

# UNITHERM™ 2200 PRE-INSULATED TUBING

## Principal of Operation

Unitherm 2200 pre-insulated tubing is a thermally insulated steam, gas or liquid transport line. It is comprised of a process tube; hydrophobic inorganic fibrous glass thermal insulation; and weather protective black 105°C PVC jacket. This energy efficient design provides for nominal jacket surface temperatures of 140°F (60°C) or lower at 80°F (26°) ambient conditions, while transporting 400°F (204°C) 232.6 PSIG saturated steam. The compact design, thermal efficiency and rugged jacket provide an insulated product with low heat loss, zero maintenance, employee protection and saves up to 50% on installation costs. Higher temperatures designs for applications up to 1000°F fluid temperatures are available.

## Features

Pre-insulated & prefabricated for fast, easy installation  
 Light, durable and easy to handle  
 Low heat loss  
 Personnel protection

## Applications

Steam supply lines  
 Condensate return lines  
 Gas transport lines  
 Liquid transport lines

## How To Specify

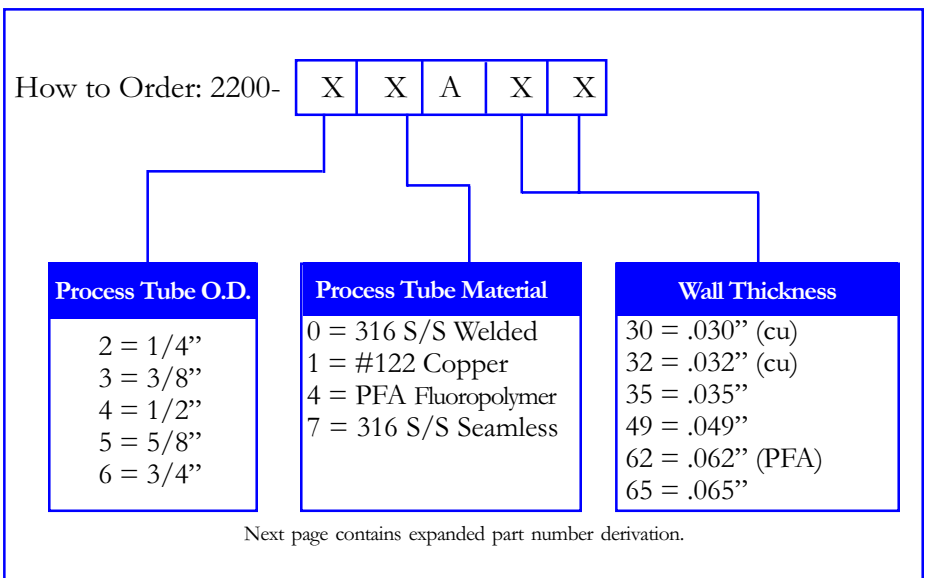
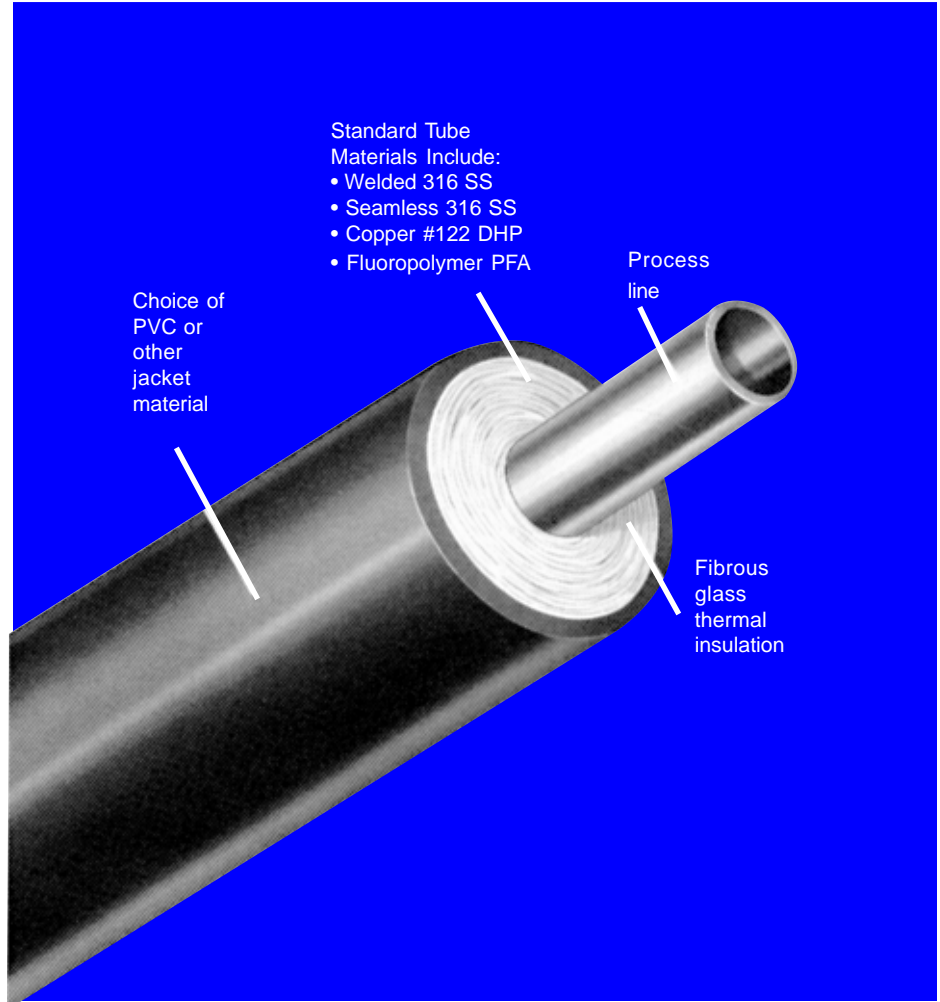
### Example: 2200-41A49

Unitherm pre-insulated line; (1) 1/2" O.D. x .049" wall #122 copper process line; hydrophobic inorganic fibrous glass thermal insulation; 105°C black PVC jacket; MTR\* = 400°F

## Stock Items

2200-21A30	2200-20A35
2200-31A32	2200-30A35
2200-41A35	2200-40A35
2200-41A49	2200-47A35

\*Maximum Temperature Rating is the design condition for which this product is manufactured. Temperatures in excess of this rating may result in deterioration of the components or changes in the operational characteristics.



# TECHNICAL INFORMATION

## 2200 PRE-INSULATED TUBING

### Performance Specifications

#### 2200 Product

Nominal Jacket Surface Temperature with 400°F (204°C) tube and 80°F (26°C) ambient ..... 140°F (60°C)

Nominal Heat Loss at 400°F (204°C) inside tube and 80°F (26°C) ambient .....

Process Tube O.D.	BTU/HR/FT
1/4"	42
3/8"	50
1/2"	59
5/8"	68

#### Product Specifications

Jacket ..... 105°C Black PVC  
 Insulation ..... Hydrophobic Inorganic Fibrous Glass  
 Chloride Content less than 30 ppm  
 Product Rating ..... 400°F (204°C)

Nominal Bundle O.D.	Process Tube O.D.	Bundle O.D.
1/4"	1/4"	.92"
3/8"	3/8"	1.05"
1/2"	1/2"	1.17"
5/8"	5/8"	1.30"

Nominal Weight (Lb/Ft)	Process Tube O.D.	Bundle Weight
1/4"	1/4"	.30
3/8"	3/8"	.38
1/2"	1/2"	.44
5/8"	5/8"	.52

#### Installation Recommendation

See Installation Guidelines for details.  
 Maximum Support Centers ..... Vertical — 15 Feet  
 Horizontal — 6 Feet

Maximum Bending Radius	Process Tube O.D.	Min. Radius
1/4"	1/4"	9"
3/8"	3/8"	10"
1/2"	1/2"	12"
5/8"	5/8"	14"

Minimum Recommended Slope for Condensate Run-Off (Steam Applications) ... 1/4" Per Ft.  
 Minimum Installation Temperature for PVC Jacket ..... +15°F (-9.4°C)

**Alternate flame retardant jacket materials available include:**

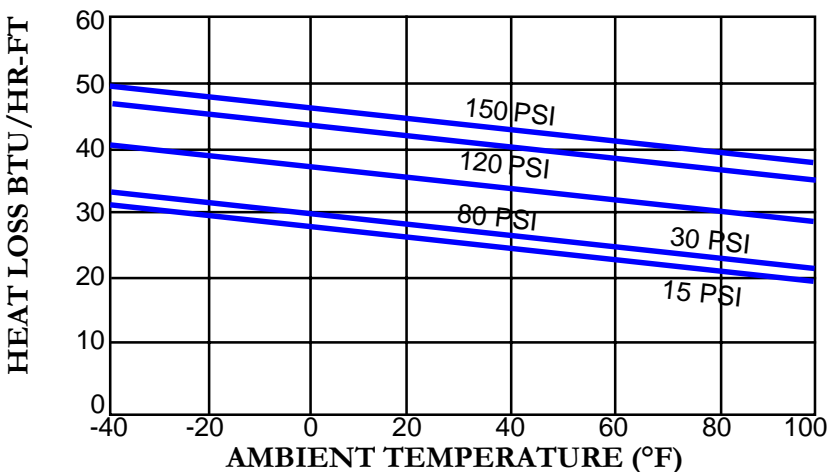
- Low Temperature Flame Retardant Polyvinyl Chloride
- Flame Retardant Urethane
- Flame Retardant Thermoplastic Elastomer

### Tubing Specifications

Tube O.D.	Standard Wall Thickness***	Material†	ASTM	Working Pressure @400°F	Maximum Coil Lengths
1/4"	.030"	#122 Copper	B-68 B-75	600 psi	1000'
3/8"	.032"	#122 Copper	B-68 B-75	450 psi	1000'
1/2"	.035"	#122 Copper	B-68 B-75	360 psi	1000'
1/2"	.049"	#122 Copper	B-68 B-75	530 psi	1000'
5/8"	.049"	#122 Copper	B-68 B-75	415 psi	100**
3/4"	.049"	#122 Copper	B-68 B-75	340 psi	100**
1/4"	.035"	316-S/S WLD	A-269	5170 psi**	1000**
3/8"	.035"	316-S/S WLD	A-269	3310 psi**	1000**
1/2"	.035"	316-S/S WLD	A-269	2430 psi**	1000**
5/8"	.035"	316-S/S WLD	A-269	2000 psi**	100**
1/4"	.040"	PFA	—	30 psi	500**
3/8"	.062"	PFA	—	40 psi	500**
1/2"	.062"	PFA	—	30 psi	500**

Metric tubing available 6, 8, and 10 mm O.D. x 1 mm WT Standard. \*\*\*Heavier wall thickness available upon request.  
 †Other tube materials available \* Longer coil lengths available on request.  
 \*\*Valves given are for welded. Seamless is slightly higher.

### HEAT LOSS VS AMBIENT FOR VARIOUS STEAM PRESSURES



Graph (above) plots the heat loss for the Unitherm 2200 family products with a 1/4" tube. For other tube sizes, the multipliers in Table I should be applied to the values from the graphs for the given conditions.

**TABLE I**  
Heat Loss multipliers

2200 1/4"	2200 3/8"	2200 1/2"	2200 5/8"
1.0	1.2	1.4	1.6