

Many questions arise regarding the difference between a flexible duct that is pressure rated per the Air Diffusion Council (ADC) and a duct that is pressure rated per UL 181 (or in a few cases competitors using both methods). It can be confusing when comparing various manufacturer's rated or recommended maximum positive operating pressures. The explanations below are an attempt to remove the confusion and discuss the procedures and applications of the two testing methods.

The UL 181 pressure test requires flexible ducting to be pressurized to 2 ½ times the manufacturer's maximum rated positive pressure. The duct is tested in a straight section with no bends or elbows. The air temperature is not specified in the test, and is therefore tested at room temperature. The duct is to maintain the air pressure for a period of 1 hour.

What this means - The UL 181 pressure test ensures that a flexible duct installed in a straight configuration with the heating system off will not burst when subjected to published operating pressures during a short period of time.

The ADC pressure test (ADC FD 72-R1) requires flexible ducting to be installed on a testing machine in a 90° bend (elbow). A 90 degree bend creates the most stress on a duct. Hot air is then run through the duct at 140 F degrees for 164 hours and 180 F for a minimum of 4-hours at the manufacturer's maximum rated positive pressure.

What this means - The ADC pressure test was designed to represent real installations and operating conditions as seen in typical HVAC applications. As the ADC pressure test is more stringent & demanding JPL's published maximum operating pressures and temperatures maybe lower than those found on those companies that only test using UL 181 methods.

Footnote – Only a few flex duct companies publish maximum operating pressures using only the ADC methodology & results. Most companies only use the UL-181 pressure methodology & results, and a few publish both methods. JPL has petitioned ADC on several occasions asking its endorsement & support to petition UL to consider changes in the UL-181 pressure test. To date, a majority of ADC members are not in favor to this change.