



POLYTUBES 2009 INC

POLYETHYLENE PLASTIC

“MUNI”

PE - 3608

PIPING SYSTEMS

PLASTIC MANUFACTURER “SINCE 1953”





General Information

POLYTUBES extrudes and fabricates its MUNICIPAL pipe from a **High Molecular Weight (HMW)** High Density Polyethylene (H.D.P.E.) hexene copolymer resin. This material provides an excellent combination of toughness, durability and environmental stress crack resistance for pressure and non pressure pipe applications.

This material is listed by the Canadian Standards Association (CSA) and Plastic Pipe Institute (PPI) as a PE-3608 resin with a hydrostatic design basis (HDB) of 1600 psi for water at 23°C. Thus, a Grade P36 polyethylene is designated as a PE-3608, after applying the 0.5 design safety factor; the design working stress for 23°C is 800 psi with a cell classification of PE345464C as per ASTM D3350.

Identification of **POLYTUBES** polyethylene pipe by cell classification is as follows:

<u>PROPERTY</u>	<u>NOMINAL VALUE</u>	<u>CELL CLASS</u>
Density	0.955 gm/cm ³	3
Melt Index	<0.10 dg/min	4
Flexural Modulus	135,000 psi	5
Tensile Strength, yield	3,300 psi	4
Slow Crack Growth, (Pent Test)	100 hrs	6
Hydrostatic Design Basis	1600 psi	4
Colour/UV Stabilizer	Carbon Black	C

Pipe Properties

	<i>Units</i>	<i>Typical Values</i>	<i>ASTM Test Method</i>
Pipe Ring Tensile Strength @ Yield	MPa	23	D2290
Pipe Density	g/cm ³	0.955	D1505
Carbon Black Content	%	2.1	D1603
Thermal Stability	°C	260	D3350
Coefficient, of Linear Thermal Expansion	in./in./°F	1.2x10 ⁻⁴	D696
Thermal Conductivity	BTU/hr/ft ² /°F/in	2.7	C177
Long Term Hydrostatic Strength @ 23°C	psi	1600	D2837
Long Term Hydrostatic Strength @ 60°C	psi	800	D2837
*Elevated Temperature Sustained Pressure			
Long Term Hydrostatic Strength @ 80°C	psi	400	

* This material has been tested at @ 80°C. The Hydrostatic Design Basis (HDB) for this material (based on actual test data exceeding 27,000 hours) is 400 psi.



STANDARD TERMINOLOGY

Long Term Hydrostatic Strength (LTHS) - is the hoop stress that when applied continuously at a given temperature, will cause failure of the pipe at 100,000 hours (11.4 years).

Hydrostatic Design Basis (HDB) - refers to the categorized LTHS at a specified temperature in the circumferential, or hoop direction.

Pressure Rating (P) - the estimated maximum operating pressure rating (psig) that the fluid acting on the pipe can exert continuously with a high degree of certainty that failure of the pipe will not occur.

The design pressure for **POLYTUBES** pipe is determined in accordance to the Standard ISO equation shown below:

$$P = \frac{2S}{R - 1} \times F$$

Where:

P design pressure, **psi**

S hydrostatic design basis (*HDB*)

(ie: @ 23°C = 1600 psi or 11.03 Mpa)

F service fluid factor (0.5 is recommended for water)

R ratio of pipe outside diameter to pipe minimum wall thickness.

Note: If the service temperature exceeds the maximum established HDB for this material consult your **POLYTUBES** representative for higher temperature de-rating factor.

The material that Polytubes uses are tested to ensure long term service life and made of only virgin material. The resin has also been tested and complies with NSF/ANSI 14, 61 through NSF International.

Available Technical Data:

- 1) Buried Recommendations
- 2) Pipe Rating at 80° Degree Celsius.



MUNICIPAL SERVICE TUBING

CSA  CERTIFIED

TYPE III PE-3608 POLYETHYLENE PIPE FOR SERIES 200

NOMINAL SPECIFICATIONS

NOMINAL SIZE (in)	NOMINAL WALL (in)	NOMINAL O.D. (in)	NOMINAL I.D. (in)	WEIGHT C/FT (lbs)	LENGTHS (ft)
<u>SERIES 200 - Working Pressure 200 PSI @ 23°C</u>					
3/4"	0.097	0.875	0.681	10.2	100//200/300/400/500/1000*
1"	0.125	1.125	0.875	17.0	100/150/200/300/500/1000*
1-1/4"	0.153	1.375	1.069	25.0	100/200/300/500/1000*
1-1/2"	0.181	1.625	1.263	36.0	100/200/250/500/1000*
2"	0.236	2.125	1.653	58.0	100/200/500/1000*
*WOOD REELS					

“POLYTUBES®”  CERTIFIED “MUNICIPAL TUBING” IS MANUFACTURED TO CSA SPECIFICATIONS CAN/CSA B 137.1, AND IS FOR USE WITH CORPORATION FITTINGS.

F.O.B. : EDMONTON/CHILLIWACK/PETERBOROUGH

****OTHER LENGTHS AVAILABLE DEPENDING ON YOUR REGION. PLEASE CONTACT YOUR LOCAL POLYTUBES SALES REPRESENTATIVE FOR AVAILABLE LENGTHS, COIL DIMENSIONS, COILS PER PALLET, AND COILS PER TRUCKLOAD. ****