

ICC-ES Evaluation Report

ESR-1268

Reissued December 1, 2008

This report is subject to re-examination in two years.www.icc-es.org | (800) 423-6587 | (562) 699-0543

A Subsidiary of the International Code Council®

DIVISION: 15—MECHANICAL
Section: 15890—Ductwork**REPORT HOLDER:****ATCO RUBBER PRODUCTS, INC.**
7101 ATCO DRIVE
FORT WORTH, TEXAS 76118
www.atcoflex.com
rkoerber@atcoflex.com**EVALUATION SUBJECT:****ATCO, ACME-FLEX, OMNI-AIRE, FLEX-AIRE, AND
VALUFLEX FLEXIBLE AIR DUCTS AND CONNECTORS****1.0 EVALUATION SCOPE****Compliance with the following codes:**

- 2006 *International Mechanical Code*® (IMC)
- 2006 *International Residential Code*® (IRC)
- 2006 *IAPMO Uniform Mechanical Code* (UMC)

Property evaluated:

Classification according to UL 181

2.0 USES

The ATCO flexible ducts described in this report are used as Class 0 and Class 1 air ducts and Class 1 air connectors in low-, medium-, or high-pressure air distribution systems.

3.0 DESCRIPTION**3.1 General:**

The ATCO Rubber Products (ARP) air ducts and air connectors are classified by ARP type and model numbers. ARP air ducts and air connectors have a circular cross section, are flexible and are supplied in various lengths and diameters. See Table 1. Sections 3.2 through 3.8 describe the seven ARP types.

3.2 ARP Product Type I:

ARP Product Type I is a Class 1 air duct manufactured from one of the following materials: polyester, chlorinated polyethylene (CPE) or polyester and foil liner. One of these materials encases a steel helix and is covered with a glass fiber insulation with or without a layer of fiberglass scrim. The duct is then sheathed with a tubular vapor barrier of either polyethylene or polyester film laminate with or without glass fiber reinforcement. The duct is available in multiple lengths with or without metal collars installed on each end.

3.3 ARP Product Type II:

ARP Product Type II is a Class 1 air connector consisting of a polyester and foil core capturing a steel helix in multiple lengths. ARP Type II is non-insulated.

3.4 ARP Product Type III:

ARP Product Type III is a Class 1 air connector consisting of a polyester liner capturing a steel helix covered with a fiberglass insulation and sheathed with a tubular vapor barrier of either polyethylene or polyester film laminate. ARP Type III is available with or without metal collars installed on each end.

3.5 ARP Product Type IV:

ARP Product Type IV is a Class 1 air duct and is the same as ARP Product Type I except that it has a tubular, black polyethylene vapor barrier for outdoor applications. ARP Type IV is available with or without metal collars on each end.

3.6 ARP Product Type V:

ARP Product Type V is a Class 1 air duct and is the same as ARP Product Type I except that the vapor barrier is metalized. ARP Type V is available with or without metal collars on each end.

3.7 ARP Product Type VI:

ARP Product Type VI is a Class 0 air duct made of corrugated aluminum. ARP Type VI is noninsulated and is available with or without metal collars on each end.

3.8 ARP Product Type VII:

ARP Product Type VII is a Class 1 air duct and is the same as ARP Product Types I and V except that the core is corrugated aluminum.

4.0 INSTALLATION**4.1 General:**

Installation must be in accordance with this report, the manufacturer's published installation instructions and the applicable code. Copies of the installation instructions must be available at all times on the jobsite during installation.

4.2 Duct Sizing:

Ducts must be sized in accordance with IMC Section 603, IRC Section M1601.1 or UMC Section 601.2.

4.3 Air Duct Materials:

ARP Types I, IV, V, VI, and VII air ducts are not limited in length except by parameters of design in accordance with Sections 4.2 and 4.3 of this report.

4.4 Supports:

All ARP types must be supported in accordance with the manufacturer's published installation instructions.

4.5 Areas Enforcing the UMC:

- a. Factory-made air ducts must not be used for vertical risers serving more than two stories.
- b. Factory-made air connectors are prohibited.
- c. Factory-made air ducts must be installed with a minimum of 4 inches of clearance to earth unless installed as a liner inside concrete, tile or metal pipe and protected from physical damage.

5.0 CONDITIONS OF USE

The ATCO Rubber Product Air Ducts and Air Connectors described in this report comply with, or are suitable alternatives to what is specified in, those codes listed in Section 1.0 of this report, subject to the following conditions:

- 5.1 Air ducts and air connectors must be joined and installed in accordance with the manufacturer’s published installation instructions.
- 5.2 Maximum air temperature must be 250°F (121°C) and minimum air temperature must be 0°F (-17°C).
- 5.3 The maximum air velocity for all ARP types is 5000 feet per minute (25.4 m/s). ARP Types I, II, III, IV and V must not be subject to pressures outside the range of negative 0.75 to positive 10 inch w.g. (negative 186.75 Pa to positive 2490 Pa). ARP Types VI and VII must not be subject to pressures outside the range of negative 12 to positive 12 inch w.g. (negative 2988 Pa to positive 2988 Pa) for sizes 3 to 10 inches (76.2 to 254 mm) nor outside the range of negative 8 to positive 8 inch w.g. (negative 1992 Pa to positive 1992 Pa) for sizes 12 to 24 inches (304.8 to 609.6 mm).
- 5.4 The flexible air connectors (ARP Type II and ARP Type III) must not pass through walls or floors of buildings and must not exceed 14 feet (4267 mm) in length.
- 5.5 Air ducts and air connectors must be installed with a minimum clearance to an appliance as specified for the labeled equipment.

- 5.6 For structures in flood hazard areas, all ARP type ducts must be installed above the design flood elevation.
- 5.7 Ducts must not be installed in the earth or within 4 inches (101.6 mm) of the earth.
- 5.8 In jurisdictions using the UMC, the installation must also conform to Section 4.5 of this report.
- 5.9 Insulation must be provided in accordance with the applicable code.
- 5.10 The products are manufactured by ATCO Rubber Products in Fort Worth, Texas; Baltimore, Maryland; Cartersville, Georgia; Greensboro, North Carolina; Houston, Texas; Indianapolis, Indiana; Vineland, New Jersey; Glendale, Arizona; Plant City, Florida; Riverside, California; Sacramento, California; Springdale, Arkansas; Wiggins, Mississippi, Plainville, Georgia; and Albuquerque, New Mexico, under a quality control program with inspections by Underwriters Laboratories Inc. (AA-668).

6.0 EVIDENCE SUBMITTED

- 6.1 Data in accordance with UL 181-96, Factory Made Air Ducts and Air Connectors.
- 6.2 Manufacturer’s descriptive literature.
- 6.3 A quality control manual.

7.0 IDENTIFICATION

Each length of air duct and air connector must bear a label with the following information: classification (Class 0 or 1 air duct or Class 0 or 1 air connector), maximum air velocity, maximum positive and negative air pressures, reference to the manufacturer’s installation instructions, and the name of the inspection agency (Underwriters Laboratories Inc.). Each packaging carton of air ducts or air connectors must be labeled with the manufacturer’s name (ATCO Rubber Products, Inc.) and the evaluation report number (ESR-1268).

TABLE 1—ATCO RUBBER PRODUCTS (ARP) AIR DUCTS AND AIR CONNECTORS

ARP TYPE ¹	UL 181 DESIGNATION	LENGTH BOX	DIAMETERS	ATCO/FLEX-AIRE/ VALUFLEX	ACME-FLEX	OMNI-AIRE
I	Class 1 air duct	25' 3	3", 4", 5", 6", 7", 8", 9", 10", 12", 14", 16", 18", 20"	UPC # 070, 076, 077, 079, 080, 086, 087, 088	M2500, M0700	1000, 1100, 9700
II	Class 1 air connector	25'	3", 4", 5", 6", 7", 8", 9", 10", 12", 14", 16", 18", 20", 22"	UPC # 050	U2500	1300
III	Class 1 air connector	25'	3", 4", 5", 6", 7", 8", 9", 10", 12", 14", 16", 18", 20", 22"	UPC # 060	C2500, C0700	1400
IV	Class 1 air duct	25'	6", 8", 10", 12", 14"	UPC # 040, 046, 048	H2500	—
V	Class 1 air duct	25'	3" ² , 4", 5", 6", 7", 8", 9", 10", 12", 14", 16", 18", 20", 22"	UPC # 030, 031, 036, 037, 039	R2500	1200, 3700
VI	Class 0 air duct	8'	6", 7", 8", 9", 10", 12", 14", 16", 18"	UPC # 017, 019	—	1700, 1900
VII	Class 1 air duct	8'	6", 7", 8", 9", 10", 12", 14", 16", 18"	UPC # 018	—	1800

¹See Sections 3.2 through 3.8 for descriptions of materials composing each ARP type.

²UPC #030 is also available in a 3-inch diameter.

³UPC #080 is available in 25- and 50-foot lengths. UPC #086 is available in 7- and 25-foot lengths.