


## BESTOTUBE Preinsulated Tubing bundle



**BESTOWIN**  
A EUROPEAN MANUFACTURER  
OF TUBING BUNDLES

**1** STEAM & CONDENSATE  
RETURN DISTRIBUTION

**2** ANALYZER SAMPLE  
TRANSPORT LINES


**3** INSTRUMENTATION IMPULSE  
TUBING FREEZE PROTECTION

**4** JACKETED  
TUBING

**WHAT DEFINES US**

- Reliable European tubing bundle manufacturer
- Focused on high quality performance to ensure customer expectations are exceeded
- Product development through constant technological innovation
- Large stock of tubing allows fast deliveries
- In-house engineering provides custom designed solutions

**BESTOTUBE** Preinsulated tubing  
Tubing bundles



### INDEX:

1. Introduction Bestowin
2. Product groups
3. What is Tubing bundle
4. Markets
5. Applications
6. Electrical Tracing
7. Installation accessories

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8. **BESTOTUBE** DESING TOOL



Instrumentation - Contrôle - Connectique  
Automatisme - Régulation

## 2. INTRODUCTION BESTOWIN

Bestowin is a European Tubing bundle manufacturer.

Our experienced team is focused on

- Customer focused Solutions
- High Quality Production
- Accurate Temperature Designs
- Fast Reliable Deliveries
- Validated ISO9001 procedures

**COLD CLIMATE INSTRUMENT PROTECTION**  
Guaranteed Warm Loop Instrument & Tubing Protected from Freezing

**STEAM DISTRIBUTION**  
Steam and Condensate - lead & Tail lines  
Preinsulated Tubing  
Personal Protection

**CONTINUOUS EMISSION MONITORING**  
Analyzer Sample Tubing

**BESTOTUBE**



Instrumentation - Contrôle - Connectique  
Automatisme - Régulation

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**www.iccare.fr**

## 2. PRODUCT GROUPS

B2TS

1

STEAM &  
CONDENSATE  
RETURN  
DISTRIBUTION



B2TE

2

ANALYZER  
SAMPLE  
TRANSPORT  
LINES



B2TE

3

INSTRUMENTATION  
IMPULSE  
TUBING  
FREEZE PROTECTION



B2TJ

4

JACKETED  
TUBING



# BESTOTUBE

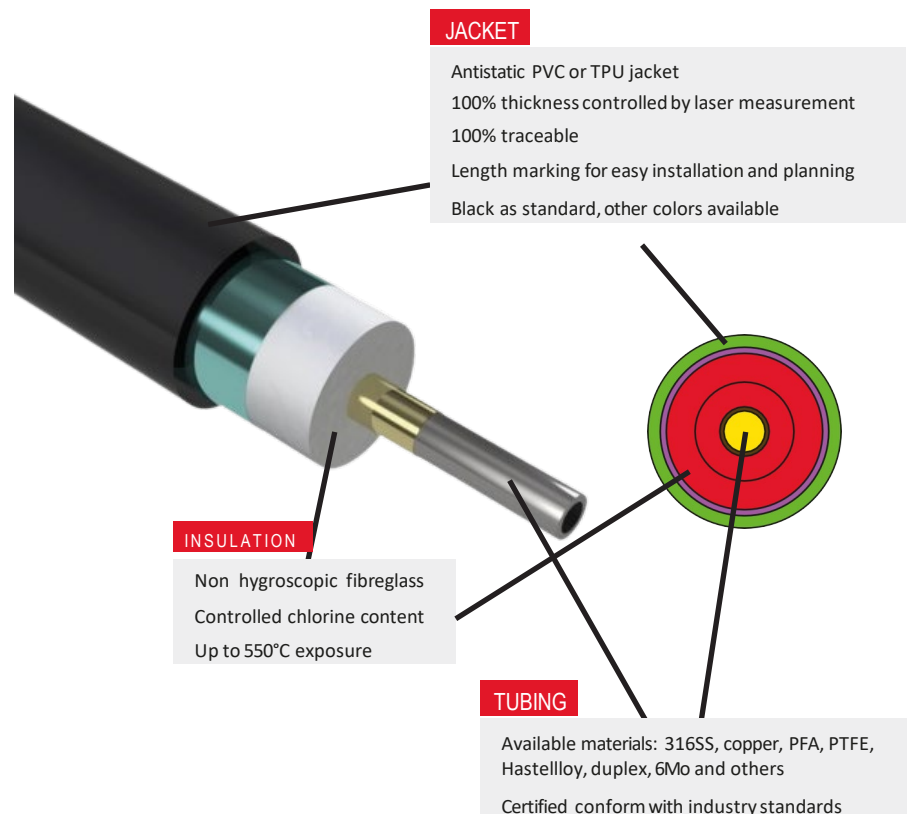
## 2. PRODUCT GROUPS

PRODUCTGROUPS

STEAM & CONDENSATE RETURN DISTRIBUTION

B2TS

# BESTOTUBE

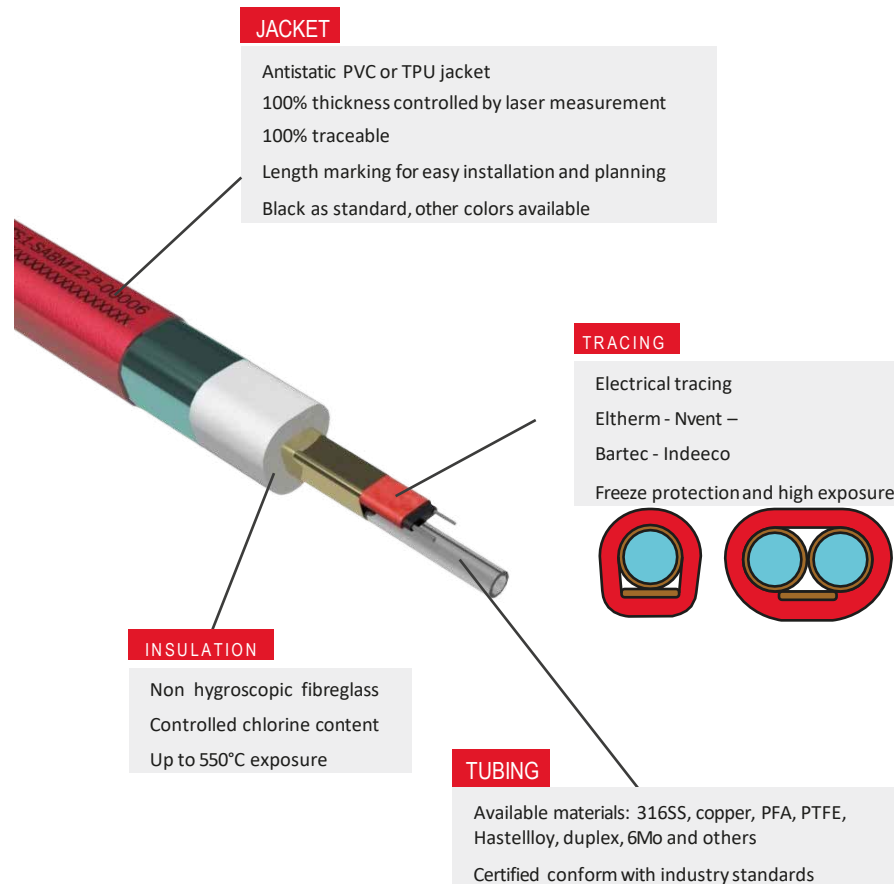


## 2. PRODUCT GROUPS

PRODUCTGROUPS  
ANALYZER SAMPLE TRANSPORT LINES

B2TE  
B2TH  
B2TL

# BESTOTUBE



## 2. PRODUCT GROUPS

### PRODUCTGROUPS

INSTRUMENTATION IMPULSE TUBING FREEZE PROTECTION

#### JACKET

Antistatic PVC or TPU jacket  
100% thickness controlled by laser measurement  
100% traceable  
Length marking for easy installation and planning  
Black as standard, other colors available

#### TRACING

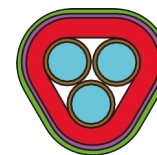
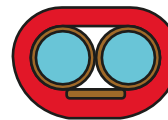
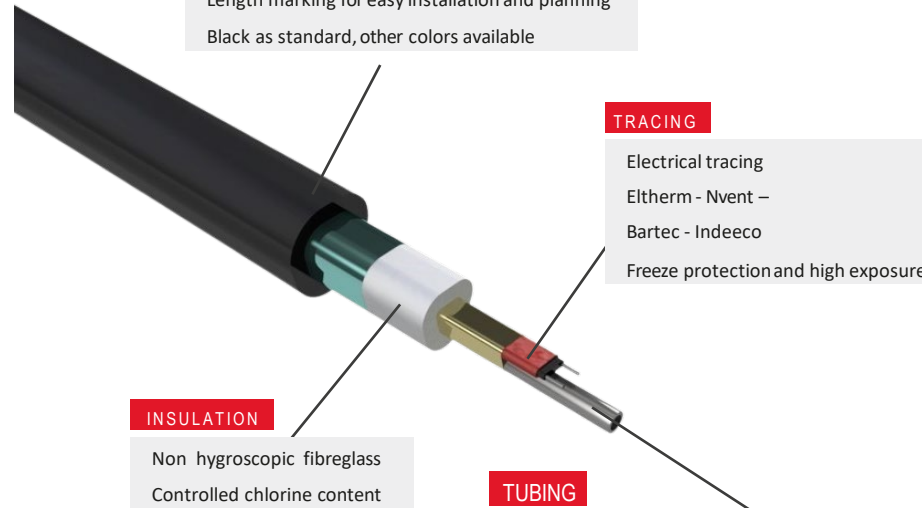
Electrical tracing  
Eltherm - Nvent –  
Bartec - Indeeco  
Freeze protection and high exposure

#### INSULATION

Non hygroscopic fibreglass  
Controlled chlorine content  
Up to 550°C exposure

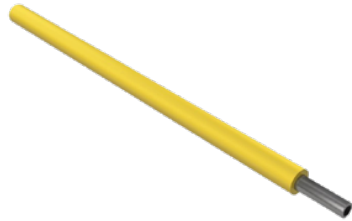
#### TUBING

Available materials: 316SS, copper, PFA, PTFE,  
Hastelloy, duplex, 6Mo and others  
Certified conform with industry standards



## 2. PRODUCT GROUPS

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### TUBING

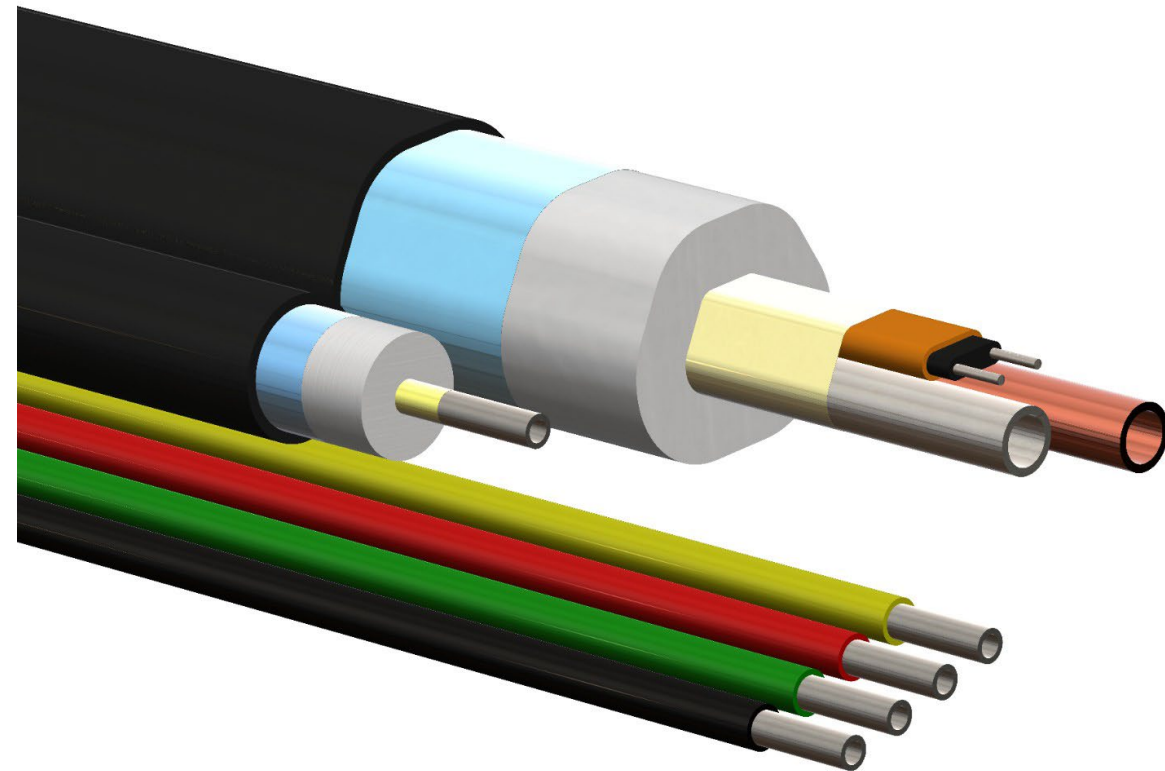
Tubing dimensions and pressure rating on page 9  
Available materials: 316SS, copper, PFA, PTFE,  
Hastelloy, duplex, 6Mo and others  
Certified conform with industry standards

### JACKET

Antistatic PVC or TPU jacket  
100% thickness controlled by laser measurement  
100% traceable  
Length marking for easy installation and planning  
Black as standard, other colors available

### 2. PRODUCT GROUPS

- B2TS  
Single Insulated Bundle
- B2TH  
High temp Steam Traced bundle  
Tubes are in contact
- B2TL  
Low temp Steam Traced bundle
- B2TE  
Electrical Traced Bundle
- B2TJ  
Jacketed Tubing (No insulation)





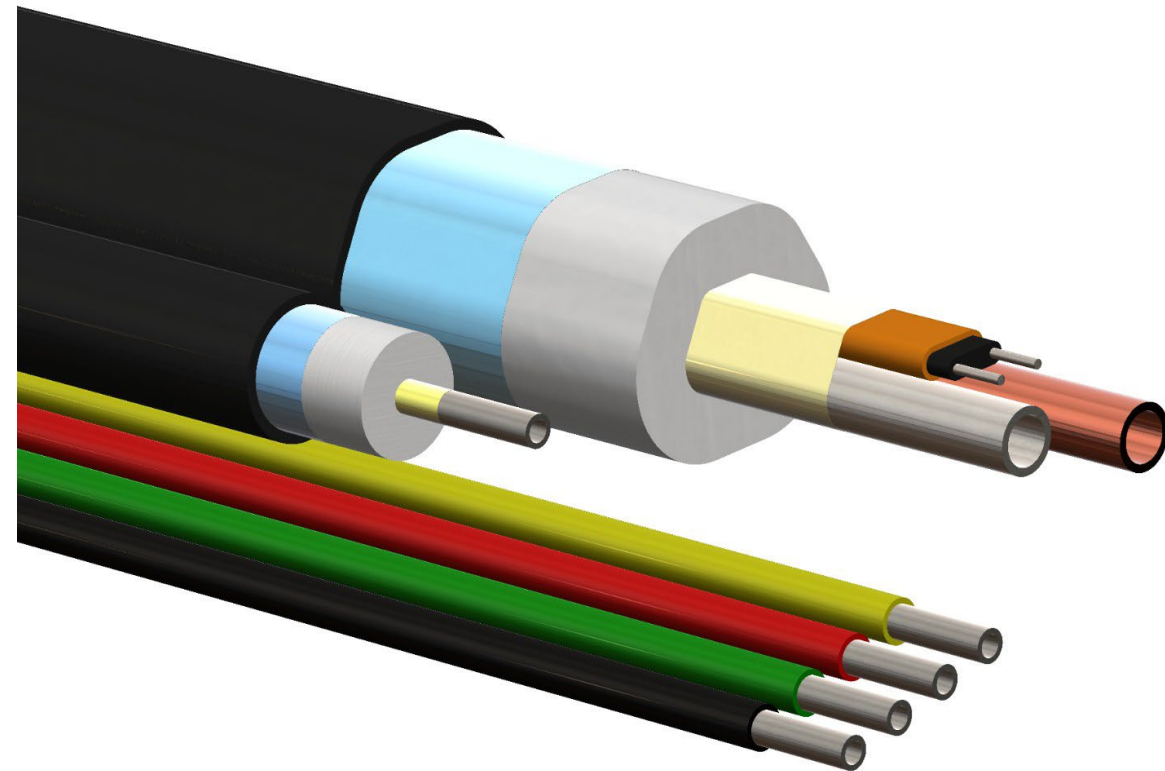
### 3. WHAT IS TUBING BUNDLE

A **tubing bundle** is a 3mm – 25mm diameter tube or group of tubes packaged in an insulated, weatherproofed jacket. It may be only coated with a PVC or TPU jacket, a single insulated tube, a **steam** or **EX Certified electrically** heated tube(s) to provide tube(s) temperature maintenance.



### 3. WHAT IS TUBING BUNDLE

- Tube selector  
See Slide
- Jacket Materials  
PVC  
TPU
- Insulation  
Glass Fiber
- Tube cleaning-polishing  
See slide
- Heat-Tracing Technologies  
Steam  
Electric

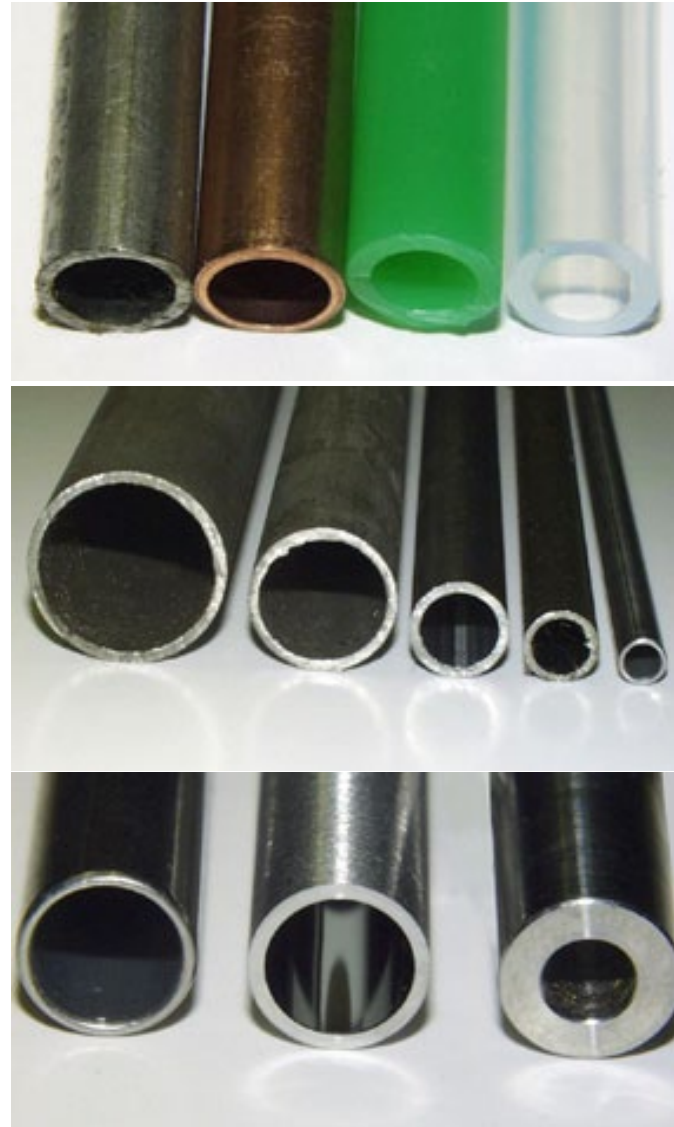


## Tube selector

### 3. WHAT IS TUBING BUNDLE

#### Tube Selector

- Material
  - PFA or PTFE
  - SS316
  - Seamless
  - Seamfree
  - Calibrated/welded
  - Copper
  - Titanium
  - Hastelloy C
  - Alloy 625 – 825
  - Monel
  - Others
- Size
  - 1/8" up to 1" OD
  - 3mm up to 25mm
- Wall Thickness
  - 1mm up to 2mm
  - 0,03" up to 0,108"



#### 4. MARKETS

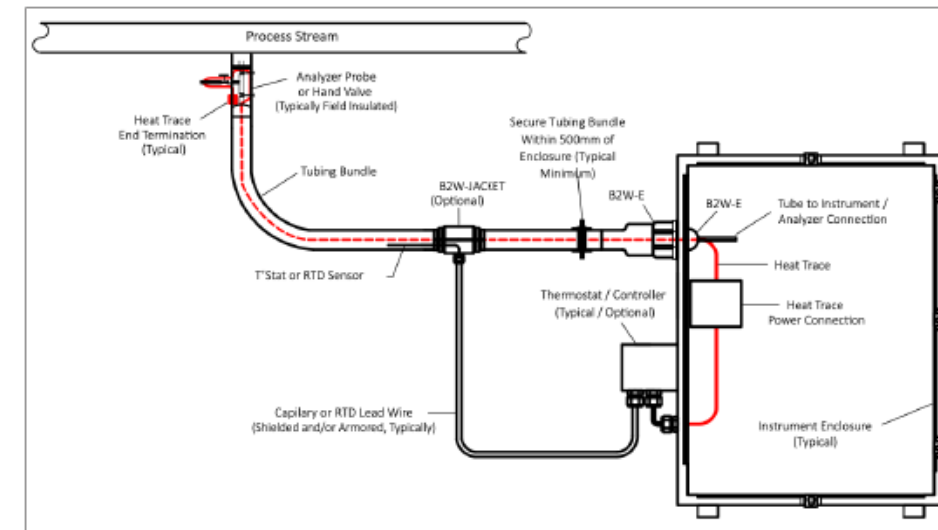
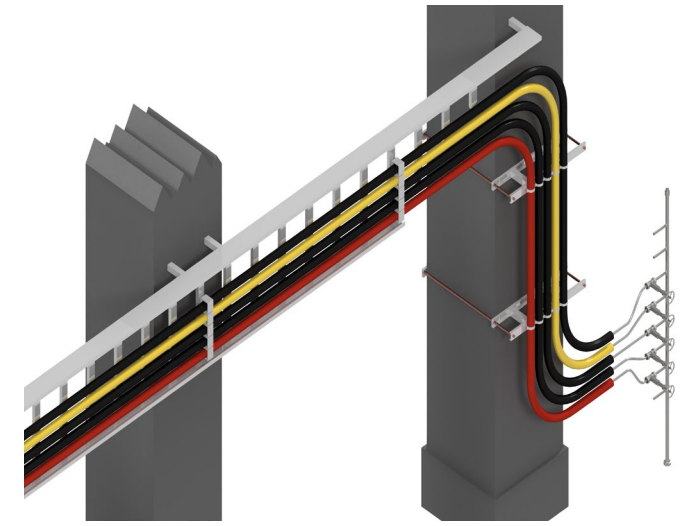
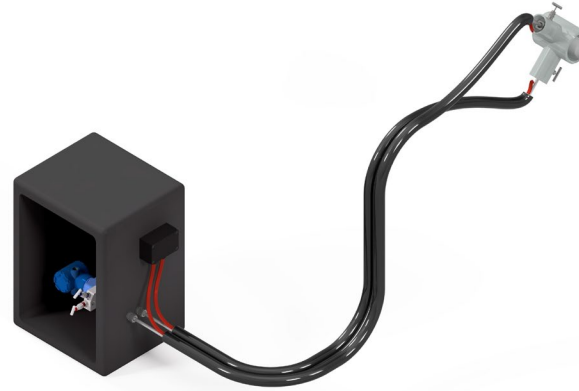
- Refining
- Chemical
- Mining
- Iron & Steel
- Pulp & Paper
- Petroleum Upstream
- Power - CoGeneration, Utilities
- Oil & Gas Pipeline
- Water & Waste
- Incineration
- Steam Distribution
- Food
- Pharmaceutical
- OEM

## 4. MARKETS



## 5. APPLICATIONS

- Steam – Condensate distribution
- Instrument Impulse lines
- Process lines
- Analyzer - Sample lines  
*Sample Transport Conditioning*  
*Dewpoint-Condensation Protection*  
*Fast Loop*



## 5. APPLICATION PURPOSES

- Personal protection. (hot surfaces)
- Freeze protection
- Temperature maintenance
- Viscosity control

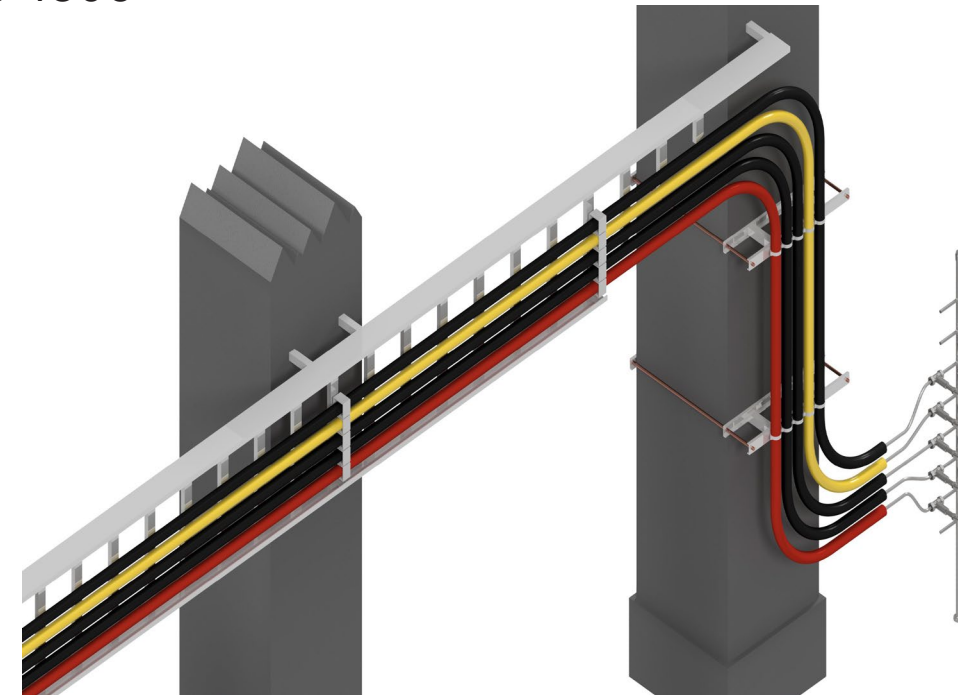
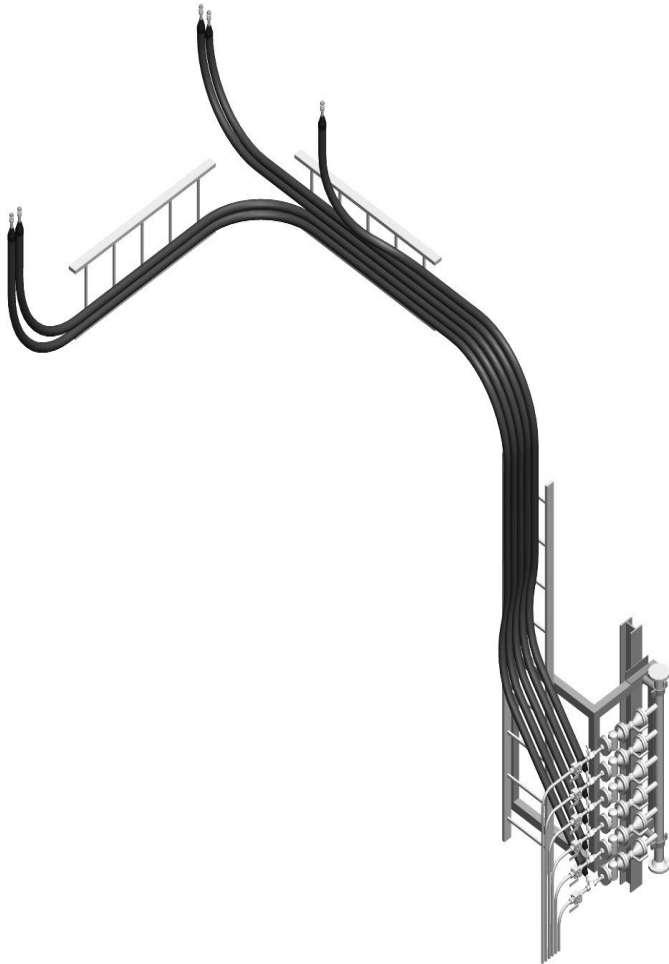
All purposes are applicable for all lines:

- ✓ Steam distribution
- ✓ Impulse lines
- ✓ Process lines
- ✓ Sample lines

**5. APPLICATIONS****Steam condensate distribution****BESTOTUBE**

Preinsulated Tubing  
1/2"OD and 3/4"OD Copper and SS316 in stock  
12mm SS316Ti in stock

Design Steam Temperatures up to 450C





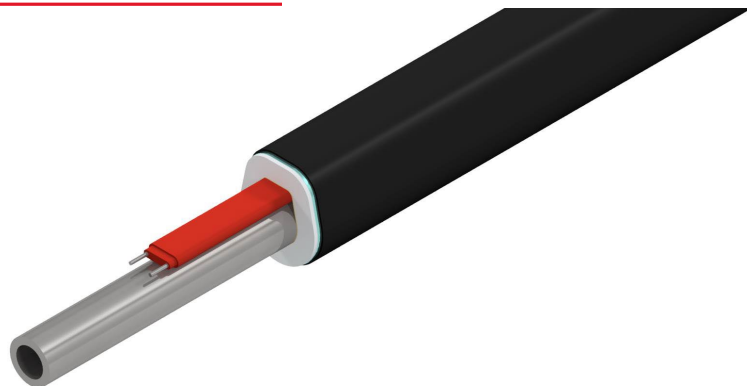
## Instrument Freeze Protection *Warm loop design*

- **BESTOBOX** Antistatic GRP Insulation Protection Box
- Including:
  - EX Heater
  - EX Junction Box with power switch
  - Window
  - Instrument bracket
  - Tag Plate
  - Safety Instructions
- **BESTOTUBE** Heated Impulse Tubing
  - Tubing
  - EX Heating Cable
- Plug and Play components for easy on site Installation.



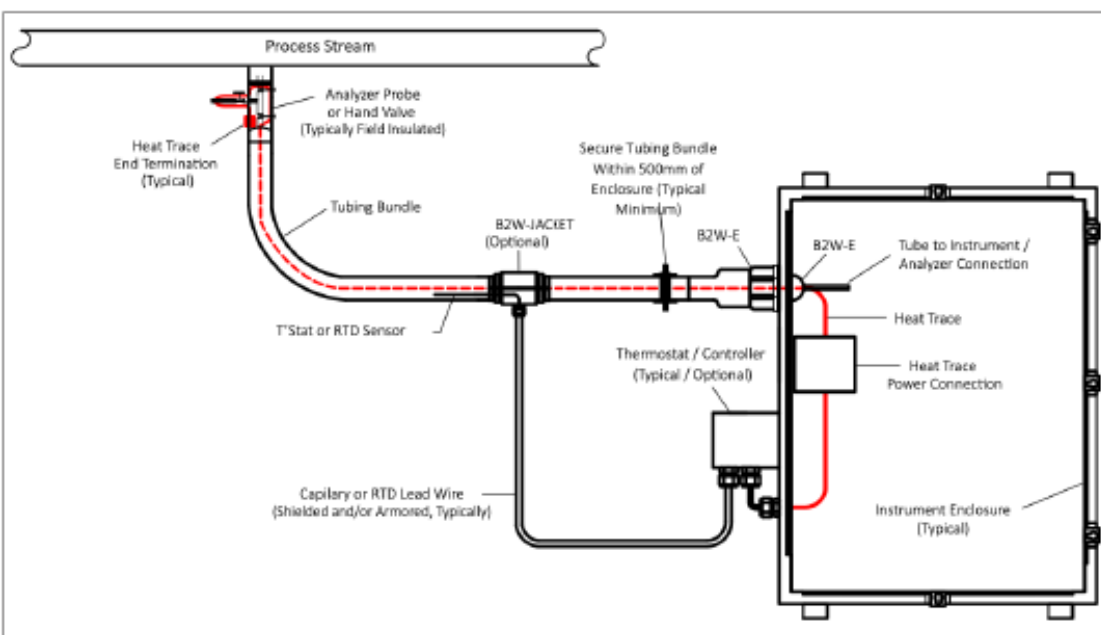
## 5. APPLICATIONS

## Analyzer Sample Lines



**BESTOTUBE** Designed to guarantee:

- Continues Sample Transport line.
- Consistent Sample Transport Temperature at required Sample maintain temperature.
- Avoids additional Temperature controllers (Up to 165C)
- Exposure temperature above 450C process
- Maintain temperature up to 180C
- Up to 10 tubes in one bundle
- Combination of heated and unheated tubes in same bundle
- Additional communication or power cable underneath jacket
- Analyzer TAG marking available on jacket print
- Multiple jacket colors available on request
- Quick Ship available



All **BESTOTUBE** bundle come with 100% traceable material certificates.

Optional available Tube Cleaning and/or Polishing Services

- STD Commercial grade TCC tubing
- CP Chemically Polished Tubing (Passivated and certified)
- OC Oxygen cleaned Tubing (Capped and certified)
- PS Sulfinert/SilcoNert<sup>®</sup>-treated Bestotube
- M Semiconductor grade polished tubing Average Ra 0,4um

## Analyzer Sample Lines

Improving Gas Chromatography with a Sulfinert coated Bestotube

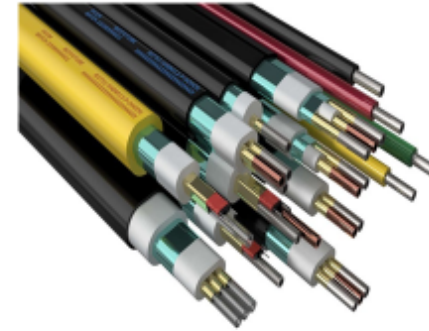
### *When to use BESTOTUBE PS SULFINERT COATED TUBING*

A Sulfinert-treated flow path is especially important for highly reactive species, e.g. sulfurs, NO<sub>x</sub>, SO<sub>x</sub>, stack gas, alcohols, pharmaceuticals, explosives, chemical weapons, volatile organic compounds (VOCs), OP pesticides, chlorinated pesticides, herbicides

- Trace sulfurs, mercury, and ammonia
- Moisture
- Natural gas testing
- Any time complete inertness is required

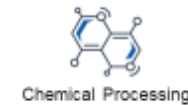
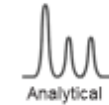
### Overview

**BESTOTUBE PS** SULFINERT COATING process results in a chemically protective barrier of amorphous silicon that is further functionalized to provide the most inert surface available. Applied via chemical vapor deposition (CVD), the coating is ideal when trace-level testing accuracy of sulfurs, mercury, ammonia, or other active compounds is imperative.



### Key Applications and Benefits

- up to 200meter continues Bestotube coating
- Eliminate adsorption and memory effect
- Obtain faster response time
- Accurate reliable Sample Transport



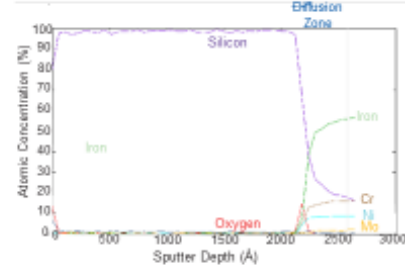
### Properties

<b>Coating Structure:</b>	Functionalized hydrogenated amorphous silicon
<b>Deposition Process:</b>	Thermal chemical vapor deposition (not plasma-enhanced)
<b>Maximum Temperature*:</b>	Max for functionalization: 400° C (oxidative) 450° C (inert) Melting: 1410° C
<b>Substrate:</b>	Compatibility: Stainless steel, exotic alloys, ceramics, aluminum Size: Typical BESTOTUBE 1/8"OD up to 1/2"OD
<b>Typical Thickness:</b>	100 - 500 nm
<b>Hydrophobicity (contact angle):</b>	≥ 65°
<b>Allowable pH Exposure:</b>	0 - 8

## Analyzer Sample Lines

### CHEMICALLY COMPATIBLE

The functionalized silicon structure deposited by BESTOTUBE PS coating provides a highly inert barrier to analytes of interest.



### NON-WETTING

BESTOTUBE PS doubles the hydrophobicity of stainless steel and is commonly specified in moisture analyzer applications.

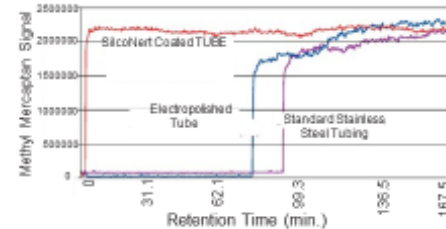
### HIGH-TEMPERATURE STABLE

PS coating are robust and inert for use up to 450°C, far exceeding the limits of PTFE.

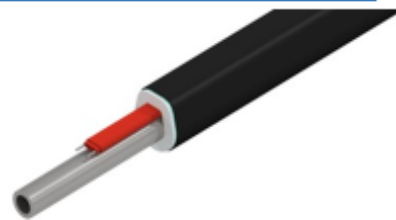
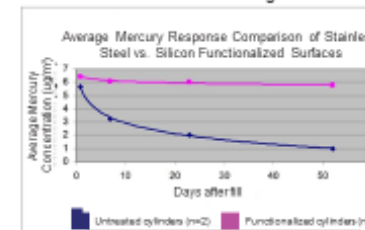
## Analyzer Sample Lines

### INERT TO SULFURS and AMMONIA INERT TO MERCURY

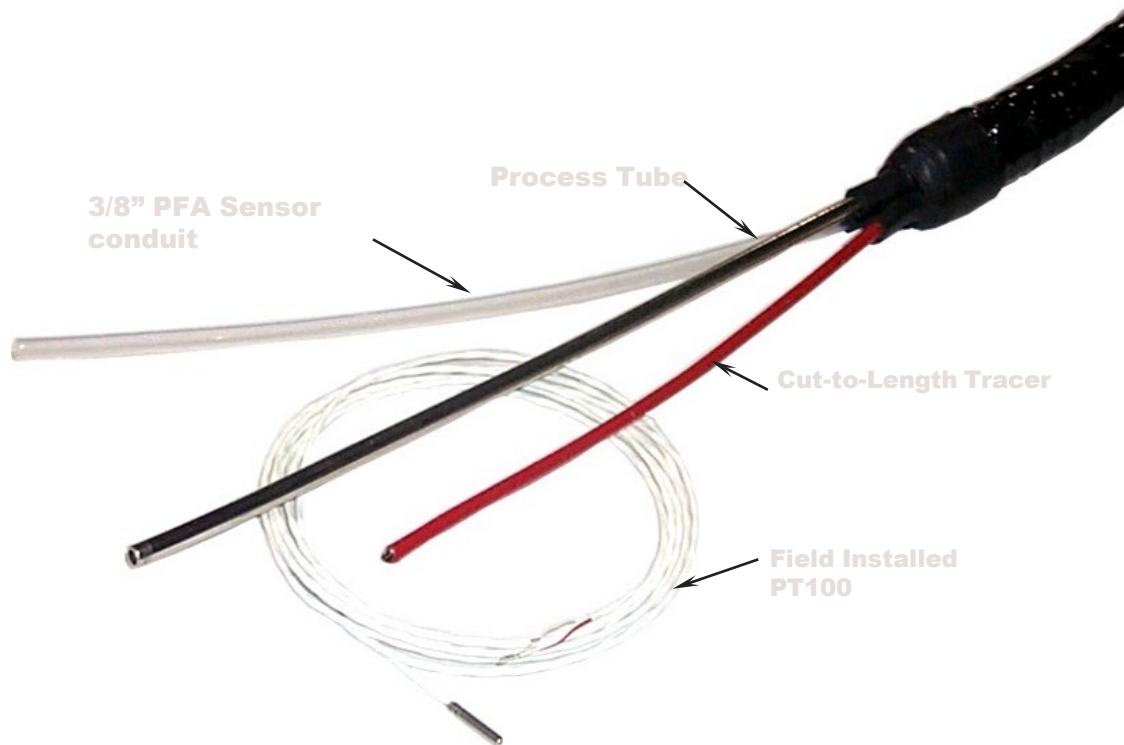
BESTOTUBE PS coating provides nearly instant sample response, requiring no "priming" of the analytical system.



BESTOTUBE PS coating provides sample components excellent stability for mercury samples, even after several weeks of storage.



## Sensor conduit



### **BESTOTUBE** Sensor Conduit Design

- Accurate Temperature measurement guaranteed.
- Flexibility on site during installation
- Bundle can be cut to length on site
- PT100 can be inserted on site after completion of bundle installation.

*Wrong field installation is the number one cause for inaccurate temperature control.*

Inaccurate Temperature control lead to:

- Condensation (read missed) critical components during Sample Transport
- Wrong analyzer performance
- Wrong data for process control

**BESTOTUBE** guarantees accurate temperature measurements.

## 6. ELECTRICAL TRACER

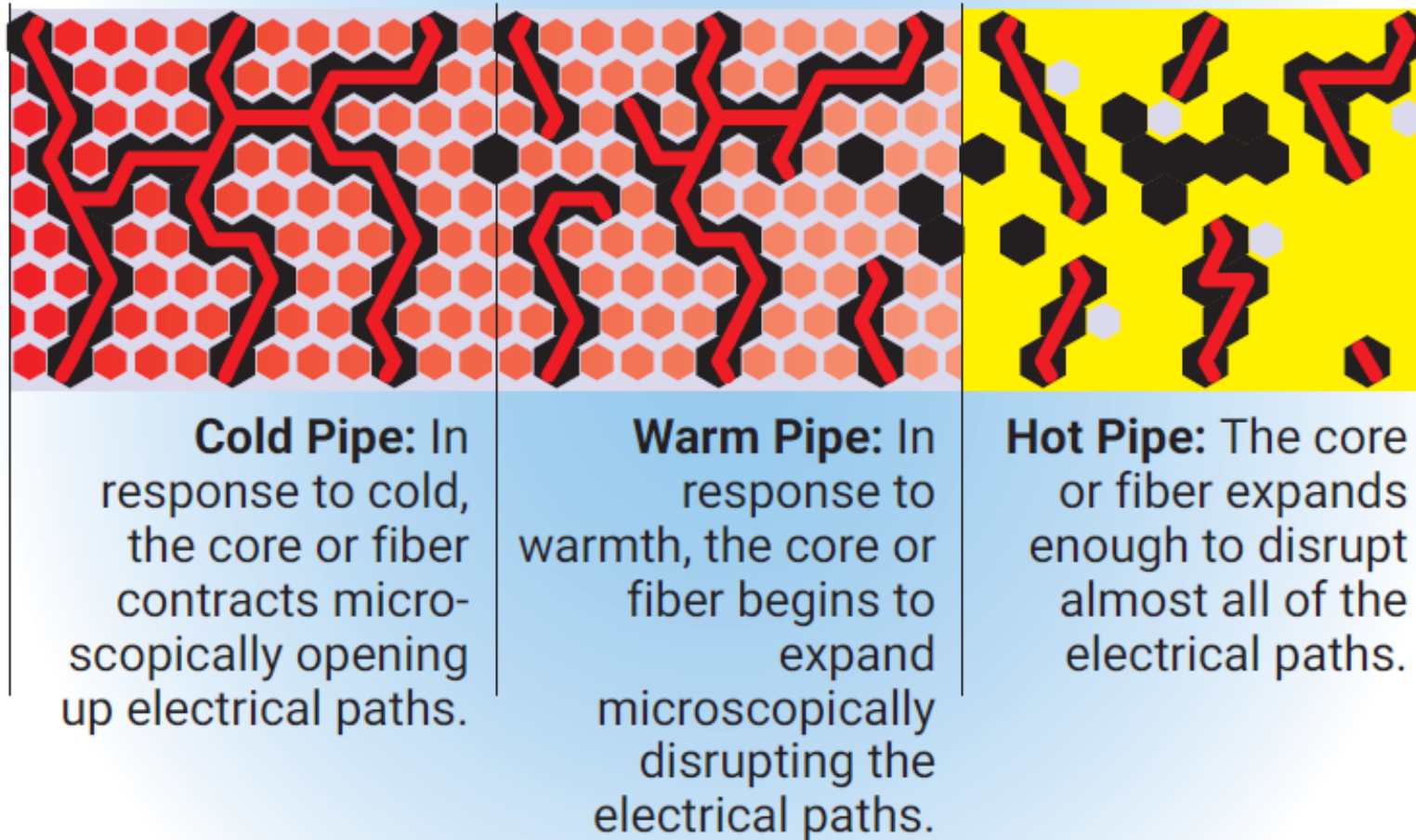
- Self-Regulating  
Maintain temperature up to 165C
- Constant Wattage  
Maintain temperature up to 180C



## 6. ELECTRICAL TRACER

# Self-regulating tracer – how does it work?

How it works:



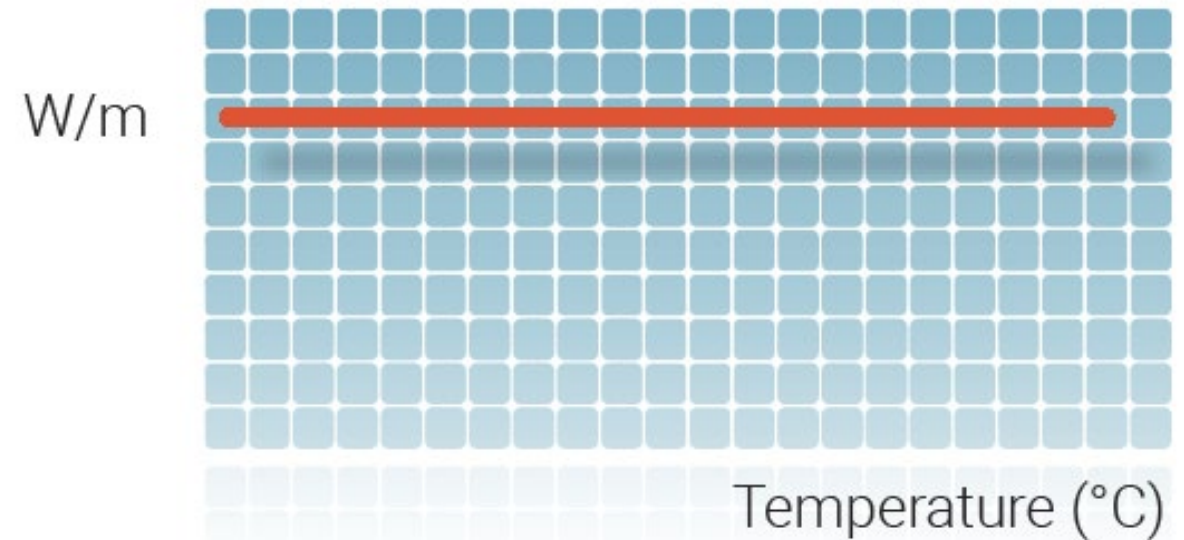
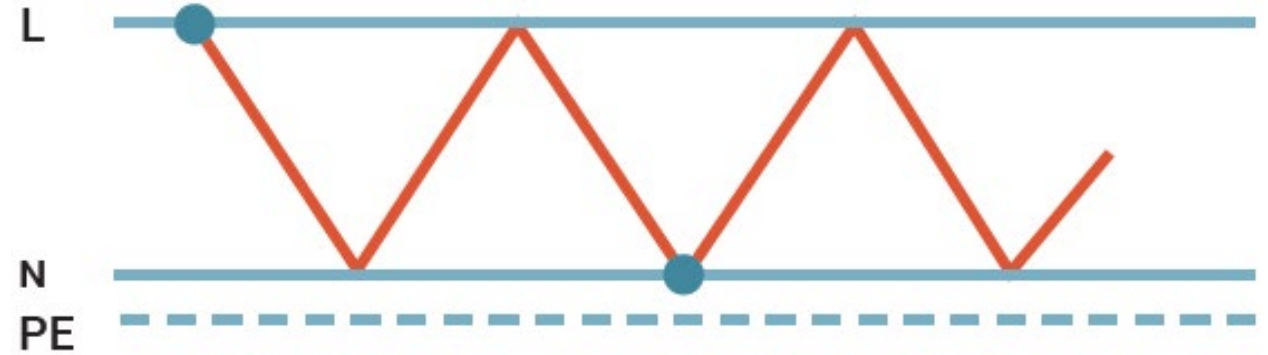
- Temperature maintenance up to 165°C
- Exposure temperature up to 250°C



## 6. ELECTRICAL TRACER

- Temperature maintenance in Bundle up to 180°C
- Exposure temperature up to 260°

## Constant wattage tracer – how does it work?



## Hazardous area Classification

### 6. ELECTRICAL TRACER

#### Classification -IEC and ATEX Standards

A Hazardous Area is defined by three main criteria, these being:

- The type of hazard (group)
- The auto-ignition temperature of the hazardous material (temperature or “T” rating)
- The likelihood of the hazard being present in flammable concentrations (zone)

Temperature Class (T-Rating)		
Code	Maximum Surface Temperature	Auto-ignition Temperature
T1	450 °C	>450 °C
T2	300 °C	>300 °C ≤450 °C
T3	200 °C	>200 °C ≤300 °C
T4	130 °C	>130 °C ≤200 °C
T5	100 °C	>100 °C ≤130 °C
T6	85 °C	≤100 °C

## Temperature control

### 7. BESTOWINSTALLATION ACCESSORIES

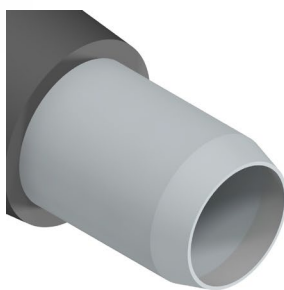
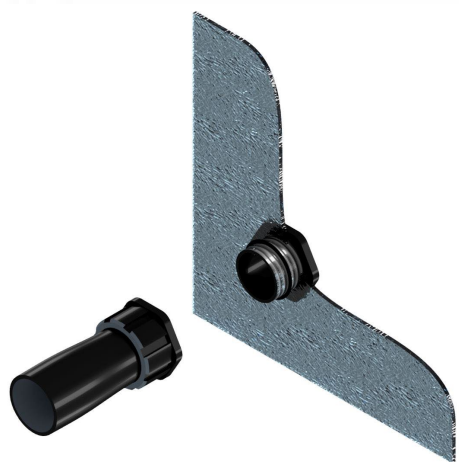
- Thermostats:
- Ambient sensing (electronic)
- Surface sensing
  - Mechanical
  - Electronic
  - With limiter



### 7. BESTOWINSTALLATION ACCESSORIES

Protect exposed ends from moisture ingress

Made from a thermally stabilized, modified polyolefin material that is heat shrinkable which ensures a secure fit on the tubing bundle



## Tools and accessories

### 7. BESTOWINSTALLATION ACCESSORIES

Power connection is needed when an electric tracer is used by itself or when the bundle is powered from the end opposite of the instrument enclosure

Power connections kits are available that meet the following approvals:

- FM certified and CSA approved for class 1, Division 2
- ATEX, EX, CENELEC standards

A variety of wattage and voltage options



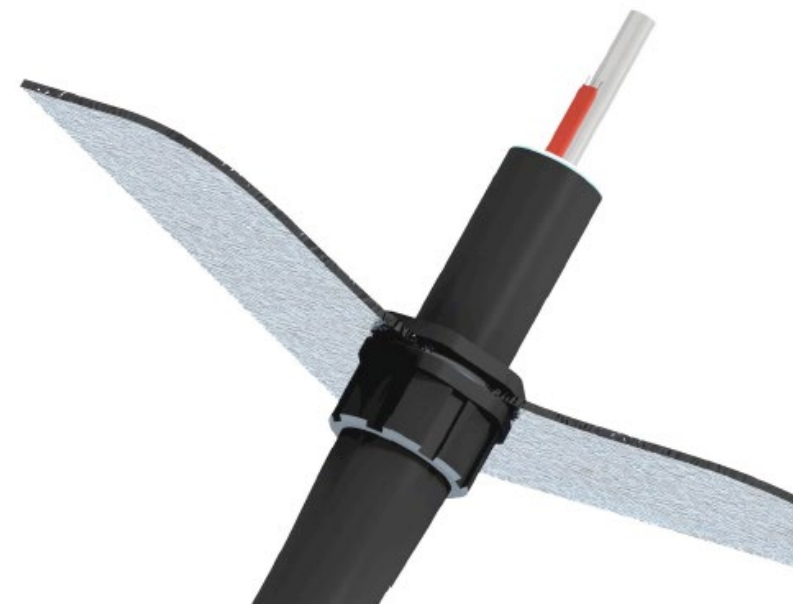
# BESTOTUBE

## *BESTOWIN* INSTRUCTIONS

- A. Bundle Handling & Installation
- B. Boots – Heat shrink seal
- C. Entry Seals
- D. Jacket patch
- E. Silicon tape

# BESTOTUBE

Entry seals



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Handling | Installation | Maintenance

1

- Step 1. update configurator

Performance data required Yes	Inside / Outside Outside	Metric / Imperial M	Length 30 m
Min Ambient Temp -25	Max Ambient Temp 60	°C or °F °C	Bundle Jacket PVC Black
Bundle Type Electrical	Quantity Product Tubes 3	Extra foil around single tube No	Thickness 2

- Step 2. Update configurator

B2TE	Maintain Temp Electrical 5	Voltage 230	T - Classification T6	Certificates ATEX	Prefered Supplier Indeeco
	Max Exposure Continuous 65	Max Exposure Power off °C 0	Calculated Tracer Yes	Tracer1 No Tracer found	Manual Selection 1 ELP_PFA45
	Max Exposure Intermittent Not Found		Amount Tracers 1	Tracer2	Manual Selection 2

- Step 3 Update configurator  
Select tubes

(depending on the quantity Tubes selected in Step 1)

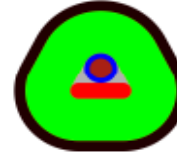
	Material Tube	OD Tube	Conversion	Tube Code Wall Thickness Tube	-SSBM6(3) Conversion	Polished
Product Tube 1	SS316L Seamless	6mm	6	1mm	1	None
Product Tube 2	SS316L Seamless	6mm	6	1mm	1	None
Product Tube 3	SS316L Seamless	6mm	6	1mm	1	None

- Step 4: Bestotube calculator creates FEA drawing, Heatloss is calculated, tracer is automatic selected based on FEA results

BESTOTUBE Design Datasheet created. See next page

# Example Datasheet

Product: **B2TE1-SSBM6-ELSRN10\_2-P**  
Nominal Height: 29 mm  
Nominal Width: 31 mm  
Net Weight: 0.7 kg/m  
Insulation thickness: 8 mm  
Jacket thickness: 2 mm



## Product information

B2TE1	Preinsulated electrical heated single process tube bundle with PVC jacket. 6x1mm 316SS
SSBM6	6X1 MM TUBE, SEAMLESS STAINLESS STEEL COILED TP 316/316L, UNS S31603, EN1.4435
ELSR-N-10-2-BOT	[10W/m at 10°C, Un=230V] self-regulating heating cable with Protection Braiding and Fluoropolymer-Outerjacket. (black) max. Maintenance Temperature switched on: 65°C max. Exposure Temperature switched off: 80°C
P	Black PVC Jacket
Note	Bundle is designed for a permanent, one-time installation. Repeated bending or flexing could cause damage to the product.
Temp: Class.	T6
Certificates	ATEX
Thermostat	Not Required

## Performance data

Maintain Temp	10°C
Min. Ambient Temp	-15°C
Max. Ambient Temp	30°C
Process temp at min Ambient	21°C
Process temp at max Ambient	44°C
Max jacket temp	33°C
Voltage	230



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## UNDERSTANDING THE PRODUCT CODES



Material Process tube	Code1	Wall Thickness	Code2	OO Process tube	Code3	Polished	Code 4
SS316L Seamless	SS	0,5mm	A	3mm	M3		
SS316L Welded	SW	1mm	B	6mm	M6	Chemical polished	CP
SS316L Seamfree	SF	1,5mm	C	8mm	M8	Polished and Silconer2000	PS
SS316Ti Welded	SA	2mm	D	10mm	M10		
SS316Ti Seamfree	SB	0,020"	E	12mm	M12		
SS304 Seamfree	SC	0,030"	F	1/8"	I1		
SS304L Welded	SE	0,035"	G	1/4"	I2		
SS304L Seamfree	SG	0,040"	H	3/8"	I3		
SS317 Seamless	SI	0,047"	I	1/2"	I4		
SS317 Welded	SJ	0,049"	J	3/4"	I6		
SS317 Seamfree	SK	0,062"	K	1"	I8		
6Mo	SL	0,065"	L				
Titanium	ST						
Inconel	SM						
Hastelloy C-C276	SH						
Incoloy 825	SN						
Incoloy 825	SD						
Super Duplex	SD						
Cu	CU						
PFA	PF						
PTFE	PT						
Specials	XX						

