



Aurora Operations

Title: PRODUCT STANDARD

1204

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Product Standard

for

HIGH DENSITY POLYETHYLENE TUBING

Date of Original Standard (10/27/71)

Changes: (DK-90-3737)(DK-98-4797)(01-5176)(05-6610)



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DESCRIPTION

Eaton "HP" tubing, manufactured from 100% virgin high density, polyethylene resin, is recommended for air, gas, or low temperature water and chemical transfer lines where a tubing with a slightly higher temperature and pressure characteristics than those of "P" tubing is required.


PRODUCT TECHNICAL DATA

Part Number	Dimensions					
	Wall Thickness	O.D. Nominal	O.D. Tolerance	I.D. Nominal	I.D. Tolerance	T.I.R.
1204-4400x	0.040"	0.250"	+ 0.003" -0.007"	0.170"	+0.006" -0.003"	0.004" Max.
1204-6620x	0.062"	0.375"	+ 0.003" -0.007"	0.251"	+0.006" -0.003"	0.004" Max.
1204-8620x	0.062"	0.500"	+0.003" -0.007"	0.376"	+0.006" -0.003"	0.004" Max.

Part Number	Minimum Bend Radius	Maximum Pulling Strength	Net Weight per 100 ft.
1204-4400x	1"	32 lbs.	1.09 lbs.
1204-6620x	1 1/4"	70 lbs.	2.52 lbs.
1204-8620x	2 1/8"	100 lbs.	3.53 lbs.

x - Length Designator: 2 = 100 ft., 3 = 250 ft., 4 = 500 ft., 5 = 1000 ft.

Color: Available in Black only

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MATERIAL SPECIFICATION PER ASTM D 1248:

Type III; Class C; Category 5

PHYSICAL PROPERTIES OF "HP" TUBING:

Property	Units	Test Method	Value
Melt Index	g/10 min.	ASTM D 1238-95	6.5 – 13.0
Density, 23°C, max.	g/cc	ASTM D 792	0.952-0.959
Tensile Strength	PSI	ASTM D 638-87B	3500 min.
Elongation (pull at 20"/min.)	%	ASTM D 638-87B	600 min.
Flexural Modulus of Elasticity	PSI	ASTM D 790	90,000
Environmental Stress Crack Resistance	Hours	See Note (a)	No failure
Water Absorption	%	ASTM D 570-81	0.1 Max.
Brittleness Temperature	°C	ASTM D 746-87	< -65
Maximum Service Temperature	°F	See Note (b)	200

- Note: (a) Modified version of ASTM D 1693 to evaluate quality of tubing. Sections of tubing (1-1/2" long - 1/4" O.D. Tubes; 2" long - 3/8" O.D. and 1/2" O.D. Tubing) are bent into a "V" and inserted into test tubes. The size of the test tubes is 18mm for 1/4" O.D. tubes, 25mm for 3/8" O.D. tubes, and 32mm for 1/2" O.D. tubes. Ten (10) specimens are evenly spaced in the test tube; then the test tube is filled with a 10% solution of Igepal CO-630. The test tube is then placed at 50°C (122°F) either in a water bath or a circulating air oven. Any crack or split in the stressed sections of the tubing constitutes failure. Samples must exhibit no failure at 72 hours (3 days) to be considered satisfactory for extended use.
- (b) Maximum service temperature is specified for applications involving the transfer of clean, dry air or gas. For applications where moisture may be present, see Product Standard for PEX tubing, family series 1240.

Table 1
BURST PRESSURE (PSI) VS. TEMPERATURE

Tubing Size	75°F	100°F	125°F	150°F	175°F	200°F
1/4"	1063	898	708	578	534	416
3/8"	1446	967	832	662	561	433
1/2"	1006	694	578	495	415	292



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Table 2
RECOMMENDED WORKING PRESSURE (PSI) AT VARIOUS TEMPERATURES

Note: 5:1 safety factor to burst pressures

Tubing Size	75°F	100°F	125°F	150°F	175°F	200°F
1/4"	210	180	140	115	105	80
3/8"	290	190	165	130	110	85
1/2"	200	140	115	100	80	55

PRODUCT ADVANTAGES

1. Sturdy Performance
2. Light Weight
3. Higher temperature and pressure rating than "P" tubing.
4. High level of flexibility
5. Good mechanical abuse characteristics
6. Ease of installation
7. Freedom from stress concentrations and imperfections
8. Offers excellent protection against thermal and environmental degradation.
9. High stress-cracking resistance
10. When moisture is present at elevated temperatures, it is recommended that the user installs Eaton's PEX tubing family 1240.