



Aurora Operations

Title: PRODUCT STANDARD

1240

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01

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Product Standard

for

Cross-Linked Polyethylene Tubing (PEX)



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DESCRIPTION

Eaton's "PEX" tubing, manufactured from virgin cross-linked, high density polyethylene resin, is recommended for air, gas, water and chemical lines where tubing with a slightly higher pressure characteristic at elevated temperatures than those of "HP" 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. |
| 1240-440xx | 0.040" | 0.250" | + 0.003" -0.007" | 0.170" | +0.006" -0.003" | 0.004" Max. |
| 1240-662xx | 0.062" | 0.375" | + 0.003" -0.007" | 0.251" | +0.006" -0.003" | 0.004" Max. |
| 1240-862xx | 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. |
|-------------|---------------------|--------------------------|------------------------|
| 1240-440xx | 1 ½" | 25 lbs. | 1.10 lbs. |
| 1240-662xx | 2 ¼" | 50 lbs. | 2.54 lbs. |
| 1240-862xx | 3" | 75 lbs. | 3.45 lbs. |

xx - Color Designator: 0 = Black, 1 = Natural, 2-9 = Colors
Length Designator: 2 = 100 ft., 3 = 250 ft., 4 = 500 ft., 5 = 1000 ft.



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MATERIAL SPECIFICATION PER ASTM D 1248:

| | |
|----------|-------------------------------|
| Natural: | Type III; Class A; Category 2 |
| Colored: | Type III; Class B; Category 2 |
| Black: | Type III; Class C; Category 2 |

PHYSICAL PROPERTIES OF "PEX" TUBING:

| PROPERTY | TEST METHOD | TYPICAL VALUE |
|-------------------------------------------------|--------------|---------------|
| A. Ultimate Tensile Strength, MPa | ASTM D 638 | 16 |
| B. Ultimate Elongation, % | ASTM D 638 | 250 |
| C. Melt Index, g/10 min. | ASTM 1238 | 15 |
| D. Density, g/cc | ASTM D 1505 | .944 |
| E. Flexural Modulus of Elasticity, MPa | ASTM D 790 | 600 |
| F. Hardness, Shore D | ASTM D2240 | 61 |
| G. Environmental Stress Crack Resistance, Hours | See Note (a) | No Failure |
| H. Maximum Service Temperature | ----- | 200 °F |

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.

Table 1
BURST PRESSURE (PSI) VS. TEMPERATURE

| Tubing Size | 75°F | 100°F | 125°F | 150°F | 175°F | 200°F |
|-------------|------|-------|-------|-------|-------|-------|
| 1/4" | 1213 | 993 | 827 | 660 | 523 | 400 |
| 3/8" | 1340 | 885 | 766 | 632 | 366 | 336 |
| 1/2" | 861 | 581 | 498 | 411 | 325 | 214 |



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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" | 240 | 200 | 165 | 135 | 105 | 80 |
| 3/8" | 270 | 175 | 150 | 125 | 75 | 65 |
| 1/2" | 170 | 115 | 100 | 80 | 65 | 40 |

PRODUCT ADVANTAGES

1. Sturdy Performance
2. Light Weight
3. High level of flexibility
4. Good mechanical abuse characteristics
5. Ease of installation
6. Freedom from stress concentrations and imperfections
7. Offers excellent protection against thermal and environmental degradation.
8. High stress-cracking resistance
9. NSF Listed Material
10. Exception high temperature performance when exposed to moisture.