# SUNCOURT IN-LINE DUCT FAN FAQ'S

**NEVER EXPOSE YOUR IN-LINE DUCT FAN TO AIRFLOW TEMPERATURES EXCEEDING 140°F(60°C).**
**MAKE SURE ALL ELECTRICAL WIRING CONFORMS TO ALL APPLICABLE CODES AND STANDARDS. IF YOU ARE NOT FAMILIAR WITH ELECTRICAL INSTALLATIONS, CONSULT A QUALIFIED ELECTRICIAN.**
**NEVER USE AN IN-LINE DUCT FAN FOR DRYER VENTING.**
**NEVER CONNECT THE HIGH AND LOW SPEED WIRES OF A 2-SPEED IN-LINE DUCT FAN TOGETHER.**

**WHY DO I HAVE A ROOM THAT IS ALWAYS TOO COLD?**
Your problem room may be located far from the furnace. Friction in the long duct reduces airflow to the register in that room, thus delivery of heated air. Also, perhaps the room is over an unheated garage or the duct is simply too small (undersized) to get enough heated air to that room. Remember too, when you are delivering heated air to a room, that air has to have a way to get out of that room. Otherwise there will be no air circulation. Does the room have an air return register? If not, is the door of that room kept closed, stopping air circulation?

**WHY DO I HAVE A ROOM THAT IS ALWAYS TOO HOT ?**
The room that you have a cooling problem with may be far away from the central air system. Long duct runs cause reduction in airflow, plus, the cooled air may have heated up before it gets to the problem room. Perhaps the problem run is to a room on the South side of the house, which has a large window, catching a lot of summer heat.
Chances are that your 'hot' rooms are on the second level of your home. You see, cooled air is dense and heavy. It doesn't like to flow upstairs. This is a very common problem, worsened by undersized ductwork and inaccessibility of those ducts.
Particularly for upstairs cooling problems, select the largest fan you can fit and use duct diameter expanders & reducers to adapt to the ducts already in place.

**WHAT BOOST CAN I EXPECT FROM AN IN-LINE DUCT FAN?**
A standard floor or wall register is normally fed by a 6" diameter duct. You would like to boost the airflow from that register because you have a room that is usually cold in the winter or hot in the summer.
The airflow from that register may be as low as 20 or 30 Cubic Feet of air per minute.
Expect this particular example to have double the airflow when an In-Line Duct Fan is installed.

**WHAT TEMPERATURE DIFFERENCE DOES BOOSTED AIRFLOW MAKE?**
This is dependent on a host of variables. How well insulated is the room? What is the heat gain in the summer through a window? How far is the register from the furnace? Is this room over an unheated garage? Etc.
Here is an example:
During the winter heating season, you need a room about 4 °F warmer than it is. To achieve this you will need 11% more airflow out of the register(s) in that room assuming that your furnace runs 60 minutes out of the hour.
If your furnace runs 20 minutes out of the hour on a cold winter day, that is 1/3 of an hour. You will need 3 times the 11% or 33% boost. In most applications, an In-Line Duct Fan will boost up to 80%. Thus, well up to the task of warming up a room.

**HOW LOUD WILL THE INSTALLED FAN BE?**
Suncourt fans are rated between 50-60 dBA. Please visit our Fan Noise & You information page.

**HOW MUCH POWER DOES AN IN-LINE DUCT FAN USE?**
Example: The DB206C , 6" diameter In-Line Duct Fan is rated at 0.35 Amp.
For a 120 Volt product, that is 0.35 x 120 = 42 Watt.
This is the maximum motor STARTING Watts. Once the fan runs, the actual wattage is 27 Watts. Like a small light bulb. In the Suncourt product specifications section, Inductors are listed by Amperage. As a rule of thumb, running Amperage is about 60% of the listed (start) Amperage.
So, to figure it out: Listed Amperage times Voltage (120 Volt) equals startup Watts.
Actual running Watts are about 60% of that.

**WHAT TYPE OF MOTORS ARE USED IN SUNCOURT PRODUCTS?**
The electric motors used in Suncourt products are C-Frame two-pole motors, Class B, thermally or impedence protected, sleeve bearings and synthetic lubricant. The exceptions are the 400 Series In-Line Duct Fans which have 4-pole, Class B, Thermally Protected motors with sleeve bearings and synthetic lubricant.

**CAN I USE A RHEOSTAT OR FAN SPEED CONTROL WITH AN IN-LINE DUCT FAN?**
You can not use a rheostat. A rheostat lowers the voltage supplied to the fan motor. This will cause the motor to overheat and the Thermal Protector will open, destroying the motor. A solid-state fan speed control can be used. Suncourt sells two versions of a solid state fan speed controller. The VS100 is a hardwire version that is mounted in your wall similar to a light switch. The VS200 is a plug-in model that plugs into an outlet then the In-Line Duct Fan is plugged into the variable speed switch.

**WHAT DOES THERMALLY PROTECTED MEAN?**
A thermally protected motor contains a fuse that will cut off power to the motor should the motor temperature exceed a safe limit.

**WHAT DOES IMPEDENCE PROTECTED MEAN?**
An impedence protected motor means the motor windings are set in such a way that the motor temperature can not rise to the point of burning.

**WHAT ARE THE FAN BLADES MADE OF?**
The 4"-8" In-Line Duct Fan are equipped with Polycarbonate fan blades. (A high strength superior material as used for jet fighter canopies).
The 10"-16" In-Line Duct Fans have aluminum fan blades.

**HOW MANY INDUCTOR FANS CAN I INSTALL?**
We recommend that you do not install more than 2 In-Line Duct Fans per 8 registers in your air distribution system.
Two boosters will not appreciably affect the airflow to the remaining registers.
If you install more than 2 In-Line Duct Fans per 8 registers, you may be lowering the airflow from a register in some other room in your home, thus creating temperature problems there.

**WILL AN INDUCTOR ALWAYS DOUBLE AIRFLOW FROM ANY REGISTER?**
No. An In-Line Duct Fan will boost airflow more to a poorly performing register (which is the register needing help) than to a register that already has good airflow. As stated before, a poorly performing register may have double the airflow with an In-Line Duct Fan. A well performing register may have a 30% to 50% percent increase in airflow.

**WHAT IS THE DIFFERENCE BETWEEN FREE AIR AND BOOSTED AIR?**
Free air is the air volume output from a fan, expressed in Cubic Feet per Minute (CFM) when the fan is not connected to any ductwork, pipes, louvers or other items that would interfere with the free flow of air from the fan.
Boosted Air is the maximum airflow that can be passed through an In-Line Duct Fan in CFM before this fan, installed in a duct, becomes a hindrance to airflow rather than boosting an existing airflow.
Depending on the specifics of the electric motor and fan blade combination, Boosted Air can be between 50% to 100% greater than Free Air.

**CAN I "OVER BOOST" A REGISTER?**
Suncourt In-Line Duct Fans are designed to provide progressive boost. This means that the airflow is proportionally boosted to the need of a particular register. Our booster fans are designed to run at a low RPM in free air. At this RPM, the fan motor runs below the peak torque that can be generated by the motor. Depending on the air blown into the intake side of the In-Line Duct Fan, the RPM will adjust itself as needed to provide boost and will operate at or near peak torque of the electric motor.

**IN WHAT TYPE OF DUCT CAN I INSTALL AN IN-LINE DUCT FAN?**
In-Line Duct Fans are suitable for installation in metal, flexible or high density pressed fiberglass ducts. The In-Line Duct Fan can be secured to the duct with screws or a good quality duct tape.

**CAN I BUILD-IN AN IN-LINE DUCT FAN, I.E. DRYWALL OR PANEL OVER IT?**
No. The In-Line Duct Fan must always remain accessible for service, cleaning or repair.

**CAN I USE THE IN-LINE DUCT FAN TO VENT OUTSIDE AIR?**
The In-Line Duct Fan has to be protected from rain and excessive moisture.

**WHAT IS THE LOWEST AIRFLOW TEMPERATURE FOR AN IN-LINE DUCT FAN?**
To maintain good oiling of the motor bearings, we recommend a minimum temperature of 40°F (4°C).

**WHERE DO I GET POWER FROM FOR THE IN-LINE DUCT FAN?**

Here you have a number of options.

- The easiest way to power your In-Line Duct Fan for automatic ON/OFF operation with both your furnace and air conditioner is to use the Suncourt DuctStat. Please view the DuctStat section of these FAQ's.
- You may plug your In-Line Duct Fan into a standard household receptacle for continuous running.
- You may power the In-Line Duct Fan via a standard wall switch for manual ON/OFF operation. Running an In-Line Duct Fan continuously will not appreciably affect the life of the fan.
- You may connect to the wiring of your furnace. You must connect to the wire that provides power to your furnace blower. Consult the furnace wiring diagram, usually located on the inside of the panel covering the main furnace blower. Again make sure that all wiring conforms to all applicable standards and codes.
- Also check that your furnace blower motor has a 110-120 Volt AC motor. Some larger furnaces have 220-240 Volt AC motors. Some of the newest high-end furnaces have DC motors. Do not connect the In-Line Duct Fan to either the 220-240 Volt AC or the DC type.

**BECAUSE OF THE NUMEROUS VARIATIONS IN FURNACE WIRING, SUNCOURT CANNOT ADVISE YOU ON THE HOOKUP.**

**CAN I WIRE MY TWO-SPEED IN-LINE DUCT FAN TO RUN ON HIGH OR LOW SPEED?**

Yes, but first this warning. NEVER connect the High and Low speed wires together. The motor wiring will burn out in a matter of seconds, permanently destroying the unit. Wire to operate either on High speed or Low speed. Never both.

You may use a Single Pole, Double Throw "ON-OFF-ON" toggle, rocker or other switch to wire for High or Low speed operation. This switch must be rated for 125 Volt AC, 10 Amp minimum. Now you can switch your 2-speed Inductor from High to Low speed and have a center OFF position. Connect the supply power to the C (common) terminal, the High speed wire from the motor to the terminal marked 1 and the Low speed wire from the motor to the terminal marked 2.

**MAKE SURE THAT THE WIRING AND ENCLOSURE FOR THIS SWITCH CONFORM TO ALL APPLICABLE STANDARDS AND CODES.**

**IS THE IN-LINE DUCT FAN SAFE?**

As always, safety is first. Suncourt Inductor Duct Fans are tested and certified to UL1995 “Heating and Cooling Equipment” standard. This is the appropriate standard for this type of product. See 1.3 of the scope “A fan unit includes a motor-operated fan or blower and is intended to be connected to a duct-system that supplies conditioned air for environmental heating and/or cooling.” Conversely, there are fan standards that are totally inappropriate for In-Line Duct Boosting Fans. For example, UL507 “Electric Fans.” See 1.8h of the scope. “These requirements do not cover fans intended to move heated or conditioned air.” Choose only fans that are certified to UL1995 to ensure that the products you install are designed and constructed to perform safely in the intended application.

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