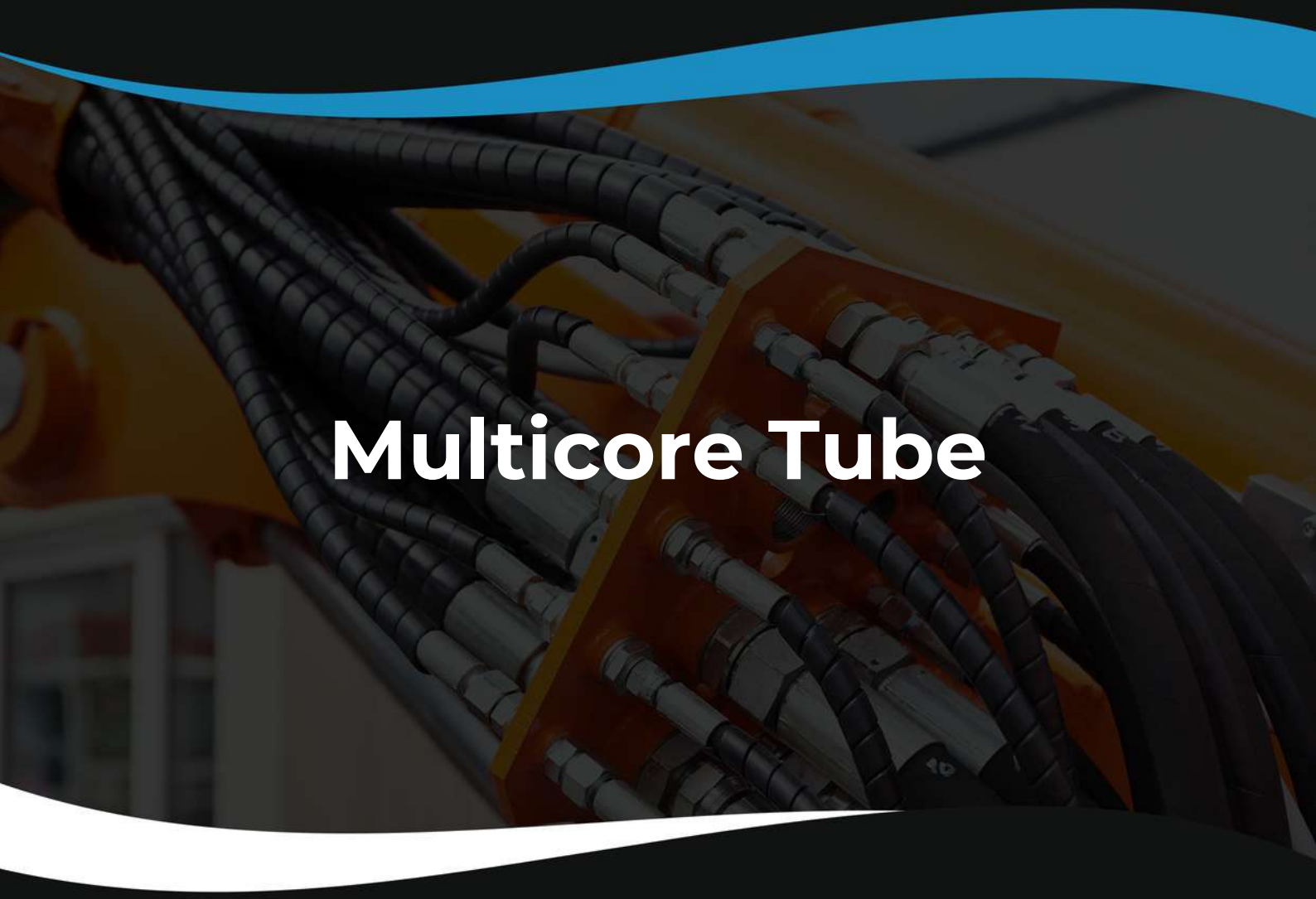
Hydraulic & Offshore SUPPLIES



Multicore Tube

Contact our team *and*
Order today on:
+44 (0)191 549 7335

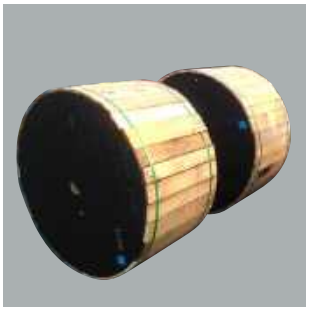
Offshore House, Southwick Industrial Estate, Sunderland, SR5 3TX
hos@hos.co.uk | www.hos.co.uk

R&G FLUID POWER GROUP

Product Information

We leverage its state-of-the-art technology and facilities to manufacture and supply Multi Core Tube, Stainless Steel Tube, Copper Tube which are customized to each industry.






Multi Core Tube

Multi Core Tube is a bundled tube tied together to efficiently install, maintain and control at once. It is used in shipbuilding, on/offshore plants and other industries to transport hydraulic oil, gas and etc.

Product Advantages

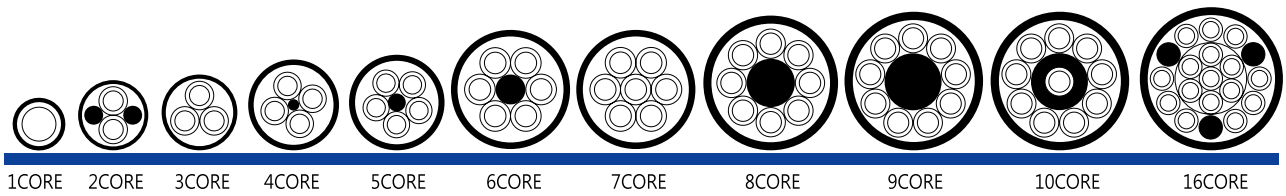
Following advantages are expected by installing Multi Core Tube continuously produced by max. 1,200M without intermediate joints or connections compared to a conventional 6 meter straight tube connected by tube fittings.

- To drastically reduce installation time and save space by bundled tubings
- To dramatically cut down on fitting connections, installation and inspection time
- To simply solve tube corrosion problem as economical alternative from conventional bare exposed tubes vulnerable to seawater & corrosive environments
- To achieve convenient installation and enormous cost & space savings due to easy manual bending in any direction
- To perform complete tube protection by triplicate sheath and filler system from outside shock

Product Application

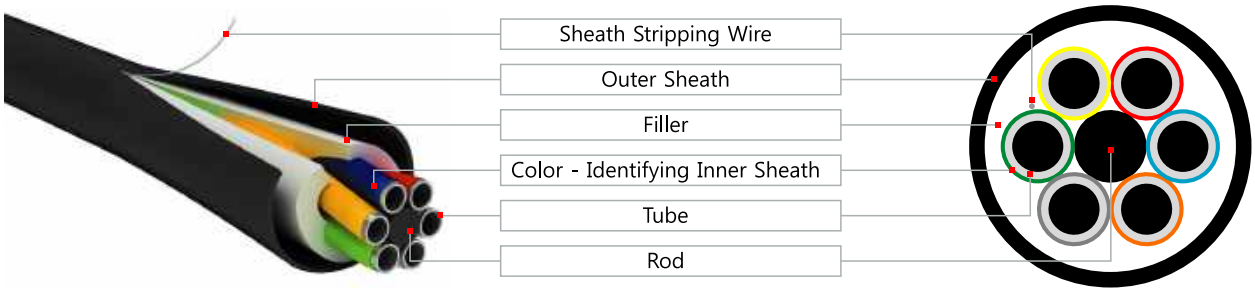
- Oil, Gas, Petrochemical, Desalination, Fertilizer & Chemical Industries
- Control & Instrumentation Industry (C&I)
- Process & Power Plants
- Valve Remote Control (VRC) Line System
- Deck Machinery Remote Control Line System
- Fixed Gas Detection Sensing Line
- Heat Tracing Line
- Pressure Sensing Line
- Sampling & Drain Line
- Tank Level & Draft Gauging System Line
- Fire Fighting System Control Line

Structural Cross - Section



Construction

Cross Section View



Tube Material

Material	National Standard					
	Alloy	UNS CODE	ASTM	KS	JIS	DIN
Stainless Steel	304 316 316L 317L 321 347	S30400 S31600 S31603 S31703 S32100 S34700	304 316 316L 317L 321 347	STS 304 STS 316 STS 316L STS 317L STS 321 STS 347	SUS 304 SUS 316 SUS 316L SUS 317L SUS 321 SUS 347	1.4301 1.4401 1.4404 1.4438 1.4541 1.4550
High Alloy Stainless Steel	904L	N08904	-	STS 890L	SUS 890L	1.4539
Super Austenitic	6 Mo	S31254	-	-	-	1.4547
Nickel Alloy	Monel 400 Nickel 200 Inconel 600 Inconel 625 Inconel 825 Hastelloy C22 Hastelloy C276	N04400 N02200 N06600 N06625 N08825 N06022 N10276	400 200 I600 I625 I825 C22 C276	NCF 690 TB NCF 600 TB NCF 800 TB NCF 625 TB NCF 825 TB NW6022 NW0276	NCF 690 TB NCF 600 TB NCF 800 TB NCF 625 TB NCF 825 TB NW6022 NW0276	2.4360 2.4066 2.4816 2.4856 2.4858 2.4602 2.4819
Duplex	Duplex Super Duplex	S31803, S32205 S32750	- -	STS329J3L -	SUS329J3L -	1.4462 1.4410
Copper	Copper	C12200	C12200	C1220	C1220	SF-Cu
Copper-Nickel 90/10	Cu-Ni 90/10	C70600	C70600	C7060	C7060	CW352H

Please consult us for other materials not listed.

Sheath Material

Material	PVC	TCR PVC	FR PVC	HFFR TPU	HFFR PE	HDPE	MDPE	LDPE	XLPE
Tensile Strength (kgf/㎟)	1.2~1.4	2.0 ~ 2.4	1.5~1.7	2.3~2.8	1.0~1.4	2.6~3.0	2.3~2.7	2.2~2.6	2.0~2.4
Service Temperature (℃)	-40/+70	-50/+100	-40/+70	-50/+90	-45/+70	-75/+75	-75/+75	-75/+60	-50/+90
Elongation (%)	250~290	350~390	250~290	400~600	500~700	800~1,000	750~950	450~650	400~600
Hardness (Shore A or D)	84~90 (A)	81~85 (A)	86~90 (A)	88~92 (A)	93~95 (A)	61~65 (D)	57~61 (D)	53~57 (D)	91~95 (D)
Halogenated	O	O	O	X	X	X	X	X	X
Flame Retardant (IEC60332-1)	O	O	O	O	O	X	X	X	X
Flame Retardant (IEC60332-3-22 Category A)	X	O	O	O	O	X	X	X	X

Please consult us for other materials not listed.

TCR : Thermal & Cold Resistance, FR : Flame Retardant, HFFR : Halogen Free & Flame Retardant, HDPE : High Density Polyethylene, MDPE : Mid Density Polyethylene, LDPE : Low Density Polyethylene, XLPE : Cross-Linked Polyethylene, TPU : Thermo Plastic Polyurethane

Specification (Metric size)

O.D.(mm)xCore	Bundle Weight (Kg/M)						Overall Diameter Approx. (mm)
	Stainless steel			Copper & Copper alloy			
	Wall Thickness(mm)			Wall Thickness(mm)			
	0.5	0.8	1.0	0.8	1.0	1.2	
6 x 1	0.12	0.16	0.18	0.17	0.20	-	9
6 x 2	0.49	0.56	0.60	0.58	0.63	-	19
6 x 3	0.57	0.66	0.72	0.69	0.77	-	20
6 x 4	0.72	0.86	0.95	0.91	1.01	-	23
6 x 5	0.81	0.98	1.08	1.04	1.16	-	24
6 x 6	1.01	1.22	1.34	1.29	1.43	-	27
6 x 7	1.04	1.28	1.43	1.36	1.53	-	27
6 x 8	1.39	1.67	1.84	1.76	1.96	-	32
6 x 9	1.60	1.92	2.10	2.10	2.22	-	34
6 x10	1.63	1.98	2.18	2.17	3.32	-	34
8 x 1	0.17	0.22	0.25	0.23	0.27	0.30	11
8 x 2	0.64	0.74	0.80	0.81	0.88	0.94	23
8 x 3	0.71	0.86	0.95	0.94	1.04	1.14	24
8 x 4	0.94	1.14	1.26	1.24	1.38	1.51	28
8 x 5	1.19	1.44	1.60	1.56	1.73	1.89	31
8 x 6	1.35	1.65	1.83	1.78	1.99	2.18	33
8 x 7	1.37	1.72	1.93	1.87	2.11	2.34	33
8 x 8	2.07	2.47	2.72	2.64	2.92	3.18	40
8 x 9	2.43	2.83	3.08	2.88	3.20	3.49	43
8 x10	2.45	2.90	3.18	2.97	3.32	3.64	43
10x 1	-	0.27	0.32	0.33	0.34	0.38	13
10x 2	-	1.02	1.10	1.07	1.16	1.25	28
10x 3	-	1.20	1.32	1.27	1.40	1.54	29
10x 4	-	1.55	1.71	1.64	1.82	2.20	33
10x 5	-	1.96	2.17	2.07	2.30	2.52	37
10x 6	-	2.26	2.50	2.39	2.67	2.93	40
10x 7	-	2.33	2.62	2.49	2.80	3.11	40
10x 8	-	3.23	3.55	3.41	3.77	4.12	48
10x 9	-	3.72	4.05	-	4.15	4.54	51
10x10	-	3.79	4.11	-	4.29	4.72	51
12x 1	-	0.32	0.38	0.34	0.44	0.49	15
12x 2	-	1.35	1.45	1.41	1.52	1.87	33
12x 3	-	1.90	2.05	-	2.15	2.32	38
12x 4	-	2.02	2.23	-	2.36	2.58	40
12x 5	-	2.17	2.43	-	2.59	-	43
12x 6	-	3.01	3.32	-	3.52	-	48

O.D.(mm)xCore	PVC sheathed tube Weight (Kg/M)						Overall Diameter Approx. (mm)
	Stainless steel				Copper & Copper alloy		
	Wall Thickness(mm)				Wall Thickness(mm)		
	1.0	1.2	1.5	2.0	1.0	1.2	
10 x 1	0.32	0.35	0.40	0.48	0.34	0.38	13
12 x 1	0.38	0.42	0.49	0.60	0.41	0.46	15
15 x 1	0.47	0.54	0.63	-	0.51	0.59	18

Please consult us for other sizes not listed.

Specification (Imperial size)

Tube O.D.(in.)xCore	Bundle Weight (Kg/M)						Overall Diameter Approx. (mm)
	Stainless steel				Copper & Copper alloy		
	Wall Thickness				Wall Thickness		
	0.035"	1.0mm	0.049"	1.2mm	0.035"	0.049"	
1/4" x 1	0.17	0.19	0.21	0.21	0.19	0.23	9
1/4" x 2	0.75	0.77	0.83	0.81	0.78	0.87	21
1/4" x 3	1.00	1.04	1.12	1.10	1.04	1.18	22
1/4" x 4	1.10	1.15	1.28	1.26	1.16	1.34	25
1/4" x 5	1.20	1.26	1.40	1.36	1.27	1.50	26
1/4" x 6	1.40	1.47	1.64	1.60	1.49	1.76	29
1/4" x 7	1.50	1.57	1.76	1.73	1.57	1.85	29
1/4" x 8	1.94	2.02	2.24	2.21	2.02	2.34	34
1/4" x 9	2.22	2.31	2.56	2.52	2.31	2.67	36
1/4" x 10	2.29	2.39	2.67	2.63	2.39	2.79	36
3/8" x 1	0.28	0.30	0.35	0.34	0.31	0.38	13
3/8" x 2	1.14	1.18	1.27	1.25	1.18	1.33	28
3/8" x 3	1.55	1.62	1.75	1.72	1.62	1.84	29
3/8" x 4	1.90	1.98	2.16	2.12	1.99	2.28	32
3/8" x 5	2.15	2.25	2.48	2.43	2.26	2.63	36
3/8" x 6	2.35	2.47	2.74	2.68	2.47	2.86	39
3/8" x 7	2.42	2.57	2.87	2.82	2.58	3.09	39
3/8" x 8	3.09	3.25	3.62	3.57	3.25	3.81	47
3/8" x 9	3.52	3.70	4.12	4.06	3.70	4.33	50
3/8" x 10	3.57	3.77	4.24	4.17	3.77	4.47	50
1/2" x 1	-	0.41	0.47	0.46	-	0.51	16
1/2" x 2	-	1.36	1.49	1.48	-	1.57	35
1/2" x 3	-	1.82	1.94	1.92	-	2.06	41
1/2" x 4	-	2.32	2.70	2.65	-	2.85	42
1/2" x 5	-	2.62	2.92	2.87	-	3.12	47
1/2" x 6	-	3.61	3.97	3.91	-	4.21	51

Please consult us for other sizes not listed.

Maximum Allowable Working Pressure

Stainless Steel Seamless Tube

(Unit : bar)

O.D. (mm)	Wall Thickness (mm)					
	0.5	0.8	1.0	1.2	1.5	2.0
6	200	330	425	525	-	-
8	145	245	310	380	-	-
10	115	190	245	295	380	530
12	-	160	200	245	310	430
15	-	-	160	190	245	335

(Unit : bar)

O.D. (in.)	Wall Thickness (in.)		
	0.035	0.049	0.065
1/4	350	515	720
3/8	225	330	450
1/2	165	240	325

Stainless Steel Seam-welded Tube

(Unit : bar)

O.D. (mm)	Wall Thickness (mm)					
	0.5	0.8	1.0	1.2	1.5	2.0
6	160	265	340	420	-	-
8	115	195	245	305	-	-
10	90	155	195	235	305	425
12	-	125	160	195	250	345
15	-	-	125	155	195	270

(Unit : bar)

O.D. (in.)	Wall Thickness (in.)		
	0.035	0.049	0.065
1/4	280	410	575
3/8	180	260	360
1/2	135	190	260

Copper Tube (Soft-annealed)

(Unit : bar)

O.D. (mm)	Wall Thickness (mm)			
	0.8	1.0	1.2	1.4
6	105	140	175	-
8	75	100	125	-
10	60	80	100	120
12	50	65	80	95
15	-	50	60	75

O.D. (in.)	Wall Thickness (in.)	
	0.035	0.049
1/4	110	175
3/8	70	110
1/2	50	80

Cu-Ni(90/10) Tube

(Unit : bar)

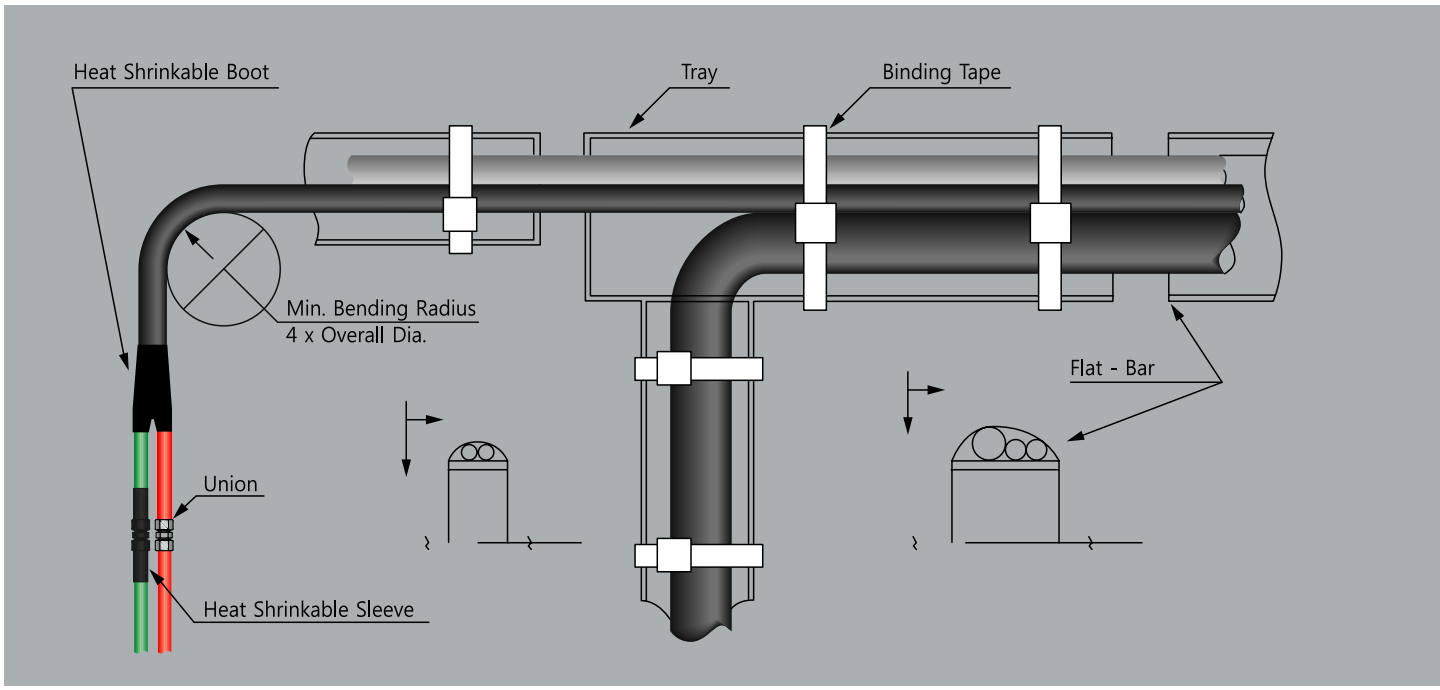
O.D. (mm)	Wall Thickness (mm)				
	0.8	1.0	1.2	1.4	1.5
6	180	230	280	-	-
8	130	165	205	-	-
10	100	130	160	190	205
12	-	105	130	155	165
15	-	85	100	120	130

O.D. (in.)	Wall Thickness (in.)	
	0.035	0.049
1/4	190	275
3/8	120	175
1/2	90	125

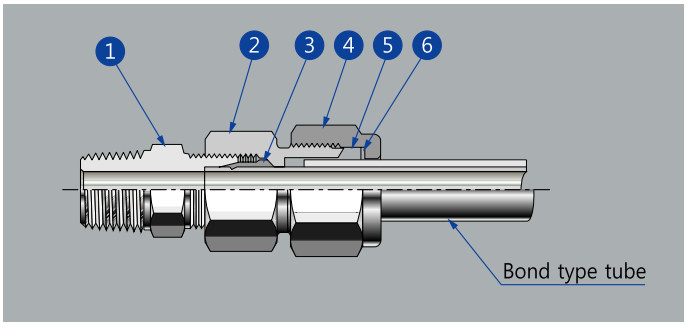
Installation

Multi Core Tube bundle is wound onto wooden drums and supplied to customers worldwide. Installation of Multi Core Tube, e.g. uncoiling from wooden drums, straightening, running, cutting, etc. is applied in the same way as that of electrical cable. See typical installation shown below.

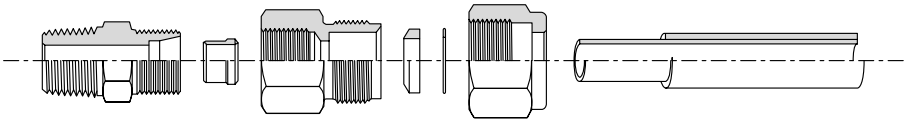
Multi Core Tube can be run on ladder tray, perforated tray or flat-bar tray and penetrate deck or bulkhead(wall) by either coaming or appropriate penetration fittings. Suitable fittings such as straight union, male/female connector, penetration gland, etc. are used for connection or termination of the tube.



Special Fittings For Bond Type Tube

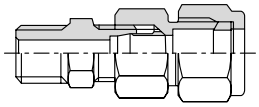


No	Part name	Material
1	Body	AISI 316
2	Coupling	AISI 316
3	Sleeve	AISI 304
4	Nut	AISI 316
5	Packing	NBR
6	Bearing	POM

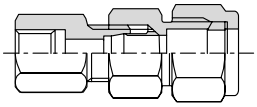


The bond type tube is installed together with suitable fittings for intended connection (see below) allowing no intermediate cuts.
Sealing is achieved by means of bite mechanism, NBR packing and CT nut.

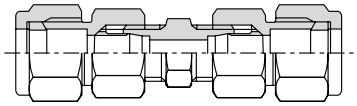
CT connector (male)
bond type tube - equipment (valve actuator)



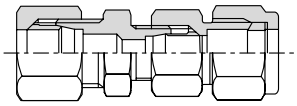
CT connector (female)
bond type tube - equipment (valve actuator)



CT union
bond type tube - bond type tube

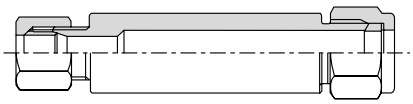


CT xB union
bond type tube - bare tube

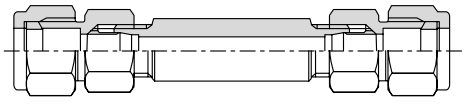


CT bulkhead union A type
bond type tube - bond type tube
(both sides NBR compression)

CT bulkhead union B type
bond type tube - bond type tube
(1 side bite nut, 1 side NBR compression)

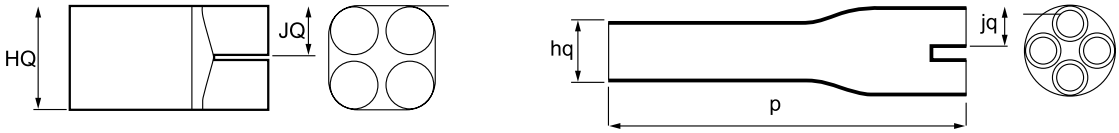


CT bulkhead union C type
bond type tube - bond type tube
(both sides bite & NBR compression)



Heat Shrinkable Boot

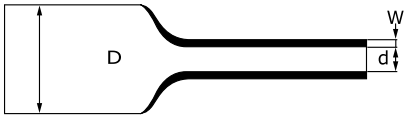
Material	Cross - linked polyolefin (flame retardant)	
Temperature	Operating Temperature range	-40°C ~ 100°C
	Minimum shrinking temperature	125°C



Type	As Supplied		After Recovery (min.)			Suitable multicore tube
	HQ	JQ	hq	jq	p	
DCHB - 02 - 1	34	14	12	4	78	O.D. 6mm X 2CORE O.D. 8mm X 2CORE
DCHB - 02 - 2	45	18	15	6	90	O.D. 10mm X 2CORE O.D. 12mm X 2CORE
DCHB - 03 - 1	35	15	17	5	76	O.D. 6mm X 3CORE O.D. 8mm X 3CORE
DCHB - 03 - 2	50	25	27	9	100	O.D. 10mm X 3CORE O.D. 12mm X 3CORE
DCHB - 04 - 1	40	14	22	5	90	O.D. 6mm X 4CORE O.D. 8mm X 4CORE
DCHB - 04 - 2	50	18	26	5	90	O.D. 10mm X 4CORE O.D. 12mm X 4CORE
DCHB - 05 - 1	40	13	20	5	90	O.D. 6mm X 5CORE O.D. 8mm X 5CORE
DCHB - 05 - 2	55	17	23	5	110	O.D. 10mm X 5CORE O.D. 12mm X 5CORE
DCHB - 06 - 1	45	12	20	4	100	O.D. 6mm X 6CORE O.D. 8mm X 6CORE
DCHB - 06 - 2	85	23	37	7	140	O.D. 10mm X 6CORE O.D. 12mm X 6CORE

Heat Shrinkable Sleeve

Material	Cross - linked polyolefin (flame retardant)	
Temperature	Operating Temperature range	-55°C ~ 125°C
	Minimum shrinking temperature	110°C



Type	As Supplied	After Recovery (min)	Wall thickness after recovery
	D(mm)	d(mm)	w(mm)
DCHT 12 / 4	12	4	1.5
DCHT 15 / 5	15	5	1.9
DCHT 19 / 6	19	6	3.4
DCHT 25 / 6	25	6	2.2
DCHT 27 / 9	27	9	2.5
DCHT 32 / 8	32	8	2.5
DCHT 40 / 13	40	13	2.5
DCHT 48 / 16	48	16	2.7
DCHT 55 / 16	55	16	2.7
DCHT 72 / 18	72	18	3.0

Heat Shrinkable Boot and Sleeve (HSB & HSS)

Corrosion Protective

Special care is required for installers due to the potential corrosion of metals and alloys when installed in an aggressive shipyard environment such as scratches, salt water, alien objects and carbon dusts. Those contaminants may start breaking the passivity of stainless steel bare tube & fitting, combine with the oxygen and result in tube corrosion.

During the installation scratches, metallic dusts, and etc. must be avoided. For easier and longer protection purposes we recommend sheathed tubes and jacket bare exposed stainless steel tubes and fitting surfaces with heat shrinkable boots and sleeves.

Designed for insulating and sealing a multicore tube crotch and individual tube, a cross-linked polyolefin HSB and HSS are supplied along with an adhesive inner coating for reliable environmental sealing.

Installation of HSB and HSS




Installation Steps for HSB

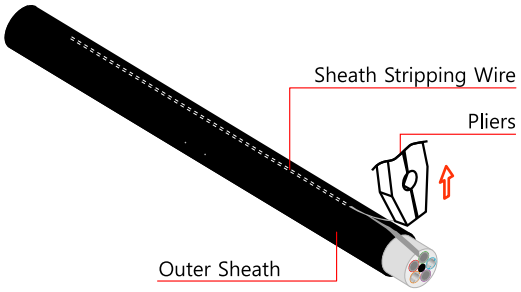
1. Pass the breakout over the cores and push it well down into the crotch.
2. Shrink the breakout into place starting at the center. Work first towards the over-sheath and then shrink the fingers onto the cores.
3. When installation of breakout is completed allow the breakout to cool before applying any mechanical strain.

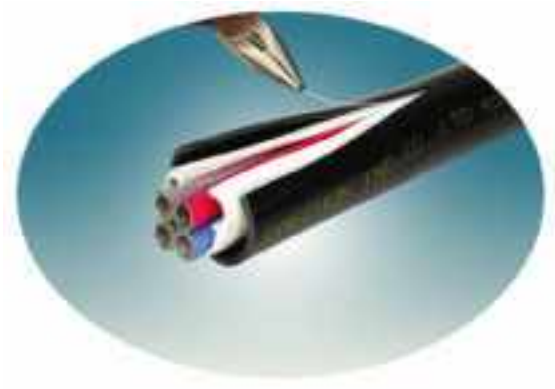
Installation Steps for HSS

1. Cut(square) to desired length and slide the expanded tubing over the item to be covered.
2. Shrink tubing by applying heat using a heat gun or other heat sources. Tubing starts to shrink at around 110°C. As heat is applied, move heat source back and forth and around the tubing to be shrunk. Shrink from the center toward the ends to ensure even shrinkage and avoid air entrapment.
3. When the tubing has shrunk enough to assume the configuration of the item covered, discontinue heating. Additional heating will not make the tubing shrink tighter.

Easier & Safer Sheath Removing Procedure

Sheath stripping wire embedded along the tube (see below picture) ensures easier and safer sheath removing procedure. The sheath can be simply stripped out by pulling the wire without using tools like knife, etc.





Stainless Steel Bare Tube Handling

When stainless steel bare tube is required at a shipyard the shipyard should handle it with care. The stainless steel bare tube can be subject to corrosion when it is exposed to metallic dusts and salty environments containing water and chlorides. While installing the stainless steel bare tube, scratches, metallic dusts and etc. must be avoided.

Tools & Accessories

Manual Bender

Tube Cutter and Blade

Sheath Removing Knife

Tube Deburring Tool

Tube Fitting

Bulkhead Penetration Gland

Plastic Pipe Clamp

Heat Shrinkable Boot and Sleeve

Hot Air Gun

Tube Fittings

BU
(Straight Union)

BT
(Union Tee)

BBU
(Bulkhead Union)

BMC-G
(Male Connector)

BBUW
(Welding Bulkhead Union)

BMC-R
(Male Connector)

BL
(Union Elbow)

BFC
(Female Connector)

Tube and Pipe Designation

Metric Tube	Out dia.	4	6	8	10.....30.....50				
	Designation	04	06	08	10.....30.....50				
SCH, PIPE	Nominal dia.	1/8	1/4	3/8	1/2	3/4	1	1-1/4	1-1/2
	Out dia.	10.5	13.8	17.3	21.7	27.2	34.0	42.7	48.6
	Designation	81	82	83	84	85	86	87	88

Pipe Thread Designation

Thread	1/8	1/4	3/8	1/2	3/4	1	1-1/4	1-1/2	2
Designation	01	02	03	04	06	08	10	12	16

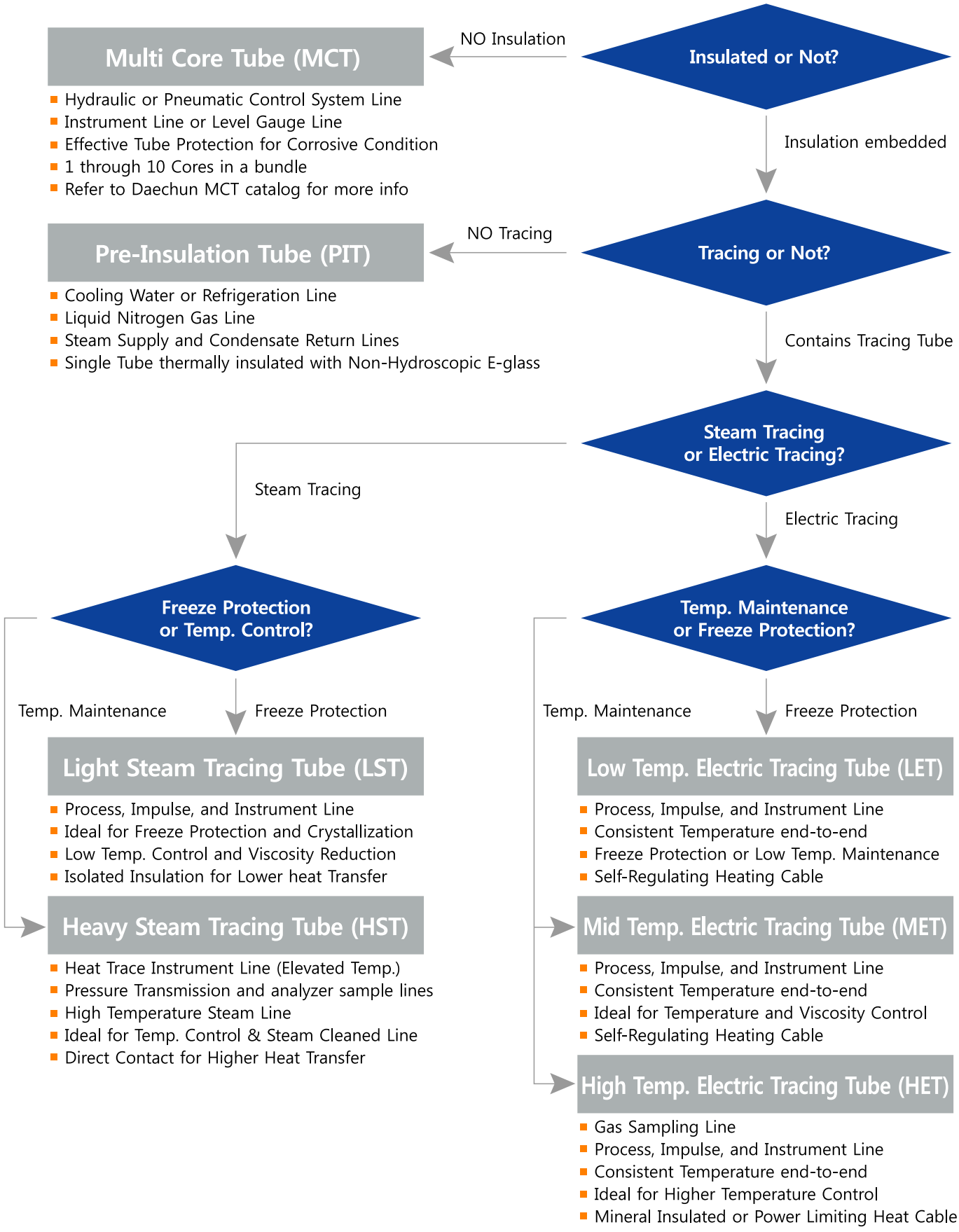
Thread Symbols

R : Taper Pipe Threads (PT JIS B0203, ISO 7/1)
G : Parallel Pipe Threads (PF B0202, ISO 228/1)
N : American National Standard Taper Pipe Threads (NPT ANSI B 1.20.1)

Material Specifications

	Steel	Stainless	Brass
Forged Bodies	S20C-S48C	AISI316, 304	C3771
Barstock Bodies	S20C-S48C	AISI316, 304	C3604
Cold Formed Nuts	S10C-S20C		
Barstock Nuts	S20C-S48C	AISI316, 304	C3604
Sleeves	S10C	AISI316, 304	C3604

System Selection Guidance



System Information

Pre-Insulated Tube System

Pre-Insulation Tube (PIT) bundles are wrapped up with non-hydroscopic E-glass insulation layers and protected by various jacket materials as per customer's request, of which bundles are inexpensive, easier and faster alternatives compared to conventional piping and field insulation.
They are mainly installed in hot liquid, gas, condensate and steam transport lines.

- Personnel protection, complete insulation, and weather resistance
- Secure effective and consistent heat transfer
- Easy to handle due to light weight & flexibility
- Installation, maintenance, and repair time & cost saving compared to conventional field insulation
- Cut-down on fitting connections owing to long-length supply

Steam Tracing Heating Tube System

We offer a variety of highly cost-effective and reliable steam tracing instrument and small diameter process tube bundles. Our steam tracing instrument tubes are generally installed for winterization.
They are also applicable for high temperatures for viscous processes or to keep gas samples above pre-determined dew point and prevent condensation.

- Personnel protection, complete insulation, and weather resistance
- Secure effective and consistent heat transfer
- Easy to handle due to light weight & flexibility
- Installation, operation, and maintenance time & cost saving compared to conventional field insulation

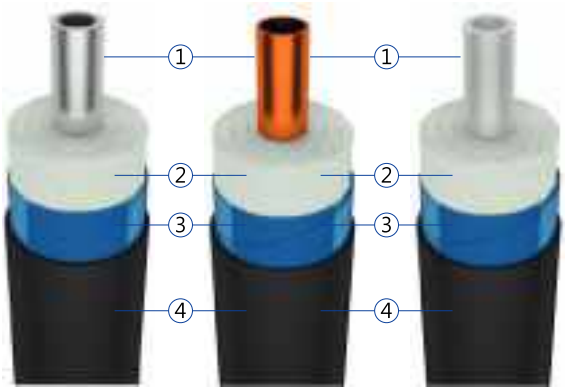
Electric Tracing Tube System

Electric Tracing Tube bundles typically consist of single or two core process tubes, self-regulating or mineral insulated heating cable, heat reflecting foil wrap, non-hygroscopic E-glass insulation and various jacket materials as per customer's request.
ETT bundles are chosen to keep consistent temperatures end-to-end and also selected for freeze protection, temperature maintenance and viscosity control. Three different types of bundles are available: Low Temperature Electric Tracing Tube (LET), Mid Temperature Electric Tracing Tube (MET), and High Temperature Electric Tracing Tube (HET).

- Self-regulating or externally powered heating tracer embedded
- Various process operating temp. ranges or freeze protection purpose in analyzer, instrument, impulse, sample and process lines
- Easy to design & install based on flexibility and cut-to-length applicability
- Ensure flow, level, and pressure transmitter reliability and safety better than field insulation

Pre-Insulation Tube (PIT)

- Simple, Fast, Economical, and Effective compared to Conventional Field-Installed Insulation
- Fluids & Gases Transport, Steam Supply, Weather-Resistant, and Personnel Protection
- Normally Maximum Tube Temperature 400°F (204°C) and also Higher Temperature available upon Request
- Maximum Sheath Surface Temperature 140°F (60°C) at 80°F (27°C) with 10mph (16 km/h) Wind
- Supplied on Wooden Drums with Length more than 700m depending on Tube Size



Tube Construction (Factory Standard)

① Process Tubing
316/316L SS seamless, Copper tube, PTFE

② Thermal Insulation
Non-hydroscopic inorganic, water soluble chlorides less than 100ppm E-Glass for minimum heat loss

③ Heat Reflective Foil
Aluminum Heat Transfer Foil

④ Outer Sheath
PVC or PE Jacket

Process Tube → **Sheath** →

PIT	-P	XX*	XX**	XX***	-S	X****	X*****

Tube Material
- 01 : 316/316L SS Seamless
- 02 : 316/316L SS Welded
- 03 : 304/304L SS Welded
- 04 : 317L SS Seamless
- 05 : 321 SS Seamless
- 06 : 347 SS Seamless
- 07 : 316L 2.5% MO SS
- 08 : 6MO
- 09 : 904L
- 10 : Duplex
- 11 : Super Duplex
- 12 : Monel 400
- 13 : Inconel 600/625/825
- 14 : Hasteloy C22/C276
- 15 : Copper
- 16 : Tefron PTFE/PFA/ETFE

Tube OD
- 01 : 1/4"
- 02 : 3/8"
- 03 : 1/2"
- 04 : 5/8"
- 05 : 6mm
- 06 : 8mm
- 07 : 10mm
- 08 : 12mm
- 09 : 15mm

Tube Thickness
- 01 : 0.8mm
- 02 : 0.035" (0.889mm)
- 03 : 0.039" (1.0mm)
- 04 : 1.2mm
- 05 : 0.049" (1.245mm)
- 06 : 0.059" (1.5mm)
- 07 : 0.065" (1.65mm)

Outer Sheath Material
- 1 : PVC
- 2 : FR-PVC
- 3 : LD-PE
- 4 : MD-PE
- 5 : HD-PE
- 6 : HFFR-PE
- 7 : HFFR-TPU

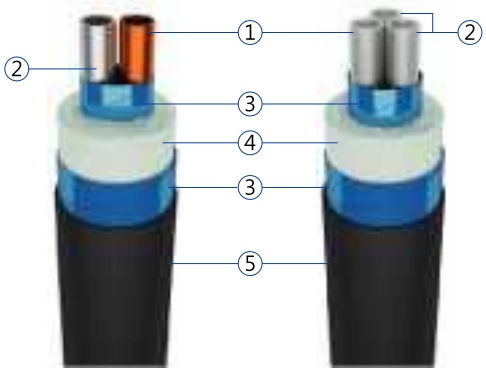
Outer Sheath Color
- 1 : Black
- 2 : Red
- 3 : Yellow
- 4 : Blue
- 5 : Green
- 6 : Orange
- 7 : Gray

Example : PIT-P010703-S71

Pre-Insulation Tube consisting of 316L Stainless Steel Seamless Tube with 10mm OD and 1mm Thickness, Non-Hydroscopic E-Glass Insulation, and Halogen Free Flame Retardant (HFFR) Thermoplastic Polyurethane (TPU) Black Color Sheath.

Heavy Steam Traced Heating Tube (HST)

- Maintain Process Temp. between 200°F (93°C) and 400°F (204°C)
- Designed to Limit Surface Temp. less than 140°F (60°C) when Ambient Temp. at 80°F (27°C)
- MTR(Maximum Temp. Rating) : Steam Saturation at Temp. 400°F (204°C) and 232.6PSIG (16Bar)
- Direct Contact of Tracer and Process Tubes for higher Heat Transfer



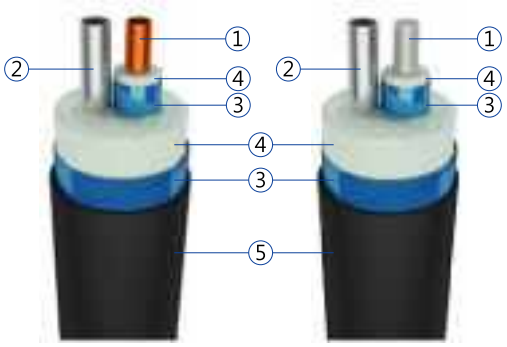
Tube Construction (Factory Standard)

① Tracing Tube : Copper, 316/316L SS Seamless, PTFE
② Process Tube : Copper, 316/316L SS Seamless, PTFE
③ Aluminum Heat Reflective Foil
④ Thermal Insulation
⑤ PVC or PE Jacket

■ One tracing tube & one or two process tubes as standard and others available upon request

Light Steam Traced Heating Tube (LST)

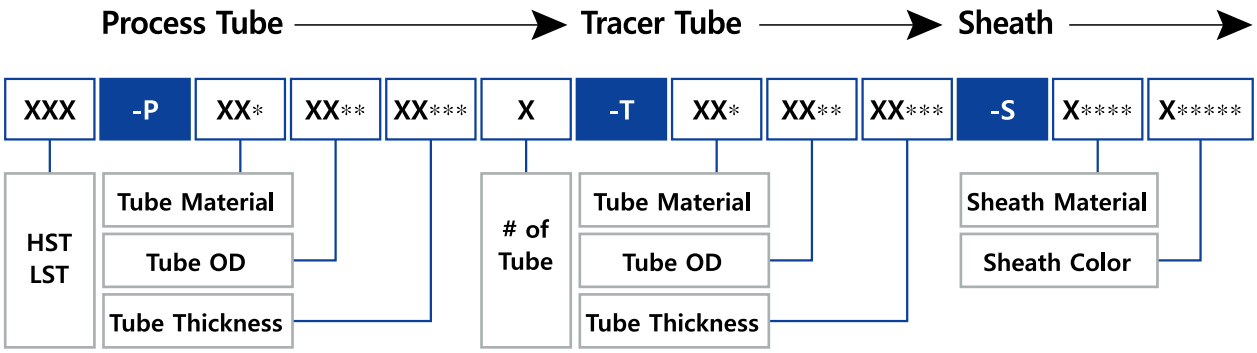
- Maintain Process Temp. between 50°F (10°C) and 200°F (93°C)
- Designed to Limit Surface Temp. less than 140°F (60°C) when Ambient Temp. at 80°F (27°C)
- MTR : Steam Saturation at Temp. 400°F (204°C) and 232.6PSIG (16Bar)
- Indirect Contact of Tracer ad Process Tubes for less Heat Transfer



Factory Standard

① Tracing Tube : Copper, 316/316L SS Seamless, PTFE
② Process Tube : Copper, 316/316L SS Seamless, PTFE
③ Aluminum Heat Reflective Foil
④ Thermal Insulation
⑤ PVC or PE Jacket

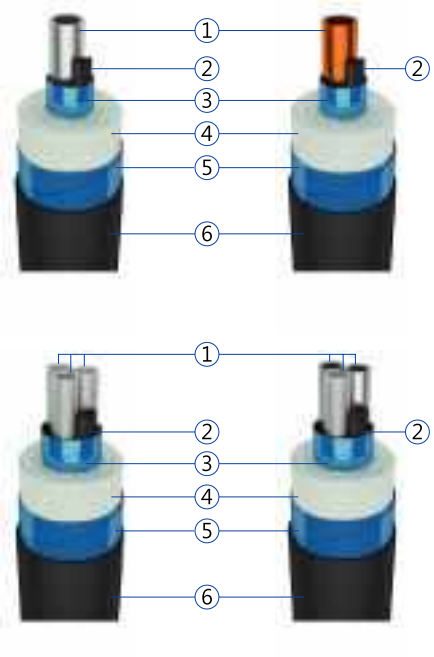
■ One tracing tube & one or two process tubes as standard and others available upon request



Example : LST-P0202022-T150202-S61

Light Steam Tracing Tube, Two 316L Stainless Steel Welded Tubes with 3/8" OD and 0.035" Thickness for Process Line, Copper Tube of 3/8" OD and 0.035" Thickness for Steam Line, non-Hydroscopic E-Glass Insulation, and HFFR-PE, Black Color Sheath.

Low/Mid/High Electric Traced Heating Tube (LET/MET/HET)



Tube Construction (Factory Standard)

① Process Tube : Copper, 316/316L SS Seamless, PTFE
② Self Regulating or MI Heating Cable
③ Aluminum Heat Reflective Foil
④ E-Glass Thermal Insulation
⑤ Aluminum Heat Transfer Foil
⑥ PVC or PE Jacket

■ One tracing tube & one or two process tubes as standard and others available upon request

	Max. Continuous Exposure & Maintain	Max. Intermittent Exposure
LET	150°F (65°C)	185°F (85°C)
MET	250°F (120°C)	420°F (215°C)
HET	1238°F (670°C)	1022°F (550°C)

Heating Cable Used for Classified Area FM, CSA, PTB, Baseefa, DNV, ABS Approvals
Normal Process Line Temp. Range 50°F (10°C) to 250°F (121°C)

Process Tube → Heating Cable → Sheath →

XXX	-P	XX*	XX**	XX***	X	-H	Y*	Y**	YY	-S	X****	X*****

XXX — LET / MET / HET

-P
- Tube Material
- Tube OD
- Tube Thickness

XX* — Tube Material
XX** — Tube OD
XX*** — Tube Thickness

X — # of Tube

-H
- Heating Cable Type
  - S : Self-Regulating
  - M : Mineral Insulated
- Heating Cable Voltage
  - 1 : 120V
  - 2 : 240V
- Heating Cable Power
  - 01 : 5W/ft (16W/m)
  - 02 : 8W/ft (26W/m)
  - 03 : 10W/ft (33W/m)
  - 04 : 15W/ft (49W/m)
  - 05 : 20W/ft (66W/m)

Y* — Heating Cable Type
Y** — Heating Cable Voltage
YY — Heating Cable Power

-S
- Sheath Material
- Sheath Color

X** — Sheath Material
X*** — Sheath Color

Example : MET-P1203052-HS102-S61

Mid Range Electric Heat Tracing Tube, For Process Line, Two Monel 400 Tubes with 1/2" OD and 0.049" Thickness, Self-Regulating Heating Cable designed for 8W/ft, 120V, and Black HFFR-PE Coated.

Hydraulic & Offshore SUPPLIES

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