

Sizing Units

The Royal Filtermist is available in four sizes, based on throughput capacities: 275, 550, 900, and 1200 cfm. Royal Products maintains a database with specifications for many different machine tools, and we recommend you contact one of our applications engineers for your specific sizing requirements.



For those who would like a general rule of thumb, we recommend using the following formula to obtain a rough idea of your requirements:

$$\text{Filtermist Size} = \text{Internal Enclosure Volume} \times 5$$

For example, suppose you have a small CNC lathe with an internal work envelope measuring 4ft. wide x 3ft. deep x 4ft. high. Multiplying 4x3x4, we see that the machine has an enclosure volume of 48 cu. ft. Multiplying 48x5 we see that 240 cfm is required, so we'd choose the model FX-275.

Although this rule is very simple, it is handy for determining the general size requirements.

If you are not sure which unit to use, please contact your local Royal Filtermist Distributor or one of our applications engineers.

Grinding



Grinding applications can sometimes be more demanding than typical turning and milling applications because grinding produces fine dust particles that become entrained in the mist stream. Over time, this dust can accumulate on the drum pads, resulting in the need for more frequent maintenance. If regular maintenance is not performed and a significant volume of solid matter builds up in the drum, balance and vibration issues may arise.

A simple way to overcome the problems associated with grinding dust is to fit the Filtermist with a cyclonic swarf separator. The separator mounts below the Filtermist unit and uses cyclonic action to separate out the solid matter, leaving the drum free to process the mist and preventing buildup on the pads. A valve on the bottom of the unit facilitates drainage.

Royal Products recommends using a cyclonic swarf separator for all grinding applications.



Check out the Royal Filtermist Video at www.mistcollectors.com

Turning



CNC lathes are relatively **easy applications to tackle** because the machines are usually well enclosed and direct mounting is often possible. On any well enclosed machine, it is recommended that the Filtermist intake point be located as far from the machining action as possible so that the mist is drawn from an area of heavy concentration to an area of lighter concentration. On CNC lathes, therefore, the ideal intake location is on the right side of the machine, near the tailstock. On subspindle lathes where the right-hand wall moves along the z-axis, it might be necessary for the Filtermist to have a more central location.

Milling



For enclosed machining centers, the Filtermist intake position should be located in an upper corner of the enclosure. Installation on open-top machines is not as clear-cut. If enclosing the machine is not possible, a successful installation can often be accomplished by **suspending the Filtermist unit above the machine** and running ducting down into the enclosure. It may be necessary to adjust the intake location so that it is close enough to the spindle to collect the mist, yet far enough away to keep chips from being drawn in. A Y-junction may be used to draw mist from both sides of the spindle, and a chip deflector may also come in handy.

High-Pressure Coolant

More and more machine tools today are equipped with high-pressure coolant systems. Machines running with high-pressure coolant tend to create more mist, and the particle size also tends to be smaller than normal. For most high-pressure coolant applications, the standard rules apply and Filtermist works very well. However, in some unique situations it may be necessary to take a different approach. Here are two ideas that may be worth considering:

- Downsize the Filtermist unit. On many high-pressure applications, we have seen the smaller models FX-275 and FX-550 work extremely well on large machines that would normally require a model FX-1200. Before downsizing, please speak to one of our applications engineers to ensure that this approach is the best one for your application.
- Add a cyclonic swarf separator. Although this device was designed for removing solid particles from the mist stream, it has proven itself to be quite **adept as a pre-filter for high-pressure coolant applications**. A large portion of the mist is actually removed by the cyclone, leaving the balance to be easily handled by the Filtermist unit.

Please keep in mind that the ideas presented in this section are simply suggestions, and may not be appropriate for your particular situation. If you have any questions regarding a Filtermist application, please contact one of our engineers at 1-800-645-4174 for assistance.