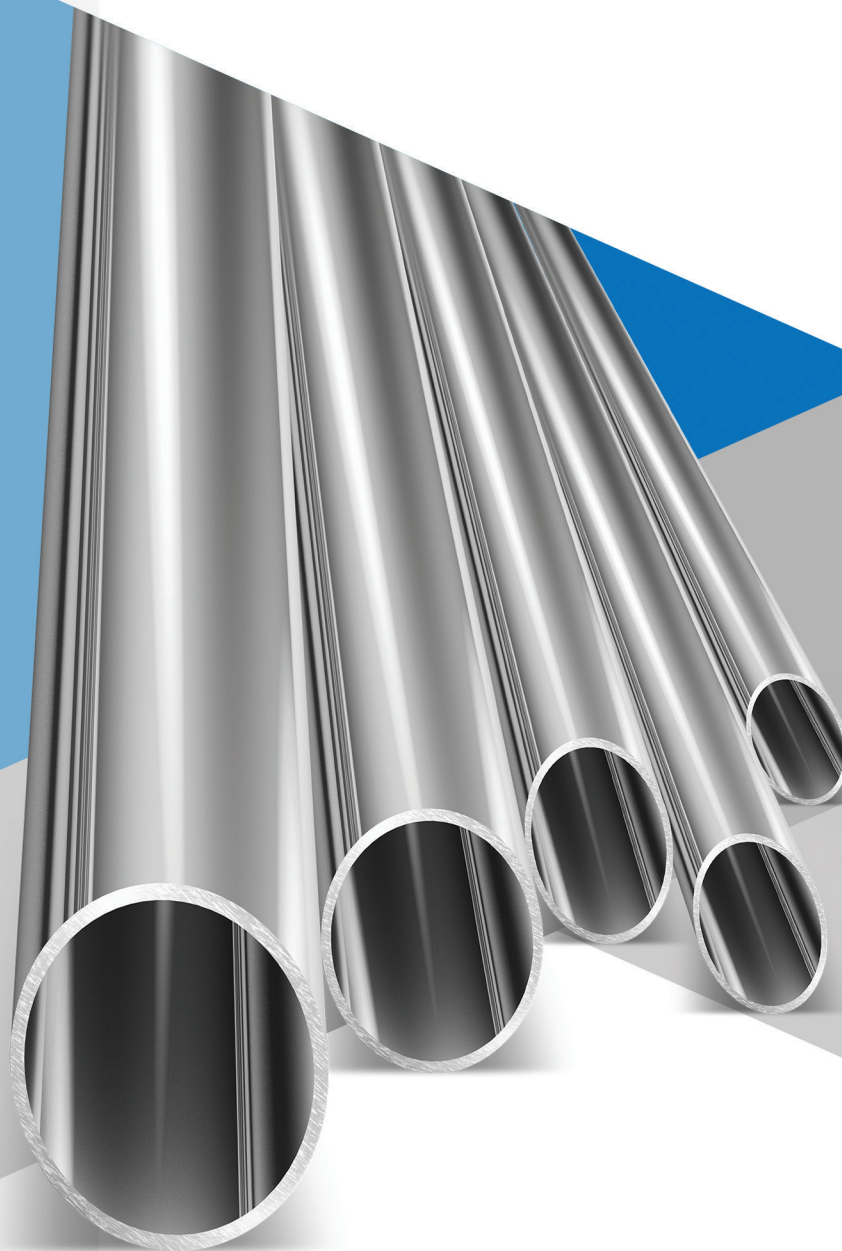


BMT PRODUCT CATALOG

# TUBING

Seamless Tubing & Pre-Insulated Tubing



**SUPERLOK®**

**BMT Co., Ltd.**  
www.superlok.com

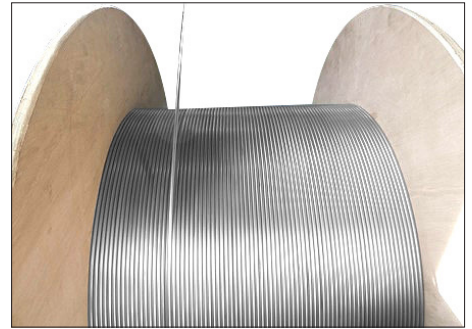
**Head Quarter**

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# Seamless Tubing

## Seamless Coiled Tubing

- Available in length up to 7,477 feet (2,279meters) and weight up to 220 lbs. (100 kg).
- BA heat treated, superior internal surface quality
- Suitable for various applications requiring a higher level of reliability
- Meets or exceeds strict industry standards including Eddy Current Testing and ASTM.
- Reduces or eliminates fittings and orbital welds, reducing potential defects and failures.
- Long length coils increases productivity and reduces the time and cost of installation



## Seamless Straight Tubing

- Applicable for various applications including petrochemical, semiconductor, automotive, instrumentation, shipbuilding, and offshore.
- BA heat treated for outstanding corrosion resistance in order to meet stricter and demanding requirements
- Excellent internal roughness due to state-of-art technology for processing and precision cleaning



## Material Standards

Description	Standards	Description	Standards
304	ASTM TP304 / JIS SUS304 / EN 1.4301	Duplex *	ASTM 2205, 2507, 2304 / EN 1.4462, 1.4410, 1.4362, 1.4539
304L	ASTM TP304L / JIS SUS304L / EN 1.4306	Nikel 200 *	EN 2.4065
316	ASTM TP316 / JIS SUS316 / EN 1.4436, 1.4401	Monel 400	EN 2.4360
316L (2Mo/2.5Mo)	ASTM TP316L / JIS SUS316L / EN 1.4404, 1.4435	Inconel 600 *	EN 2.4816
316Ti	ASTM TP316Ti / EN 1.4571	Inconel 625	UNS N06625
317L	ASTM TP317L / JIS SUS 317L	Incoloy 825	UNS N08825
904L	ASTM 904L / EN 1.4539		

\* Seamless Straight Tubing only

## Chemical Composition

Description	Composition (wt. %)			
	Ni	Cr	Mo	Ti
TP316 (S31600)	10.0 to 14.0	16.0 to 18.0	2.0 to 3.0	-
TP316L (S31603)	10.0 to 15.0	16.0 to 18.0	2.0 to 3.0	-
TP304 (S30400)	8.0 to 11.0	18.0 to 20.0	-	-
TP304L (S30403)	8.0 to 12.0	18.0 to 20.0	-	-
TP316Ti (S31635)	10.0 to 14.0	16.0 to 18.0	2.0 to 3.0	min 0.7
TP317L (S31703)	11.0 to 15.0	18.0 to 20.0	3.0 to 4.0	-
TP904L (N08904)	23.0 to 28.0	19.0 to 23.0	4.0 to 5.0	-
Super Duplex (S32750)	6.0 to 8.0	24.0 to 26.0	3.0 to 4.5	-

# Seamless Tubing

## Standard Specifications

- Allowable working pressures are calculated from an S value of 20 000 psi (137.8 MPa) for ASTM A269/A213 TP304/304L tubing based on equations from ASME B31.1. Wall thickness tolerances are ±10%.
- Length of Coiled Tubing is determined by our standard weight of tubing: 50kg for O.D up to 1/8in. or 3mm; and 100kg for O.D above 1/8 in. or 3mm. **Example:** 827m (= 100kg / 0.121kg) for 1/4" OD and 0.035" Wall Thickness 304L Tubing.

## Fractional Sizes

Tube OD (in.)	Tube Wall (in.)	Y.S (psi, Min.)	T.S (psi, Min.)	E (% Min.)	Hardness** (HRB, Max.)	Suggested Working Pressure (psi)						
						100°F (38°C)	200°F (93°C)	300°F (149°C)	400°F (204°C)	500°F (260°C)	600°F (316°C)	700°F (371°C)
1/16	0.020	30000	75000	35	90	13950	13950	13950	12950	12200	11550	11000
1/8	0.028	30000	75000	35	90	9450	9450	9450	8800	8250	7850	7450
3/16	0.035	30000	75000	35	90	7750	7750	7750	7200	6750	6400	6100
1/4	0.035	30000	75000	35	90	5600	5600	5600	5200	4900	4650	4400
	0.049	30000	75000	35	90	8150	8150	8150	7550	7100	6750	6400
5/16	0.035	30000	75000	35	90	4350	4350	4350	4050	3800	3600	3450
	0.049	30000	75000	35	90	6300	6300	6300	5850	5500	5250	5000
3/8	0.035	30000	75000	35	90	3600	3600	3600	3350	3150	2950	2800
	0.049	30000	75000	35	90	5150	5150	5150	4800	4500	4250	4050
1/2	0.350	30000	75000	35	90	2650	2650	2650	2450	2300	2200	2050
	0.049	30000	75000	35	90	3750	3750	3750	3500	3300	3100	2950
	0.065	30000	75000	35	90	5150	5150	5150	4750	4500	4250	4050
5/8	0.049	30000	75000	35	90	2950	2950	2950	2750	2600	2450	2350
	0.065	30000	75000	35	90	4000	4000	4000	3750	3500	3350	3150
7/8	0.049	30000	75000	35	90	2050	2050	2050	1900	1800	1700	1650
	0.065	30000	75000	35	90	2800	2800	2800	2600	2450	2300	2200
1	0.065	30000	75000	35	90	2450	2450	2450	2250	2100	2000	1900
	0.083	30000	75000	35	90	3150	3150	3150	2950	2750	2600	2500
1-1/4	0.065	30000	75000	35	90	1900	1900	1900	1800	1700	1600	1500
1-1/2	0.065	30000	75000	35	90	1600	1600	1600	1450	1400	1300	1250
2	0.065	30000	75000	35	90	1150	1150	1150	1100	1000	950	900

\* Coiled Tubing is only available outside of the shaded areas.

\*\* To select proper tubing for use with BMT (SUPERLOK) tube fittings, the tubing must be softer than the fitting material.

## Metric Sizes

Tube OD (mm)	Tube Wall (mm)	Y.S (MPa, Min.)	T.S (MPa, Min.)	E (% Min.)	Hardness** (HRB, Max.)	Suggested Working Pressure (bar)						
						100°F (38°C)	200°F (93°C)	300°F (149°C)	400°F (204°C)	500°F (260°C)	600°F (316°C)	700°F (371°C)
3	0.50	205	515	35	90	6818	6818	6818	6341	5966	5659	5386
4	1.00	205	515	35	90	10710	10710	10710	9960	9371	8889	8461
6	1.00	205	515	35	90	6818	6818	6818	6341	5966	5659	5386
8	1.00	205	515	35	90	4945	4945	4945	4599	4327	4104	3907
	1.50	205	515	35	90	7799	7799	7799	7253	6824	6473	6161
10	1.00	205	515	35	90	3879	3879	3879	3608	3394	3220	3065
	1.50	205	515	35	90	6054	6054	6054	5630	5297	5025	4783
14	1.00	205	515	35	90	2711	2711	2711	2521	2372	2250	2142
	2.00	205	515	35	90	5732	5732	5732	5331	5016	4758	4529
15	1.50	205	515	35	90	3879	3879	3879	3608	3394	3220	3065
16	1.50	205	515	35	90	3619	3619	3619	3366	3167	3004	2859
18	1.50	205	515	35	90	3191	3191	3191	2968	2793	2649	2521
20	1.50	205	515	35	90	2854	2854	2854	2654	2497	2369	2255
22	1.50	205	515	35	90	2581	2581	2581	2401	2259	2142	2039
25	1.20	205	515	35	90	1790	1790	1790	1665	1566	1486	1414
	1.50	205	515	35	90	2258	2258	2258	2099	1975	1874	1783
28	1.50	205	515	35	90	2006	2006	2006	1866	1755	1665	1585
30	1.50	205	515	35	90	1867	1867	1867	1737	1634	1550	1475
32	1.50	205	515	35	90	1746	1746	1746	1624	1528	1450	1380
34	1.50	205	515	35	90	1640	1640	1640	1526	1435	1361	1296
	1.65	205	515	35	90	1810	1810	1810	1684	1584	1503	1430

\* Coiled Tubing is only available outside of the shaded areas.

\*\* To select proper tubing for use with BMT (SUPERLOK) tube fittings, the tubing must be softer than the fitting material.

# Seamless Tubing

## Reference Specifications

- ASTM A213 : Standard Specification for Seamless Ferritic and Austenitic Alloy-Steel Boiler, Superheater, and Heat-Exchanger Tubes
- ASTM A262 : Standard Practices for Detecting Susceptibility to Intergranular Attack in Austenitic Stainless Steels
- ASTM A269 : Standard Specification for Seamless and Welded Austenitic Stainless Steel Tubing for General Service
- ASTM A312 : Standard Specification for Seamless, Welded, and Heavily Cold Worked Austenitic Stainless Steel Pipes
- ASTM A370 : Standard Test Methods and Definitions for Mechanical Testing of Steel Products
- ASTM A450 : Standard Specification for General Requirements for Carbon and Low Alloy Steel Tubes
- ASTM A632 : Standard Specification for Seamless and Welded Austenitic Stainless Steel Tubing (Small-Diameter) for General Service
- ASTM A789 : Standard Specification for Seamless and Welded Ferritic/Austenitic Stainless Steel Tubing for General Service
- NACE MR 0175 : Petroleum and natural gas industries - materials for use in H<sub>2</sub>S - containing environments in oil and gas production
- DIN/EN 10204 : Metallic products - Types of inspection documents
- EN 10216-5 : Seamless steel tubes for pressure purpose - technical delivery conditions - part 5: Stainless steel tubes

## Seamless Tubing Ordering Information

Example :

<b>TUBE</b>	<b>-</b>	<b>4</b>	<b>-</b>	<b>035</b>	<b>-</b>	<b>36L</b>	<b>-</b>	<b>6ME</b>
		<u>1</u>		<u>2</u>		<u>3</u>		<u>4</u>

### 1. Tube OD

Fractional	OD (Inch)	1/16	1/8	3/16	1/4	5/16	3/8	1/2	5/8	7/8	1	1-1/4	1-1/2	2		
	Designator	1	2	3	4	5	6	8	10	14	16	20	24	32		
Metric	OD (mm)	3	4	6	8	10	14	15	16	18	20	22	25	28	32	34
	Designator	3M	4M	6M	8M	10M	14M	15M	16M	18M	20M	22M	25M	28M	32M	34M

\* Coiled Tubing is only available outside of the shaded areas.

### 2. Tube Wall

Fractional	WT (in.)	0.020	0.028	0.035	0.049	0.065	0.083
	Designator	020	028	035	049	065	083
Metric	WT (mm)	0.50	1.00	1.50	2.00	1.20	1.65
	Designator	050M	100M	150M	200M	120M	165M

### 3. Material

- (Blank) = 316 Stainless Steel
- 36L = 316L Stainless Steel
- 316Ti = 316Ti
- 304 = 304
- 34L = 304L
- 317L = 317L
- 904L = 904L
- F51 = Duplex\*
- F53 = Super Duplex\*
- N200 = Nickel 200\*
- M40 = Monel 400
- 600 = Inconel 600\*
- 625 = Inconel 625
- 825 = Incoloy 825

\* Materials with an asterisk (\*): Only available for straight tubing

### 4. Length

Applicable only to Straight Tubing. No Length Designator is required for Coiled Tubing

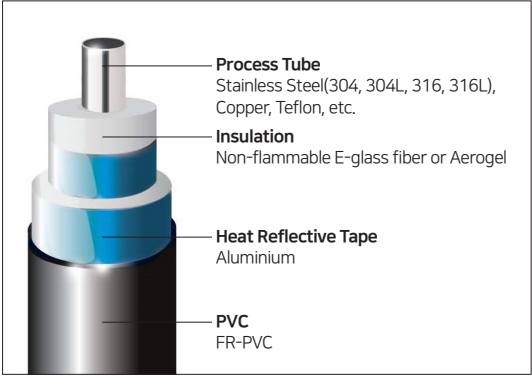
Length (ft.)	10	20	
Designator	10FT	20FT	
Length (Meter)	4	6	7.5
Designator	4ME	6ME	7.5ME

※ Any special sizes and configurations not mentioned in this publication, please consult BMT (SUPERLOK) sales representative for availability.

# Pre-Insulated Tubing

## Steam Trace

- Pre-traced and pre-insulated tubing bundles that provide alternatives to field insulating.
- Inorganic fiberglass material used and protected with a flexible heat-resistant PVC temperature of 140°F (60°C)
- Transfer fluids or gases up to 400°F (204°C) while maintaining an outer surface PVC temperature of 140°F (60°C)
- Economical and highly efficient choice in a variety of applications, including heat supply, condensate return, cooling water, lubrication, refrigeration, and liquid nitrogen.
- 316/316L or 304/304L as standard tubing materials. Additional materials and specifications are available upon request.



## Specifications

- Process Tube OD: 1/4 to 3/4 in. (Metric sizes available)
- Tube Material: Stainless steel, Copper, etc.
- Process Tubing Wall Thickness: 0.028 to 0.065 in.
- Maximum Process Tube Temperature: 400°F (204°C)
- Maximum Outer Jacket Temperature: 140°F (60°C)
- Installation Temperature: As low as -40°F (-40°C)

## Steam Trace Ordering Information

Example : **PIT - 4 08 35 - A P N**

1
2
3
4

### 1. Process Tube Material

- 1 = Copper
- 2 = ERW316
- 3 = ERW316L
- 4 = ERW304
- 5 = ERW304L
- 6 = SML'S 316
- 7 = SML'S 316L
- 8 = SML'S 304
- 9 = SML'S 304L
- 10 = TEFLON

### 2. Process Tube Size (OD)

- 04 = 1/4"
- 06 = 3/8"
- 08 = 1/2"
- 10 = 5/8"
- 12 = 3/4"

### 3. Process Tube Wall Thickness

- 28 = 0.028"
- 30 = 0.030"
- 32 = 0.032"
- 35 = 0.035"
- 40 = 0.040"
- 47 = 0.047"
- 49 = 0.049"
- 65 = 0.065"

### 4. Jacket Color

- N = Black
- B = Blue
- G = Green
- Y = Yellow
- P = Purple
- R = Red
- W = White

※ Any special sizes and configurations not mentioned in this publication, please consult BMT (SUPERLOK) sales representative for availability.

# Pre-Insulated Tubing

## Self Regulating Heat Trace

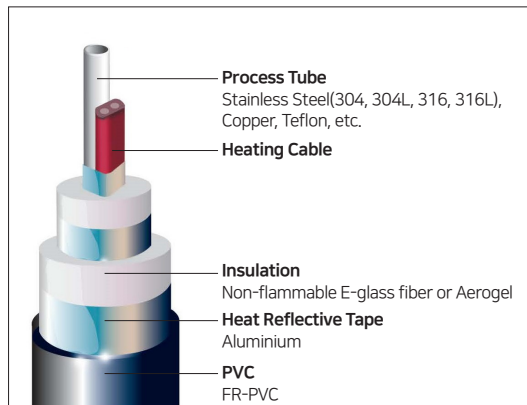
A simple and economical choice for freeze protection or temperature maintenance. The High-Temperature Tracer is engineered for high temperature maintenance, while Low-Temperature Tracer is ideally suited for low temperature maintenance.

### High-Temperature Tracer

- Provides freeze protection and high temperature maintenance up to 250°F (121°C) withstanding steam blowdown.
- Process Temperature: up to 250°F (up to 121°C)
- Temperature Maintenance: up to 250°F (121°C)
- Maximum Exposure Temperature: 400°F (205°C)

### Low-Temperature Tracer

- Cost-effective choice for freeze protection and low temperature maintenance.
- Process Temperature: up to 100°F (up to 38°C)
- Temperature Maintenance: up to 150°F (65°C)
- Maximum Exposure Temperature: 185°F (85°C)



## Self Regulating Heat Trace Ordering Information

Example : **PIT - ET 4 08 35 - 52 - 1 04 35 - A P N**

1
2
3
4
5
6
7
8
9

### 1. Process Tube Material

- 1 = Copper
- 2 = ERW316
- 3 = ERW316L
- 4 = ERW304
- 5 = ERW304L
- 6 = SML'S 316
- 7 = SML'S 316L
- 8 = SML'S 304
- 9 = SML'S 304L
- 10 = TEFLON

### 2. Process Tube Size (OD)

- 04 = 1/4"
- 06 = 3/8"
- 08 = 1/2"
- 10 = 5/8"
- 12 = 3/4"

### 3. Process Tube Wall Thickness

- 28 = 0.028"
- 30 = 0.030"
- 32 = 0.032"
- 35 = 0.035"
- 40 = 0.040"
- 47 = 0.047"
- 49 = 0.049"
- 65 = 0.065"

### 4. Heating Cable Type

- 51 = 5XTV1-CT-T3
- 52 = 5XTV2-CT-T3
- 101 = 10XTV1-CT-T3
- 102 = 10XTV2-CT-T3
- 151 = 15XTV1-CT-T2
- 152 = 15XTV2-CT-T3
- 201 = 20XTV1-CT-T2
- 202 = 20XTV2-CT-T2

### 5. Tracer Tube Material

- 1 = Copper
- 2 = ERW316
- 3 = ERW316L
- 4 = ERW304
- 5 = ERW304L
- 6 = SML'S 316
- 7 = SML'S 316L
- 8 = SML'S 304
- 9 = SML'S 304L
- 10 = TEFLON

### 6. Tracer Tube Size (OD)

- 04 = 1/4"
- 06 = 3/8"
- 08 = 1/2"
- 10 = 5/8"
- 12 = 3/4"

### 7. Tracer Tube Wall Thickness

- 28 = 0.028"
- 30 = 0.030"
- 32 = 0.032"
- 35 = 0.035"
- 40 = 0.040"
- 47 = 0.047"
- 49 = 0.049"
- 65 = 0.065"

### 8. Number of Process Tubes

- A = 1 Tube
- B = 2 Tubes

### 9 Jacket Color

- N = Black
- B = Blue
- G = Green
- Y = Yellow
- P = Purple
- R = Red
- W = White

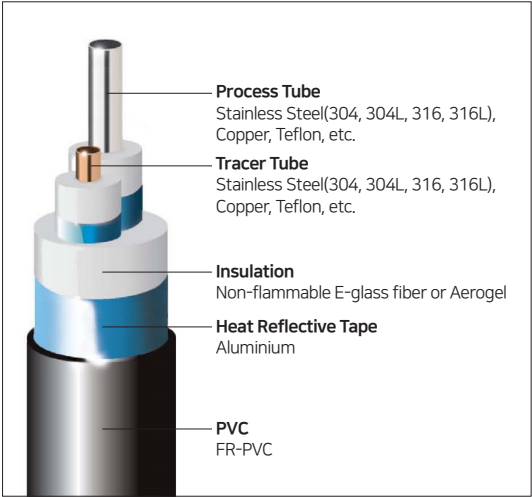
\* Any special sizes and configurations not mentioned in this publication, please consult BMT (SUPERLOK) sales representative for availability.

# Pre-Insulated Tubing

## Light & Heavy Steam Trace

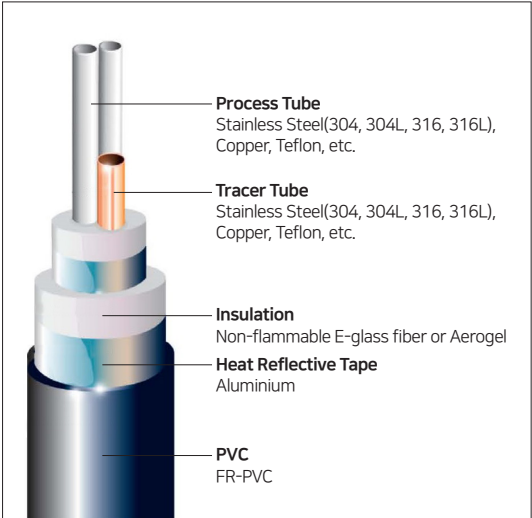
### Light Steam Traced

- Consists of single or multiple process tubes insulated, a non-hygroscopic glass fiber insulation, and a flame-resistant jacket.
- Ideal for viscosity maintenance and freeze protection of simple instrument lines, chemical feed lines, and analyzer transport lines
- Tubing Material: Copper and Stainless Steel (304, 316L Seamless/Welded) as standard. Other materials available upon request.
- Insulation: Non-hygroscopic glass fiber for minimum heat loss
- Jacket: Flame-resistant PVC for excellent resistance to corrosion, water, oil, acid, alkali, and many chemicals.
- Maximum Exposure Temperature: 400°F (204°C)



### Heavy Steam Traced

- Consists of single or multiple process tubes insulated, a non-hygroscopic glass fiber insulation, and a flame-resistant jacket.
- Ideal for use with high temperature steam to heat trace instrument lines when elevated temperatures are required, including pressure transmission applications and analyzer sample lines carrying heavy oils or distillates, gases or vapors.
- Tubing Material: Copper and Stainless Steel (304, 316L Seamless/Welded) as standard. Other materials available upon request.
- Insulation: Non-hygroscopic glass fiber for minimum heat loss
- Jacket: Flame-resistant PVC for excellent resistance to corrosion, water, oil, acid, alkali, and many chemicals.
- Maximum Exposure Temperature: 400°F (204°C)



# Pre-Insulated Tubing

## Light & Heavy Steam Trace Ordering Information

Example : **PIT - LT 4 08 35 - 1 04 35 - A P N**

1
2
3
4
5
6
7
8
9

### 1. Bundle Type

- LT** = Light Steam
- HT** = Heavy Steam

### 2. Process Tube Material

- 1** = Copper
- 2** = ERW316
- 3** = ERW316L
- 4** = ERW304
- 5** = ERW304L
- 6** = SML'S 316
- 7** = SML'S 316L
- 8** = SML'S 304
- 9** = SML'S 304L
- 10** = TEFLON

### 3. Process Tube Size (OD)

- 04** = 1/4"
- 06** = 3/8"
- 08** = 1/2"
- 10** = 5/8"
- 12** = 3/4"

### 4. Process Tube Wall Thickness

- 28** = 0.028"
- 30** = 0.030"
- 32** = 0.032"
- 35** = 0.035"
- 40** = 0.040"
- 47** = 0.047"
- 49** = 0.049"
- 65** = 0.065"

### 5. Tracer Tube Material

- 1** = Copper
- 2** = ERW316
- 3** = ERW316L
- 4** = ERW304
- 5** = ERW304L
- 6** = SML'S 316
- 7** = SML'S 316L
- 8** = SML'S 304
- 9** = SML'S 304L
- 10** = TEFLON

### 6. Tracer Tube Size (OD)

- 04** = 1/4"
- 06** = 3/8"
- 08** = 1/2"
- 10** = 5/8"
- 12** = 3/4"

### 7. Tracer Tube Wall Thickness

- 28** = 0.028"
- 30** = 0.030"
- 32** = 0.032"
- 35** = 0.035"
- 40** = 0.040"
- 47** = 0.047"
- 49** = 0.049"
- 65** = 0.065"

### 8. Number of Process Tubes

- A** = 1 Tube
- B** = 2 Tubes
- C** = 3 Tubes

### 9. Jacket Color

- N** = Black
- B** = Blue
- G** = Green
- Y** = Yellow
- P** = Purple
- R** = Red
- W** = White

※ Any special sizes and configurations not mentioned in this publication, please consult BMT (SUPERLOK) sales representative for availability.