listed in the Plastic Pipe Institute TR-4 listing.

STANDARD PRODUCT SIZES DIPS SDR² (PER ASTM F714 AND D3035)

Certified : NSF PW CSA B137.1 NSF 14/61 Color : Black

Nominal Pipe Size in ³	Outside Diameter in (mm)	Tolerance ± in (mm)	SDR 13,5		SDR 11	
			Minimum Wall Thickness in (mm)	Weight for 100 ft lb (kg)	Minimum Wall Thickness in (mm)	Weight for 100 ft lb (kg)
4	4,800	0,022	0,356	218,1	0,436	261,8
	(121,92)	(0,56)	(9,04)	(99,1)	(11,07)	(119,0)
6	6,900	0,031	0,511	443,6	0,627	541,2
	(175,26)	(0,79)	(12,98)	(201,6)	(15,93)	(246,0)
8	9,050	0,041	0,670	773,9	0,823	931,9
	(229,87)	(1,04)	(17,02)	(351,8)	(20,90)	(423,6)

PRESSURE RATING SDR

Pipe Standard Dimension Ratio (SDR)	Standard Pressure Rating (PSIG @ 73°F [23°C])	
	psi	kPa
13,5	160	1 100
11	200	1 380

MINIMUM BENDING RADIUS


Pipe Standard Dimension Ratio (SDR)	Minimum Long Term Cold Bending Radius
11 et 13,5	25 x OD

OD = Pipe outside diameter.

² DIPS (Ductile Iron Pipe Size) SDR (outside diameter controlled pipe) pipe dimensions.

³ Ask your account manager about the availability of the displayed sizes. Versaprofiles may also offer options that are not listed in this document.

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FLUID VOLUME CALCULATION

$V = \pi r^2 L$
<p>Where</p> <p>V = Volume, ft³ (m³)</p> <p>π = 3,1416...</p> <p>r = Pipe Inside Radius (ID/2), ft (m)</p> <p>L = Pipe Length, ft (m)</p>
<p>For Weight Calculation, $W = V D$</p> <p>Where</p> <p>W = Weight, lb</p> <p>V = Calculated Volume, ft³</p> <p>D = Fluid Density, lb/ft³</p>

THERMAL EXPANSION CALCULATION

$\Delta L = L \alpha \Delta T$
<p>Where</p> <p>ΔL = Pipeline Length Variation, ft</p> <p>L = Pipe Length, ft</p> <p>α = 12×10^{-5} (Linear Thermal Expansion coefficient, in/[in °F])</p> <p>ΔT = Temperature Variation, °F</p>

PACKAGING TYPE AND STANDARD LENGTHS¹

Nominal Diameter in ²	Stick ft	
4 to 8	20, 40, 50	
Nominal Diameter in ²	Coil ft	Reel ft (m)
4	100, 300	656
		(200)
6	-	944
		(288)

¹ Other stick, roll and coil lengths available on request. ² Other diameters & DR available on request.

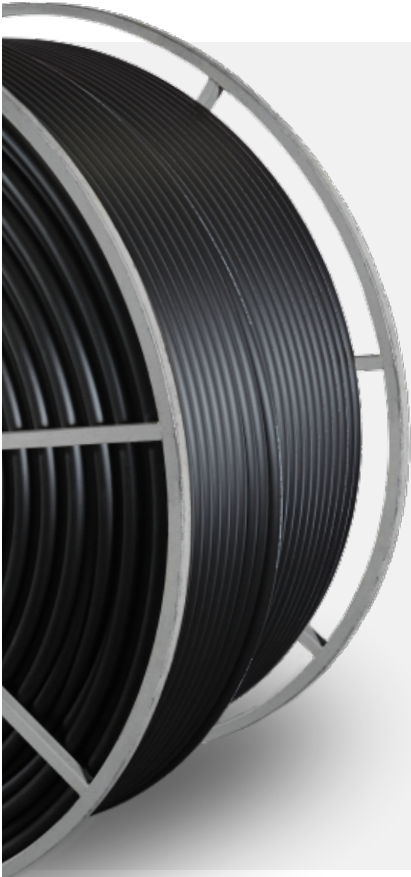
TEMPERATURE COMPENSATING MULTIPLIER

Maximum Pipe Sustained Temperature		Compensating Multiplier
°F	°C	
-20	-29	2,54
-10	-23	2,36
0	-18	2,18
10	-12	2,00
20t	-7	1,81
30	-1	1,65
40	4	1,49
50	10	1,32
60	16	1,18
73,4	23	1,00
80	27	0,93
90	32	0,82
100	38	0,73
110	43	0,64
120	49	0,58
130	54	0,50
140	60	0,43



References: ASTM Standards D3350, F2620 and F714 – CSA B137.1 – ANSI/AWWA C906 Standards – NSF 14/61 – Plastics Pipe Institute (PPI), http://plasticpipe.org/publications/pe_handbook.html

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About Versaprofiles

With over 50 years of experience in thermoplastic extrusion, **Versaprofiles** offers innovation to make your job easier and lighten your workload. We are producing pipe and tubing for maple sap, geothermal, water and natural gas distribution applications in addition of specializing into custom made profiles. With our collective expertise in various sectors and our versatile equipment, we can bring your projects to higher level. We work closely and in a friendly atmosphere with each partner to deliver products that meet expectations and provide dedicated customer service.

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