

# VERSA PIPE® HD80 PW

## High Density Polyethylene DIPS Pipe for Potable Applications

Manufactured from PE3408/3608, certified to NSF pw, CSA B137.1, ANSI/AWWA C901/C906 and NSF 14/61 standards

### SCOPE

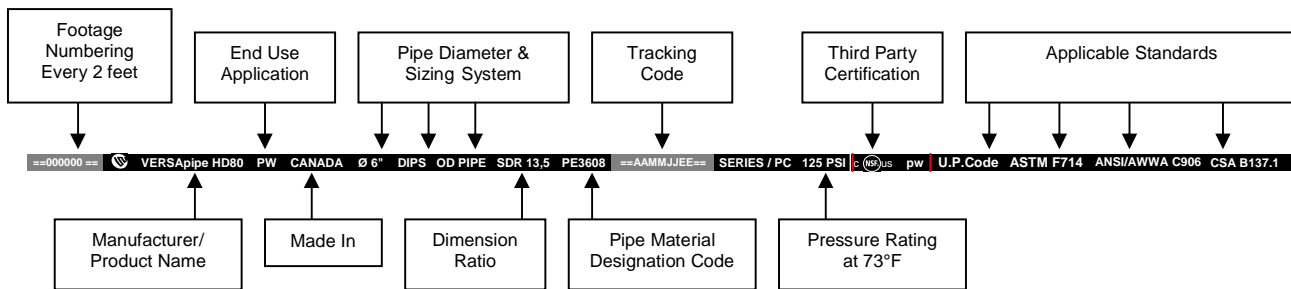
This specification sheet designates the requirements for DIPS **VERSA PIPE® HD80 PW** high density polyethylene pipe for use in potable water and wastewater transport applications and third party certified by NSF to CSA B137.1, ASTM F714 and ANSI/AWWA C901/C906 standards. It describes the minimum requirements for the design and manufacture of all **VERSA PIPE® HD80 PW** high density polyethylene pipe. The maximum recommended operating temperature for pressure service is 60°C (140°F). (See the tables below for more information.)

### RAW MATERIAL

All DIPS **VERSA PIPE® HD80 PW** high density polyethylene pipes are manufactured from PE3408/3608 high density polyethylene resin meeting the cell classification 345464, or equivalent, as per ASTM D-3350. The raw material is filled with a certified carbon black acting as an ultra violet inhibitor and can be stored outside. In addition, this pipe is also available in a certified solid blue color and is protected against UV rays with a high quality color blend. (See the tables below for more information.)

### PRINTLINE

Versaprofiles DIPS **VERSA PIPE® HD80 PW** pipe is identified with permanent marking and sequential footage numbering every two (2) feet.\*



\*The example shown here represents the DIPS 6" SDR13.5 pipe. Some classifications may vary depending of the pipe application.

### HANDLING, JOINING AND INSTALLATION

Do not drag or roll DIPS **VERSA PIPE® HD80 PW** pipe across rocks or rough ground. Installation and backfill practices for DIPS **VERSA PIPE® HD80 PW** pipe in trench should comply with guidelines prepared by the Plastic Pipe Institute (PPI)<sup>1</sup>, and according to the installation recommendations found in CSA B137.1 standards. DIPS **VERSA PIPE® HD80 PW** pipe is connected by heat fusions in accordance with ASTM F2620 and Plastic Pipe Institute (PPI)<sup>2</sup> recommendations. The fittings must be made with the same polyethylene used in the pipe.

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

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### RAW MATERIAL PROPERTIES AND CELL CLASSIFICATION AS PER ASTM D3350

Properties	Cell Classification (345464)	ASTM Test Method	Typical Values	
			Imperial Units	SI Units
Density (natural)	3	D 792	-	0.945 g/cm <sup>3</sup>
Melt Index	4	D 1238	-	0.08 g/10min.
Flexural Modulus	5	D 790	125,000 psi	861 MPa
Tensile Strength at Yield	4	D 638	3,300 psi	22.7 MPa
Resistance to Slow Crack Growth of compound (SCG), hrs. (PENT)	6	F 1473	>100 h	>100 h
Hydrostatic Design Basis @ 73°F (23°C)	4	D 2837	1,600 psi	11.0 MPa
Carbon Black Weight Concentration (black option)	C	-	-	2%
UV Stabilizer (blue option)	E	-	Yes	Yes
Elongation at Break		D 638	> 800%	> 800%
IZOD Impact Strength, notched		D 256	> 11.0 ft-lb./in.	> 590 J/m
Brittleness Temperature		D 746	< -100°F	< -78°C
Environmental Stress Crack Resistance		D 1693 (C Condition)	>1,000 h	>1,000 h
Thermal conductivity			0.24 BTU/hr ft °F	0.42 W/m °K
Specific heat capacity			0.55 BTU/ lb °F	2,300 JK/g °K

### STANDARD PRODUCT SIZES\* DIPS SDR<sup>1</sup> AS PER ASTM F714

Nominal Pipe Size, IN	Outside Diameter, IN (mm)	Tolerance, IN (mm)	SDR 13.5	
			Average Wall Thickness, IN (mm)	Weight for 100 Ft. LBS (Kg)
6	6.900 (175.26)	± 0.031 (0.79)	0.521 (13.01)	441.32 (200.18)

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

1 : DIPS (Ductile Iron Pipe Size), SDR (Outside diameter controlled pipe) pipe dimensions.

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**PRESSURE RATING SDR**

Pipe Standard Diameter Ratio (SDR)	Standard Pressure Rating (PSIG @ 73°F (23°C))
21	80
17	100
15.5	110
13.5	125
11	160
9	200

**MINIMUM BENDING RADIUS**

Pipe Diameter Ratio (DR)	Minimum Long Term Cold Bending Radius
9 or less	20 X OD
11, 13.5	25 X OD
15.5, 17, 21	27 X OD

OD = Pipe outside diameter.

**TEMPERATURE COMPENSATING MULTIPLIER**

Maximum Pipe Sustained Temperature °F (°C)	Compensating Multiplier
-20 (-29)	2.54
-10 (-23)	2.36
0 (-18)	2.18
10 (-12)	2.00
20 (-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

**THERMAL EXPANSION CALCULATION**

$$\Delta L = L \alpha \Delta T$$

**Where**

$\Delta L$  = pipeline length variation, ft  
 $L$  = pipe length, ft  
 $\alpha$  =  $10^{-6}$  67 (thermal expansion coefficient, in/in/°F)  
 $\Delta T$  = temperature variation, °F

**FLUID VOLUME CALCULATION**

$$V = \pi r^2 L$$

**Where**

$V$  = volume, ft<sup>3</sup> (m<sup>3</sup>)  
 $\pi$  = 3.1416...  
 $r$  = pipe inside radius (ID/2), ft (m)  
 $L$  = pipe length, ft (m)

**Note :** For weight calculation,  $W = V D$

**Where**

$W$  = weight, lb  
 $V$  = calculated volume, ft<sup>3</sup>  
 $D$  = fluid density, lb/ft<sup>3</sup>

**References :**

- ASTM Standards D3350, F2620 and F714
- CSA Standards B137.1
- Plastic Pipe Institute (PPI), [http://plasticpipe.org/publications/pe\\_handbook.html](http://plasticpipe.org/publications/pe_handbook.html)

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