

MDPE PE 2708

Natural Gas Distribution Documents for Submittals

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Product description with key benefit highlights for natural gas distribution applications

Temperature Compensation Chart – Page 5

Temperature vs Dimensional Ratio chart based on pipe application and burial classification

Technical Data Sheet – Page 3

Typical material data values of MDPE resin and pipe for natural gas distribution applications

Pipe Size Chart – Page 4

MDPE size and pressure chart for various Standard Dimensional Ratio (SDR)

This publication is intended for use as a piping system guide and shall not be used in place of a professional engineer's judgment or guidance. The information in this publication does not constitute a guarantee or warranty for piping installations and cannot be guaranteed because the conditions of use are beyond individual controls. The user of this information assumes all risk associated with its use. P&F Distributors has made every reasonable effort to ensure accuracy, but the information in this publication may not be complete, especially for special or unusual applications. Changes to this publication may occur from time to time without notice. Please contact P&F Distributors to determine if you have the most current edition.



MDPE Pipe for Regulated Natural Gas, LPG and Propane Applications

Lowest Total Cost of Ownership

Lowest life cycle cost of any piping material when accounting for all costs: direct, indirect and operational costs

Installation Flexibility – So Many Choices

Durable, lightweight and flexible paves way for trench and trenchless installation methods whether above, below grade or under rivers, lakes and obstacles

Tracking and Traceability

MDPE Pipe are marked per ASTM D2513 and adhere to DOT 49 CFR Part 192 regulations for plastic pipe tracking and traceability via a 16 digit scannable character code generated per ASTM F2897

50+ Year Rated – Same Pipe New and Old

Hydrostatic design basis is established per ASTM D2837 to provide high confidence interval of lifetime material performance

Consistent Pipe Joint Solution

Fusion joints are leak-free, fully restrained, homogenous, and repeatable through the innovative butt, socket, saddle and electrofusion joining methodology of ASTM F2620 and ASTM F1290 – When equipped with a Data Logging Device, joint information become fully transparent and worry-free

Seismic Resistant Pipe

PE material's high strain allowance combined with the lowest force generation provides a critical lifeline and complete piping solution to seismically active regions

Please Contact for Additional Technical Information or Tailored Presentation

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Bakersfield, CA 93308
661.589.7300

Medium Density Polyethylene Pipe Common Sizing

MDPE - PE 80/2708

MDPE - IPS Sizing		DR 9.33			DR 11			DR 11.5			DR 13.5		
Pressure Rating		120 psi			100 psi			95 psi			80 psi		
Pipe Size	Actual OD	Min. Wall	Avg. ID	Weight	Min. Wall	Avg. ID	Weight	Min. Wall	Avg. ID	Weight	Min. Wall	Avg. ID	Weight
in.	in.	in.	in.	lb/ft	in.	in.	lb/ft	in.	in.	lb/ft	in.	in.	lb/ft
1/2	0.84	0.090	0.649	0.09	0.076	0.678	0.08	0.073	0.685	0.08	0.062	0.708	0.07
3/4	1.05	0.113	0.811	0.14	0.095	0.848	0.12	0.091	0.856	0.12	0.078	0.885	0.10
1	1.315	0.141	1.016	0.22	0.120	1.062	0.19	0.114	1.073	0.19	0.097	1.108	0.16
1 1/4	1.66	0.178	1.283	0.35	0.151	1.340	0.31	0.144	1.354	0.29	0.123	1.399	0.25
1 1/2	1.90	0.204	1.468	0.46	0.173	1.534	0.40	0.165	1.550	0.39	0.141	1.602	0.33
2	2.375	0.255	1.835	0.73	0.216	1.917	0.63	0.207	1.937	0.60	0.176	2.002	0.52
3	3.50	0.375	2.705	1.58	0.318	2.825	1.36	0.304	2.855	1.31	0.259	2.950	1.13
4	4.50	0.482	3.477	2.61	0.409	3.633	2.26	0.391	3.670	2.17	0.333	3.793	1.87
6	6.63	0.711	5.124	5.66	0.603	5.352	4.90	0.577	5.408	4.70	0.491	5.589	4.07
8	8.63	0.925	6.669	9.59	0.785	6.967	8.29	0.750	7.039	7.97	0.639	7.275	6.89
10	10.75	1.152	8.307	14.88	0.977	8.678	12.87	0.935	8.768	12.37	0.796	9.062	10.69
12	12.75	1.367	9.853	20.94	1.159	10.293	18.10	1.109	10.400	17.40	0.944	10.748	15.04

Pipe sizing per ASTM D2513 . Pressure Class calculations based on 0.4 DF at 73F per DOT 49 CFR §192.121. Average ID is approximate. Weights calculated based on PPI TR-7.

MDPE - IPS Sizing		DR 7			DR 9			DR 10			DR 15.5		
Pressure Rating		125 psi			120 psi			110 psi			60 psi		
Pipe Size	Actual OD	Min. Wall	Avg. ID	Weight	Min. Wall	Avg. ID	Weight	Min. Wall	Avg. ID	Weight	Min. Wall	Avg. ID	Weight
in.	in.	in.	in.	lb/ft	in.	in.	lb/ft	in.	in.	lb/ft	in.	in.	lb/ft
2	2.375	0.339	1.656	0.93									
3	3.50	0.500	2.440	2.01	0.389	2.676	1.63						
4	4.50	0.643	3.137	3.33	0.500	3.440	2.69	0.450	3.546	2.45	0.290	3.885	1.65
6	6.63	0.947	4.622	7.22	0.737	5.068	5.84	0.663	5.224	5.33	0.428	5.723	3.58
8	8.63	1.233	6.016	12.24	0.959	6.597	9.90	0.863	6.800	9.03	0.557	7.450	6.07
10	10.75				1.194	8.218	15.36	1.075	8.471	14.01	0.694	9.280	9.42
12	12.75							1.275	10.047	19.70	0.823	11.006	13.25

Pipe sizing per ASTM D2513 . Pressure Class calculations based on 0.4 DF at 73F per DOT 49 CFR §192.121. Average ID is approximate. Weights calculated based on PPI TR-7.

Molded and Fabricated Fittings

MDPE – PE 80/2708

MDPE Pipe (3/4" – 12")
Electrofusion
Fusion Equipment and Tools
Bead Trimmer
Custom Fabrication

Elbows
Tees
Branch/Service Saddle
Tapping Tee
Caps and Couplers

Transition Fittings
Poly Valves
Blind Flange

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MDPE PE 2708 Technical Data Chart

Nominal MDPE Pipe Property ¹	ASTM Test Method	Unit	Required by ASTM D2513 for PE2708	Typical Value
Cell Classification	D3350	-	PE 234373E	PE 234373E
Density w/ Min 2% Carbon Black	D1505	g/cm ³	> 0.925 - 0.940	0.939
Melt Flow Index (190/2.16)	D1238	g/10 min	< 0.40 - 0.15	0.18
Hydrostatic Design Basis (HDB) @ 73°F (23°C)	D2837	psi	1,600	1,250
Hydrostatic Design Stress (HDB) @ 140°F (60°C)	D2837	psi	1,000	800
Color: UV Stabilizer [E]	D3350	-	-	Yellow
Nominal MDPE Material Property²				
Nominal MDPE Material Property ²	ASTM Test Method	Unit	Required by ASTM D2513 for PE2708	Typical Value
Tensile Strength at Yield	D638	psi	2,600 - < 3,000	2,800
Tensile Elongation at Break	D638	%	-	800
Slow Crack Growth (PENT)	F1473	hrs	> 500	> 2,000
Flexural Modulus	D790	psi	80,000 - < 110,000	> 90,000
Modulus of Elasticity (Short Term ³)	D638	psi	-	100,000
Vicant Temperature	D1525	°F	-	227
Brittleness Temperature	D746	°F	-	< -103
Hardness	D2240	-	-	63
Coefficient of Thermal Expansion/Contraction	D696	in/in ·°F	-	10.0 x 10 ⁻⁵
Compressive Stress	-	psi	-	800
Thermal Conductivity	-	BTU ·in /hr ·sq. ft ·°F	-	2.6
Poisson's Ratio	-	-	-	0.45

¹The nominal pipe properties were determined on pipe extruded from a pellet blend of typical resin and an approved color concentrate. ²The nominal properties reported are typical of the resin when blended with an approved color concentrate, except the density value which is representative of the natural resin, but do not reflect normal testing variance and therefore should not be used for specification purposes. Values are rounded. ³Ratio of stress to strain that that is achieved at a certain defined strain. This apparent modulus is considered "short term" and is of limited value for engineering design.

Gas Distribution Sizing Chart - MDPE

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MDPE Temperature Derate Pressure Chart

MDPE PE 2708 Design Pressure (psi)					
Operating Temperature					
Application	DR	73°F	100°F	120°F	140°F
Regulated Natural Gas 49 CFR 192 Applications	DR 7	125	125	125	107
	DR 9	125	100	100	80
	DR 9.33	120	96	96	77
	DR 10	111	89	89	71
	DR 11	100	80	80	64
	DR 11.5	95	76	76	61
	DR 13.5	80	64	64	51
	DR 15.5	69	55	55	44

Gas distribution and transmission pressure ratings per 49 CFR Part 192, s12" PE pipe meeting minimum wall thickness requirements per §192.121 and produced after January 22, 2019

P & F

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