

DEKORON[®]
Unitherm[™]
Tubing Bundle Experts Since 1962



INDUSTRIES SERVED

REFINING



COAL FIRED POWER



COMBINED CYCLE POWER



RAIL & TRUCK LOADING



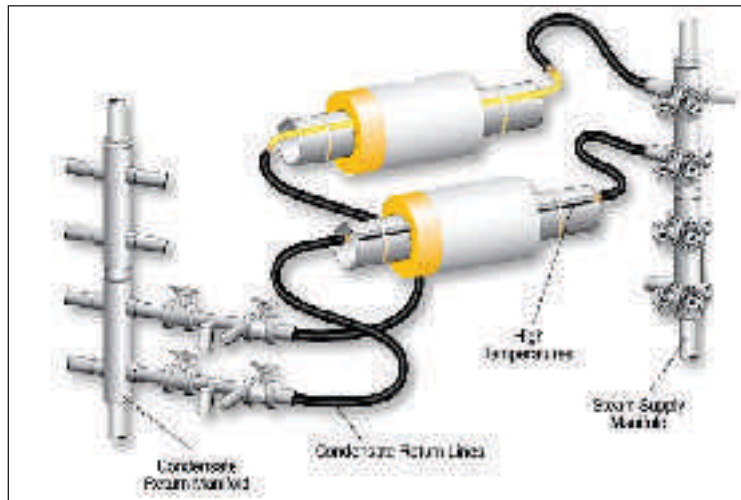
SHIPBOARD



PLATFORM



PRE-INSULATED PRODUCTS FOR STEAM TRANSPORT AND CONDENSATE RETURN



What are pre-insulated and condensate return lines

Pre-insulated transport and condensate return lines are a critical part of any modern day steam tracing system. Pre-insulated tubing carries the tracing medium from the header or manifold to the individual tracers used to heat the pipe or vessel. Once the steam or tracer medium has given up its energy it is returned to the boiler for re-heating. This provides not only energy efficiency but also personnel and environmental protection. The Pre-insulated tubing consists of a thermally insulated single metal or polymer process tube wrapped with either fibrous glass or aerogel insulation then covered with a continuously extruded polymer jacket.

DEKORON® Unitherm™

Pre-insulated products provide:

- Consistent Thermal Properties
- Low Heat Loss
- Personnel Protection
- Low Maintenance
- Significant Cost Savings Over Field Fabrication



THE DEKORON® Unitherm™ DIFFERENCE

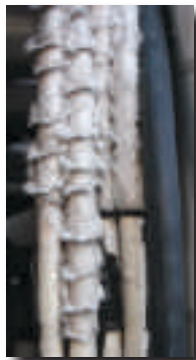


← PROPER INSTALLATION

POOR →
INSTALLATION



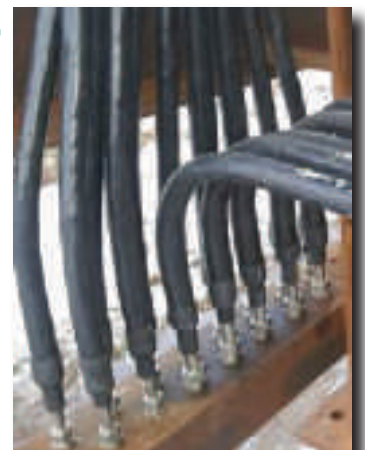
Tubing bundle life expectancy is directly related to how well terminations are sealed. While insulation is typically specified as low chloride and non-wicking. Fibrous glass insulation contains anywhere from 20 PPM to over 100 PPM of free chlorides. In general no insulation material with a free chloride content greater than 30 PPM should ever be used. While non-wicking, fibrous glass will absorb moisture, once wet all thermal properties are lost as well as increasing the chance of chloride corrosion cracking of stainless. Even when using an ultra-low chloride, hydrophobic insulation such as aerogels it is always best practice to seal all terminations with either boots or RTV sealant.



← SPALLED JACKET DUE TO
MOISTURE ENGRESS &
FREEZE THAW CYCLING

NOT ALL HEAT SHRINK BOOTS ARE CREATED EQUAL

Unlike other manufacturers, **DEKORON®UNITHERM™** heat shrink boots are designed to handle the temperatures of steam. Heat shrink materials are designed to shrink when exposed to heat, typically 250F and are only rated for 230F continuous service. Low, minimum and high pressure steam temperatures range from 250F to 1,000F. Based on traditional installation methods the boot extends on to the transport tube in order to seal the end and prevent the insulation from getting wet. Unfortunately, due to operating temperature the boot material will continue to shrink ultimately splitting and allowing the very thing it was installed to prevent, moisture egress. **DEKORON®UNITHERM™** boots incorporate a state of the art thermal barrier to prevent overheating by tube contact. In addition the sleeves are treated with a proprietary silicone formulation to insure a weather tight seal that will last the life of our pre-insulated system.



CONTINUOUS EMISSIONS MONITORING SAMPLE LINES



APPLICATIONS

- Dilution
- Extraction
- Mercury
- HCL
- Ammonia
- Flare Gas



INDUSTRY

- Oil & GAS
- Coal Fired Power
- Gas Turbine
- Shipboard
- Engine Test Cells
- Waste to Energy



CONTINUOUS EMISSIONS MONITORING SAMPLE LINES

THE DEKORON® Unitherm™ DIFFERENCE



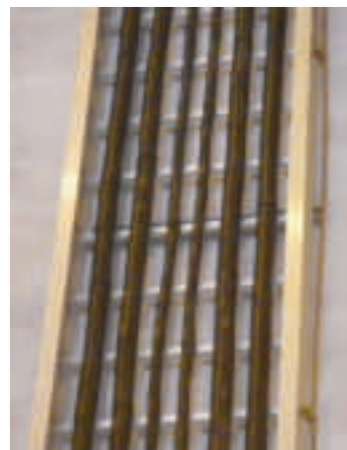
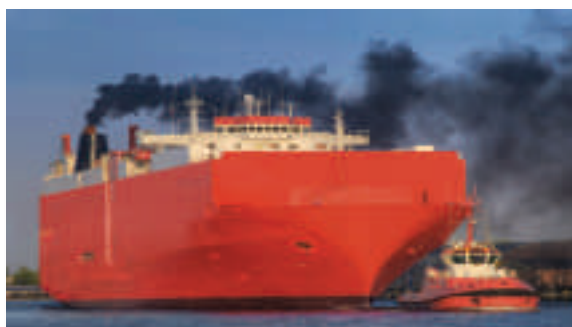
- Multiple circuits one power source
- Individual sensors to control each circuit
- Choice of Thermocouples or RTD's
- Heaters to meet every need



- Self Regulating
- Resistance Wire
- Constant Power or Self-Limiting
- Proprietary Designs
 - INTEGRITY SERIES®
 - RELIABILITY SERIES®



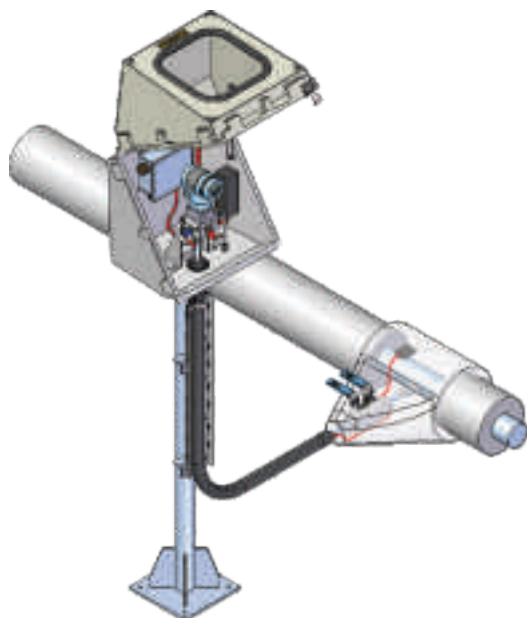
- Communications & Fiber Optic cables available
- Plug & Play end connections
- Marine CEMS Ship Sets



HEATED SAMPLE LINES FOR PROCESS AND ANALYTICAL MEASUREMENT

DEKORON® Unitherm™ offers the widest range of heated samples lines in the industry

- Lines are designed to meet process response times & minimize uptake and release times
- All designs are cabled to insure uniform heat transfer
- Temperatures from freeze protection to high temperature maintenance
- Heating mediums include Electric, steam, hot water & oil
- Designs for ordinary and hazardous locations and all T ratings



THE DEKORON® Unitherm™ DIFFERENCE

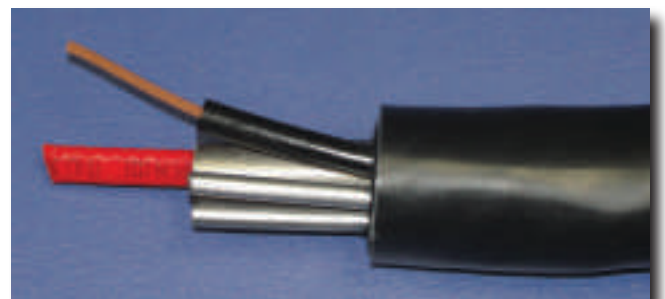
- Proprietary Insulation Materials
- Cabled design
 - Eliminates temperature variations in sample
 - Allows for smaller footprint & easier installation. No manual twisting of line for multi-plane installations
- Buffered designs for both intermittent & continuous exposures

STANDARD MATERIALS OF CONSTRUCTION

- Commercial & proprietary fluoropolymers
 - Ultra High Purity
 - Conditioned
 - Double wall containment
- Seamless & welded austenitic stainless steel
 - T-304/L
 - T-316/L
 - Duplex & Super Duplex
 - Semi-conductor grade
 - Electropolished
 - Silco-Tek coatings

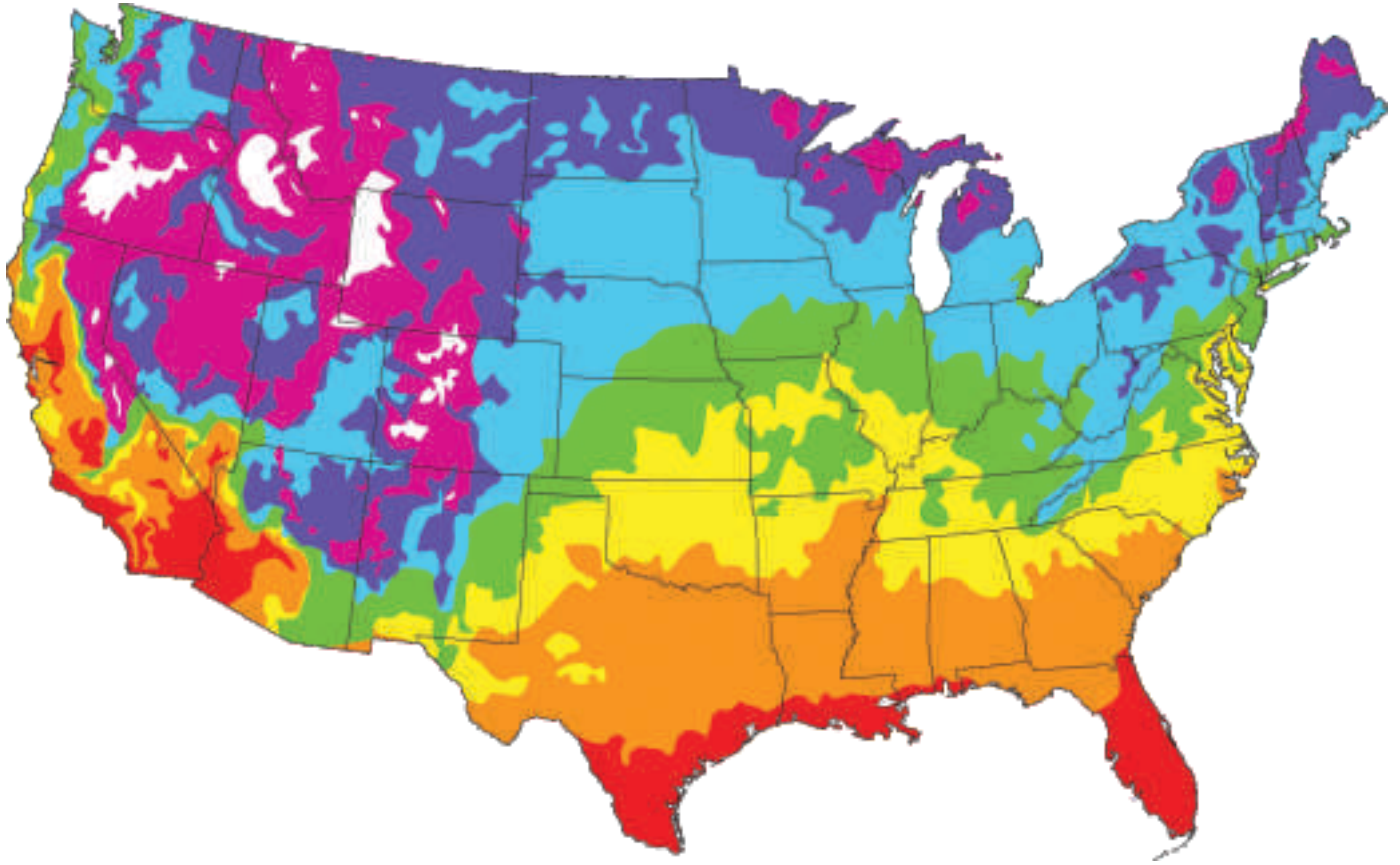


What do you do when critical heated sample lines fail? Wait 4 to 6 weeks for a replacement or field fabricate a temporary line until the replacement arrives. If you use **"CHANNEL TRACE"** by **DEKORON®Unitherm™** simply replace the heater and be back sampling product within hours not days or weeks.



HEATED HOSE

DO YOU NEED FREEZE PROTECTION?



If you are *NOT* located in the *RED* areas, the answer is *YES*.



INDUSTRIES SERVED

- Oil & Gas
- Coal Fired Power
- Combined Cycle Power
- Mining
- Food



TYPICAL APPLICATIONS

- Water Lines
- Slurry Lines
- Dust Suppression
- Chemical Injection
- Bulk Transfer
- Discharge



HEATED HOSE TEMPERATURE MAINTENCE



INDUSTRIES SERVED

- Oil & Gas
- Asphalt
- Chemical
- OEM
- Emissions Monitoring



TYPICAL APPLICATIONS

- Hot Spray
- Chemical Injection
- Extrusion
- Truck Loading Arms
- Rail Car Loading Arms
- Drum Transfer Lines
- Engine Exhaust Testing



ACCESSORY PRODUCTS

BUNDLE BENDER



JACKET CUTTER



RTV SEALENT



BOOTS



SEAL PATCH KIT



CABLE ENTRY SEAL



HEATER TERMINATION KITS



POWER CONNECTION KITS



AMBIENT & LINE SENSING THERMOSATS



Pre-Insulated Tubing

IMPERIAL SIZES

Series 2200

DEKORON®
Unitherm™
 Tubing Bundle Experts Since 1962

Dekoron® Unitherm™ Series 2200 Pre-Insulated Tubing is a thermally insulated fluid transport line suitable for steam, gas, or liquid transport.

Each line is comprised of the following elements:

- Single process tube
- Moisture resistant, non-wicking, inorganic fibrous glass thermal insulation
- Choice of weather protective jacket

The energy-efficient design provides for nominal jacket surface temperatures of 140°F or lower at 80°F ambient conditions while transporting 400°F saturated steam.

Higher temperature designs for applications up to 1100°F are available in product series 2210.

Additional features of this product are:

- Compact design
- low heat loss
- Light, durable, easy to handle
- Zero maintenance
- Employee protection
- Continuous lengths up to 1000 feet
- Easy to Install
- Cost savings up to 50% over field fabrication

Applications for this product:

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

Stock Items in this Series:

- | | |
|--------------|--------------|
| • 2200-21A30 | • 2200-20A35 |
| • 2200-31A32 | • 2200-30A35 |
| • 2200-41A35 | • 2200-40A35 |
| • 2200-41A39 | • 2200-47A35 |



Standard Outer Jacket Materials

- 105°C Rated Flame-Retardant PVC
- 125°C Rated Flame-Retardant TPE
- Halogen-Free Flame-Retardant TPU

Standard Tubing Materials

- Welded or Seamless type 316/316L stainless steel
- #122DHP Seamless Copper
- PFA Fluoropolymer

Pre-Insulated Tubing Accessories:

Seal-Tite End Boots

Singe Tube
Dual Tubes

Item Number

BOOT-2
BOOT-3

Uniseal Cable Entry Seals
for Bundles up to 1.375"
for Bundles up to 2.62"

Seal 1.60
Seal 2.75

Unicut™ Bundle Jacket Cutter

1631-01001

RTV Silicone End Sealant

3 oz. tube
10.3 oz. cartridge

1535-02080
1535-02120

Seal Patch Kits

8" x 8" Single Self-Sealing Patch
8" x 25 foot Self-Sealing Roll

1540-10000
1540-20000

For assistance ordering this product, please contact your Dekoron® Unitherm™ representative.

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www.unithermcc.com

Pre-Insulated Tubing

IMPERIAL SIZES

Series 2200

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Product Specifications 2200 Pre-Insulated Tubing

Tube OD	Standard Wall Thickness ⁽¹⁾	Material ⁽²⁾	ASTM Std	Working Pressure @ 400°F ⁽³⁾	Nominal Heat Loss @ 400°F	Nominal Bundle OD	Nom. Weight lb/ft	Min Bend Rad
1/4"	0.032"	#122DHP Copper	B-68, B-75	710 PSI	50 BTU/Hr-Ft	1.00"	0.3	6"
3/8"	0.032"	#122DHP Copper	B-68, B-75	450 PSI	50 BTU/Hr-Ft	1.15"	0.4	7"
1/2"	0.035"	#122DHP Copper	B-68, B-75	360 PSI	59 BTU/Hr-Ft	1.25"	0.4	8"
1/2"	0.049"	#122DHP Copper	B-68, B-75	530 PSI	59 BTU/Hr-Ft	1.25"	0.5	8"
3/4"	0.049"	#122DHP Copper	B-68, B-75	340 PSI	79 BTU/Hr-Ft	1.50"	0.7	9"
1/4"	0.035"	316/316L- S/S WLD	A-269	4125 PSI	42 BTU/Hr-Ft	1.00"	0.3	6"
3/8"	0.035"	316/316L- S/S WLD	A-269	2625 PSI	50 BTU/Hr-Ft	1.15"	0.4	7"
1/2"	0.035"	316/316L- S/S WLD	A-269	1925 PSI	59 BTU/Hr-Ft	1.25"	0.4	8"
1/2"	0.049"	316/316L- S/S WLD	A-269	2775 PSI	59 BTU/Hr-Ft	1.25"	0.5	8"
1/4"	0.040"	PFA Fluoropolymer	D-6867	30 PSI	42 BTU/Hr-Ft	1.00"	0.2	6"
3/8"	0.062"	PFA Fluoropolymer	D-6867	40 PSI	50 BTU/Hr-Ft	1.15"	0.3	7"
1/2"	0.062"	PFA Fluoropolymer	D-6867	30 PSI	59 BTU/Hr-Ft	1.25"	0.3	8"

Notes:

- (1) other wall thickness are available
 (2) alternate metal and polymer tubing materials are available
 (3) working pressure based on welded tube, seamless will be higher.

Contact Dekoron Unitherm for alternate materials

Notes:

Standard outer jacket is a 105°C Rated flame retardant PVC, alternate jackets are a 125°C Rated, flame retardant Thermoplastic polyolefin (TPE) and a flexible, halogen-free flame retardant Thermoplastic urethane (TPU)

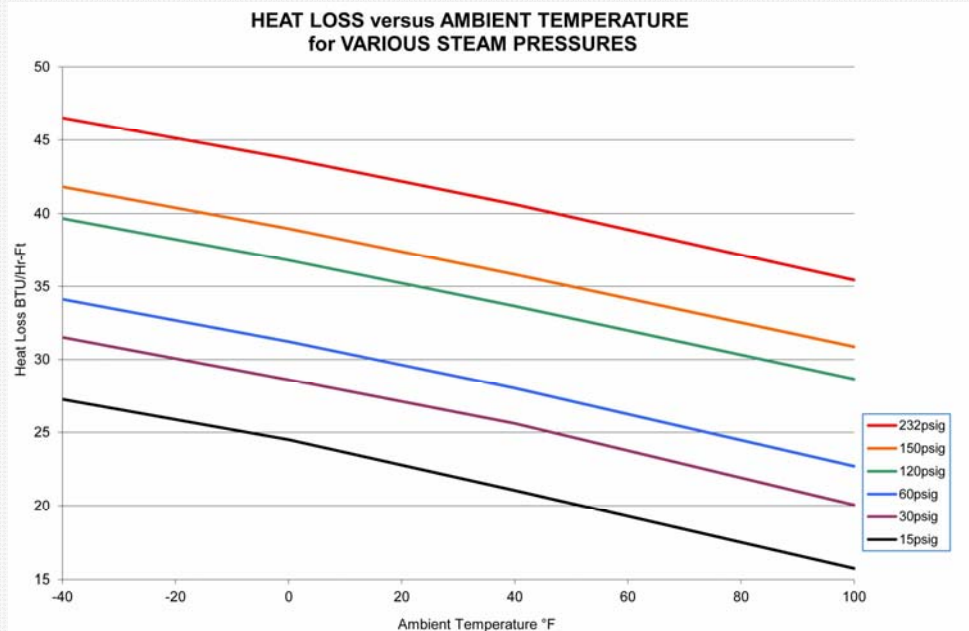
Contact Dekoron Unitherm for alternate materials

How to use this graph:

1. Find the minimum ambient temperature for the area where the bundle is installed.
2. Draw a line vertically to the line closest to the normal steam pressure used.
3. Read the Heat Loss from the left side of the graph.
4. Multiply the Heat Loss shown on the graph by the multiplier below for the size tubing used.

Heat Loss Multipliers:

1/4"	3/8"	1/2"	3/4"
1.0	1.3	1.5	1.9



Installation Note:

Dekoron® Unitherm™ Pre-insulated tubing bundles are supplied on sturdy wooden reels with continuous splice-free lengths up to 1000 feet depending upon tubing material, tubing OD and wall thickness. It is easily pulled into place and installed using normal hand tools. 2200 Pre-Insulated tubing is flexible and can be easily formed into place by hand or by using a bending mandrel. For heavy wall tubing, Dekoron Unitherm recommends using a **BNDL-BNDR** bending tool. Contact Dekoron Unitherm for details.

DEKORON®
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 Tubing Bundle Experts Since 1962

1531 Commerce Creek Blvd
 Cape Coral, FL 33909 USA
 Toll Free: 800.633.5015
 Phone: 239.995.8111
 Fax: 239.995.8027

For additional information visit our website:
www.unithermcc.com

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Pre-Insulated Tubing

METRIC SIZES

Series 2200

DEKORON®
Unitherm™
Tubing Bundle Experts Since 1962

Dekoron® Unitherm™ Series 2200 Pre-Insulated Tubing is a thermally insulated fluid transport line suitable for steam, gas, or liquid transport.

Each line is comprised of the following elements:

- Single process tube
- Moisture resistant, non-wicking, inorganic fibrous glass thermal insulation
- Choice of weather protective jacket

The energy-efficient design provides for nominal jacket surface temperatures of 60°C or lower at 27°C ambient conditions while transporting 204°C saturated steam.

Higher temperature designs for applications up to 593°C are available in product series 2210.

Additional features of this product are:

- Compact design
- low heat loss
- Light, durable, easy to handle
- Zero maintenance
- Employee protection
- Continuous lengths up to 1000 feet
- Easy to Install
- Cost savings up to 50% over field fabrication

Applications for this product:

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

Stock Items in this Series:

- | | |
|--------------|--------------|
| • 2200-N1A39 | • 2200-N0A39 |
| • 2200-P1A39 | • 2200-P0A39 |
| • 2200-Q1A39 | • 2200-Q0A39 |
| • 2200-Q1A59 | • 2200-Q7A39 |

For assistance ordering this product, please contact your Dekoron® Unitherm™ representative.



Standard Outer Jacket Materials

- 105°C Rated Flame-Retardant PVC
- 125°C Rated Flame-Retardant TPE
- Halogen-Free Flame-Retardant TPU

Standard Tubing Materials

- Welded or Seamless type 316/316L stainless steel
- #122DHP Seamless Copper
- PFA Fluoropolymer

Pre-Insulated Tubing Accessories:

Seal-Tite End Boots

Singe Tube
Dual Tubes

Item Number

BOOT-2
BOOT-3

Uniseal Cable Entry Seals
for Bundles up to 35 mm
for Bundles up to 66.5 mm

Seal 1.60
Seal 2.75

Unicut™ Bundle Jacket Cutter

1631-01001

RTV Silicone End Sealant

85 g tube
292 g cartridge

1535-02080
1535-02120

Seal Patch Kits

20 cm x 20 cm Single Self-Sealing Patch
20 cm x 7.6 m Self-Sealing Roll

1540-10000
1540-20000

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Unitherm™
Tubing Bundle Experts Since 1962

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Pre-Insulated Tubing

METRIC SIZES

Series 2200

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Product Specifications 2200 Pre-Insulated Tubing

Tube OD	Standard Wall Thickness ⁽¹⁾	Material ⁽²⁾	ASTM Std	Working Pressure @ 204°C ⁽³⁾	Nominal Heat Loss @ 204°C	Nominal Bundle OD	Nom. Weight Kg/m	Min Bend Rad
6 mm	1 mm	#122DHP Copper	B-68, B-75	49 BARg	48 W/m	25.4 mm	0.45	15 cm
8 mm	1 mm	#122DHP Copper	B-68, B-75	31 BARg	48 W/m	29.2 mm	0.60	18 cm
10 mm	1 mm	#122DHP Copper	B-68, B-75	24 BARg	57 W/m	31.8 mm	0.60	20 cm
10 mm	1.25 mm	#122DHP Copper	B-68, B-75	36 BARg	57 W/m	31.8 mm	0.74	20 cm
16 mm	1.25 mm	#122DHP Copper	B-68, B-75	23 BARg	76 W/m	38.1 mm	1.04	23 cm
6 mm	1 mm	316/316L- S/S WLD	A-269	284 BARg	40 W/m	25.4 mm	0.45	15 cm
8 mm	1 mm	316/316L- S/S WLD	A-269	180 BARg	48 W/m	29.2 mm	0.60	18 cm
10 mm	1 mm	316/316L- S/S WLD	A-269	132 BARg	57 W/m	31.8 mm	0.60	20 cm
10 mm	1.25 mm	316/316L- S/S WLD	A-269	190 BARg	57 W/m	31.8 mm	0.74	20 cm
6 mm	1 mm	PFA Fluoropolymer	D-6867	2 BARg	40 W/m	25.4 mm	0.30	15 cm
8 mm	1 mm	PFA Fluoropolymer	D-6867	2.5 BARg	48 W/m	29.2 mm	0.45	18 cm
10 mm	1 mm	PFA Fluoropolymer	D-6867	2 BARg	57 W/m	31.8 mm	0.45	20 cm

Notes:

- (1) other wall thickness are available
- (2) alternate metal and polymer tubing materials are available
- (3) working pressure based on welded tube, seamless will be higher.

Contact Dekoron Unitherm for alternate materials

Notes:

Standard outer jacket is a 105°C Rated flame retardant PVC, alternate jackets are a 125°C Rated, flame retardant Thermoplastic polyolefin (TPE) and a flexible, halogen-free flame retardant Thermoplastic urethane (TPU)

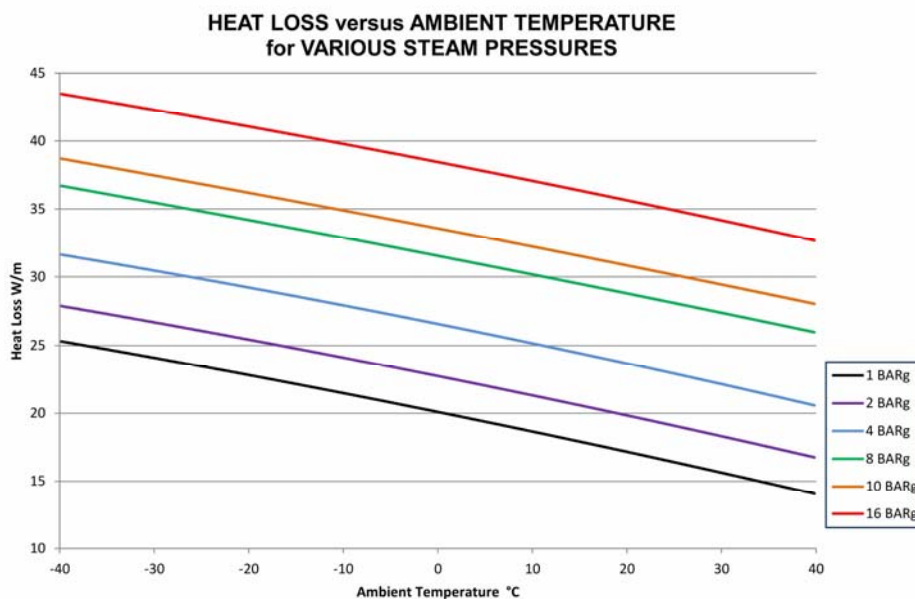
Contact Dekoron Unitherm for alternate materials

How to use this graph:

1. Find the minimum ambient temperature for the area where the bundle is installed.
2. Draw a line vertically to the line closest to the normal steam pressure used.
3. Read the Heat Loss from the left side of the graph.
4. Multiply the Heat Loss shown on the graph by the multiplier below for the size tubing used.

Heat Loss Multipliers:

6 mm	8 mm	10 mm	16 mm
1.0	1.2	1.3	1.8



Installation Note:

Dekoron® Unitherm™ Pre-insulated tubing bundles are supplied on sturdy wooden reels with continuous splice-free lengths up to 300 meters depending upon tubing material, tubing OD and wall thickness. It is easily pulled into place and installed using normal hand tools.

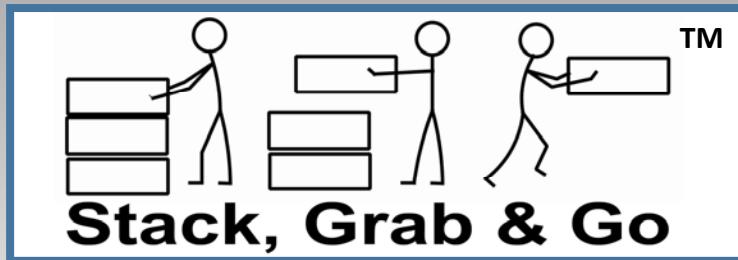
2200 Pre-Insulated tubing is flexible and can be easily formed into place by hand or by using a bending mandrel.

For heavy wall tubing, Dekoron Unitherm recommends using a **BNDL-BNDR** bending tool. Contact Dekoron Unitherm for details.

For additional information visit our website:
www.unithermcc.com

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DEKORON® UNITHERM™



Dekoron Unitherm, the inventor of pre-insulated tubing is proud to announce a product enhancement to *The Stack, Grab & Go Pack™* for pre-cut coils. *The Stack, Grab & Go Pack™* will now contain an End Seal Kit in each box. This kit contains (2) End Seal Boots and a tube of RTV Sealant, all the necessary components to terminate the ends of the tubing bundle providing weather-resistant, water-tight protection.



DESIGNED WITH THE PLANT MAINTENANCE PERSON IN MIND

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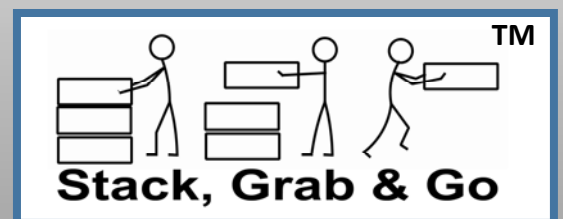


STANDARD STOCK SIZES

CUSTOM SIZES AND MATERIALS AVAILABLE ON REQUEST

Product Description	BOX DIMENSIONS	WEIGHT	Stackable Height
3/8" x .035" T-316/L seamless	30" x 30" x 6"	40/LB	5 Boxes
1/2" x .035" T-316/L seamless	30" x 30" x 6"	45/LB	5 Boxes
1/2" x .049" T-316/L seamless	30" x 30" x 6"	55/LB	5 Boxes
3/8" x .035" T-316/L welded	30" x 30" x 6"	40/LB	5 Boxes
1/2" x .035" T-316/L welded	30" x 30" x 6"	45/LB	5 Boxes
1/2" x .049" T-316/L welded	30" x 30" x 6"	55/LB	5 Boxes
3/8" x .032" seamless Copper	30" x 30" x 6"	40/LB	5 Boxes
1/2" x .049" seamless Copper	30" x 30" x 6"	55/LB	5 Boxes

FOR MORE INFORMATION
CONTACT YOUR LOCAL
DEKORON® UNITHERM™
DISTRIBUTOR:



STACK, GRAB & GO PACK and the STACK, GRAB & GO LOGO ARE
TRADEMARKS OF DEKORON UNITERM LLC.

High Temp Pre-Insulated Tubing

IMPERIAL SIZES

Series 2210

DEKORON®
Unitherm™
Tubing Bundle Experts Since 1962

Dekorons® Unitherm™ Series 2210 Pre-Insulated Tubing is a thermally insulated fluid transport line suitable for steam, gas, or liquid transport.

Each line is comprised of the following elements:

- Single metal process tube
- Moisture resistant, non-wicking, inorganic fibrous glass thermal insulation
- Choice of weather protective jacket

The energy-efficient design provides for nominal jacket surface temperatures of 170°F or lower at 80°F ambient conditions while transporting 700°F saturated steam.

Bundles can be designed for applications operating at process temperatures up to 1100°F.

Tubing and jacket selections for these higher temperatures are limited. Contact Dekorons Unitherm for more information on designs for 700°F to 1100°F.

Additional features of this product are:

- Compact design
- low heat loss
- Light, durable, easy to handle
- Zero maintenance
- Employee protection
- Continuous lengths up to 1000 feet
- Easy to Install
- Cost savings up to 50% over field fabrication

Applications for this product:

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

Standard Outer Jacket Materials

- 105°C Rated Flame-Retardant PVC
- 125°C Rated Flame-Retardant TPE
- Halogen-Free Flame-Retardant TPU

For assistance ordering this product, please contact your Dekorons® Unitherm™ representative.



Tubing Materials

- Welded or Seamless type 316/316L stainless steel to ASTM A269 and ASTM A213 (Except Average Wall)
- Seamless type 316/316L minimum wall stainless steel to ASTM A213
- Most High Temperature stainless steel alloys
- Most High Temperature nickel-based alloys

Contact Dekorons Unitherm for more information on available tubing materials as sizes.

Pre-Insulated Tubing Accessories:

Seal-Tite End Boots

Single Tube up to 750°F	BOOT-1
Single Tube above 750°F	BOOT-1-3-3

Uniseal Cable Entry Seals for Bundles up to 1.375" for Bundles up to 2.62"

Seal 1.60
Seal 2.75

Unicut™ Bundle Jacket Cutter

1631-01001

RTV Silicone End Sealant

3 oz. tube	1535-02080
10.3 oz. cartridge	1535-02120

Seal Patch Kits

8" x 8" Single Self-Sealing Patch	1540-10000
8" x 25 foot Self-Sealing Roll	1540-20000

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High Temp Pre-Insulated Tubing

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 Tubing Bundle Experts Since 1962

Product Specifications 2210 Pre-Insulated Tubing

Op Temp	Tube OD	Tube Wall ⁽¹⁾	Material ⁽²⁾	ASTM Std	Wrk Press. Op Temp ⁽³⁾	Jacket Temp °F ⁽⁴⁾	Nom Bundle OD	Nom. Weight lb/ft	Min Bend Rad ⁽⁵⁾
500	1/4"	0.035"	316/316LS/S WLD	A-269/A213 EAW	3850 PSI	120	1.15"	0.45	7"
500	3/8"	0.035"	316/316L S/S WLD	A-269/A213 EAW	2450 PSI	125	1.30"	0.50	8"
500	1/2"	0.035"	316/316L S/S WLD	A-269/A213 EAW	1810 PSI	125	1.60"	0.57	10"
500	3/4"	0.049"	316/316L S/S WLD	A-269/A213 EAW	1680 PSI	145	1.70"	0.69	11"
600	1/4"	0.035"	316/316LS/S WLD	A-269/A213 EAW	3600 PSI	120	1.50"	0.50	9"
600	3/8"	0.035"	316/316L S/S WLD	A-269/A213 EAW	2300 PSI	125	1.65"	0.55	10"
600	1/2"	0.035"	316/316L S/S WLD	A-269/A213 EAW	1700 PSI	140	1.90"	0.70	11"
600	3/4"	0.049"	316/316L S/S WLD	A-269/A213 EAW	1580 PSI	150	1.85"	0.85	11"
750	1/4"	0.035"	316/316LS/S WLD	A-269/A213 EAW	3380 PSI	120	1.85"	0.60	11"
750	3/8"	0.035"	316/316L S/S WLD	A-269/A213 EAW	2160 PSI	135	1.95"	0.64	12"
750	1/2"	0.035"	316/316L S/S WLD	A-269/A213 EAW	1590 PSI	145	1.95"	0.65	12"
750	3/4"	0.049"	316/316L S/S WLD	A-269/A213 EAW	1480 PSI	150	2.35"	1.05	14"
1100	1/4"	0.035"	316/316LS/S WLD	A-269/A213 EAW	3000 PSI	150	2.00"	0.75	26"
1100	3/8"	0.035"	316/316L S/S WLD	A-269/A213 EAW	1900 PSI	155	2.15"	0.78	27"
1100	1/2"	0.035"	316/316L S/S WLD	A-269/A213 EAW	1400 PSI	180	2.30"	0.82	27"
1100	3/4"	0.049"	316/316L S/S WLD	A-269/A213 EAW	1300 PSI	155	2.75"	1.02	27"

Notes:

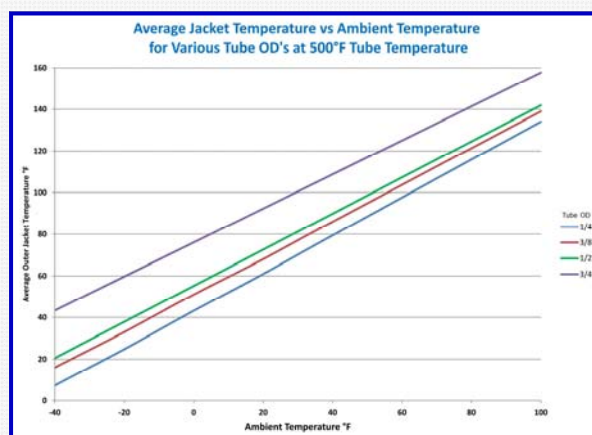
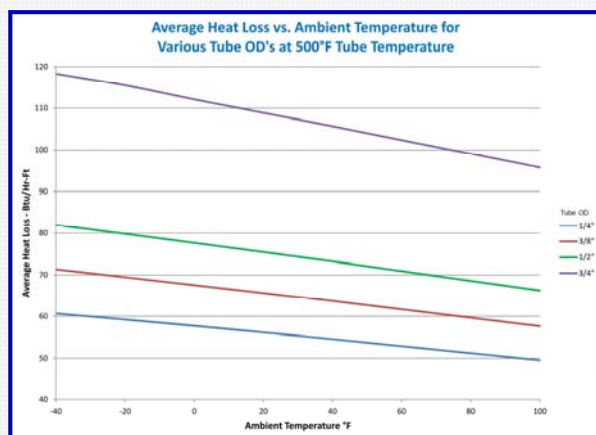
- (1) other wall thickness are available in coils. Extra heavy wall tubing and larger diameters may only be available in stick lengths.
 - (2) alternate metal tubing materials available, not available with copper or polymer tubes
 - (3) working pressure based on welded tube, seamless will be higher.
 - (4) jacket temperature based on 80°F ambient and 2 mph wind
 - (5) minimum bend radius based on FR-TPE jacket for 1100°F bundles
- Contact Dekoron Unitherm for alternate materials

Notes:

Standard outer jacket is a 105°C Rated flame retardant PVC for bundles with an operating temperature up to 750°F, alternate jackets are a 125°C Rated, flame retardant Thermoplastic polyolefin (FR-TPE) and a flexible, halogen-free flame retardant Thermoplastic urethane (FR-TPU).

Only jacket available for bundles rated above 750°F is 125°C Rated FR-TPE.

Contact Dekoron Unitherm for alternate materials



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 Cape Coral, FL 33909 USA
 Toll Free: 800.633.5015
 Phone: 239.995.8111
 Fax: 239.995.8027

Heat Loss Multipliers

Process Temp	Multiplier
500	1.0
600	1.1
750	1.2
1000	1.8

Jacket Temp Multipliers

Process Temp	Multiplier
500	1.0
600	1.2
750	1.5
1000	2.7

For additional information visit our website:
www.unithermcc.com

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High Temp Pre-Insulated Tubing

METRIC SIZES

Series 2210

DEKORON®
Unitherm™
Tubing Bundle Experts Since 1962

Dekoron® Unitherm™ Series 2210 Pre-Insulated Tubing is a thermally insulated fluid transport line suitable for steam, gas, or liquid transport.

Each line is comprised of the following elements:

- Single metal process tube
- Moisture resistant, non-wicking, inorganic fibrous glass thermal insulation
- Choice of weather protective jacket

The energy-efficient design provides for nominal jacket surface temperatures of 77°C or lower at 27°C ambient conditions while transporting 370°C saturated steam.

Bundles can be designed for applications operating at process temperatures up to 590°C.

Tubing and jacket selections for these higher temperatures are limited. Contact Dekoron Unitherm for more information on designs for 370°C to 590°C.

Additional features of this product are:

- Compact design
- low heat loss
- Light, durable, easy to handle
- Zero maintenance
- Employee protection
- Continuous lengths up to 1000 feet
- Easy to Install
- Cost savings up to 50% over field fabrication

Applications for this product:

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

Standard Outer Jacket Materials

- 105°C Rated Flame-Retardant PVC
- 125°C Rated Flame-Retardant TPE
- Halogen-Free Flame-Retardant TPU

For assistance ordering this product, please contact your Dekoron® Unitherm™ representative.



Tubing Materials

- Welded or Seamless type 316/316L stainless steel to ASTM A269 and ASTM A213 (Except Average Wall)
- Seamless type 316/316L minimum wall stainless steel to ASTM A213
- Most High Temperature stainless steel alloys
- Most High Temperature nickel-based alloys

Contact Dekoron Unitherm for more information on available tubing materials as sizes.

Pre-Insulated Tubing Accessories:

Seal-Tite End Boots

Single Tube up to 400°C
Single Tube above 400°C

Item Number

BOOT-1
BOOT-1-3-3

Uniseal Cable Entry Seals

for Bundles up to 35 mm
for Bundles up to 66.5 mm

Seal 1.60
Seal 2.75

Unicut™ Bundle Jacket Cutter

1631-01001

RTV Silicone End Sealant

85 g tube
292 g cartridge

1535-02080
1535-02120

Seal Patch Kits

20 cm x 20 cm Single Self-Sealing Patch
20 cm x 7.6 m Self-Sealing Roll

1540-10000
1540-20000

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www.unithermcc.com

High Temp Pre-Insulated Tubing

METRIC SIZES

Series 2210

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Tubing Bundle Experts Since 1962

Product Specifications 2210 Pre-Insulated Tubing

Op Temp °C	Tube OD	Tube Wall ⁽¹⁾	Material ⁽²⁾	ASTM Std	Wrk Press. Op Temp ⁽³⁾	Jacket Temp °C ⁽⁴⁾	Nom Bundle OD	Nom. Weight kg/m	Min Bend Rad ⁽⁵⁾
260	6mm	1mm	316/316LS/S WLD	A-269/A213 EAW	320 BARg	49	29mm	0.67	18cm
260	10mm	1mm	316/316L S/S WLD	A-269/A213 EAW	180 BARg	52	33mm	0.74	20cm
260	12mm	1mm	316/316L S/S WLD	A-269/A213 EAW	145 BARg	52	41mm	0.85	24cm
260	16mm	1.2mm	316/316L S/S WLD	A-269/A213 EAW	140 BARg	63	43mm	1.03	26cm
315	6mm	1mm	316/316LS/S WLD	A-269/A213 EAW	300 BARg	49	38mm	0.74	23cm
315	10mm	1mm	316/316L S/S WLD	A-269/A213 EAW	170 BARg	52	42mm	0.82	25cm
315	12mm	1mm	316/316L S/S WLD	A-269/A213 EAW	140 BARg	60	48mm	1.04	29cm
315	16mm	1.2mm	316/316L S/S WLD	A-269/A213 EAW	130 BARg	66	48mm	1.26	29cm
400	6mm	1mm	316/316LS/S WLD	A-269/A213 EAW	275 BARg	49	47mm	0.89	29cm
400	10mm	1mm	316/316L S/S WLD	A-269/A213 EAW	155 BARg	57	50mm	0.95	30cm
400	12mm	1mm	316/316L S/S WLD	A-269/A213 EAW	125 BARg	63	50mm	1.24	30cm
400	16mm	1.2mm	316/316L S/S WLD	A-269/A213 EAW	120 BARg	66	60mm	1.50	36cm
593	6mm	1mm	316/316LS/S WLD	A-269/A213 EAW	250 BARg	66	51mm	1.12	66cm
593	10mm	1mm	316/316L S/S WLD	A-269/A213 EAW	141 BARg	68	55mm	1.16	71cm
593	12mm	1mm	316/316L S/S WLD	A-269/A213 EAW	115 BARg	82	58mm	1.30	76cm
593	16mm	1.2mm	316/316L S/S WLD	A-269/A213 EAW	100 BARg	90	70mm	1.52	91cm

Notes:

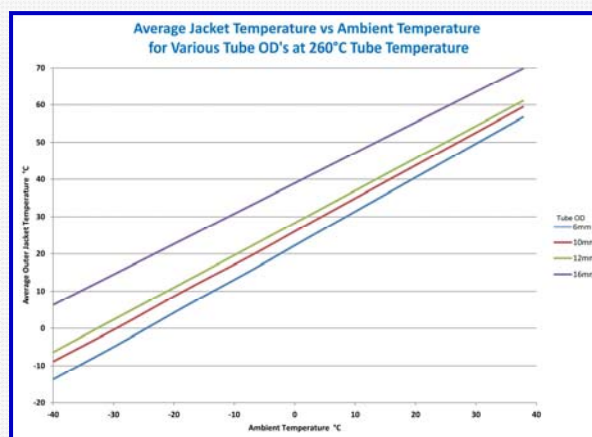
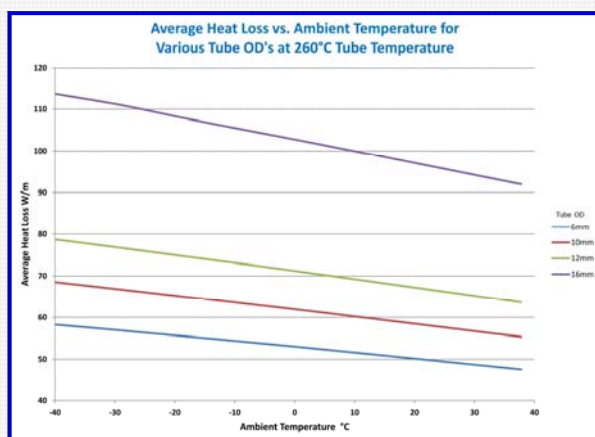
- (1) other wall thickness are available in coils. Extra heavy wall tubing and larger diameters may only be available in stick lengths.
 - (2) alternate metal tubing materials available, not available with copper or polymer tubes
 - (3) working pressure based on welded tube, seamless will be higher.
 - (4) jacket temperature based on 27°C ambient and 2 mph wind
 - (5) minimum bend radius based on FR-TPE jacket for 593°C bundles
- Contact Dekoron Unitherm for alternate materials

Notes:

Standard outer jacket is a 105°C Rated flame retardant PVC for bundles with an operating temperature up to 400°C, alternate jackets are a 125°C Rated, flame retardant Thermoplastic polyolefin (FR-TPE) and a flexible, halogen-free flame retardant Thermoplastic urethane (FR-TPU).

Only jacket available for bundles rated above 400°C is 125°C Rated FR-TPE.

Contact Dekoron Unitherm for alternate materials



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Heat Loss Multipliers

Process Temp	Multiplier
260	1.0
315	1.1
400	1.2
538	1.8

Jacket Temp Multipliers

Process Temp	Multiplier
260	1.0
315	1.2
400	1.5
538	2.7

For additional information visit our website:

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Steam Traced Tubing

IMPERIAL SIZES

Series 2201
2203

DEKORON®
Unitherm™
Tubing Bundle Experts Since 1962

Heavy Steam Traced Tubing

Dekoron® Unitherm™ Series 2201/2203 Heavy Steam Traced Tubing is thermally insulated and prefabricated. These performance-engineered products are designed to maintain fluid temperature viscosity in process lines using saturated steam. The tubes are cabled to provide solid contact and consistent heat transfer throughout the bundle length.

Each line is comprised of the following elements:

- Single or multiple metal or polymer process tube(s)
- Metal steam tracer tube cabled with, and in constant contact with the process tube(s)
- Heat-reflecting foil wrap
- Moisture resistant, non-wicking, inorganic fibrous glass thermal insulation
- Seamless, weather protective jacket, choice of: lead-free low temperature FRPVC; halogen-free FRTPU; flame retardant 125°C Rated FRTPE;

The compact energy-efficient design keeps the outer jacket at or below 140°F while transporting fluids at temperatures up to 400°F

Additional features of this product are:

- Compact design
- Low heat loss
- Light, durable, easy to handle
- Low maintenance
- Employee protection
- Easy to install
- Cost savings of up to 50% over field fabrication
- Consistent and predictable thermal characteristics

Applications for this product:

- Analyzer and instrument lines
- Small Diameter process lines
- Impulse lines—D/P Cells



Standard Products in this Series:

2201-40A21	2201-47A31-H0S	2203-40B30
2201-40A30	2201-47A37-H0S	2203-47B31
2201-40A31	2201-67A31-H0S	2203-47B37
2201-47A30		2203-47B37-H0S

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Steam Traced Tubing

IMPERIAL SIZES

Series

2201
2203

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Product Specifications 2201/2203 Heavy Steam Traced Tubing Bundles

Process Tube OD (in)	Tracer Tube OD (in)	Bundle OD (in)	Nom. Weight (lbs/ft)	Nom. Heat Loss BTU/Hr-ft	Min. Bend Radius (in)
1/4	1/4	1.2	0.5	61	8
3/8	1/4	1.5	0.6	77	9
3/8	3/8	1.6	0.7	85	10
1/2	3/8	1.6	0.9	88	10
1/2	1/2	1.7	1.0	90	10
3/4	1/2	2.0	1.2	92	12
(2) 1/4	3/8	1.3	0.9	62	8
(2) 3/8	3/8	1.4	1.0	80	9
(2) 1/2	3/8	1.6	1.1	94	10
(2) 1/2	1/2	1.8	1.2	96	12

Note: Nominal jacket surface temperature for 2201/2203 bundles is 140°F at an ambient temperature of 80°F and a tube temperature of 400°F.

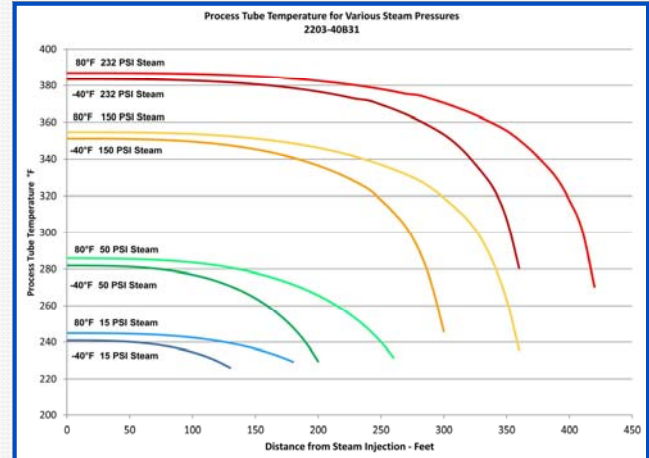
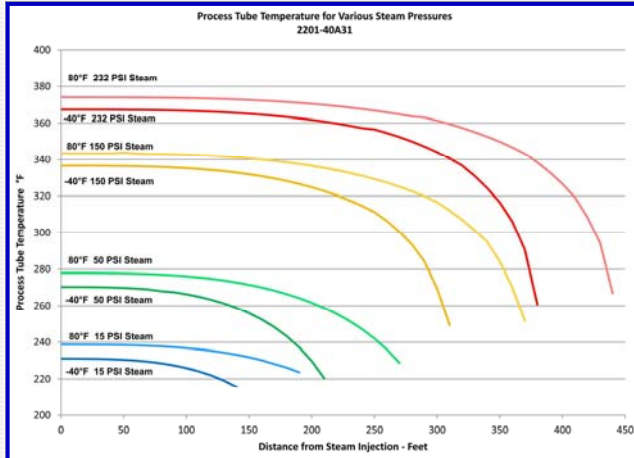
Process Tube:

Tube OD (in)	Tube Wall ¹	Standard Tube Material ²	Tubing Specs (ASTM) ³	Working Pressure ⁴
(1) or (2) 1/4	0.035"	T316/T316L WLD SS	A-269 / A-213 EAW	5170 psi
(1) or (2) 3/8	0.035"	T316/T316L WLD SS	A-269 / A-213 EAW	3310 psi
(1) or (2) 1/2	0.035"	T316/T316L WLD SS	A-269 / A-213 EAW	2430 psi
(1) or (2) 3/4	0.049"	T316/T316L WLD SS	A-269 / A-213 EAW	1810 psi

Tracer Tube:

Tube OD (in)	Tube Wall ³	Standard Tube Material ²	Tubing Specs (ASTM)	Working Pressure ³
1/4	0.030"	#122 DHP Copper	B-68 / B-75	670 psi
3/8	0.032"	#122 DHP Copper	B-68 / B-75	450 psi
1/2	0.035"	#122 DHP Copper	B-68 / B-75	360 psi
1/2	0.049"	T316/T316L WLD SS	A-269 / A-213 EAW	2430 psi

- Notes:**
1. Standard tube wall thickness shown. Heavier wall thickness available, contact Dekoron Unitherm for details.
 2. Seamless stainless steel and most stainless steel alloys, including high-nickel alloys are available, contact Dekoron Unitherm for details.
 3. ASTM Standards for standard tube materials shown. Other alloys will be covered by separate Standards.
 4. Working pressure on stainless steel tubing shown for welded tubing, seamless tubing will be higher.



To find performance of other 2201 Steam Traced Tubing Sizes:

Multiply the values show above by the factor for the model number shown:

	2201-30A20	2201-30A30	2201-40A20	2201-40A30
Tube Temperature	1.01	1.02	1	1
Run Distance	0.3	1	0.3	1

To find performance of other 2203 Steam Traced Tubing Sizes:

Multiply the values show above by the factor for the model number shown:

	2203-30B20	2203-30B30	2203-40B20	2203-40B30
Tube Temperature	1.01	1.02	1	1
Run Distance	0.3	1	0.3	1

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Heat Shrink End Boots



Seal Patch Kit



RTV End Sealant



Entry Seals



Steam Traced Tubing Accessories:

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Steam Traced Tubing

METRIC SIZES

Series 2201
2203

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Tubing Bundle Experts Since 1962

Heavy Steam Traced Tubing

Dekoron® Unitherm™ Series 2201/2203 Heavy Steam Traced Tubing is thermally insulated and prefabricated. These performance-engineered products are designed to maintain fluid temperature viscosity in process lines using saturated steam. The tubes are cabled to provide solid contact and consistent heat transfer throughout the bundle length.

Each line is comprised of the following elements:

- Single or multiple metal or polymer process tube(s)
- Metal steam tracer tube cabled with, and in constant contact with the process tube(s)
- Heat-reflecting foil wrap
- Moisture resistant, non-wicking, inorganic fibrous glass thermal insulation
- Seamless, weather protective jacket, choice of: lead-free low temperature FRPVC; halogen-free FRTPU; flame retardant 125°C Rated FRTPE;

The compact energy-efficient design keeps the outer jacket at or below 60°C while transporting fluids at temperatures up to 204°C

Additional features of this product are:

- Compact design
- Low heat loss
- Light, durable, easy to handle
- Low maintenance
- Employee protection
- Easy to install
- Cost savings of up to 50% over field fabrication
- Consistent and predictable thermal characteristics

Applications for this product:

- Analyzer and instrument lines
- Small Diameter process lines
- Impulse lines—D/P Cells



Standard Products in this Series:

2201-Q0AN1	2201-Q7AQ1-H0S	2203-Q0BQ0
2201-Q0AQ0	2201-Q7AQ0-H0S	2203-Q7BQ1
2201-R0AQ1	2201-R7AQ1-H0S	2203-R7BQ7
2201-R7AQ0	2201-R7AQ7-H0S	2203-R7BQ7-H0S

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Steam Traced Tubing

METRIC SIZES

Series

2201
2203

DEKORON®
Unitherm™
Tubing Bundle Experts Since 1962

Product Specifications 2201/2203 Heavy Steam Traced Tubing Bundles

Process Tube OD (mm)	Tracer Tube OD (mm)	Bundle OD (mm)	Nom. Weight (Kg/m)	Nom. Heat Loss W/m	Min. Bend Radius (cm)
6	6	30.5	0.7	70	18
10	6	38.1	0.9	72	23
10	10	40.6	1.0	85	24
12	10	40.6	1.3	94	24
12	12	43.2	1.4	104	26
16	12	50.8	1.8	118	30
(2) 6	10	33.0	1.3	76	20
(2) 10	10	35.6	1.4	77	21
(2) 12	10	40.6	1.6	91	24
(2) 12	12	45.7	1.8	100	30

Note: Nominal jacket surface temperature for 2201/2203 bundles is 60°C at an ambient temperature of 27°C and a tube temperature of 204°C.

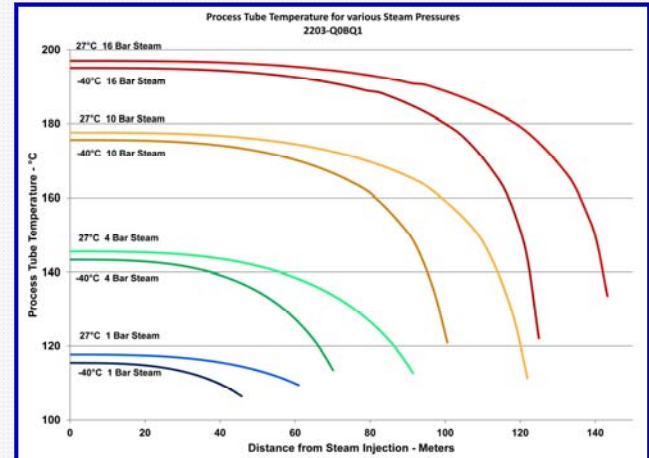
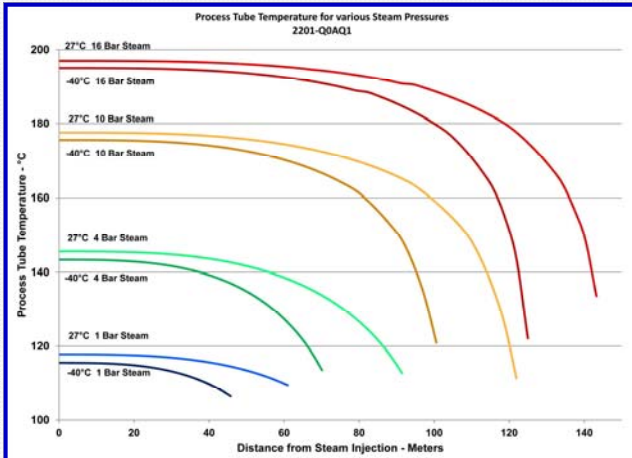
Process Tube:

Tube OD (mm)	Tube Wall ¹	Standard Tube Material ²	Tubing Specs (ASTM) ³	Working Pressure ⁴
(1) or (2) 6	1 mm	T316/T316L WLD SS	A-269 / A-213 EAW	346 Bar
(1) or (2) 10	1 mm	T316/T316L WLD SS	A-269 / A-213 EAW	195 Bar
(1) or (2) 12	1 mm	T316/T316L WLD SS	A-269 / A-213 EAW	160 Bar
(1) or (2) 16	1 mm	T316/T316L WLD SS	A-269 / A-213 EAW	118 Bar

Tracer Tube:

Tube OD	Tube Wall ¹	Standard Tube Material ²	Tubing Specs (ASTM) ³	Working Pressure ⁴
6 mm	1 mm	#122 DHP Copper	B-68 / B-75	56 Bar
10 mm	1 mm	#122 DHP Copper	B-68 / B-75	32 Bar
12 mm	1 mm	#122 DHP Copper	B-68 / B-75	26 Bar
12 mm	1 mm	T316/T316L WLD SS	A-269 / A-213 EAW	160 Bar

- Notes:**
1. Standard tube wall thickness shown. Heavier wall thickness available, contact Dekoron Unitherm for details.
 2. Seamless stainless steel and most stainless steel alloys, including high-nickel alloys are available, contact Dekoron Unitherm for details.
 3. ASTM Standards for standard tube materials shown. Other alloys will be covered by separate Standards.
 4. Working pressure on stainless steel tubing shown for welded tubing, seamless tubing will be higher.



To find performance of other 2201 Steam Traced Tubing Sizes:

Multiply the values show above by the factor for the model number shown:

2201-Q0AN1 2201-Q0AQ1 2201-R0AN1 2201-R0AQ1

Tube Temperature	1.04	1	0.97	1
Run Distance	0.6	1	0.6	1

To find performance of other 2203 Steam Traced Tubing Sizes:

Multiply the values show above by the factor for the model number shown:

2203-Q0BN1 2203-Q0BQ1 2203-R0BN1 2203-R0BQ1

Tube Temperature	1	1	1	1
Run Distance	0.9	1	0.6	0.9

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Heat Shrink End Boots



Seal Patch Kit



RTV End Sealant



Entry Seals



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Steam Traced Tubing

IMPERIAL SIZES

Series

2211
2213

DEKORON®
Unitherm™
Tubing Bundle Experts Since 1962

High Temperature Heavy Steam Traced Tubing

Dekorun® Unitherm™ Series 2211/2213 Heavy Steam Traced Tubing is thermally insulated and prefabricated. These performance-engineered products are designed to maintain fluid temperature viscosity in process lines using saturated steam where operating temperatures exceed 400°F. The tubes are cabled to provide solid contact and consistent heat transfer throughout the bundle length.

Each line is comprised of the following elements:

- Single or multiple metal process tube(s)
- Metal steam tracer tube cabled with, and in constant contact with the process tube(s)
- Moisture resistant, non-wicking, inorganic fibrous glass thermal insulation sized for maximum operating temperature
- Seamless, weather protective jacket, choice of:
 - lead-free low temperature FRPVC;
 - halogen-free FRTPU;
 - flame retardant 125°C Rated FRTPE

The compact energy-efficient design keeps the outer jacket at or below 170°F while transporting fluids at temperatures up to 750°F

Additional features of this product are:

- Compact design
- Low heat loss
- Light, durable, easy to handle
- Low maintenance
- Employee protection
- Easy to install
- Cost savings of up to 50% over field fabrication
- Consistent and predictable thermal characteristics

2211/2213 High Temperature Designs:

These products are designed for operation at maximum process temperatures of 500°F, 600°F, and 750°F. Higher temperature designs to 1100°F with certain materials are available. Contact Dekorun Unitherm for details.



Applications for this product:

- High temperature sampling and instrument lines
- Small Diameter high temperature process lines
- Transport lines for high viscosity materials that must be kept at elevated temperatures
- Impulse lines—D/P Cells

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Steam Traced Tubing

IMPERIAL SIZES

Series 2211
2213

DEKORON®
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Product Specifications 2211/2213 High Temperature Heavy Steam Traced Tubing Bundles

Op Temp °F	Process Tube OD (in)	Tracer Tube OD (in)	Bundle OD (in)	Nom. Weight (lbs/ft)	Nom. Heat Loss BTU/Hr-ft	Min. Bend Radius (in)
500	3/8	3/8	1.80	0.73	73	11
	1/2	3/8	1.90	0.81	81	11
	1/2	1/2	2.10	0.95	84	13
	(2) 3/8	3/8	1.85	0.85	77	11
	(2) 1/2	3/8	2.15	1.09	78	13
	(2) 1/2	1/2	2.35	1.23	85	14

Op Temp °F	Process Tube OD (in)	Tracer Tube OD (in)	Bundle OD (in)	Nom. Weight (lbs/ft)	Nom. Heat Loss BTU/Hr-ft	Min. Bend Radius (in)
750	3/8	3/8	2.50	1.06	105	15
	1/2	3/8	2.80	1.25	105	17
	1/2	1/2	2.80	1.30	108	17
	(2) 3/8	3/8	2.50	1.20	110	15
	(2) 1/2	3/8	2.85	1.45	113	17
	(2) 1/2	1/2	3.35	1.73	116	20

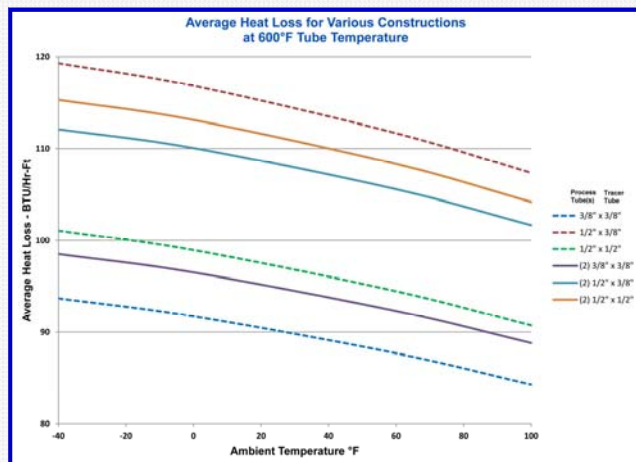
Op Temp °F	Process Tube OD (in)	Tracer Tube OD (in)	Bundle OD (in)	Nom. Weight (lbs/ft)	Nom. Heat Loss BTU/Hr-ft	Min. Bend Radius (in)
600	3/8	3/8	1.95	0.79	86	12
	1/2	3/8	2.25	1.00	90	14
	1/2	1/2	2.30	1.05	93	14
	(2) 3/8	3/8	2.00	0.95	91	12
	(2) 1/2	3/8	2.35	1.21	97	14
	(2) 1/2	1/2	2.50	1.32	106	15

Note: Nominal jacket surface temperature for 2211/2213 bundles is 170°F or less at an ambient temperature of 80°F and a tube temperature of 750°F.

Process and Tracer Tube Specifications:

Tube OD (in)	Tube Wall ¹	Standard Tube Material ²	Tubing Specs (ASTM) ³	Working Pressure ⁴
3/8	0.035"	T316/T316L WLD SS	A-269 / A-213 EAW	5170 psi
3/8	0.049"	T316/T316L WLD SS	A-269 / A-213 EAW	3310 psi
1/2	0.035"	T316/T316L WLD SS	A-269 / A-213 EAW	2430 psi
1/2	0.049"	T316/T316L WLD SS	A-269 / A-213 EAW	1810 psi

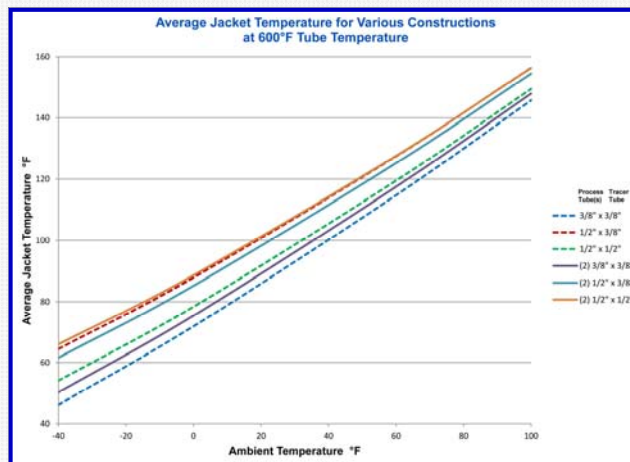
- Notes:**
1. Standard tube wall thickness shown. Heavier wall thickness available, contact Dekoron Unitherm for details.
 2. Seamless stainless steel and most stainless steel alloys, including high-nickel alloys are available, contact Dekoron Unitherm for details.
 3. ASTM Standards for standard tube materials shown. Other alloys will be covered by separate Standards.
 4. Working pressure on stainless steel tubing shown for welded tubing at 750°F, seamless tubing will be higher. Contact Dekoron Unitherm for details.



To find the Heat Loss of other 2211/13 Steam Traced Tubing Sizes:

Multiply the values show above by the factor for the model number shown:

Tube Temperature	500F	750F
Heat Loss	0.85	1.17



To find the Jacket Temperature of other 2211/13 Steam Traced Tubing Sizes:

Multiply the values show above by the factor for the model number shown:

Tube Temperature	500F	750F
Heat Loss	0.94	1.07

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Heat Shrink End Boots



Seal Patch Kit



RTV End Sealant



Entry Seals



Steam Traced Tubing Accessories:

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Light Steam Traced Tubing

IMPERIAL SIZES

Series 2202
2204

DEKORON®
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Light Steam Traced Tubing Bundles

Dekoron® Unitherm™ Series 2203 and 2204 Light Steam Traced tubing bundles are designed to protect a process fluid from freezing at ambient temperatures to -40°F using saturated steam. Each bundle consists of:

- Single or multiple pre-insulated metal or polymer process tube(s)
- Pre-insulated metal steam tracer tube cabled with, and in constant contact with the process tube(s)
- Moisture resistant, non-wicking, inorganic fibrous glass thermal insulation
- Seamless, weather protective jacket, choice of: lead-free low temperature FRPVC; halogen-free FRTPU; flame retardant 125°C Rated FRTPE

Designed for light tracing of process, sampling and impulse lines, Series 2202/2204 bundles are recommended for use in situations where heavy tracing will cause high temperature degradation or boil-off of the process fluids. Highly efficient and compact, these products are designed to limit the jacket temperature to a nominal surface temperature of 140°F or lower at ambient temperatures of 80°F using 400°F (232 PSIG) saturated steam.

Maximum temperature rating of Series 2201/2204 is 400°F. Operating at higher temperatures may result in deterioration of the components or changes in operational characteristics.

Higher temperature designs for tracing applications up to 1100°F are also available as Series 2212/2214.

Additional features of this product are:

- Compact design
- Low heat loss
- Light, durable, easy to handle
- Low maintenance
- Employee protection
- Easy to install
- Cost savings of up to 50% over field fabrication
- Consistent and predictable thermal characteristics

Applications for this product:

- Analyzer and instrument lines
- Small Diameter process lines
- Impulse lines—D/P Cells



Standard Products in this Series:

2202-40A21	2202-47A30	2204-47B31
2202-40A30	2201-47A31	2204-47B37
2202-40A31	2201-47A31-HOS	2204-47B31-HOS

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Light Steam Traced Tubing

IMPERIAL SIZES

Series 2202
2204

DEKORON®
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Product Specifications 2202/2204 Light Steam Traced Tubing Bundles

Process Tube OD (in)	Tracer Tube OD (in)	Bundle OD (in)	Nom. Weight (lbs/ft)	Nom. Heat Loss BTU/Hr-ft	Min. Bend Radius (in)
1/4	1/4	1.4	0.6	40	8
3/8	3/8	1.6	0.7	40	10
1/2	3/8	1.7	0.8	40	10
(2) 1/4	3/8	1.3	0.8	40	8
(2) 3/8	3/8	1.8	0.9	40	11
(2) 1/2	3/8	1.9	1.0	40	12

Note: Nominal jacket surface temperature for 2202/2204 bundles is 140°F at an ambient temperature of 80°F and a tube temperature of 400°F.

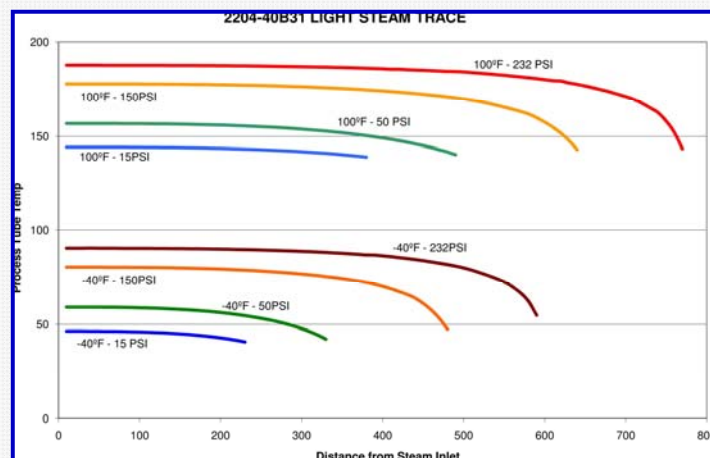
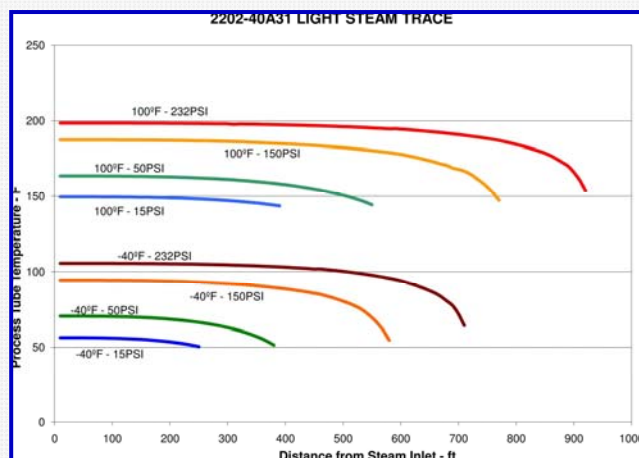
Process Tube:

Tube OD (in)	Tube Wall ¹	Standard Tube Material ²	Tubing Specs (ASTM) ³	Working Pressure ⁴
(1) or (2) 1/4	0.035"	T316/T316L WLD SS	A-269 / A-213 EAW	5170 psi
(1) or (2) 3/8	0.035"	T316/T316L WLD SS	A-269 / A-213 EAW	3310 psi
(1) or (2) 1/2	0.035"	T316/T316L WLD SS	A-269 / A-213 EAW	2430 psi

Tracer Tube:

Tube OD (in)	Tube Wall ³	Standard Tube Material ²	Tubing Specs (ASTM)	Working Pressure ³
1/4	0.030"	#122 DHP Copper	B-68 / B-75	670 psi
3/8	0.032"	#122 DHP Copper	B-68 / B-75	450 psi
3/8	0.035"	#122 DHP Copper	B-68 / B-75	360 psi

- Notes:** 1. Standard tube wall thickness shown. Heavier wall thickness available, contact Dekoron Unitherm for details.
2. Seamless stainless steel and most stainless steel alloys, including high-nickel alloys are available, contact Dekoron Unitherm for details.
3. ASTM Standards for standard tube materials shown. Other alloys will be covered by separate Standards.
4. Working pressure on stainless steel tubing shown for welded tubing, seamless tubing will be higher.



To find performance of other 2202 Steam Traced Tubing Sizes:

Multiply the values shown above by the factor for the model number shown:

2202-30A30 2202-40A30

Tube Temperature	1.01	1
Run Distance	1	1

To find performance of other 2204 Steam Traced Tubing Sizes:

Multiply the values shown above by the factor for the model number shown:

2204-30B30 2204-40B30

Tube Temperature	1.01	1
Run Distance	1	1

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Seal Patch Kit



RTV End Sealant



Entry Seals



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Light Steam Traced Tubing

METRIC SIZES

Series 2202
2204

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Light Steam Traced Tubing Bundles

Dekoron® Unitherm™ Series 2203 and 2204 Light Steam Traced tubing bundles are designed to protect a process fluid from freezing at ambient temperatures to -40°C using saturated steam. Each bundle consists of:

- Single or multiple pre-insulated metal or polymer process tube(s)
- Pre-insulated metal steam tracer tube cabled with, and in constant contact with the process tube(s)
- Moisture resistant, non-wicking, inorganic fibrous glass thermal insulation
- Seamless, weather protective jacket, choice of: lead-free low temperature FRPVC; halogen-free FRTPU; flame retardant 125°C Rated FRTPE

Designed for light tracing of process, sampling and impulse lines, Series 2202/2204 bundles are recommended for use in situations where heavy tracing will cause high temperature degradation or boil-off of the process fluids. Highly efficient and compact, these products are designed to limit the jacket temperature to a nominal surface temperature of 60°C or lower at ambient temperatures of 27°C using 204°C (16 BARG) saturated steam.

Maximum temperature rating of Series 2201/2204 is 204°C. Operating at higher temperatures may result in deterioration of the components or changes in operational characteristics.

Higher temperature designs for tracing applications up to 593°C are also available as Series 2212/2214.

Additional features of this product are:

- Compact design
- Low heat loss
- Light, durable, easy to handle
- Low maintenance
- Employee protection
- Easy to install
- Cost savings of up to 50% over field fabrication
- Consistent and predictable thermal characteristics

Applications for this product:

- Analyzer and instrument lines
- Small Diameter process lines
- Impulse lines—D/P Cells



Standard Products in this Series:

2202-R0AN1	2202-R7AQ0	2204-R7BQ1
2202-R0AQ0	2201-R7AQ1	2204-R7BQ7
2202-R0AQ1	2201-R7AQ1-H0S	2204-R7BQ1-H0S

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Light Steam Traced Tubing

METRIC SIZES

Series 2202
2204

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Product Specifications 2202/2204 Light Steam Traced Tubing Bundles

Process Tube OD (mm)	Tracer Tube OD (mm)	Bundle OD (mm)	Nom. Weight (Kg/m)	Nom. Heat Loss W/m	Min. Bend Radius (cm)
6	6	35.6	0.9	38	20
10	10	40.6	1.0	38	25
12	10	43.2	1.2	38	25
(2) 6	10	33.0	1.2	38	20
(2) 10	10	45.7	1.3	38	28
(2) 12	10	48.3	1.5	38	31

Note: Nominal jacket surface temperature for 2202/2204 bundles is 60°C at an ambient temperature of 27°C and a tube temperature of 204°C.

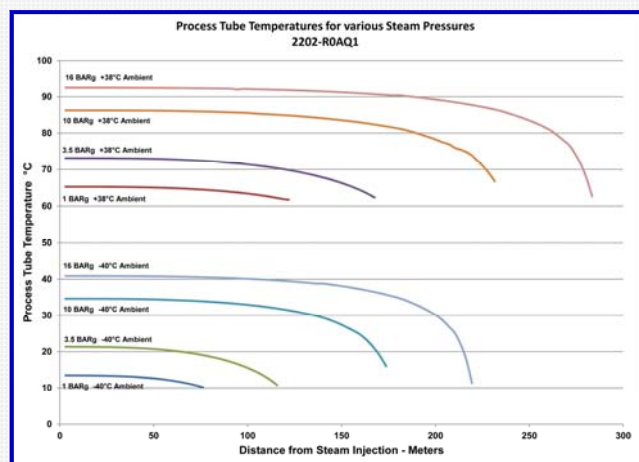
Process Tube:

Tube OD (mm)	Tube Wall ¹	Standard Tube Material ²	Tubing Specs (ASTM) ³	Working Pressure ⁴
(1) or (2) 6	1 mm	T316/T316L WLD SS	A-269 / A-213 EAW	346 BARG
(1) or (2) 10	1 mm	T316/T316L WLD SS	A-269 / A-213 EAW	195 BARG
(1) or (2) 12	1 mm	T316/T316L WLD SS	A-269 / A-213 EAW	160 BARG

Tracer Tube:

Tube OD (in)	Tube Wall ³	Standard Tube Material ²	Tubing Specs (ASTM)	Working Pressure ³
6	0.76 mm	#122 DHP Copper	B-68 / B-75	40 BARG
3/8	0.82 mm	#122 DHP Copper	B-68 / B-75	25 BARG
3/8	0.89 mm	#122 DHP Copper	B-68 / B-75	30 BARG

- Notes:** 1. Standard tube wall thickness shown. Heavier wall thickness available, contact Dekoron Unitherm for details.
2. Seamless stainless steel and most stainless steel alloys, including high-nickel alloys are available, contact Dekoron Unitherm for details.
3. ASTM Standards for standard tube materials shown. Other alloys will be covered by separate Standards.
4. Working pressure on stainless steel tubing shown for welded tubing, seamless tubing will be higher.

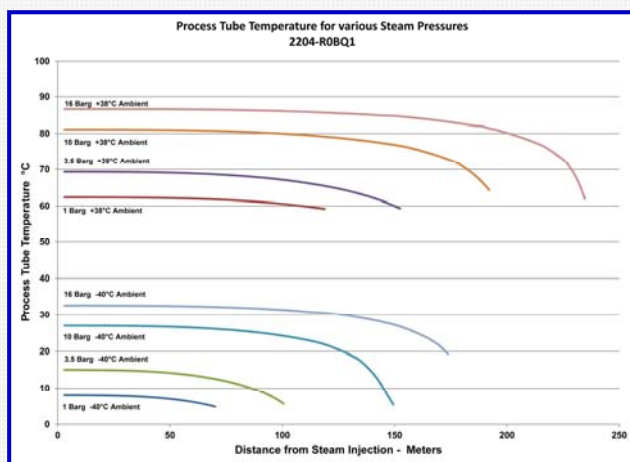


To find performance of other 2202 Steam Traced Tubing Sizes:

Multiply the values shown above by the factor for the model number shown:

2202-Q0AQ0 2202-R0AQ0

Tube Temperature	1.01	1
Run Distance	1	1



To find performance of other 2204 Steam Traced Tubing Sizes:

Multiply the values shown above by the factor for the model number shown:

2204-Q0BQ0 2204-R0BQ0

Tube Temperature	1.01	1
Run Distance	1	1

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Entry Seals



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Steam Traced Tubing

IMPERIAL SIZES

Series 2212
2214

DEKORON®
Unitherm™
Tubing Bundle Experts Since 1962

High Temperature Light Steam Traced Tubing

Dekorun® Unitherm™ Series 2212/2214 Light Steam Traced Tubing is thermally insulated and prefabricated. These performance-engineered products are designed to protect process fluids from freezing in process lines using saturated steam where the process operating temperatures exceed 400°F. The tubes are cabled to provide solid contact and consistent heat transfer throughout the bundle length.

Each line is comprised of the following elements:

- Single or multiple metal process tube(s)
- Metal steam tracer tube cabled with, but insulated from the process tube(s)
- Moisture resistant, non-wicking, inorganic fibrous glass thermal insulation sized for maximum operating temperature
- Seamless, weather protective jacket, choice of: lead-free low temperature FRPVC; halogen-free FRTPU; flame retardant 125°C Rated FRTPE

The compact energy-efficient design keeps the outer jacket at or below 170°F while transporting fluids at temperatures up to 750°F

Additional features of this product are:

- Compact design
- Low heat loss
- Light, durable, easy to handle
- Low maintenance
- Employee protection
- Easy to install
- Cost savings of up to 50% over field fabrication
- Consistent and predictable thermal characteristics

2212/2214 High Temperature Designs:

These products are designed for operation at maximum process temperatures of 500°F, 600°F, and 750°F. Higher temperature designs to 1100°F with certain materials are available. Contact Dekorun Unitherm for details.



Applications for this product:

- High temperature sampling and instrument lines
- Small Diameter high temperature process lines
- Transport lines for high viscosity materials that must be kept at elevated temperatures
- Impulse lines—D/P Cells

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Steam Traced Tubing

IMPERIAL SIZES

Series 2212
2214

DEKORON®
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Tubing Bundle Experts Since 1962

Product Specifications 2212/2214 High Temperature Heavy Steam Traced Tubing Bundles

Op Temp °F	Process Tube OD (in)	Tracer Tube OD (in)	Bundle OD (in)	Nom. Weight (lbs/ft)	Nom. Heat Loss BTU/Hr-ft	Min. Bend Radius (in)
500	3/8	3/8	2.10	0.76	74	13
	1/2	3/8	2.30	0.90	119	14
	1/2	1/2	2.40	1.06	121	14
	(2) 3/8	3/8	2.35	0.92	125	14
	(2) 1/2	3/8	2.45	1.16	118	15
	(2) 1/2	1/2	2.75	1.30	125	16

Op Temp °F	Process Tube OD (in)	Tracer Tube OD (in)	Bundle OD (in)	Nom. Weight (lbs/ft)	Nom. Heat Loss BTU/Hr-ft	Min. Bend Radius (in)
750	3/8	3/8	2.95	1.30	88	18
	1/2	3/8	3.10	1.53	153	19
	1/2	1/2	3.25	1.63	155	20
	(2) 3/8	3/8	3.20	1.52	153	19
	(2) 1/2	3/8	3.30	1.76	155	19
	(2) 1/2	1/2	3.40	2.06	158	20

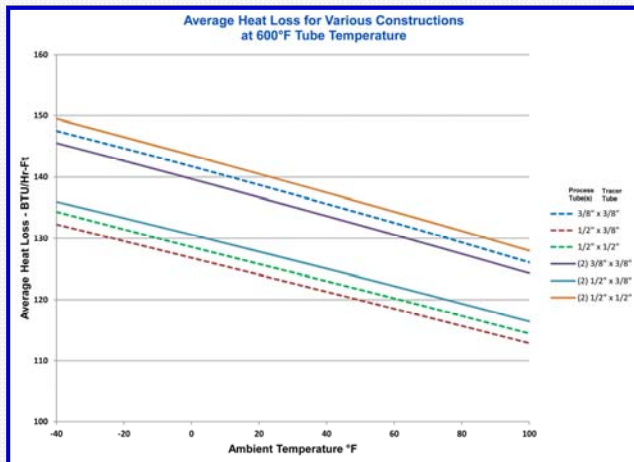
Op Temp °F	Process Tube OD (in)	Tracer Tube OD (in)	Bundle OD (in)	Nom. Weight (lbs/ft)	Nom. Heat Loss BTU/Hr-ft	Min. Bend Radius (in)
600	3/8	3/8	2.40	0.90	85	14
	1/2	3/8	2.65	1.14	132	16
	1/2	1/2	2.75	1.55	134	16
	(2) 3/8	3/8	2.50	1.06	146	15
	(2) 1/2	3/8	2.80	1.36	134	17
	(2) 1/2	1/2	2.95	1.50	148	18

Note: Nominal jacket surface temperature for 2212/2214 bundles is 170°F or less at an ambient temperature of 80°F and a tube temperature of 750°F.

Process and Tracer Tube Specifications:

Tube OD (in)	Tube Wall ¹	Standard Tube Material ²	Tubing Specs (ASTM) ³	Working Pressure ⁴
3/8	0.035"	T316/T316L WLD SS	A-269 / A-213 EAW	5170 psi
3/8	0.049"	T316/T316L WLD SS	A-269 / A-213 EAW	3310 psi
1/2	0.035"	T316/T316L WLD SS	A-269 / A-213 EAW	2430 psi
1/2	0.049"	T316/T316L WLD SS	A-269 / A-213 EAW	1810 psi

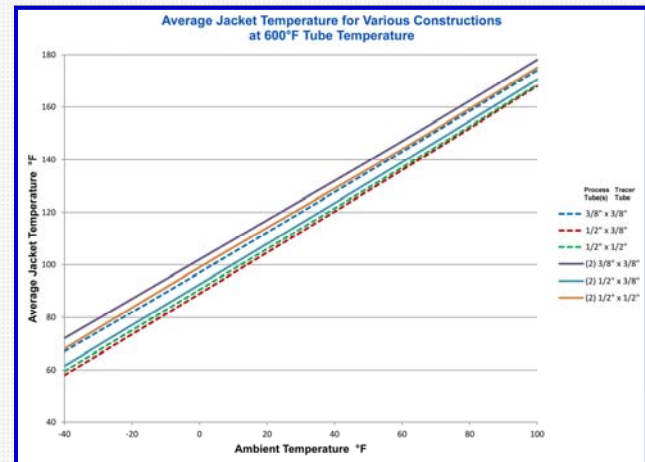
- Notes:**
1. Standard tube wall thickness shown. Heavier wall thickness available, contact Dekoron Unitherm for details.
 2. Seamless stainless steel and most stainless steel alloys, including high-nickel alloys are available, contact Dekoron Unitherm for details.
 3. ASTM Standards for standard tube materials shown. Other alloys will be covered by separate Standards.
 4. Working pressure on stainless steel tubing shown for welded tubing at 750°F, seamless tubing will be higher. Contact Dekoron Unitherm for details.



To find the Heat Loss of other 2212/14 Steam Traced Tubing Sizes:

Multiply the values show above by the factor for the model number shown:

Tube Temperature	500F	750F
Heat Loss	0.87	1.12



To find the Jacket Temperature of other 2212/14 Steam Traced Tubing Sizes:

Multiply the values show above by the factor for the model number shown:

Tube Temperature	500F	750F
Heat Loss	0.99	1.02

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Seal Patch Kit



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Entry Seals



Steam Traced Tubing Accessories:

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Steam Traced Tubing

METRIC SIZES

Series 2212
2214

DEKORON®
Unitherm™
Tubing Bundle Experts Since 1962

High Temperature Light Steam Traced Tubing

Dekorun® Unitherm™ Series 2212/2214 Light Steam Traced Tubing is thermally insulated and prefabricated. These performance-engineered products are designed to protect process fluids from freezing in process lines using saturated steam where the process operating temperatures exceed 200°C. The tubes are cabled to provide solid contact and consistent heat transfer throughout the bundle length.

Each line is comprised of the following elements:

- Single or multiple metal process tube(s)
- Metal steam tracer tube cabled with, but insulated from the process tube(s)
- Moisture resistant, non-wicking, inorganic fibrous glass thermal insulation sized for maximum operating temperature
- Seamless, weather protective jacket, choice of: lead-free low temperature FRPVC; halogen-free FRTPU; flame retardant 125°C Rated FRTPE

The compact energy-efficient design keeps the outer jacket at or below 77°C while transporting fluids at temperatures up to 400°C

Additional features of this product are:

- Compact design
- Low heat loss
- Light, durable, easy to handle
- Low maintenance
- Employee protection
- Easy to install
- Cost savings of up to 50% over field fabrication
- Consistent and predictable thermal characteristics

2212/2214 High Temperature Designs:

These products are designed for operation at maximum process temperatures of 260°C, 300°C, and 400°C. Higher temperature designs to 600°C with certain materials are available. Contact Dekorun Unitherm for details.



Applications for this product:

- High temperature sampling and instrument lines
- Small Diameter high temperature process lines
- Transport lines for high viscosity materials that must be kept at elevated temperatures
- Impulse lines—D/P Cells

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Tubing Bundle Experts Since 1962

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Steam Traced Tubing

METRIC SIZES

Series 2212
2214

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Product Specifications 2212/2214 High Temperature Heavy Steam Traced Tubing Bundles

Op Temp °C	Process Tube OD (mm)	Tracer Tube OD (mm)	Bundle OD (mm)	Nom. Weight (kg/m)	Nom. Heat Loss W/m	Min. Bend Radius (cm)
260	10	10	53	1.13	71	33
	12	10	58	1.34	114	36
	12	12	61	1.58	116	36
	(2) 10	10	60	1.37	120	36
	(2) 12	10	62	1.73	113	38
	(2) 12	12	70	1.93	120	41

Op Temp °C	Process Tube OD (mm)	Tracer Tube OD (mm)	Bundle OD (mm)	Nom. Weight (kg/m)	Nom. Heat Loss W/m	Min. Bend Radius (cm)
400	10	10	75	1.93	85	46
	12	10	79	2.28	147	48
	12	12	83	2.43	149	51
	(2) 10	10	81	2.26	147	48
	(2) 12	10	84	2.62	149	48
	(2) 12	12	86	3.07	152	51

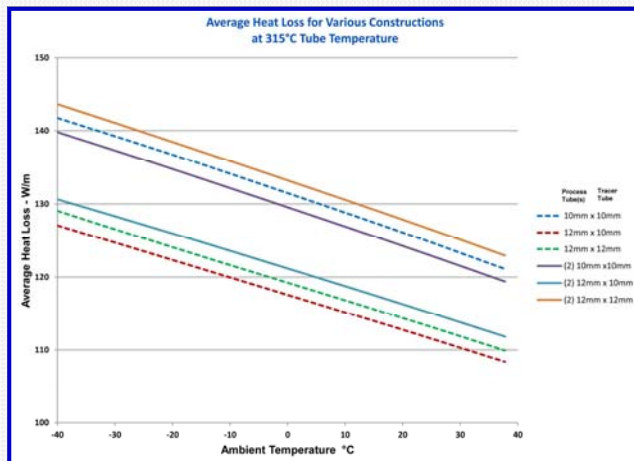
Op Temp °C	Process Tube OD (mm)	Tracer Tube OD (mm)	Bundle OD (mm)	Nom. Weight (kg/m)	Nom. Heat Loss W/m	Min. Bend Radius (cm)
300	10	10	61	1.34	82	36
	12	10	67	1.70	127	41
	12	12	70	2.31	129	41
	(2) 10	10	64	1.58	140	38
	(2) 12	10	71	2.02	129	43
	(2) 12	12	75	2.23	142	46

Note: Nominal jacket surface temperature for 2212/2214 bundles is 77°C or less at an ambient temperature of 27°C and a tube temperature of 400°C.

Process and Tracer Tube Specifications:

Tube OD (in)	Tube Wall ¹	Standard Tube Material ²	Tubing Specs (ASTM) ³	Working Pressure ⁴
10	1mm	T316/T316L WLD SS	A-269 / A-213 EAW	350 Barg
10	1.2mm	T316/T316L WLD SS	A-269 / A-213 EAW	225 Barg
12	1 mm	T316/T316L WLD SS	A-269 / A-213 EAW	165 Barg
12	1.2mm	T316/T316L WLD SS	A-269 / A-213 EAW	125 Barg

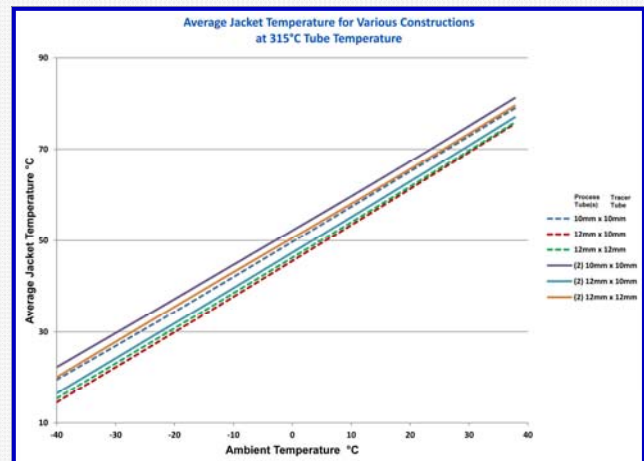
- Notes:**
1. Standard tube wall thickness shown. Heavier wall thickness available, contact Dekoron Unitherm for details.
 2. Seamless stainless steel and most stainless steel alloys, including high-nickel alloys are available, contact Dekoron Unitherm for details.
 3. ASTM Standards for standard tube materials shown. Other alloys will be covered by separate Standards.
 4. Working pressure on stainless steel tubing shown for welded tubing at 400°C, seamless tubing will be higher. Contact Dekoron Unitherm for details.



To find the Heat Loss of other 2212/14 Steam Traced Tubing Sizes:

Multiply the values show above by the factor for the model number shown:

Tube Temperature	260°C	400°C
Heat Loss	0.87	1.12



To find the Jacket Temperature of other 2212/14 Steam Traced Tubing Sizes:

Multiply the values show above by the factor for the model number shown:

Tube Temperature	260°C	400°C
Heat Loss	0.99	1.02

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Heat Shrink End Boots



Seal Patch Kit



RTV End Sealant



Entry Seals



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Electric Traced Tubing

IMPERIAL SIZES

Series

2252 CPD

2262 CPD

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Constant Power Density Electric Traced Tubing

Dekoron® Unitherm™ Series 2252/2262 Constant Power Density (CPD) Electric Traced Tubing is a thermally insulated fluid transport line for use in applications requiring freeze protection, viscosity maintenance, or condensation prevention, where a self-regulating heater is not appropriate.

Each line is comprised of the following elements:

- Single or multiple process tube(s)
- Constant Power Density heating element with tinned-copper braid and optional overjacket
- Heat-reflecting foil wrap
- Moisture resistant, non-wicking, inorganic fibrous glass thermal insulation
- Choice of weather protective jacket

The Constant Power Density Heating Element allows for a wide range of temperature maintenance applications. The standard product is available with a 12 W/Ft, 120, 208, 240, or 277 VAC heater and will maintain a single process tube above 200°F at ambient temperatures to -40°F.

Bundles in this series are approved by FM Approvals for use in Class I Division 2, Groups B, C, and D; Class II Division 2 Groups F and G; Class III, Division 2, and Class I Zone 2 Group IIB+H₂ hazardous areas. **Optional power and control wires can be supplied in bundles approved for hazardous locations.**

Alternate heating cables can be specified based on customer requirement and preference. These heating cables will carry specific National Approvals from the manufacturer.

Additional features of this product are:

- Pre-insulated and pre-fabricated for installation costs up to 40% lower than field fabrication
- Pre-engineered for reduced design cost and predictable operational characteristics
- Bundles can contain integral power and signal wires that are pre-approved for use in specific hazardous areas
- Bundles are lightweight and easy to bend
- Smaller OD than field fabricated lines means better use of mounting space
- Maintenance-free; no open seams, no gaps in insulation
- Consistent and predictable thermal characteristics
- Alternate heating cables available from all major heater manufacturers

Applications for this product:

- Stack gas sampling lines
- Analyzer and instrument lines
- Small diameter process lines
- Impulse lines



Standard Products in this series:

Item No.	Tube OD	Tube Material	Heater
2252-20A14	1/4" x .035	WLD 316/316L SS	12/120 CPD
2252-24A14	1/4" x .040	PFA Fluoropolymer	12/120 CPD
2252-27A14	1/4" x .035	SMLS 316/316L SS	12/120 CPD
2252-30A14	3/8" x .035	WLD 316/316L SS	12/120 CPD
2252-34A14	3/8" x .062	PFA Fluoropolymer	12/120 CPD
2252-37A14	3/8" x .035	SMLS 316/316L SS	12/120 CPD

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Electric Traced Tubing

IMPERIAL SIZES

Series

2252 CPD
2262 CPD

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Technical Information

Electrical Specifications:

Heater Type	Constant Power Density
Heater Insulation	PFA 600V Rated
Maximum Heater Exposure Temperature (Power On)	446°F
Circuit Length for 25 A Circuit Breaker	260 feet or greater
Buss Wire Size	12 AWG
Power Output	12 Watts/Ft @ 120 VAC 12 Watts/Ft @ 208 VAC 12 Watts/Ft @ 240 VAC 12 Watts/Ft @ 277 VAC
Maximum Jacket Surface Temperature @ 400°F Tube Temperature and 80°F Ambient	140°F
Temperature Rating per NEC 500	T2C (446°F)

Electric Traced Tubing Accessories: Item Number

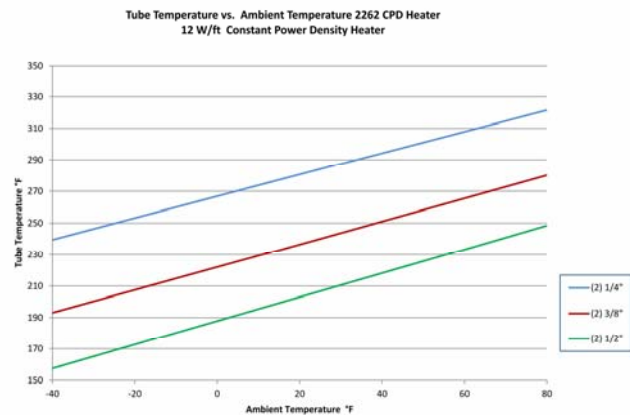
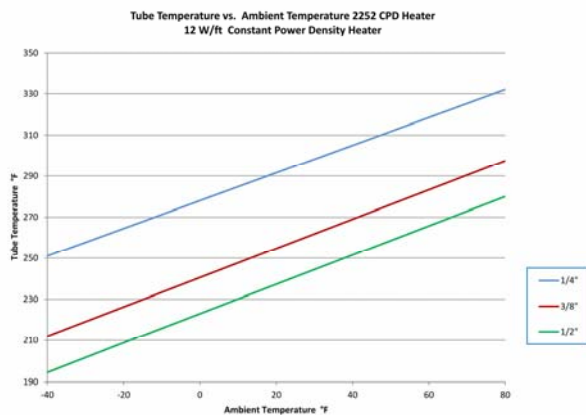
Seal-Tite End Boots	Single Tube Dual Tubes	BOOT-2 BOOT-3
Uniseal Cable Entry Seals for Bundles up to 1.375" for Bundles up to 2.62"		Seal 1.60 Seal 2.75
Unicut™ Bundle Jacket Cutter		1631-01001
RTV Silicone End Sealant	3 oz. tube 10.3 oz. cartridge	1535-02080 1535-02120
Electrical connection kit with box		1548-1200J
Mechanical Thermostats		
Line Sensing - hazardous locations		1660-13A12
- ordinary locations		1660-13A11
Ambient Sensing - hazardous locations		1660-18912
- ordinary locations		1660-18911
Seal Patch Kits		
8" x 8" Single Self-Sealing Patch		1540-10000
8" x 25 foot Self-Sealing Roll		1540-20000

Product Specifications 2252/2262 CPD:

Tube OD	Standard Wall Thickness ⁽¹⁾	Material ⁽²⁾	ASTM Std	Working Pressure @ 400°F ⁽³⁾	Nominal Bundle OD	Nom. Weight lb/ft	Min Bend Rad
1/4"	0.035"	316/316L- S/S WLD	A-269	4125 PSI	1.35"	0.56	8"
3/8"	0.035"	316/316L- S/S WLD	A-269	2625 PSI	1.40"	0.60	9"
1/2"	0.035"	316/316L- S/S WLD	A-269	1925 PSI	1.50"	0.65	10"
1/4"	0.040"	PFA Fluoropolymer	D-6867	30 PSI	1.35"	0.50	8"
3/8"	0.062"	PFA Fluoropolymer	D-6867	40 PSI	1.40"	0.53	9"
1/2"	0.062"	PFA Fluoropolymer	D-6867	30 PSI	1.50"	0.90	10"

Notes:

- (1) other wall thicknesses are available
(2) alternate metal and polymer tubing materials are available
(3) working pressure based on welded tube, seamless will be higher.
Contact Dekoron Unitherm for alternate materials



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For additional information visit our website:
www.unithermcc.com

Notes:

Standard outer jacket is a 105°C Rated FRPVC. Alternate jacket materials include a 125°C Rated FRTPE, a 65°C Rated FRPE, and a flexible, halogen-free FRTPU.

Alternate tubing material include all 300 Series Stainless Steels that are available in tubing form. Also, most specialty alloys like UNS N06600, UNS N06625, UNS N10276, as well as some duplex stainless steels are available. Contact Dekoron Unitherm for details.

Standard bundles are designed for a maximum core temperature of 400°F. Higher temperature ratings up to 1100°F are available. Contact Dekoron Unitherm for details.

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Electric Traced Tubing

METRIC SIZES

Series

2252 CPD

2262 CPD

DEKORON®
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Constant Power Density Electric Traced Tubing

Dekoron® Unitherm™ Series 2252/2262 Constant Power Density (CPD) Electric Traced Tubing is a thermally insulated fluid transport line for use in applications requiring freeze protection, viscosity maintenance, or condensation prevention, where a self-regulating heater is not appropriate.

Each line is comprised of the following elements:

- Single or multiple process tube(s)
- Constant Power Density heating element with tinned-copper braid and optional overjacket
- Heat-reflecting foil wrap
- Moisture resistant, non-wicking, inorganic fibrous glass thermal insulation
- Choice of weather protective jacket

The Constant Power Density Heating Element allows for a wide range of temperature maintenance applications. The standard product is available with a 39 W/m, 120, 208, 240, or 277 VAC heater and will maintain a single process tube above 90°C at ambient temperatures to -40°C.

Bundles in this series are approved by FM Approvals for use in Class I Division 2, Groups B, C, and D; Class II Division 2 Groups F and G; Class III, Division 2, and Class I Zone 2 Group IIB+H₂ hazardous areas. **Optional power and control wires can be supplied in bundles approved for hazardous locations.**

Alternate heating cables can be specified based on customer requirement and preference. These heating cables will carry specific National Approvals from the manufacturer.

Additional features of this product are:

- Pre-insulated and pre-fabricated for installation costs up to 40% lower than field fabrication
- Pre-engineered for reduced design cost and predictable operational characteristics
- Bundles can contain integral power and signal wires that are pre-approved for use in specific hazardous areas
- Bundles are lightweight and easy to bend
- Smaller OD than field fabricated lines means better use of mounting space
- Maintenance-free; no open seams, no gaps in insulation
- Consistent and predictable thermal characteristics
- Alternate heating cables available from all major heater manufacturers

Applications for this product:

- Stack gas sampling lines
- Analyzer and instrument lines
- Small diameter process lines
- Impulse lines



Standard Products in this series:

Item No.	Tube OD	Tube Material	Heater
2252-N0A14	6mm x 1mm	WLD 316/316L SS	39/120 CPD
2252-N4A14	6mm x 1mm	PFA Fluoropolymer	39/120 CPD
2252-N7A14	6mm x 1mm	SMLS 316/316L SS	39/120 CPD
2252-P0A14	8mm x 1mm	WLD 316/316L SS	39/120 CPD
2252-P4A14	8mm x 1mm	PFA Fluoropolymer	39/120 CPD
2252-P7A14	8mm x 1mm	SMLS 316/316L SS	39/120 CPD

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Electric Traced Tubing

METRIC SIZES

Series

2252 CPD
2262 CPD

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Technical Information

Electrical Specifications:

Heater Type	Constant Power Density
Heater Insulation	PFA 600V Rated
Maximum Heater Exposure Temperature (Power On)	230°C
Circuit Length for 25 A Circuit Breaker	79 m or greater
Buss Wire Size	4 mm ²
Power Output	39 Watts/m @ 120 VAC 39 Watts/m @ 208 VAC 39 Watts/m @ 240 VAC 39 Watts/m @ 277 VAC
Maximum Jacket Surface Temperature @ 400°F Tube Temperature and 80°F Ambient	60°C
Temperature Rating per NEC 500	T2C (230°C)

Electric Traced Tubing Accessories: Item Number

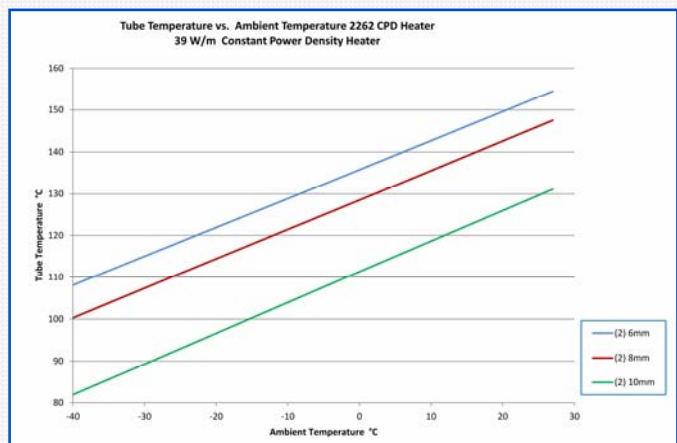
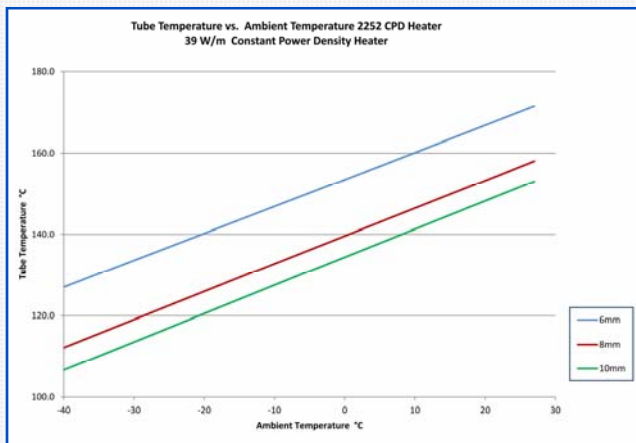
Seal-Tite End Boots	Single Tube Dual Tubes	BOOT-2 BOOT-3
Uniseal Cable Entry Seals for Bundles up to 35mm for Bundles up to 66.5mm		Seal 1.60 Seal 2.75
Unicut™ Bundle Jacket Cutter		1631-01001
RTV Silicone End Sealant	85 g tube 292 g cartridge	1535-02080 1535-02120
Electrical connection kit with box		1548-1200J
Mechanical Thermostats		
Line Sensing - hazardous locations		1660-13A12
- ordinary locations		1660-13A11
Ambient Sensing - hazardous locations		1660-18912
- ordinary locations		1660-18911
Seal Patch Kits		
20 cm x 20 cm Single Self-Sealing Patch		1540-10000
20 cm x 7.6 m Self-Sealing Roll		1540-20000

Product Specifications 2252/2262 CPD:

Tube OD	Standard Wall Thickness ⁽¹⁾	Material ⁽²⁾	ASTM Std	Working Pressure @ 204°C ⁽³⁾	Nominal Bundle OD	Nom. Weight kg/m	Min Bend Rad
6mm	1mm	316/316L- S/S WLD	A-269	158 Bar	34 mm	0.83	8"
8mm	1mm	316/316L- S/S WLD	A-269	95 Bar	35 mm	0.89	9"
10mm	1mm	316/316L- S/S WLD	A-269	89 Bar	38 mm	0.97	10"
6mm	1mm	PFA Fluoropolymer	D-6867	6.5 Bar	34 mm	0.74	8"
8mm	1mm	PFA Fluoropolymer	D-6867	6.9 Bar	35 mm	0.79	9"
10mm	1mm	PFA Fluoropolymer	D-6867	5.2 Bar	38 mm	1.34	10"

Notes:

(1) other wall thickness are available
(2) alternate metal and polymer tubing materials are available
(3) working pressure based on welded tube, seamless will be higher.
Contact Dekoron Unitherm for alternate materials



Notes:

Standard outer jacket is a 105°C Rated FRPVC. Alternate jacket materials include a 125°C Rated FRTPE, a 65°C Rated FRPE, and a flexible, halogen-free FRTPU.

Alternate tubing material include all 300 Series Stainless Steels that are available in tubing form. Also, most specialty alloys like UNS N06600, UNS N06625, UNS N10276, as well as some duplex stainless steels are available. Contact Dekoron Unitherm for details.

Standard bundles are designed for a maximum core temperature of 204°C. Higher temperature ratings up to 593°C are available. Contact Dekoron Unitherm for details.

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Electric Traced Tubing

IMPERIAL SIZES

Series **2E56 LTM**
2E66 LTM

DEKORON®
Unitherm™
Tubing Bundle Experts Since 1962

Low Temperature Maintenance Self-Regulating Electric Heat Trace

Dekoron® Unitherm™ Series 2E256/2E66 Low Temperature Maintenance (LTM) Self-Regulating Electric Traced Tubing is a thermally insulated fluid transport line for use in applications requiring freeze protection, viscosity maintenance, or condensation prevention, where the line may be cleaned or purged using steam or hot gasses. Each line is comprised of the following elements:

- Single or multiple process tube(s)
- Low temperature, self-regulating heating element with tinned-copper braid and fluoropolymer overjacket manufactured by Pentair Thermal Management
- Heat-reflecting foil wrap
- Moisture resistant, non-wicking, inorganic fibrous glass thermal insulation
- Choice of weather protective jacket

The energy-efficient design provides for a minimum temperature maintenance of 40°F at -40°F ambient. The standard product is available with a 5 or 10 watt per foot, 230 VAC Type BTV self-regulating heating element, manufactured by Pentair Thermal Management. The heating element will withstand continuous exposure to 174°F and intermittent exposure to temperatures of up to 185°F.

2E56 and 2E66 Bundles are approved for use in hazardous areas by FM Approvals:

FM10ATEX0032X

FME10.0003X



Ex e IIC T6 Gb II2GD

Ex e II T6 II 2D Ex tb
IIIC IP66 T85C

Applications for this product:

- Analyzer and instrument lines
- Small diameter process lines
- Impulse lines
- Freeze protect condensate return lines



2E56LTM



2E66LTM

Additional features of this product are:

- Pre-engineered for reduced design cost and predictable operational characteristics
- Bundles are lightweight and easy to bend
- Smaller OD than field fabricated lines means better use of mounting space
- Maintenance-free; no open seams, no gaps in insulation
- Consistent and predictable thermal characteristics
- Heater output up to 10 watts/ft available

Standard Products in this series:

2E56-30A20	2E56-37A20	2256-41A20
2E56-40A20	2E56-47A20	2266-40B40
		2266-47B40

Standard products contain welded or seamless Type 316/316L stainless steel - or - seamless #122DHP copper tube(s), a 5w/ft 230 VAC or 10 w/ft 230 VAC low temperature self-regulating heater, non-wicking, low chloride fibrous glass thermal insulation and a weather-protective FRPVC extruded outer jacket.

Alternate tube, heater and jackets available.

Contact Dekoron Unitherm for assistance on selecting the correct products and materials for the application.

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Electric Traced Tubing

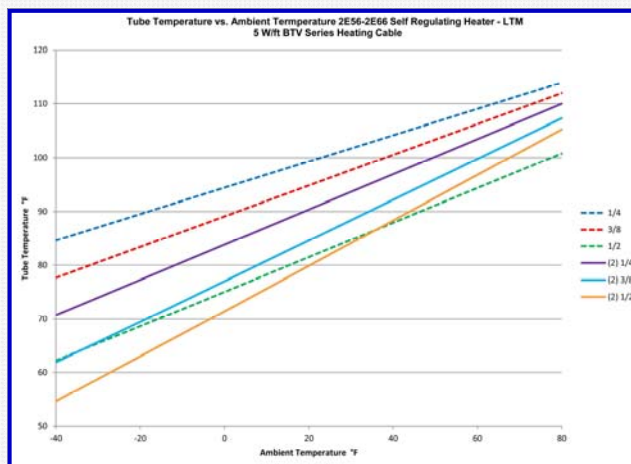
IMPERIAL SIZES

Series **2E56 LTM**
2E66 LTM

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Technical Information:

Heater Type	Self-Regulating Parallel Heater Type BTV
Heater Insulation	Fluoropolymer
Maximum continuous exposure temperature (Power On)	175°F
Maximum intermittent exposure temperature (Power Off- 1000 hrs)	185°F
Circuit Length for 32 A Circuit Breaker	525 feet @ 230 VAC
Power output	5 Watts/ft @ 50°F and rated voltage
Temperature Rating per NEC 500	T6(212°F)



Tube Temperature vs Ambient for standard bundles with 5 w/ft LTSR

Product Specifications 2E56/2E66 LTM:

Tube OD	Standard Wall Thickness ⁽¹⁾	Material ⁽²⁾	ASTM Std	Working Pressure @ 200°F ⁽³⁾	Nominal Bundle OD	Nom. Weight lb/ft	Min Bend Rad
1/4"	0.030"	#122 DHP Copper	B-68-B-75	1270 PSI	1.35"	0.40	8"
3/8"	0.032"	#122 DHP Copper	B-68-B-75	880 PSI	1.45"	0.50	9"
1/2"	0.035"	#122 DHP Copper	B-68-B-75	710 PSI	1.55"	0.60	10"
3/4"	0.049"	#122 DHP Copper	B-68-B-75	660 PSI	1.80"	0.90	12"
1/4"	0.035"	316/316L- S/S WLD	A-269	4470 PSI	1.35"	0.56	8"
3/8"	0.035"	316/316L- S/S WLD	A-269	2860 PSI	1.45"	0.60	9"
1/2"	0.035"	316/316L- S/S WLD	A-269	2100 PSI	1.55"	0.65	10"
1/4"	0.040"	PFA Fluoropolymer	D-6867	75 PSI	1.35"	0.50	8"
3/8"	0.062"	PFA Fluoropolymer	D-6867	50 PSI	1.45"	0.53	9"
1/2"	0.062"	PFA Fluoropolymer	D-6867	75 PSI	1.55"	0.90	10"

Notes:

- (1) other wall thickness are available
 - (2) alternate metal and polymer tubing materials are available
 - (3) working pressure based on welded tube, seamless will be higher.
- Contact Dekoron Unitherm for alternate materials

Circuit Breaker Sizing vs. Maximum Circuit Length - Feet - 5 w/ft LTSR

If Started At	16 A @230 VAC	20 A @230 VAC	25 A @230 VAC	32 A @230 VAC
50°F	525	525	525	525
-4°F	360	460	525	525

Circuit length will vary depending upon the heater selected by the user. Contact Dekoron Unitherm for further information.

Electric Traced Tubing Accessories:

Item Number

Seal-Tite End Boots

Singe Tube
Dual Tubes

BOOT-2
BOOT-3

Uniseal Cable Entry Seals
for Bundles up to 1.375"
for Bundles up to 2.62"

Seal 1.60
Seal 2.75

Unicut™ Bundle Jacket Cutter

1631-01001

RTV Silicone End Sealant

3 oz. tube
10.3 oz. cartridge

1535-02080
1535-02120

Electrical connection kit with box

1548-16000

Termination Kit

1548-17000

Mechanical Thermostats

Line Sensing - hazardous locations
Ambient Sensing - hazardous locations

1660-13A12
1660-18912



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Fax: 239.995.8027

For additional information visit our website:
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Electric Traced Tubing

METRIC SIZES

Series **2E56 LTM**
2E66 LTM

DEKORON®
Unitherm™
Tubing Bundle Experts Since 1962

Low Temperature Maintenance Self-Regulating Electric Heat Trace

Dekoron® Unitherm™ Series 2E256/2E66 Low Temperature Maintenance (LTM) Self-Regulating Electric Traced Tubing is a thermally insulated fluid transport line for use in applications requiring freeze protection, viscosity maintenance, or condensation prevention, where the line may be cleaned or purged using steam or hot gasses. Each line is comprised of the following elements:

- Single or multiple process tube(s)
- Low temperature, self-regulating heating element with tinned-copper braid and fluoropolymer overjacket manufactured by Pentair Thermal Management
- Heat-reflecting foil wrap
- Moisture resistant, non-wicking, inorganic fibrous glass thermal insulation
- Choice of weather protective jacket

The energy-efficient design provides for a minimum temperature maintenance of 10°C at -40°C ambient. The standard product is available with a 16 or 29 watt per meter, 230 VAC Type BTV self-regulating heating element, manufactured by Pentair Thermal Management. The heating element will withstand continuous exposure to 65°C and intermittent exposure to temperatures of up to 85°C.

2E56 and 2E66 Bundles are approved for use in hazardous areas by FM Approvals:

FM10ATEX0032X

FME10.0003X



Ex e IIC T6 Gb II2GD

Ex e II T6 II 2D Ex tb
IIIC IP66 T85C

Applications for this product:

- Analyzer and instrument lines
- Small diameter process lines
- Impulse lines
- Freeze protect condensate return lines



2E56LTM



2E66LTM

Additional features of this product are:

- Pre-engineered for reduced design cost and predictable operational characteristics
- Bundles are lightweight and easy to bend
- Smaller OD than field fabricated lines means better use of mounting space
- Maintenance-free; no open seams, no gaps in insulation
- Consistent and predictable thermal characteristics
- Heater output up to 29 watts/meter available

Standard Products in this series:

2E56-Q0A20	2E56-Q7A20	2256-R1A20
2E56-R0A20	2E56-R7A20	2266-R0B40
		2266-R7B40

Standard products contain welded or seamless Type 316/316L stainless steel - or - seamless #122DHP copper tube(s), a 16w/m 230 VAC or 29 w/m 230 VAC low temperature self-regulating heater, non-wicking, low chloride fibrous glass thermal insulation and a weather-protective FRPVC extruded outer jacket.

Alternate tube, heater and jackets available.

Contact Dekoron Unitherm for assistance on selecting the correct products and materials for the application.

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Electric Traced Tubing

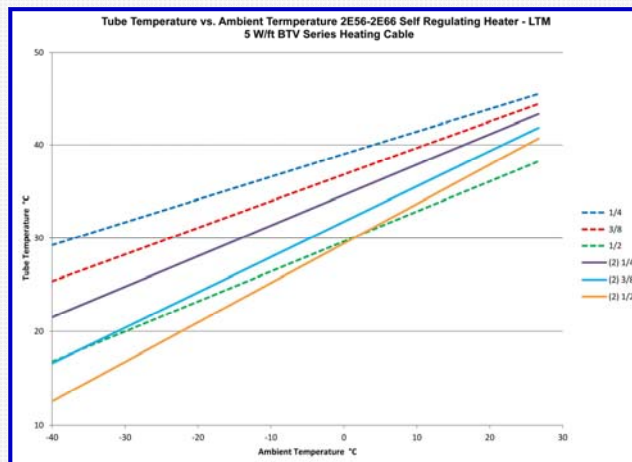
METRIC SIZES

Series **2E56 LTM**
2E66 LTM

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Technical Information:

Heater Type	Self-Regulating Parallel Heater Type BTV
Heater Insulation	Fluoropolymer
Maximum continuous exposure temperature (Power On)	65°C
Maximum intermittent exposure temperature (Power Off- 1000 hrs)	85°C
Circuit Length for 32 A Circuit Breaker	200 meters @ 230 VAC
Power output	16 Watts/m @ 10°C and rated voltage
Temperature Rating per NEC 500	T6(100°C)



Tube Temperature vs Ambient for standard bundles with 5 w/ft LTSR

Product Specifications 2E56/2E66 LTM:

Tube OD	Standard Wall Thickness ⁽¹⁾	Material ⁽²⁾	ASTM Std	Working Pressure @ 93°C ⁽³⁾	Nominal Bundle OD	Nom. Weight kg/m	Min Bend Rad
6mm	1mm	#122 DHP Copper	B-68-B-75	158 Barg	35 mm	0.58	20.3 cm
10mm	1mm	#122 DHP Copper	B-68-B-75	95 Barg	37 mm	0.73	22.9 cm
12mm	1mm	#122 DHP Copper	B-68-B-75	89 Barg	40 mm	0.87	25.4 cm
18mm	1mm	#122 DHP Copper	B-68-B-75	54 Barg	45 mm	1.31	30.5 cm
6mm	1mm	316/316L- S/S WLD	A-269	373 Barg	35 mm	0.81	20.3 cm
10mm	1mm	316/316L- S/S WLD	A-269	269 Barg	37 mm	0.87	22.9 cm
12mm	1mm	316/316L- S/S WLD	A-269	210 Barg	40 mm	0.95	25.4 cm
6mm	1mm	PFA Fluoropolymer	D-6867	6.5 Barg	35 mm	0.73	20.3 cm
10mm	1.5mm	PFA Fluoropolymer	D-6867	6.9 Barg	37 mm	0.77	22.9 cm
12mm	1.5mm	PFA Fluoropolymer	D-6867	5.2 Barg	40 mm	1.31	25.4 cm

Notes:

- (1) other wall thickness are available
- (2) alternate metal and polymer tubing materials are available
- (3) working pressure based on welded tube, seamless will be higher.

Contact Dekoron Unitherm for alternate materials

Circuit Breaker Sizing vs. Maximum Circuit Length - Meters - 16 w/m LTSR

If Started At	16 A @230 VAC	20 A @230 VAC	25 A @230 VAC	32 A @230 VAC
50°F	200	200	200	200
-4°F	155	195	200	200

Circuit length will vary depending upon the heater selected by the user.
Contact Dekoron Unitherm for further information.

Electric Traced Tubing Accessories:

Item Number

Seal-Tite End Boots

Singe Tube
Dual Tubes

BOOT-2
BOOT-3

Uniseal Cable Entry Seals

for Bundles up to 35 mm
for Bundles up to 66.5 mm

Seal 1.60
Seal 2.75

Unicut™ Bundle Jacket Cutter

1631-01001

RTV Silicone End Sealant

85 g tube
262 g cartridge

1535-02080
1535-02120

Electrical connection kit with box

1548-16000

Termination kit

1548-17000

Mechanical Thermostats

Line Sensing - hazardous locations
Ambient Sensing - hazardous locations

1660-13A12
1660-18912



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Carrier Tube Bundles

IMPERIAL SIZES

Series

4C82

4C83

4C84

DEKORON®
Unitherm™
Tubing Bundle Experts Since 1962

Carrier Tube Bundles for field-installation of Electric Heat Tracing Cables.

Dekoron® Unitherm™ Series 4C82 through 4C84 Carrier Tube bundles are designed for applications where the user must use an electric heating cable but finds that a standard built-to-length or cut-to-length electric trace bundle is not a cost efficient answer for his application.

The pre-engineered Carrier Tube Bundle allows the user to install the bundle in his application and determine the actual length required for his heating cable. The centrally mounted carrier tube then provides a smooth conduit allowing installation of the heater.

The 4C82/3/4 Series bundles use a high efficiency aerogel thermal insulation for smaller diameters, better protection from chloride stress corrosion, and improved efficiency. This design can also be used in a number of applications, including:

- Heat trace using mineral insulated cables where the run length is unknown or may be shifted during installation.
- Multiple heat trace runs using mineral insulated cables or other electric heat trace cables.
- Heat trace runs with multiple taps, instruments, or fittings where conventional heat traced tubing bundles are not feasible.
- Heat trace bundles where conditions may require periodic replacement of electric heat trace cables.
- Applications where the heat trace tubing bundle is not accessible for routine monitoring or maintenance.

Additional features of this product are:

- Pre-engineered for consistent and predictable thermal and electrical characteristics
- Centrally mounted heater conduit for easy heat trace cable installation
- Bundle can be installed around fittings, taps and instruments without requiring a splice in the heating cable
- High efficiency thermal insulation for smaller OD's, better tray loading, tighter bends
- Hydrophobic insulation repels water
- Insulation provides added protection from stress corrosion cracking
- Wide selection of process tube materials
- Optional sensor conduit for process control
- One bundle could be used in multiple applications simply by changing the type or heat output of the electric heat trace cable.

Applications for this product:

- High temperature process lines
- Lines with multiple taps or instruments
- Lines in hazardous areas
- Applications requiring several temperature requirements for the same tubing
- Applications requiring a replaceable heater
- Bundles routed through inaccessible areas



Product Key:

- 1 Centrally mounted heater conduit to allow easy insertion of Self-Regulating, Power Limiting or Mineral Insulated Electric Heat Trace.
- 2 Single or multiple 1/4", 3/8" or 1/2" OD Seamless or Welded Stainless Steel process tubes.
- 3 High efficiency, hydrophobic, aerogels thermal insulation.
- 4 Choice of weather protective jacket

Typical Product Constructions

Series	No Tubes	Tube OD	Carrier Tube	Jacket
4C82	1 thru 4	1/4"	3/4" x .049 T316L	FTPVC
4C83	1 thru 3	3/8"	Welded Stainless	FRTPE
4C84	1 thru 3	1/2"	Steel	FRTPU

Standard products contain welded or seamless Type 316/316L stainless steel, high efficiency aerogel thermal insulation and a weather-protective FRPVC extruded outer jacket. Alternate tube, heater and jackets available. Contact Dekoron Unitherm for assistance on selecting the correct products and materials for the application.

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Carrier Tube Bundles

IMPERIAL SIZES

Series **4C82**
4C83
4C84

DEKORON®
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Technical Information:

Process Tubes -	4C82	1 to 4 1/4" Welded or Seamless Stainless steel or PFA Fluoropolymer
	4C83	1 to 3 3/8" Welded or Seamless Stainless steel or PFA Fluoropolymer
	4C84	1 to 3 1/2" Welded or Seamless Stainless steel or PFA Fluoropolymer
Carrier Tube	All	3/4" x .049" Welded Stainless Steel
Insulation		High-efficiency, hydrophobic aerogel thermal insulation
Outer Jacket		FRPVC - standard optional FRTPE, FRTPU
Maximum Operating Temperature		400°F

Tubing Specifications

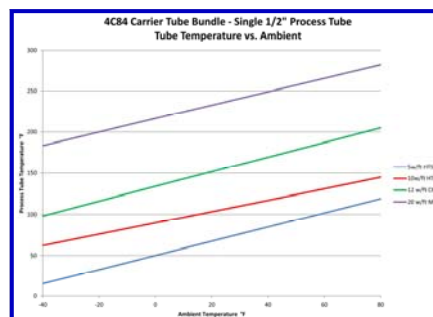
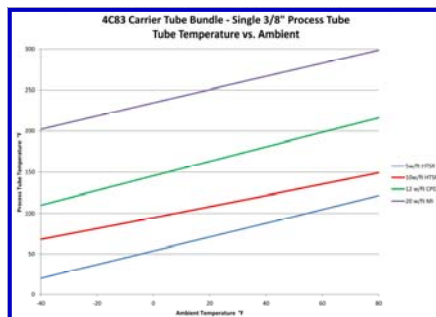
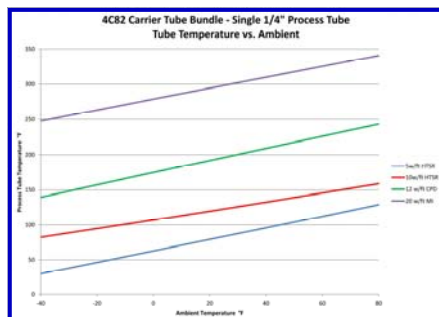
Tube OD	Standard Wall Thickness ⁽¹⁾	Material ⁽²⁾	ASTM Std	Working Pressure @ 400°F ⁽³⁾
1/4"	0.035"	316/316L- S/S WLD	A-269	4125 PSI
3/8"	0.035"	316/316L- S/S WLD	A-269	2625 PSI
1/2"	0.035"	316/316L- S/S WLD	A-269	1925 PSI
1/4"	0.040"	PFA Fluoropolymer	D-6867	30 PSI
3/8"	0.062"	PFA Fluoropolymer	D-6867	40 PSI
1/2"	0.062"	PFA Fluoropolymer	D-6867	30 PSI

Notes:

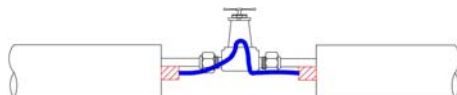
- (1) other wall thickness are available
(2) alternate metal and polymer tubing materials are available
(3) working pressure based on welded tube, seamless will be higher.
Contact Dekoron Unitherm for alternate materials

Contact Dekoron Unitherm for information on product options, dimensions, weights and minimum bending radius for these custom designed products.

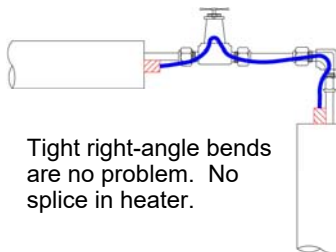
Process Tube Temperatures vs Ambient for Carrier Tube Bundles with Single Process Tubes:



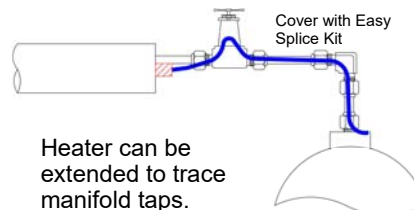
Typical Applications for Carrier Tube Bundles:



Carrier Tube Bundles easily allow installation of valves and instruments without splicing MI



Tight right-angle bends are no problem. No splice in heater.



Heater can be extended to trace manifold taps.

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Fax: 239.995.8027

For additional information visit our website:
www.unithermcc.com

Carrier Tube Accessories:

Uniseal Cable Entry Seals
for Bundles up to 1.375"
for Bundles up to 2.62"

Item Number

Seal 1.60
Seal 2.75

Unicut™ Bundle Jacket Cutter

1631-01001

RTV Silicone End Sealant

3 oz. tube
10.3 oz. cartridge

1535-02080
1535-02120

EasySplice™ Jacket Splice Kit

1540-620xx

Dekoron Unitherm Seal Patch Kit

8" x 8" patch
8" x 8 ft roll

1540-10000
1540-20000

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Carrier Tube Bundles

METRIC SIZES

Series

4C82

4C83

4C84

DEKORON®
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Tubing Bundle Experts Since 1962

Carrier Tube Bundles for field-installation of Electric Heat Tracing Cables.

Dekoron® Unitherm™ Series 4C82 through 4C84 Carrier Tube bundles are designed for applications where the user must use an electric heating cable but finds that a standard built-to-length or cut-to-length electric trace bundle is not a cost efficient answer for his application.

The pre-engineered Carrier Tube Bundle allows the user to install the bundle in his application and determine the actual length required for his heating cable. The centrally mounted carrier tube then provides a smooth conduit allowing installation of the heater.

The 4C82/3/4 Series bundles use a high efficiency aerogel thermal insulation for smaller diameters, better protection from chloride stress corrosion, and improved efficiency. This design can also be used in a number of applications, including:

- Heat trace using mineral insulated cables where the run length is unknown or may be shifted during installation.
- Multiple heat trace runs using mineral insulated cables or other electric heat trace cables.
- Heat trace runs with multiple taps, instruments, or fittings where conventional heat traced tubing bundles are not feasible.
- Heat trace bundles where conditions may require periodic replacement of electric heat trace cables.
- Applications where the heat trace tubing bundle is not accessible for routine monitoring or maintenance.

Additional features of this product are:

- Pre-engineered for consistent and predictable thermal and electrical characteristics
- Centrally mounted heater conduit for easy heat trace cable installation
- Bundle can be installed around fittings, taps and instruments without requiring a splice in the heating cable
- High efficiency thermal insulation for smaller OD's, better tray loading, tighter bends
- Hydrophobic insulation repels water
- Insulation provides added protection from stress corrosion cracking
- Wide selection of process tube materials
- Optional sensor conduit for process control
- One bundle could be used in multiple applications simply by changing the type or heat output of the electric heat trace cable.

Applications for this product:

- High temperature process lines
- Lines with multiple taps or instruments
- Lines in hazardous areas
- Applications requiring several temperature requirements for the same tubing
- Applications requiring a replaceable heater
- Bundles routed through inaccessible areas



Product Key:

- 1 Centrally mounted heater conduit to allow easy insertion of Self-Regulating, Power Limiting or Mineral Insulated Electric Heat Trace.
- 2 Single or multiple 6mm, 10mm or 12mm OD Seamless or Welded Stainless Steel process tubes.
- 3 High efficiency, hydrophobic, aerogels thermal insulation.
- 4 Choice of weather protective jacket

Typical Product Constructions

Series	No Tubes	Tube OD	Carrier Tube	Jacket
4C82	1 thru 4	6mm	3/4" x .049 T316L	FTPVC
4C83	1 thru 3	10mm	Welded Stainless	FRTPE
4C84	1 thru 3	12mm	Steel	FRTPU

Standard products contain welded or seamless Type 316/316L stainless steel, hydrophobic, high efficiency aerogels thermal insulation and a weather-protective FRPVC extruded outer jacket. Alternate tube, heater and jackets available. Contact Dekoron Unitherm for assistance on selecting the correct products and materials for the application.

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Carrier Tube Bundles

METRIC SIZES

Series **4C82**
4C83
4C84

DEKORON®
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Tubing Bundle Experts Since 1962

Technical Information:

Process Tubes -	4C82	1 to 4 6mm Welded or Seamless Stainless steel or PFA Fluoropolymer
	4C83	1 to 3 10mm Welded or Seamless Stainless steel or PFA Fluoropolymer
	4C84	1 to 3 12mm Welded or Seamless Stainless steel or PFA Fluoropolymer
Carrier Tube	All	3/4" x .049" Welded Stainless Steel
Insulation		High-efficiency, hydrophobic aerogel thermal insulation
Outer Jacket		FRPVC - standard optional FRTPE, FRTPU
Maximum Operating Temperature		200°C

Tubing Specifications

Tube OD	Standard Wall Thickness ⁽¹⁾	Material ⁽²⁾	ASTM Std	Working Pressure @ 200°C ⁽³⁾
6 mm	1 mm	316/316L- S/S WLD	A-269	158 Bar
10 mm	1 mm	316/316L- S/S WLD	A-269	195 Bar
12 mm	1 mm	316/316L- S/S WLD	A-269	89 Bar
6 mm	1 mm	PFA Fluoropolymer	D-6867	6.5 Bar
10 mm	1.5 mm	PFA Fluoropolymer	D-6867	6.9 Bar
12 mm	1.5 mm	PFA Fluoropolymer	D-6867	5.2 Bar

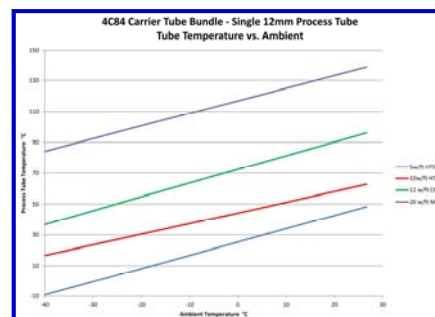
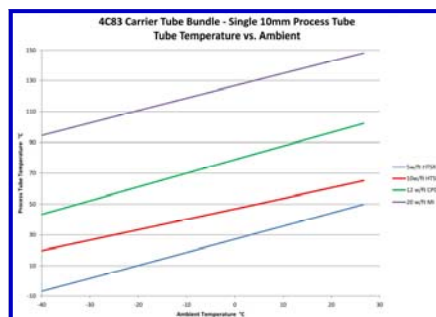
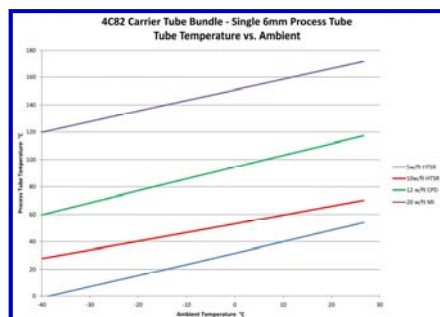
Notes:

- (1) other wall thickness are available
- (2) alternate metal and polymer tubing materials are available
- (3) working pressure based on welded tube, seamless will be higher.

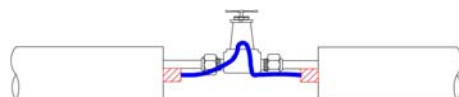
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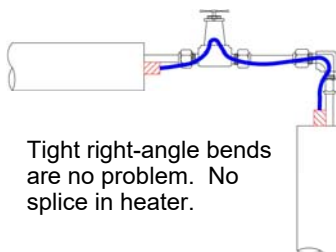
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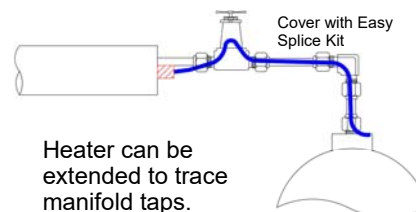
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Carrier Tube Bundles easily allow installation of valves and instruments without splicing MI



Tight right-angle bends are no problem. No splice in heater.



Heater can be extended to trace manifold taps.

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Carrier Tube Accessories:

Uniseal Cable Entry Seals
for Bundles up to 35mm
for Bundles up to 66.5mm

Item Number

Seal 1.60
Seal 2.75

Unicut™ Bundle Jacket Cutter

1631-01001

RTV Silicone End Sealant

85 g tube
292 g cartridge

1535-02080
1535-02120

EasySplice™ Jacket Splice Kit

1540-620xx

Dekoron Unitherm Seal Patch Kit

20 cm x 20 cm Single Self-Sealing Patch
20 cm x 7.6 m Self-Sealing Roll

1540-10000
1540-20000

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DEKORON® UNITHERM™

RELIABILITY SERIES®

NO MATTER WHAT YOUR APPLICATION; MERCURY, HCL, FLARE GAS OR HIGH TEMPERATURE PROCESS ANALYSIS THE **RELIABILITY SERIES®** CAN HANDLE THE JOB

THE **RELIABILITY SERIES®** DIFFERENCE

STATE OF THE ART

PROPRIETARY HEATER DESIGN

- ◆ UNLIKE CPD NO NODES TO FAIL
- ◆ UNLIKE SELF-LIMITING NO TEMPERATURE CYCLING
- ◆ 360° UNIFORM HEAT ENVELOPE NO GAPPING OR COLD SPOTS
- ◆ FIELD TRIMMABLE BY UP TO 50% OF LAST HEATER CERCUIT

SPLIT LINE CONFIGURATION

PLUG-N-PLAY TERMINATIONS

THE EVOLUSION OF HIGH TEMPERATURE SAMPLE LINES



STANDARD HEATED CORE DESIGNS

DESIGN ⁽¹⁾	NUMBER OF TUBES	WATT DENSITY ⁽²⁾	VOLTAGE
4R62-1	(1) 1/4" x .040 PFA (1) 3/8" x .062 PFA	17-24 Watts/Ft	120 VAC or 208 VAC
4R62-2	(2) 3/8" x .062" PFA	17-24 Watts/Ft	120 VAC or 208 VAC
4R62-3	(3) 3/8" x .062" PFA	17-24 Watts/Ft	120 VAC or 208 VAC
4R62-4	(1) 1/4" x .040 PFA (2) 3/8" x .062 PFA	17-24 Watts/Ft	120 VAC or 208 VAC

(1) FULL PART NUMBER WILL INCLUDE TUBING CONSTRUCTION, NUMBER OF HEAT ZONES, AND SENSOR TYPE, AND HAVE A DESIGN LOG NUMBER SHOWING THE DETAILS OF THE DESIGN. EXAMPLE 4R62-1A113-18000 WOULD INDICATE THE 4R62-1 DESIGN SHOWN ABOVE WIRED FOR OPERATION AT 120 VAC WITH A SINGLE HEAT ZONE (100 FEET OR LESS) AND A SINGLE 3-WIRE PT100 RTD SENSOR.

(2) STANDARD DESIGN FOR FULL HEAT ZONES IS 18 WATTS/FT FOR BUNDLES OPERATING AT 120 VAC, AND 20 WATTS/FT FOR BUNDLES OPERATING AT 208 VAC. HEAT OUPUT CHANGES WHEN BUNDLE IS TRIMMED BACK SHORTER THAN A FULL HEAT ZONE, BUT STAYS WITHIN THE STATED RANGE.

RELIABILITY SERIES® DESIGN

- SERIES RESISTANCE HEATING WIRES
- BRAIDED HEATER CONSTRUCTION
- FIELD TRIMMABLE DESIGN
- MOST ROBUST HEATING SYSTEM AVAILABLE
- NO INRUSH CURRENT ISSUES, NO LOST HEATING ZONES
- 360° HEATING ENVELOPE
- HEATER DOES NOT PULL AWAY IN BEND
- FINISHED BUNDLE PLUG-N-PLAY FROM FACTORY
- CAN BE TRIMMED AFTER INSTALLATION

PHYSICAL PROPERTIES

DESIGN	OD	BEND RADIUS	WEIGHT
4262-1	1.80" (45.7 mm)	10" (25.4 cm)	0.75 lbs/ft (1.12 kg/m)
4262-2	1.90" (48.3 mm)	11" (27.9 cm)	0.85 lbs/ft (1.27 kg/m)
4262-3	2.00" (50.8 mm)	12" (30.5 cm)	0.90 lbs/ft (1.34 kg/m)
4262-4	1.95 (49.5 mm)	12" (30.5 cm)	0.87 lbs/ft (1.30 kg/m)

UNITHERM™ HEATED HOSE PRODUCTS

SERIES 200 ELECTRICALLY HEATED HIGH TEMPERATURE FLUOROPOLYMER TUBING

Description

UNITHERM's series 200 hoses feature a smooth bore, Fluoropolymer core, which is electrically heated for operation to 450°F (232°C). The hoses are flexible and can be operated in continuous movement conditions. The heating element is nickel alloy wire; spiral wound to extremely close tolerances, providing optimum temperature uniformity throughout the entire length. The heating element is insulated within multiple layers of high temperature insulation. Two thickness of thermal insulation are available with tough, extruded polyurethane jacket for outdoor service or an abrasion resistant, braided polyester sleeve for indoor use. All hoses are supplied electrically and hydraulically complete, ready to use.

Features

- Operating Voltage

Any single-phase voltage to 480 VAC. Depending on length hoses may be ordered to operate on 240 or 480 VA, three-phase.

- Power Density

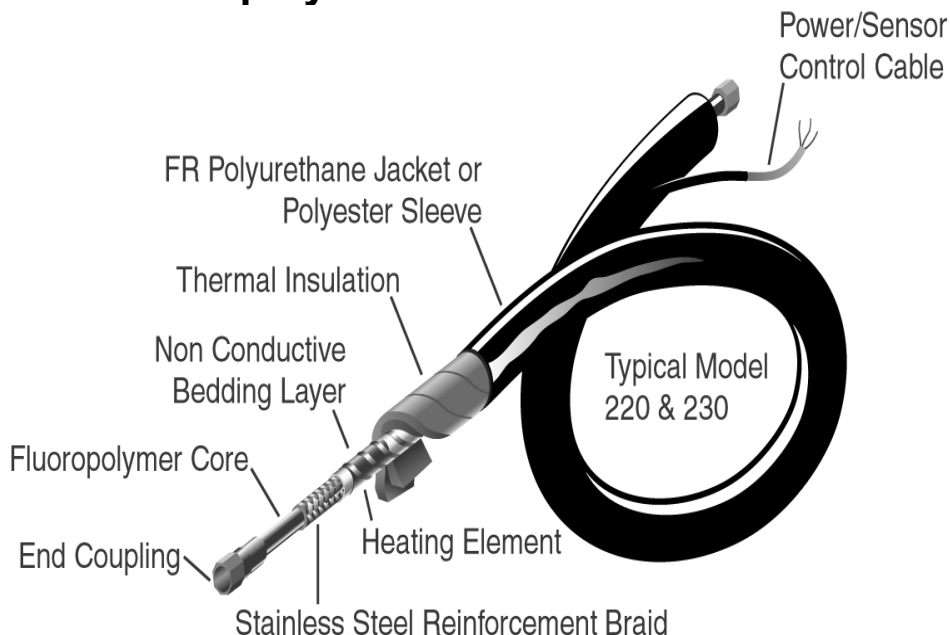
Up to 200 watts/ft. Power Density is based on the desired operating temperature, lowest ambient temperature and size of hose.

Temperature Control

Series 200 hoses must be controlled (except for the self-limiting (SL) version) to maintain the desired operating temperature. A temperature sensor is installed during construction and, unless otherwise specified, will be installed 3' from the power of the hose.

Dekoron/Unitherm's core expertise is thermal management. We build devices to maintain temperature or retard heat loss. Our expertise is what goes around the core. The expertise we attain in core material selection comes from successful use in similar applications. The ultimate responsibility for material selection is the customer's responsibility.

FORM 200HH40903



This picture shows only one of many constructions available

How to order Series 200

Model No.	Tube Size	Hose Length Feet	Temperature Sensor	Operating Voltage	Fittings
210 Low Pressure 220 Medium Pressure 230 High Pressure	From Specification Chart	1 ft. Increments	J= Type J Thermocouple K= Type K Thermocouple T= Thermistor R= RTD (100 OHM) N= No Sensor	Indicate actual Voltage	J=JIC female Swivel J/TA= JIC female swivel with tube adapter M= Male Pipe (NPT) T=Tube for Compression Fitting
EXAMPLE 210 5 12ft. N 115 T 210-5-12ft.N-115-T					

Typical Application

Application	Type of use
Gas Sampling	-Stack Gas -Instrumentation
Product Transfer	-Engine Emissions -Process Lines
Viscosity Control	Foods, Oil, Fats, Chemicals, Wax Paint, Ink, Coatings

UNITHERM™ HEATED HOSE PRODUCTS

SERIES 200 ELECTRICALLY HEATED HIGH
TEMPERATURE STAINLESS STEEL TUBING**Model 210 Low Pressure Specifications – to 450°F (232°C)**

Tube Size	I.D.	O.D.	Nominal Finished Diameter		Maximum Operating Pressure*	Minimum Bend Radius	Nominal Weight Lb/Ft.
			1/4"	1/2"			
4	.150"	.250"	1.00"	1.50"	300 PSI	10"	.40
5	.210"	.312"	1.10"	1.60"	300 PSI	11"	.42
6	.251"	.375"	1.20"	1.70"	300 PSI	12"	.45
8	.375"	.500"	1.30"	1.80"	200 PSI	14"	.54

Model 220 Medium Pressure Specifications – to 450°F (232°C)

Tube Size	Inside Diameter	Nominal Finished Diameter		Maximum Operating Pressure**	Minimum Burst Pressure	Minimum Bend Radius	Nominal Weight Lb/Ft.
		1/4"	1/2"				
4	.187"	1.00"	1.50"	1500 PSI	6000 PSI	10"	.44
5	.250"	1.10"	1.60"	1500 PSI	6000 PSI	11"	.46
6	.312"	1.25"	1.75"	1500 PSI	6000 PSI	12"	.50
8	.405"	1.375"	1.875"	1500 PSI	6000 PSI	14"	.57
10	.500"	1.55"	2.05"	1000 PSI	4000 PSI	16"	.62
12	.625"	1.625"	2.125"	900 PSI	3500 PSI	17"	.69
16	.875"	1.875"	2.375"	800 PSI	3200 PSI	19"	.95
20	1.062"	2.125"	2.625"	600 PSI	2400 PSI	24"	1.48
***24	1.375"	2.75"	3.25"	800 PSI	3200 PSI	32"	2.05

Model 230 High Pressure Specifications – to 400°F (204°C)

Tube Size	Inside Diameter	Nominal Finished Diameter		Maximum Operating Pressure*	Minimum Burst Pressure	Minimum Bend Radius	Nominal Weight Lb/Ft.
		1/4"	1/2"				
4	.229"	1.20"	1.70"	3000 PSI	12000 PSI	10"	.60
6	.300"	1.45"	1.95"	3000 PSI	12000 PSI	12"	.81
8	.395"	1.60"	2.10"	3000 PSI	12000 PSI	14"	.96
12	.650"	1.75"	2.25"	3000 PSI	12000 PSI	16"	1.48
16	.875"	2.25"	2.75"	3000 PSI	9000 PSI	18"	1.48
20	1.118"	2.65"	3.20"	3000 PSI	9000 PSI	22"	2.05
***24	1.375"	2.95"	3.25"	3000 PSI	9000 PSI	26"	3.40

* At 400°F (204°C) ** 450°F (232°C) *** Features Double Stainless Steel Braid

Construction

Core Material	Smooth bore Fluoropolymer core
Reinforcement	Model 210 Low Pressure , Copper Braid (Low Density Coverage) Model 220 Medium Pressure , 100% Coverage S.S. Braid Model 230 High Pressure , S.S. Braid / Multiple layers
Heating Element	Constant Power Density and Self-Limiting, Fiberglass reinforced, silicone rubber
Electrical Insulation	Fiberglass reinforced silicone rubber
Thermal Insulation	1/4" reinforced fiberglass (temperatures to 300°F) 1/2" reinforced fiberglass (Temperatures above 300°F)
External Jacket	Indoor Service – Abrasion resistant braided polyester sleeve Outdoor Service – tough, extruded flame-retardant polyurethane
Fittings	1. JIC Female Swivel (37° seat) 2. JIC Female Swivel with Tube Adapter 3. Male NPT 4. Tube for Compression Fitting
Power/Control Cable	Standard length is six (6) feet. Longer lengths are available. Optional electrical connectors can be provided.

UNITHERM™ HEATED HOSE PRODUCTS

SERIES 100 ELECTRICALLY HEATED HIGH TEMPERATURE STAINLESS STEEL TUBING

Description

UNITHERM's series 100 hoses feature a smooth bore, stainless steel tube, which is electrically heated for operation to 625°F (329°C). The heated tubing is bendable for use in fixed applications where flexibility is not a requirement. The heating element is nickel alloy wire; spiral wound to extremely close tolerances, providing optimum temperature uniformity throughout the entire length. The heating element is insulated within multiple layers of high temperature, electrical insulation, which features excellent dielectric properties. All hoses come standard with ½" reinforced fiberglass insulation and are available with tough, extruded polyurethane jacket for outdoor use. All hoses are supplied electrically and hydraulically complete, ready to use.

Features

- Operating Voltage

Any single-phase voltage to 480 VAC. Depending on length hoses may be ordered to operate on 240 or 480 VA, Three-phase.

- Power Density

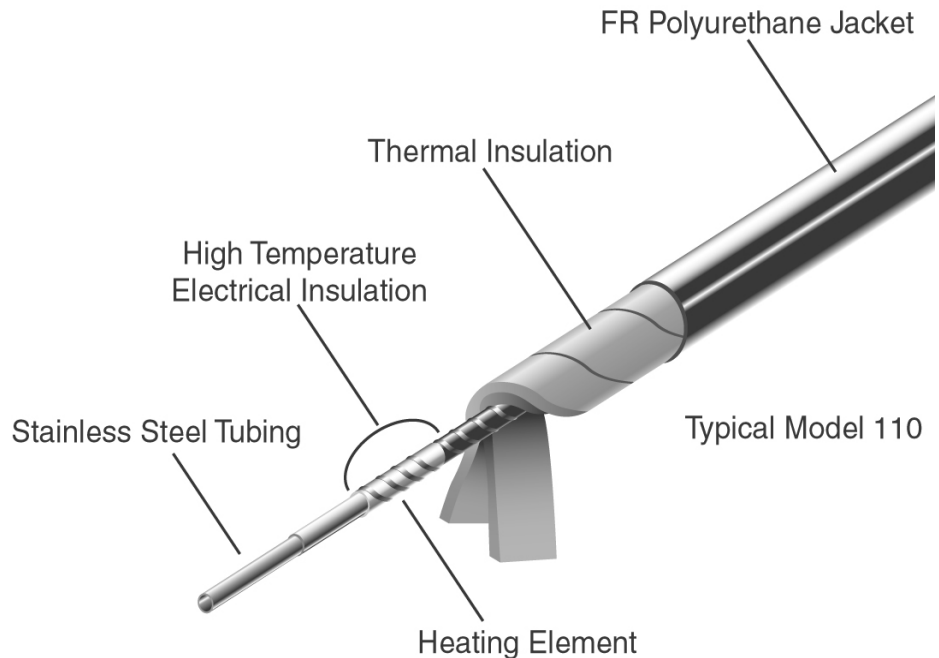
Up to 200 watts/ft. Power Density is based on the desired operating temperature, lowest ambient temperature and size of hose.

Temperature Control

Series 100 hoses must be controlled (except for the self-limiting (SL) version) to maintain the desired operating temperature. A temperature sensor is installed on the OD of the core during construction and, unless otherwise specified, will be installed 3' from the power end of the hose.

Dekoron/Unitherm's core expertise is thermal management. We build devices to maintain temperature or retard heat loss. Our expertise is what goes around the core. The expertise we attain in core material selection comes from successful use in similar applications. The ultimate responsibility for material selection is the customer's responsibility.

Form Series 100HH – 040903



This picture shows only one of many constructions available

How to order Series 100

Model No.	Tube Size	Hose Length Feet	Temperature Sensor	Operating Voltage	Bare Tube Length (Inches)
110	From Specification Chart	1 ft. Increments	J= Type J Thermocouple K= Type K Thermocouple T= Thermistor R= RTD (100 OHM) N= No Sensor	Indicate actual Voltage	
EXAMPLE 110-6-10ft.J-120-3					

Typical Application	
Application	Type of use
Gas Sampling	Stack Gas Engine Emissions Instrumentation
Product Transfer	Foods Oil Fats Chemicals Wax
Viscosity Control	Paint Ink Coatings

UNITHERM™ HEATED HOSE PRODUCTS**SERIES 100 ELECTRICALLY HEATED HIGH TEMPERATURE STAINLESS STEEL TUBING****Model 110 Specifications – to 625°F (329°C)**

Tube Size	Outside Diameter	Nominal Finished Diameter	Maximum Operating Pressure*	Minimum Bend Radius	Nominal Weight Lb/Ft.
2	1/8"	1.125"	1800 PSI	5"	.35
4	1/4"	1.375"	1800 PSI	10"	.40
5	5/16"	1.500"	1650 PSI	11"	.45
6	3/8"	1.620"	1500 PSI	12"	.55
8	1/2"	1.750"	1200 PSI	14"	.60

* At 625°F (329°C)

Temperature Differential Chart (Data based on Size No. 6 Hose)	Watts/Foot	Delta T 1/1" Insulation
**	5	180°F (82°C)
	10	240°F (116°C)
	15	340°F (171°C)
	20	440°F (227°C)
	25	535°F (279°C)
	30	615°F (324°C)

** Larger Sizes Available upon request.

Construction

Core Material	Stainless steel tubing smooth bore, type 316, welded with various wall thickness (specify with order). Seamless tubing available upon request.
Heating Element	Spiral-wound, nickel alloy wire, fully encapsulated within electrical insulation.
Electrical Insulation	1/2" reinforced fiberglass
Thermal Insulation	Indoor Service – Abrasion resistant braided polyester sleeve
External Jacket	Outdoor Service – tough, extruded polyurethane
Fittings	Model 110 comes standard with bare tube ends for attachment with compression-style fittings. The stainless steel tubes extend past the end of the heated assembly approximately 1-1/2" unless otherwise specified.
Power/Control Cable	Standard length is six (6) feet. Longer lengths are available. Optional electrical connectors can be provided.

DEKORON/UNITHERM™
1531 Commerce Creek Blvd.
Cape Coral, Florida 33909
Phone: 239-995-8111
Fax: 239-995-8027

Flexible Heated Hose Series 400

DEKORON®
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Tubing Bundle Experts Since 1962

Electrically Heated Convoluted Core Hose

Model 410 Fluoropolymer Core (to 400°F)
Model 450/460 Stainless Steel Core Hose (to 625°F)

DEKORON®/Unitherm™ Series 400 Electrically Heated Convoluted Core Hose products are custom engineered to your specific application requirements and equipment. Hydraulically and electrically complete, each hose is designed for fast, easy installation. Cores (convoluted fluoropolymer and stainless steel) are designed to meet all requirements while offering improved flexibility on large diameter and bulk transfer products. All models can be operated in continuous movement conditions. The heating element is a nickel alloy wire that is spiral wound to extremely close tolerances providing optimum temperature uniformity throughout the heated length.

Applications for this product include:

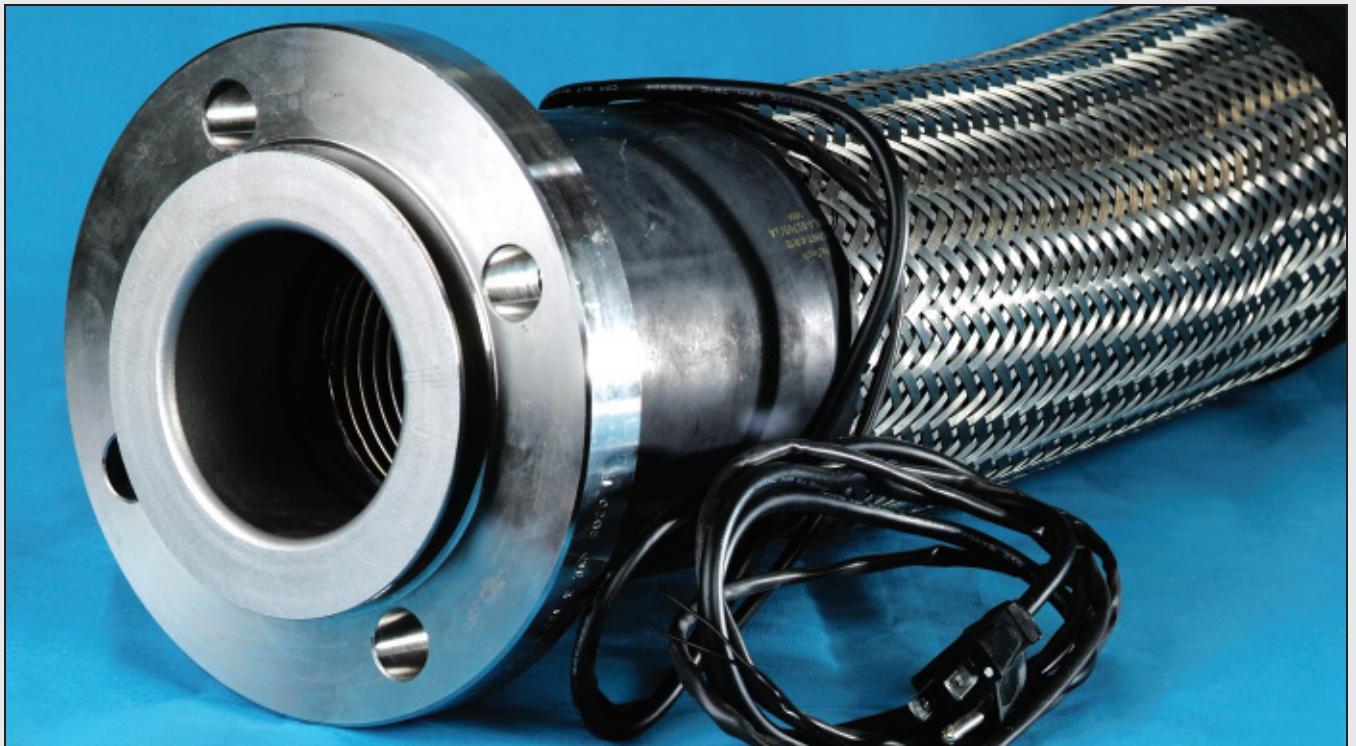
Product transfer (hot melt adhesives, urethanes, oils, fats, chemicals and wax) Viscosity control (asphalt, tar, fats, oil, wax, chemicals)

Features of this product include:

- Ready to use
- Constant power density and self-limiting heating elements
- Reinforced with stainless steel braid
- Electrical insulation is:
Fiberglass reinforced, silicone rubber insulation (Model 410)
Fiberglass/polyamide film (Models 450/460)
- 1 / 2" reinforced fiberglass thermal insulation
- External jacket is an abrasion resistant braided polyester sleeve (indoor) or a tough, extruded flame-retardant polyurethane (outdoor use).
- Power/control cable standard length is six (6) feet. Longer lengths are available.

Temperature control

With the exception of the self-limiting version, Series 400 hoses must be controlled to maintain the desired operating temperature. A temperature sensor is installed during construction and unless otherwise specified, will be installed three (3) feet from the power of the hose.



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Flexible Heated Hose Series 400

DEKORON®
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Model 410 Convoluted Fluoropolymer Low Pressure to 400°F (204°C)

Tube Size	Outside Diameter	Nominal Finished Diameter	Max. Operating Pressure	Minimum Bend Radius	Nominal Weight lbs/ft
8	0.50"	2.00"	1100 PSI	12"	0.6
12	0.75"	2.35"	1000 PSI	14"	0.7
16	1.00"	2.62"	1000 PSI	16"	0.8
20	1.25"	3.00"	800 PSI	18"	1.0
24	1.50"	3.25"	600 PSI	20"	1.5
32	2.00"	3.75"	400 PSI	24"	1.9
48	3.00"	4.75"	225 PSI	30"	3.2
64	4.00"	5.75"	150 PSI	48"	4.5

Model 450 Convoluted Stainless Steel to 625°F (329°C)

Tube Size	Finished Diameter	Max. Operating Pressure 400°	Max. Operating Pressure 600°	Minimum Bend Radius	Nominal Weight lbs/ft
0.25"	1.75"	1650 PSI	1608 PSI	10"	0.43
3/8"	1.85"	1171 PSI	1141 PSI	12"	0.50
0.50"	2.10"	839 PSI	817 PSI	14"	0.54
0.75"	2.30"	618 PSI	602 PSI	16"	0.80
1.00"	2.50"	445 PSI	434 PSI	18"	1.10
1.25"	3.00"	414 PSI	404 PSI	20"	1.30
1.50"	3.25"	368 PSI	359 PSI	24"	1.60
2.00"	3.80"	402 PSI	392 PSI	26"	2.00
2.50"	4.30"	294 PSI	294 PSI	30"	2.40
3.00"	4.80"	240 PSI	240 PSI	34"	2.80
4.00"	5.80"	181 PSI	176 PSI	38"	3.30

Model 460 High Pressure to 625°F (329°C)

Tube Size	Finished Diameter	Max. Operating Pressure 400°	Max. Operating Pressure 600°	Minimum Bend Radius	Nominal Weight lbs/ft
0.25"	1.75"	2438 PSI	2375 PSI	10"	0.45
3/8"	1.85"	1873 PSI	1825 PSI	12"	0.52
0.50"	2.10"	1342 PSI	1307 PSI	14"	0.56
0.75"	2.30"	988 PSI	963 PSI	16"	0.82
1.00"	2.50"	713 PSI	695 PSI	18"	1.12
1.25"	3.00"	663 PSI	646 PSI	20"	1.32

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MI Heated Bundles for High Temperature and Extreme Conditions

DEKORON®
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Tubing Bundle Experts Since 1962

Dekoron® Unitherm™ MI Heated tubing bundles are used for the most demanding applications.

These bundles can be designed for operating temperatures up to 400°C (752°F). The Mineral Insulated Heating Cables installed in or supplied with the bundle can be rated for use in hazardous locations.

Standard fibrous glass or high-efficiency aerogel thermal insulations are available depending upon operating temperature. Weather-resistant continuous outer jacket designed for application.

Application:

- Freeze protection in high temperature lines
- Viscosity maintenance
- Maintain solution integrity
- Extreme operating conditions
- Hazardous atmospheres

Sample tube material:

- Welded and Seamless Stainless Steels
 - 316/316L
 - Alloy 825
 - Alloy 600
 - 304/304L
 - 6Mo
 - Specialty Alloys
- Polymers
 - PFA
 - PTFE
 - FEP
 - Custom Resins

Thermal Insulation:

- High efficiency, aerogel thermal insulation.
- Low chloride, non-wicking fibrous glass thermal insulation

Outer jacket materials:

- Lead-free UV Stabilized low temperature flame retardant PVC
- Halogen free UV Stabilized thermoplastic polyurethane
- High temperature UV Stabilized thermoplastic polyolefin

Dekoron® Unitherm™ MI Heated bundles are available in two styles.

The 2253/2263 Series bundles have the Mineral Insulated heater installed alongside the process tube.

This series is available in custom lengths depending upon the application.

The 2C84 Series bundles have an internal conduit that will allow the user to install the Mineral Insulated heating cable after the tubing is installed and secured.

This series is only available in 17ft to 24ft random straight lengths. Connection and splice kits are available.

MI Bundles with integral cable



2253/2263 MI Heated Bundles

4253/4263 MI Heated Bundles with high-efficiency thermal insulation

MI Bundles with heater conduit



2255/2265 Heated Bundles with conduit

4255/4265 Heated Bundles with conduit and high-efficiency thermal insulation

High efficiency aerogel thermal insulation limited to applications with a maximum exposure temperature of 204°C (400°F).

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StackTuff™ Test Umbilical

DEKORON®
Unitherm™
Tubing Bundle Experts Since 1962

Dekoron® Unitherm™ continues its support of the analyzer industry by offering superior heat-traced products designed specifically for portable RATA testing applications.

The Dekoron® Unitherm™ StackTuff™ Test Umbilical is designed to provide long, trouble-free service in portable CEMS testing operations.

The tough, corrugated nylon outer jacket provides superior abrasion protection when installing the umbilical over gravel access roads and concrete cornices. It also prevents kinking in the sample tube when the umbilical is routed over a wall or railing.

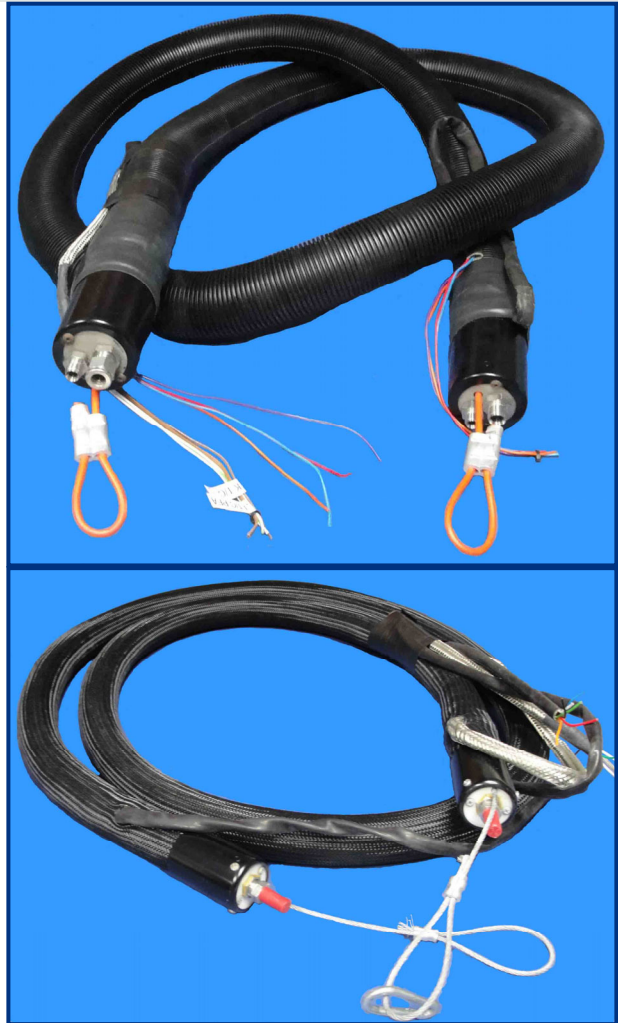
For dry applications there is an optional expanded polyester outer jacket for improved flexibility.

The integral draw cable supports the umbilical in vertical pulls without the need for additional grips or cables.

The RATA-LOC™ end caps allow the operator to change the replicable tube stub ends without twisting the sample tube, even when wearing gloves.

SPECIFICATIONS:

Sample Tubes:	Flexible braided Teflon sample line with replaceable fittings.
Heater:	Heating element designed to allow repeated bending for longer life. Heater output sized to maintain proper sample temperature at ambients to -20°F.
Control Sensors:	Umbilical contains both Type J and Type K control thermocouples.
Insulation/Jacket:	Insulated to keep outer jacket temperature below 140°F during operation. Corrugated outer jacket improves handling and prevents hot spots and kinking due to tight bends. Optional polyester jacket for dry applications.
Probe Cable: (Designed per customer specification. Separate from the StackTuff™ bundle)	Optional control /sensor cable includes components required for sensors and control at the probe.



FEATURES AND BENEFITS:

- Consistent and predictable operation
- Lightweight and flexible
- Continuous lengths to 100ft
- Continuous weather-resistant outer jacket
- Outer jacket designed for easy installation
- Integral draw cable to allow self-supported vertical pulls up to 100 feet
- Flexible braided fluoropolymer sample tube
- Replaceable end fittings
- RATA-LOC™ end caps to eliminate twisting during installation and removal
- Optional modular construction to allow two or more lengths to be joined together for longer runs.

DEKORON®
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StackTuff™ Test Umbilical

DEKORON®
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Typical Model Numbers: *Contact Dekoron Unitherm for full line of products.*

Model Number	Length	Voltage	Sensor	Configuration
STU64-1JK-SS-25	25 FT	120 VAC	(1) TYPE J T/C (1) TYPE K T/C	3/8" & 1/4" OD X 6" Long SSS Replaceable Tubes E/E
STU64-2JK-SS-25M	25 FT	208 VAC	(1) TYPE J T/C (1) TYPE K T/C	3/8" & 1/4" OD X 6" Long SSS Replaceable Tubes E/E, Modular Plug
STU64-2JK-FP-50	50 FT	208 VAC	(1) TYPE J T/C (1) TYPE K T/C	3/8" & 1/4" OD x 12" Long PFA Fluoropolymer tubes E/E
STU64-2JK-SS-100	100 FT	208 VAC	(1) TYPE J T/C (1) TYPE K T/C	3/8" & 1/4" OD X 6" Long SSS Replaceable Tubes E/E

Construction Details

- Compression unions at each end allow stainless steel or PFA Fluoropolymer tubes to be replaced.
- Compression unions are bonded to end cap to allow easier replacement of tube stubs.
- Hoses configured for modular construction will have circular connectors at each end allowing multiple hoses to be powered from on end. The first hose will control temperature for all hoses.

Specifications:

Sample Tube: 3/8" OD x 0.062" wall PFA fluoropolymer tubing with tinned-copper braid.

Calibration Tube: 1/4" OD x 0.047" wall PFA fluoropolymer tubing with tinned-copper braid.

Tube Fittings: Stainless Steel
Compression Unions E/E

Covering: Convolute Nylon jacket.
Optional Flexible expanded polyester jacket

Draw Cable: 1/8" OD Galvanized Steel cable, break strength 2000 lbs

Design Specifications: Umbilical designed to maintain tube temperature of up to 400°F (204°C) at ambients to -20°F (-4°C).

Minimum Bending Radius: 12" at -20°F (-4°C)
7" at +50°F (+10°C)

Maximum Operating Temperature: 400°F (204°C)

Heating Element: Series Resistance Heater
Heater temperature must be controlled.

Heater Power: 17 to 25 W/ft based on bundle length

Heater Control: Type J or Type K thermocouple controller (Supplied by Customer)

Nominal Weight:
25 ft Hose 28 lbs (13 Kg)
50 ft Hose 55 lbs (25 Kg)
100 ft Hose 110 lbs (50 Kg)

Maximum Pulling Tension 125 lbs (275 Kg)

Minimum Ambient Installation Temperature -20°F (-4°C)

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For additional information visit our website:
www.unithermcc.com

UniSeal Cable Entry Seals

DEKORON®/Unitherm™ UniSeals are designed to form a water and fume-tight seal at the juncture of tube bundles/cables and panel houses, connection boxes or other enclosures. The three-piece seal includes a rigid plastic nut, a silicone O-Ring, and an internally threaded nose. The threaded nose is made of rigid and impact resistant material while the seal is made of heat shrinkable, modified polyolefin materials.

UniSeals are designed for bundle entrances into thin walled enclosures up to 3/16" thickness. Seals are designed to work in two areas: at the enclosure (with an O-Ring) and at the bundle sheath (with the heat shrinkable nose end).

Installation:

UniSeals are installed in a simple, five step process:

- 1) Cut a hole in the enclosure
- 2) Install plastic nut
- 3) Slide O-Ring over nut
- 4) Install the bundle
- 5) Heat-shrink sleeve to seal

Part #	Length	Minimum Expanded I.D. Nose	Maximum Recovered I.D. Nose	Nut I.D.	Drill Size
Seal 1.60	4.50"	1.60"	0.75"	1.60"	2.00"
Seal 2.75	7.00"	2.75"	1.43"	2.90"	3.50"



Accessory Products

DEKORON®
Unitherm™
Tubing Bundle Experts Since 1962

Seal-Tite End Boots

Provide the ultimate in protection for your tubing bundles—seal and terminate all exposed bundles ends with our Seal-Tite End Boots. Dekoron® Unitherm™ Seal-Tite End Boots seal out moisture and fumes, providing weather resistant, water tight protection for terminating tube bundles, transitions, breakouts and splices. Seal-Tite End Boots also protect mechanical parts against corrosion and abrasion

Heat-shrinkable and easy to install, Seal-Tite End Boots are made from a thermally stabilized, modified polyolefin, and are available in one to four leg configurations.

Installation

Each kit contains everything necessary for installation. Simply install the washers and end boots according to the enclosed instructions. Shrink-to-fit by using a heat gun. the heat activated, thermoplastic adhesive sealant produces a water-tight seal when used on standard plastic jacketing and leads as well as steel, aluminum, copper, and electrometric insulating materials. Seal-Tite End Boots effectively replace messy tapes, epoxies and encapsulation.

Part Number	Number of Legs	Minimum Leg I.D.	Maximum Bundle O.D.
BOOT-1	1	0.34" 8,6mm	1.75" 44mm
BOOT-2	2	0.17" 4,3mm	1.75" 44mm
BOOT-3	3	0.50" 12,7mm	2.25" 57mm
BOOT-4	4	0.50" 12,7mm	2.38" 60mm



BOOT-1 Kit



BOOT-2 Kit

Dekoron® Unitherm™ Seal-Tite End Boot kits are designed for use on products with a maximum process tube temperature of 750°F (399°C) and maximum bundle diameters as shown in the table.

Kits are available for higher temperatures and bundles with a larger outer diameter. Contact Dekoron Unitherm for details.

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Accessory Products

DEKORON®
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End Sealant

1525-02080

3 oz. Tube

1535-02120

10.3 oz. Cartridge

Providing excellent resistance to weather, ozone, oil, many chemicals and extreme temperatures (-65°F to 450°F), DEKORON®/Unitherm™ End Sealant is a paste which forms a tough, rubbery seal upon exposure to air. Simply the best way to seal DEKORON®/Unitherm™ tubing bundles.

Important Note: All DEKORON®/Unitherm™ steam products are sealed at the factory. These seals must be maintained during storage and the bundle ends sealed upon installation. DEKORON®/Unitherm™ will not assume liability for corrosion or damage to the product caused by failure to maintain seals.

Installation Instructions

1. Cut the end of product square, expose desired length of tube.
2. Push back insulation under jacket to a depth of 1/4".
3. Apply a sufficient amount of End Sealant to fully cover the insulation to a depth of 1/4".

One 3 oz. tube will cover an average of 6 product ends.
One 10.3 oz. cartridge an average of 20 product ends.



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Unitherm™
Tubing Bundle Experts Since 1962

Seal Patch

1540-10000

8" x 8" Individual Self-Sealing Patch

1540-20000

8" x 8' Self-Sealing Patch Roll

Designed for use with DEKORON®/Unitherm™ steam traced and pre-insulated tubing bundles, this self-sealing patch provides a weather-tight seal around traced bundle ends, insulating and protecting exposed tube ends.

Each kit includes patch material made of a self-sealing rubber compound, fibrous glass thermal insulation, and high temperature fiberglass insulating tape that allows for insulating the complete system right up to the final fittings or housing.

Installation Instructions

Splice Connection:

1. Wrap insulation around exposed tubing and fittings and hold in place with fiberglass tape.
2. Cut patch material to extend one (1) inch beyond each side of the exposed, un-insulated area.

3. Remove protective backing from rubberized side of patch.

4. Bend around joint.

5. Overlap and press together.

End Seal Connection:

1. Wrap insulation around tubing and fittings. Where patch material will end, provide four (4) to six (6) layers of fiberglass tape between tube and patch.
2. Cut patch material to desired length, allowing material to extend one (1) inch over the bundle end.
3. Remove protective backing from rubberized side of the patch.
4. Bend around tube and bundle.
5. Overlap and press together.



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1531 Commerce Creek Boulevard • Cape Coral, Florida 33909
Call Toll Free (800) 633-5015 • Telephone (239) 995-8111 • Fax (239) 995-8027
www.unithermcc.com

Accessory Products

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Unicut™ T150 1631-01001

The ideal cutter for pre-insulated and pre-fabricated tubing bundles, the DEKORON®/Unitherm™ Unicut T150 is designed to quickly and easily cut through tubing bundles. The Unicut allows anyone to make clean cuts through high density jacketing materials, slicing through bundle jackets up to 2" O.D., polyethylene through 1 1/2" I.D. and polybutylene and PVC through 1 1/4" I.D.

The Unicut utilizes a specific cutting technique to slice through non-metallic tubing and bundles. The slicing action is achieved by slightly rotating or rocking the handles on the bundle while squeezing lightly. This technique is required only when cutting pre-insulated or pre-traced tubing and plastic pipe. When cutting rubber hose and soft tubing, standard cutting techniques apply.

Features of this cost effective cutter include:

- Replaceable high-carbon, fluoropolymer coated steel blade
- Tough, durable nylon handles
- Blade closes into the handle for safe carrying and handling
- Small, light and easy to carry
- Cuts faster than a ratchet cutter

Each package includes one Unicut™ tool, one extra blade, and detailed instructions for cutting tubing bundles.



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