

Air Handling Systems

by Manufacturers Service Co., Inc.

TWO-STAGE DUST COLLECTORS

Because most woodworking dust contains coarse-sized and fine-sized particles, a two-stage dust collection system is generally recommended. A two-stage dust collector consists of a first stage cyclone, a blower and a second stage after filter.

A cyclone separator is a cone shaped vessel into which the dust-laden air enters. The dust particles' inertia causes them to move toward the separator's outer wall. As the dust particles proceed towards the outer wall the coarse-sized particles lose momentum. When velocity drops on the coarse-sized particles, gravity causes them to settle into the container below. The remaining fine dust exits through a central outlet at the top and into the blower. The blower then relays the fine dust to the after filter.

The longer the cyclone body and cone, the better the dust separation.

One major reason for using a separator is so the blower unit will only convey fine dust. Coarse wood dust particles and other debris hitting the blower impeller most likely will result in blower unbalance. This condition will ruin the blower very quickly. Also, a separator is used so that the after filter does not receive 100% of the dust-laden air.