



CSI: DIVISION: 23 00 00—HEATING, VENTILATING AND AIR CONDITIONING (HVAC)
Section: 23 20 00—HVAC Piping

Product certification system:

The ICC-ES product certification system includes testing samples taken from the market or supplier's stock, or a combination of both, to verify compliance with applicable codes and standards. The system also involves factory inspections, and assessment and surveillance of the supplier's quality system.

Products: PERT-AL-PERT Type II Pipe and Fittings for Refrigeration

Listee: Sfera Comercial e Importadora Ltda – Emmeti Brasil
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<https://emmeti.com.br/>

Compliance with the following codes:

2024, 2021, 2018, 2015, 2012, 2009 and 2006 *International Mechanical Code*® (IMC)
2024, 2021, 2018, 2015, 2012, 2009 and 2006 *International Residential Code*® (IRC)
2024, 2021, 2018, 2015, 2012, 2009 and 2006 *Uniform Mechanical Code*® (UMC)*
2022, 2019, 2016 and 2013 *California Mechanical Code*® (CMC)*
2020 and 2015 *Minnesota Mechanical and Fuel Gas Code*®
2023, 2020 and 2017 *Florida Mechanical Code*®

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Compliance with the following standards:

ASTM F3346-2024, Specification for Polyethylene of Raised Temperature/Aluminum/Polyethylene of Raised Temperature (PE-RT/AL/PE-RT) Composite Pressure Pipe

Identification:

Pipe: The PERT-AL-PERT pipe shall be marked every 1.5 meter (5 feet) with the following: manufacturer's name, nominal pipe size, material designation (PE-RT/AL/PE-RT), temperature and pressure ratings, production code, "ASTM F3346", and the ICC-ES mark of conformity.

Fittings: fittings shall be marked with manufacturer's name or trademark, and the ICC-ES mark of conformity. Packaging shall be labelled with manufacturer; s name or trademark, connector size, and the ICC-ES mark of conformity.

Installation:

The SFERA AIRPERT - PERT-AL-PERT Type II pipe and fittings must be installed in accordance with the manufacturer's published installation instructions, the applicable codes and this listing.

Mechanical joints shall not be used on annealed temper copper tube in sizes larger than 7/8-inch (25 mm) OD size per IMC and 3/4" of an inch nominal size per UMC.

Note: The 2024, 2021 and 2018 IMC, IRC and UMC permit for press-connect joints listed for refrigeration piping.

SFERA AIRPERT - PERT-AL-PERT Type II piping and fittings used in refrigeration applications shall have a temperature range of - 40 to 203°F (- 40 to 95°C) and a maximum working pressure of 580 Psi (40 Bar). Pipe and fittings have been evaluated for use with the following refrigerants: R-11, R-12, R22, R32, R134a, R290, R404a, R407a, R407c, R410A, R454B, R507, R513A.

Models:

Pipe:

The SFERA AIRPERT - PERT-AL-PERT pipe is manufactured from polyethylene and aluminum materials satisfying ASTM F3346. The pipe is available in a nominally outside diameter (ASTM B-280) of 1/4, 3/8, 1/2, 5/8, 3/4, and 7/8 inch (12, 14, 16, 18, 20, 25 mm) and in coils.

Fittings:

Name	Specification
AC Socket Weld Compression Straight	S1/4FLM*1/4CuF
	S3/8FLM*3/8CuF
	S1/2FLM*1/2CuF
	S5/8FLM*5/8CuF
	S3/4FLM*3/4CuF
AC Compression Equal Straight	S12
	S14
	S16
	S18
	S20
	S25
AC Compression Expanded Female Straight	S12*1/4FLF
	S14*3/8FLF
	S16*1/2FLF
	S18*5/8FLF
	S20*3/4FLF
	S25*7/8FLF
AC Press Equal Straight	S12
	S14
	S16
	S18
	S20
	S25
AC Press Expanded Female Straight	S12-3 16FLF
	S14*1/4FLF
	S16*3/8FLF
	S18*1/2FLF
	S20*5/8FLF
	S25-3 4FLF
compression male-welding straight	1/4x7/16(20UNF)

	3/8x5/8(18UNF)
	1/2x3/4(16UNF)
	5/8x7/8(14UNF)
	3/4x1 1/16(14UNF)
	7/8x1 1/4(12UNF)
compression male-male straight	(1/4)x7/16(20UNF)x7/16(20UNF)
	(3/8)x5/8(18UNF)x5/8(18UNF)
	(1/2)x3/4(16UNF)x3/4(16UNF)
	(5/8)x7/8(14UNF)x7/8(14UNF)
	(3/4)x1 1/16(14UNF)x1 1/16(14UNF)
AC press female union straight	HS12x7/16(20UNF)
	HS14x5/8(18UNF)
	HS16x3/4(16UNF)
	HS18x7/8(14UNF)
	HS20x1 1/16(14UNF)
	HS25x1 1/4(12UNF)

Conditions of Listing:

1. The pipe must be used with only the following refrigerants: R-11, R-12, R22, R32, R134a, R290, R404a, R407a, R407c, R410A, R454B, R507, R513A.
2. R290 refrigerant shall not be used except where approved by authority having jurisdiction. The total of R290 refrigerant shall not exceed 1,100 lbs (499 Kg) except where approved.
3. Mechanical joints shall not be used on annealed temper copper tube in sizes larger than 7/8-inch (25 mm) OD size per IMC and 3/4" of an inch nominal size per UMC.
Note: The 2024, 2021 and 2018 IMC, IRC and UMC permit for press-connect joints listed for refrigeration piping.
4. The pipe installation must be pressure-tested for leaks in the presence of the code official or the code official's designated representative. Refrigeration system shall include safety device to limit pressure to 580 psi.
5. When installation is in fire-resistance-rated assemblies, evidence must be provided to the code official of compliance with *International Building Code*[®] (IBC) Section 713 (penetrations). *Uniform Building Code* (UBC) Section 709 (walls and partitions) or UBC Section 710 (floor/ceiling or roof/ceiling), as applicable.
6. The pipe must not be used as a source of electrical ground.
7. Pipe bends must be installed in accordance with the manufacturer's published installation instructions.
8. When the system is embedded in concrete, pipe must be covered with a minimum of 3/4 inches (19.1 mm) of concrete and installation must comply with IBC Section 1906.3 or UBC Section 1906.3, as applicable.
9. The pipe is manufactured under a quality control program with surveillance inspections by ICC-ES.