

Duct Sizing

Quantity
Air Flow Rate, cfm Low, 0 - 5000 Medium, 0 - 10,000 High, 0 - 32,000 1750

Round Size
Diameter, in. 18

Rectangular Size
Height, in. 16
Width, in. 18

Duct Condition
Length, ft. 100
Friction, unitless 0.9

Results
Velocity, fpm 990
Pressure Drop, in. H2O 0.078

Exit PD to Clip About

Documentation for DUCTSIZE.EXE

Written by Randall C. Wilkinson, Spokane, Washington

Once the VBRUN300.DLL file is present in the WINDOWS\SYSTEM directory, the DUCTSIZE.EXE file may be in any directory you wish. Use the program manager to create a new icon for this EXE file.

When you run the program by double clicking the icon, the dialog box will appear. By moving the sliders you can select the air flow rate and duct size. As you move the sliders, the pressure drop and velocity are continuously updated. Adjust the sliders until the pressure drop and velocity are within reasonable limits (your job to determine limits).

By default, pressure drop is calculated per 100 feet. You can alternately enter the actual duct length. Pressure drop is calculated using the Carrier formula. This simplified formula is accurate enough for common heating and air conditioning ducts and since the Reynolds number does not have to be calculated, the program operates much faster. The formula uses a friction factor of 0.9 for galvanized sheet metal ducts. Some experimentation may be required to determine the required friction factor for other duct materials. See the Carrier Duct Design manual for more information.

Velocity is calculated for rectangular ducts by converting the rectangular duct size to an equivalent round size.

Click to Run