Figure Dust-Collection Needs

By the Numbers

Worksheets and Tables

Worksheet 1
DUST-COLLECTOR REQUIREMENTS

You'll determine these two values and write them in as you work through the article. Then when you shop for a dust collector, compare these figures with manufacturers's specifications to find a machine that meets your needs.

CFM: _____

Static Pressure Loss: _____

Worksheet 2
DUCT SP LOSS

rigid duct length (ft.) _____

\+

flex hose length (ft.) × 3 _____

\+

number of 45° bends

×

equivalent length each = _____

\+

number of 90° bends

×

equivalent length each = _____

=

Total effective length _____

×

SP Loss per foot (from *Table 3*) _____

=

SP loss for duct _____

Worksheet 3
TOTAL SP LOSS

SP loss for branch duct _____

\+

SP loss for main duct, from branch entry to dust collector _____

=

Total SP loss _____

Table 1
TYPICAL AIRFLOW THROUGH WOODWORKING MACHINES

Machine	CFM
Circular saw Includes tablesaw, radial-arm saw, and mitersaw	350
Bandsaw	350
Belt sander, up to 6"	440
Belt sander, 7–9"	550
Disc sander, up to 12"	350
Disc sander, 13–18"	440
Drum sander	
Up to 200 square inches of sanding surface	350
201–400 square inches of sanding surface	550
Jointer, up to 6"	350
Jointer, 7–12"	440
Thickness planer, up to 13"	400
Thickness planer, 14–20"	785
Router, table-mounted	195
Shaper	350
Lathe	350

Table 2
DIAMETER VS. AIRFLOW

duct/port size	CFM @ 4,000 FPM
2"	90
2½"	140
3"	195
4"	350
5"	550
6"	785

Table 3
STATIC PRESSURE LOSS

SP Loss shown in inches of water per foot of duct, calculated at 4,000 FPM. For each bend, add the equivalent length of straight rigid duct to the length of the duct.

Dia.	Equivalent length of bends 45°	Equivalent length of bends 90°	SP loss per foot
2"	1.5'	3'	.15
2½"	2'	4'	.11
3"	2.5'	5'	.10
4"	3'	6'	.07
5"	4.5'	9'	.055
6"	6'	12'	.045