

Exhaust Fans

Exhaust fans come in a variety of types and sizes, but ultimately all are used for the same purpose, to move stale, stagnant, or fume laden air within a space, and circulate fresh air. So what things are important to consider when selecting an exhaust fan? The following will seek to help in the selection of an exhaust fan.

Types of Fans

A good place to start, is what type of fan does your application require? Among the most common fans, are shutter mount, industrial, and corrosion or hazardous location fans.

Shutter Mount Fans

Shutter mount exhaust fans help to remove stale air from rooms, barns, garages and enclosed work areas. These fans mount from the inside of the wall and feature totally enclosed direct drive motors. Normal options include single or two speeds, and fan blade diameters generally ranging from 7" up to 36" in diameter.



Industrial Belt-driven Fans

Able to move large volumes of air at low static pressures, and built with galvanized steel blades for durability. Available in vertical roof and horizontal mount variations, these fans also have variable pitch blades, and adjustable pulleys for optimized performance. Common uses include factories, HVAC equipment ventilation, greenhouses, auto repair shops, warehouses, just to name a few.



Corrosion Resistant and Hazardous Location Fans

Specialty fans are also available for applications where corrosion of the fan components may be possible from conditions within the area where the fan is used. Also available, are fans for hazardous locations where sealed, explosion proof motors are used to lessen the risk of a spark causing a source of ignition.

Fan Sizing

No matter what type of fan you need, consideration should be made for the volume of air you want to move (CFM), based on the size of the space and the recommended number of air changes per hour. The Air Change Method derives the ventilation rate from the volume of the space to be ventilated (expressed in cubic feet).

Example: For an auditorium the suggested change rate is 4 to 15 air changes per hour. The auditorium is 80' x 90' with 20' ceilings, for a total of 144,000 cubic feet. Using 10 air changes per hour.

$$\text{CFM} = \underline{144,000 \text{ cu. ft.} \times 10 \text{ Air Changes per Hour}}$$

60

$$\text{CFM} = 24,000$$

In this example, the amount of air that the ventilation fans need to move to complete 10 air changes in one hour is 24,000 CFM.

Recommended Minimum Air Changes Per Hour for Common Spaces

Type of Room or Space	Minimum Air Changes Per Hour
Attic Spaces	12 to 15
Factory Buildings	2 to 4
Paint Shop	15 to 20
Repair Garage	20 to 30
Storage Garage	4 to 6
Medical/Dental Office	8 to 12
Warehouse	6 to 15

For situations involving hazardous locations or corrosive environments, be sure the fan is rated for such use.



Information sources include W.W. Grainger, DeWALT HVAC/R Professional Reference Guide

If you are still having difficulty choosing an Exhaust Fan, please contact us at askzoro@zoro.com or 855-289-9676

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