WMIA SHOP GUIDE DISCLAIMER

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About Dust Collection

Efficient dust collection is achieved when using outlets and ducting with a round cross section, and an air velocity at the center of the duct comprised between 30 and 35 ms^{-1} (98 to 115 fps). At these velocities the airflow has the ability to remove wood dust and large wood particles even if the airflow works against gravity.

In practical life the air velocity is measured using an indirect method: the measure of the static pressure at the center of the outlet or at the center of the duct. The relationship between the two is expressed by means of complex mathematical formulas that are normally developed through lab testing. We therefore suggest the use of charts, in metric or imperial units. Given the diameter (in inches or in millimeters) of an outlet or a duct, the chart provides the values of the necessary airflow and its relevant static pressure.

A simple formula to accurately calculate the dust collection requirements for each outlet is the following:

In metric units: D x D / 40 = liters per second (where D is in mm)

In imperial units: D x D x 36 = CFM (where D is in inches)

An excellent rule-of-thumb for the static pressure is that the value for the static pressure almost always equals the value of the diameter of the outlet.

Example:

A machine has 3 outlets with a diameter of 4.5" and 1 outlet with a diameter of 5.75": How much dust collection is required?

Each 4.5" outlet will require: 4.5 x 4.5 x 36 = 729 CFM

The 5.75" outlet will require: 5.75 x 5.75 x 36 = 1190 CFM

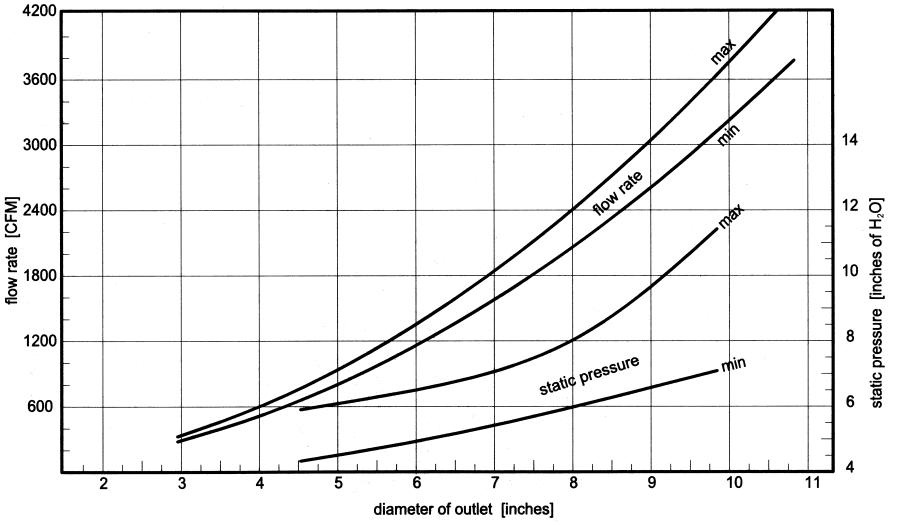
The total dust collection requirement is: 729 + 729 + 1190 = 2648 CFM

The static pressures measured at each outlet shall be 4.5 inches of H_2O for the 4.5" outlets, and 5.75 inches of H_2O for the 5.75" outlet.

Once the dust collection is in place, ask your installer to double check the efficiency of the system by measuring the value of the static pressure at each outlet. When it falls within the limits of the charts, the system is efficiently removing dust and other wood particles.

Courtesy of Giben America, Inc.

DUST COLLECTION CHART FOR ROUND OUTLETS (IMPERIAL UNITS)



DUST COLLECTION CHART FOR ROUND OUTLETS (METRIC UNITS)