



## Frequently Asked Technical Questions

How are ATCO's pressure ratings determined?

ATCO's UL Listed pressure ratings are determined by testing duct in straight lengths, at ambient temperatures. Testing is done in a static condition (no airflow). The test sample is sealed airtight on both ends and pressurized to 2 ½ times the manufacturer's desired rated pressure for a test period of one hour. A minimum of 1 ¼" of positive pressure must be achieved in order to pass the test.

ATCO performs some additional tests in accordance with the Air Diffusion Council, FD 72-R1 Flexible Duct Test Code. The purpose of these tests is to simulate a variety of realistic conditions, which may exist in actual installations. The ADC tests include a 90 degree bend, heated air at continuous and intermittent temperatures, for a test period of 168 hours. The resulting "Recommended Operating Pressures" are intended to give the contractor and/or engineer a responsible guideline within which to design the duct system.

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What are ATCO's pressure ratings?

These are ratings for our standard products:

Rated Positive Pressure:

*10" w.g. per UL 181*

Recommended Operating Pressures:

*6" w.g. pos., 4"-12" dia., 4" w.g. pos., 14"-20" dia.; ¾" neg., all dia.*

Velocity:

*5,000 FPM*

Flame Spread/ Smoke Developed:

*25 max/ 50 max*

Standard Lengths:

*25'*

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What is the thickness of ATCO's insulation?

ATCO provides insulated flex duct with three different R-Values (4.2, 6.0, and 8.0). The thickness of each is:

R-4.2 = 1 ¼" C-Value of Approx: 0.238

R-6.0 = 2" C-Value of Approx: 0.167

R-8.0 = 2 ½" C-Value of Approx: 0.125

All fiberglass insulation is supplied by Owens Corning.

In an attempt to standardize, the flexible duct industry no longer states insulation values in thickness and density. The Air Diffusion Council, an industry organization of manufacturers, certifies R-Values based on insulation only, at installed wall thickness, based on ASTM C-518. Underwriters Laboratories classifies these tested R-Values based on plant inspections. These two third party verifications provide an accurate and reliable method of assuring that you are getting the thermal performance that you require.

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Can Flexible Duct be exposed to ultraviolet light sources or sunlight?

No, flexible duct must be protected from the weather, including sunlight. In the late 1980's, manufacturers of insulated flexible duct discovered that the products with gray polyester jackets could fail when exposed to direct or indirect sunlight. The ultraviolet rays in the sunlight would break the chemical bonds in the gray polyester jackets causing them to disintegrate over a period of several years. To alleviate the problem, manufactures began using black polyester jackets and metallized polyester jackets. The carbon black used to color the black polyester jackets has an inherent resistance to ultraviolet light as so is the metallized polyester. Since the change, the problem has been eliminated. However, most manufacturers still require that insulated flexible duct of any type not be installed in areas with direct or indirect sunlight. We are confident of the quality of our flexible duct products.

If you have a duct that will be exposed to Ultraviolet light from the use of a Bio-treatment lamp or UV lamp, we suggest you use our Ultra-Flex Duct Kit. It is specifically designed to be used where UV light from a Bio-treatment lamp is emitted onto the core of a non-metallic flexible duct.

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Does ATCO have an "acoustical duct"?

ATCO does not have a duct specially designed to reduce noise within the duct system. However, ATCO does have independent test data on the acoustical properties of our standard products. The data shows Net Insertion Loss on 10' lengths of different diameters of ATCO duct, as compared to sheet metal duct. Tests were done on straight lengths, and duct with a 90 degree bend, with and without airflow, and are recorded at a variety of octave bands.

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Does ATCO have a plenum rated duct?

There is no "plenum rated flexible duct" to the best of our knowledge. As far as we know, UL 181 Class 1 Air Duct listing will satisfy the requirements for a plenum rated ceiling. As always, local jurisdictions have final say.

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How does duct condensation or “sweating” occur?

Condensation or “sweating” is a complex problem that is primarily seen in high humidity areas. There are a large number of factors that can lead to condensation. Condensation occurs on any surface that is colder than the dew point temperature of the air surrounding it. In air ducts it is most common to see this on the outer vapor barrier of the duct. However, it can also be on the inner core in flexible ducts, or the sheet metal of a sheet metal system. We also see condensation at the fittings or plenums. Any place where the temperature of a surface is colder than the dew point temperature of the surrounding air you will have condensation.

To prevent sweating it is necessary to either raise the temperature of the sweating surface, or lower the dew point temperature of the air. It is only possible to lower the dew point temperature by decreasing the amount of moisture in the air (dehumidify) or by bringing in (mixing) drier air from the outside or inside. It is usually easiest to increase the temperature of the sweating surface by adding insulation.

When it is necessary to route an insulated duct through a truss/joist support, care should be taken to prevent tearing of the vapor barrier and insulation as this will allow moisture into the duct wall and reduce the thermal performance..

Localized compression of the fiberglass should have minimal, negative effect on the total, thermal losses of the duct. However, when the installation is in a critical condensation zone, localized compression could result in localized sweating.

The A/C contractor or designer should consider this information in view of total design performance.

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Has ATCO's products been tested for mold growth and humidity?

All UL 181 Air Ducts and Connectors have been tested by Underwriters Laboratories, Inc. for mold growth and humidity, and are considered by the manufacturer as acceptable for use in conjunction with evaporative coolers. Please refer to section 3 Testing, Listing, Reporting and Certifying of the ADC Flexible Duct Performance & Installation Standards (Greenbook) [www.flexibleduct.org](http://www.flexibleduct.org) for further information.

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What is the difference between Air Ducts and Air Connectors?

UL (Underwriters Laboratories), in their 181 Standard for Factory-Made Air Ducts and Air Connectors, defines two categories of flexible "ducts".

The UL Listed Air Duct must pass all of the tests in the UL 181 Standard. Air Ducts are labeled with a square or rectangular shaped label showing their respective listing. There is no limitation on the length of runs when using UL Listed Air Ducts.

The UL Listed Air Connector must pass only a limited number of the UL 181 tests, and is labeled with a round shaped label, which states "for installation in lengths not over 14 feet".

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Can ATCO's UL 181 Class I Air Connector UPC #050 be used for dryer venting?

No, it is not approved by UL for dryer venting. We do *NOT* have a product that is a UL approved Dryer Venting product.

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What materials are required/allowed to be used when hanging or supporting flexible duct?

When hanging or supporting flexible duct, there are a number of different materials which are used regionally. ATCO doesn't specify a particular material in our Installation Instructions, however ATCO and the Air Diffusion Council do make the following statement: "Hanger or saddle material in contact with the flexible duct shall be of sufficient width to prevent any restriction of the internal diameter of the duct when the weight of the supported section rests on the hanger or saddle material. In no case will the material contacting the flexible duct be less than 1 1/2" (38 mm) wide". As in all cases, local jurisdiction has final say in these matters.

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Can screws be used to fasten flexible duct core?

ATCO Rubber Products does not recommend screws be used to fasten the polyester core of the air ducts because they weaken the polyester. Polyester is a very strong material as long as there are no holes or tears in it. As soon as a tear or hole is introduced, its strength drops. To maintain our UL approval status, our air ducts must pass a tension test (25 pounds hanging from one end of the duct), a torsion test (one end rotated 180° or to 25 foot-pounds whichever comes first) and then a leakage test. In all of these tests, both ends must be connected to collars per our installation instructions. Flexible duct connected with screws would not pass these tests.

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