

VRF/VRV Pipe Insulation Considerations

VRF (variable refrigerant flow) and VRV (variable refrigerant volume) systems (VRF/VRV), also known as ductless or mini-split systems, are an innovative alternative to traditional HVAC systems that deliver thermal comfort to individual occupant spaces without ductwork. System benefits include increased energy efficiency, simultaneous heating and cooling, space conservation, design flexibility, and individual user controls.

Since these systems significantly reduce or eliminate ductwork, VRF/VRV piping tends to be very long and is most often routed through building spaces, some of which are difficult to access after installation. Keeping this in mind during the design stage is critical.

VRF/VRV pipe insulation system design is straightforward. Essentially, an outdoor condenser unit controls the amount of refrigerant flowing to individual interior evaporating units that heat or cool a building space. VRF/VRV systems utilize a 2 or 3-pipe system (liquid line, hot gas line, and suction line) all of which must be insulated to maximize their thermal performance.

Since VRF/VRV systems are designed to operate at service temperatures from below 32°F [0°C] to +248°F [120°C], most system manufacturers require a *continuous* service temperature of pipe insulation rated for at least +248°F [120°C].

AEROFLEX EPDM™ closed cell elastomeric pipe insulation is a proven choice for VRF/VRV pipe insulation systems by delivering reliable long-term performance while meeting critical compliance requirements:

- Nonpolar: EPDM is hydrophobic (repels moisture)
- Closed-cell structure with built-in vapor retarder that effectively controls condensation
- Upper continuous service temperature of +257°F [125°C]
- Protection against pipe corrosion (noncorrosive) for favorable life cycle costs
- Natural mold resistance, which means longer-lasting materials and reduced health risks to building occupants
- Naturally UV-resistant (condensers & rooftops) for enhanced durability and longevity
- Available in pipe sizes as small as ¼" and wall thicknesses up to 2" thick
- Protape® EPDM zero-perm seam tape seals and protects glued seams from vapor drive
- Passes ASTM E84, UL 723, CAN/ULC-S102 25/50 flame/smoke indexes meets code requirements
- Meets national (ASHRAE 90.1, IECC®, IgCC®) and state energy codes (CA Title 24)
- Established distribution network throughout the United States and Canada
- Made in the USA with global materials

To learn more about AEROFLEX EPDM VRF/VRV pipe insulation, visit <https://aeroflexusa.com/product/aeroflex-self-seal/>.

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