

PT™ RYNO+® EPDM Insulated Copper Coils

OVERVIEW

PRODUCT

Reftekk has partnered with PTubes to bring the industry an optimized line set product with three standout layers of protection:

- Durable + UV Resistant Insulation Coating
- High-Temperature, Closed-Cell EPDM Insulation
- Composite Sheathing on Copper Tubing

While suitable for a wide variety of uses, PT™ RYNO+® EPDM™ Insulated Copper Coils are the preferred choice for use in the following applications:

- UV exposure (*exterior use*)
- Harsher or humid environments (*southern, coastal, etc.*)
- Hot fluid temperatures (*VRV/VRF systems, etc.*)
- Below-ambient fluid temperatures (*VRV/VRF systems, etc.*)



FEATURES

Continuous 257°F Temperature Rating: Hot gas lines in VRV/VRF systems can operate at temperatures up to 248°F. When EPDM can continuously handle this temperature, why risk insulation degradation/failure with products that can only handle these temperatures intermittently?

Closed-Cell Elastomeric Insulation - The Only Choice for Below-Ambient Fluid Temperatures: In the event the outer jacket gets damaged, the EPDM's closed-cell elastomeric structure will act as a barrier to prevent water from intruding and spreading throughout/underneath the insulation. Conversely, open-cell or fiberglass insulations would allow water intrusion, leading to insulation failure and other serious issues.

Top-Tier Corrosion Resistance: Insulation should always be installed to prevent moisture intrusion under the insulation. Should moisture intrusion occur, some insulation materials will leach corrosion-causing chemicals whereas EPDM does not. Additionally, the surrounding environment could contain corrosion-causing chemicals that could intrude with the moisture simultaneously. RYNO+® incorporates a composite sheathing on the copper tubing to prevent direct contact with potential corrosion-causing chemicals.

Kink Resistant: State of the art machinery assures precision tubes for fewer kinks, better flares, and higher quality brazes.

Built-In UV Resistance: The outer jacket provides enhanced protection in direct sunlight applications. Additionally, if the underlying insulation were to get exposed, the EPDM rubber has inherent UV resistant properties.

Enhanced Durability and Protection: Proprietary elastomeric insulation is coated with a protective outer jacket to reduce damage before, during, and after installation. There is no need for additional jacketing for outdoor environments, unless required by code.

Suitable for Modern Refrigerants:

- R410A
- A2L such as R-32 and R-454B
- Sub-critical CO2
- And others

Domestically Manufactured: RYNO+® EPDM products are proudly manufactured in the USA.

Manageable Lead Times: Most orders can be expected to ship in four weeks, many of which ship in a matter of days.

Warranty:

- RYNO+® Insulation and jacket: 5 years limited warranty
- Copper Tube: 10 years limited warranty

Total Qty		Product #	Tube OD	Length (Feet)	Insulation Thickness
Each	Feet				
		D152B_U28_050C_11521	1/4"	50	3/4"
		D152B_U38_050C_11522	3/8"		
		D152B_U48_050C_11523	1/2"		
		D152B_U58_050C_11524	5/8"		
		D152B_U68_050C_11525	3/4"		
		D152B_U78_050C_11526	7/8"		
		D152B_U98_050C_11527	1 1/8"		
		D154B_U28_164C_11541	1/4"	164	
		D154B_U38_164C_11542	3/8"		
		D154B_U48_164C_11543	1/2"		
		D154B_U58_164C_11544	5/8"		
		D154B_U68_082C_11545	3/4"	82	
		D154B_U78_082C_11546	7/8"		
		D154B_U98_082C_11547	1 1/8"		

Total Qty		Product #	Tube OD	Length (Feet)	Insulation Thickness
Each	Feet				
		D180B_U28_050D_11801	1/4"	50	1"
		D180B_U38_050D_11802	3/8"		
		D180B_U48_050D_11803	1/2"		
		D180B_U58_050D_11804	5/8"		
		D180B_U68_050D_11805	3/4"		
		D180B_U78_050D_11806	7/8"		
		D180B_U98_050D_11807	1 1/8"		
		D182B_U28_164D_11821	1/4"	164	
		D182B_U38_164D_11822	3/8"		
		D182B_U48_164D_11823	1/2"		
		D182B_U58_164D_11824	5/8"		
		D182B_U68_082D_11825	3/4"	82	
		D182B_U78_082D_11826	7/8"		
		D182B_U98_082D_11827	1 1/8"		

NOTE: Quantities are estimates only. Contractor is responsible for quantities required on project.

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SPECIFICATIONS

Reftekk does not independently verify information provided by its vendors and makes no representation to the accuracy or completeness of information

GENERAL

Manufactured in USA: Ask for the BABA Act Compliance certification

Available Lengths: 1/4" thru 5/8" tubing: **50 ft & 164 ft** | 3/4" thru 1-1/8" tubing: **50 ft & 82 ft**

Suitable for the following uses:

- Up to 700 psi working pressure
- Hot fluid temperatures up to 257°F (125°C), continuous
- Below-ambient fluid temperatures down to -297°F
- Exterior Use
- VRV/VRF, Split Systems, Mini-Splits, and others
- All CFC, HCFC, HFC, HFO, and Class A2L refrigerants and refrigeration oils, including R410A, R-32, R-454B, synthetic refrigerant, and others
- Sub-critical R744 (CO2) with proper design pressure considerations
- **NOT suitable for use with ammonia (R 717) or Methyl Chloride (R40) refrigerants**

COPPER TUBING

Material: UNS C12200 DHP (Deoxidized High Phosphorus) Seamless Copper, manufactured without scraps

Property	Details / Test Result	Mfg. Standard / Test Method
Copper Content	≥ 99.9% pure copper	ASTM B75
Temper	O60 (Soft Anneal)	ASTM B1003-16, ASME B31.5
Tensile Strength	≥ 30 ksi (207 MPa)	
Elongation in 2 inches	≥ 40%	ASTM B1003-16
Dimensions and Tolerances	Per standard	
Cleanliness	Cleaned to the highest standards	ASTM B280
Incised Markings	Per standard	
Pressure Rating	700 psi @ 250°F	UL 207

Max Allowable Working Pressure (psi)				
Tube OD	Fluid Temperature			
	100°F	150°F	200°F	250°F
1/4"	1,030	1,094	1,051	1,030
3/8"	700	700	700	700
1/2"	700	700	700	700
5/8"	700	700	700	700
3/4"	700	700	700	700
7/8"	700	700	700	700
1-1/8"	700	700	700	700

INSULATION

Material: Closed-cell EPDM (Ethylene Propylene Diene Monomer)-based rubber elastomeric foam pipe insulation, coated with a protective outer jacket

Standard Specification: ASTM C534, Type I (tubular), Grade 1

Available Thicknesses: 3/4" and 1"

Color: Black

Property	Details / Test Result	Mfg. Standard / Test Method
Service Temperature Range, CONTINUOUS	-297°F to 257°F (-183°C to 125°C)	ASTM C534
Max Service Temperature, Intermittent	300°F (150°C) for up to 30 minutes (within a 24-hour period)	-
UV Resistance	no changes to surface	ASTM G153
	5,000 hours	ASTM G154
Water Vapor Permeability, Max	≤ 0.01 perm-inch	ASTM E96-00
Thermal Conductivity	0.24 BTU in/sq.ft.°F h at 75°F (0.038 W/mk at 40°C)	ASTM C117 or ASTM C518
Surface Burning/Flammability (through 2" thick)	Pass	UL94, 5V-A, V-0, HF-1
	25/50	ASTM E84, UL723, CAN/ULC-S102
Average Bulk Density	approximately 3 lbs/ft³	-

R-Values ^a		
Tube OD	Insulation Thickness	
	3/4"	1"
1/4"	6.4	9.6
3/8"	5.9	8.5
1/2"	5.6	7.9
5/8"	5.6	7.5
3/4"	5.5	7.5
7/8"	5.4	7.2
1-1/8"	5.4	7.1

a) 75°F (24°C) mean temperature

⚠ IMPORTANT

1) **Liability for the following decisions belongs solely to the project's Designer, Specifier, Engineer, Contractor, Purchaser, and/or Commissioning Agent:**

- Suitability of the product for the intended application and pressure requirements
- Proper insulation thickness(es) to 1) **avoid condensation**, 2) meet code requirements, and 3) meet manufacturers' installation instructions
- **Compliance with 1) national and local building codes, 2) energy codes, and 3) manufacturers' installation instructions**
- Covering the installed product for protection, concealment, and/or other reasons

2) The jacketed insulation is designed to withstand and be protected from external elements. The applicable version of International/ Energy Conservation Code likely requires, not just recommends, protection for piping exposed to the outdoors.

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IMPORTANT INSTALLATION NOTES

GENERAL

- 1) Refer to AEROFLEX's website (<https://www.aeroflexusa.com/>) for additional information.
- 2) Refer to Reftekk's website (<http://www.reftekk.com>) for additional information.
- 3) Install insulation with the mindset to **KEEP THE PIPE DRY**.
- 4) Install in straight lines and avoid creating traps due to sagging tubing.
- 5) Install carefully and avoid tearing or deforming the insulation during installation.
- 6) **Do NOT allow the insulation to be deformed by unistrut, wire, straps, or wire ties.**

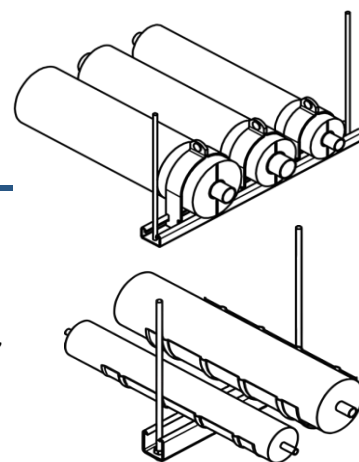
General Insulation
Installation Guidelines:



SELECTING INSULATION THICKNESS(ES)

For each tube size and corresponding fluid temperature (varies by line type: liquid, suction, hot gas, etc.), insulation thickness(es), at minimum, must be chosen as the thickest requirement from each of the following criteria:

- 1) Equipment manufacturers' installation instructions
- 2) Code requirements (specifically city/county/state/federal adopted energy codes, such as IECC, T24 and/or ASHRAE 90.1)
- 3) Condensation prevention, affected by the fluid temperature and humidity. For humidity, consider the following:
 - Geographic location of project
 - Installed location within project (saunas, pools, locker rooms, kitchens, shafts with minimal airflow, etc.)
- 4) Engineering specifications



SUPPORT

- 1) At a minimum, support the piping at the spacing intervals as required by relevant codes and/or project specifications.
- 2) Support with Cush-A-Therm insulated pipe supports.
 - If Cush-A-Therm supports are not possible and saddle supports are used instead, the insulation will compress at these locations, and condensation may occur if the compressed insulation thickness is less than what is required to prevent condensation. A good "rule of thumb" is to assume the insulation will compress 50% over time. Therefore, if using saddle supports, the installed insulation thickness(es) should be at least twice the minimum thickness than what is required to prevent condensation.
 - **Do NOT use saddle supports vertically or outdoors.**

BRAZING / CONNECTING

The composite sheathing on the copper tubing must be slit and cut back from the tube ends prior to joining with other tubing or equipment:

- 1) **Brazing:** cut back the sheathing approximately 6 inches and ensure a **wet rag is wrapped around the copper tubing** and located between the sheathing and joint to be brazed.
 - **Do NOT apply heat directly to the composite sheathing or insulation, and do NOT apply heat without using a wet rag.**
- 2) **Flares and Mechanical Couplings:** cut back the sheathing an appropriate distance to avoid interference with the hardware/joint.

Important: Ensure all joints are properly insulated. Separate insulation jackets may be required to ensure the insulation is not compressed or deformed.

SEALING

- 1) **KEEP THE PIPING SYSTEM DRY**
- 2) Repair any tears in the insulation with Aeroseal® contact cement and cover with Aeroflex Protape®.
- 3) All seams & joints **must** be sealed w/ Aeroseal® contact cement and taped with Aeroflex Protape®.
 - All seams and joints **must** be water and vapor tight.
- 4) Use **ELECTRONIC GRADE** silicone sealant between the insulation and the copper at all terminations (valves, equipment, etc.).
 - Insulation ends **must** be water/vapor sealed to increase protection against intrusion of any rain, moisture, chemicals, and/or contaminants.
 - **ONLY use electronic grade silicone sealant.**

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