

## Liquid Ring or Rotary Screw Vacuum Pump?

Editor's Rating ★★★★★

### Vacuum pump types compared.

#### Question

Just wondering which vacuum pump type is the most reliable - the liquid ring or the rotary screw?

#### Forum Responses

(CNC Forum)

*From contributor H:*

My experience with many brands and types of pumps is that the rotary screw is the longest lasting, and provides the best deep draw and high CFM combination. The liquid ring pumps are typically prone to oil leaks, no matter what the salespeople tell you. Both rotary screw and liquid ring need to be filtered on the intake to prevent dust from getting into the pump. The sales pitch of the liquid ring pump is that they are less effected by contaminants, but that is really not true based on my experiences with many of those types of pumps. The Kaeser is one of the best rotary screw pumps available. The Quincy pumps are another good choice at a lower cost than the Kaeser.

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Re: Liquid Ring or Rotary Screw Vacuum Pump?

Michael 1/14

*From contributor M:*

The liquid ring pumps are generally much quieter and more compact. In addition, they are used to provide the liquid cooling of the spindle.

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*From contributor C:*

I am not sure if you are pulling our leg or if you have some new system, but the liquid used in all of liquid ring vacuum pumps I have seen is oil. Spindles are cooled with water. I have never seen a situation where the vacuum pump provides cooling to the spindle. And the new direct drive Quincy machines have a smaller footprint than a same sized Travaini or Dekker.

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*From contributor M:*

Holz-Her offers the Elmo Liquid Ring vacuum pump provided by Siemens in a 40 and 100 c/m vacuum pump. It uses a glycol type liquid (water/antifreeze mix). As well as creating the vacuum, it is also circulated through a radiator type unit to dissipate heat and is piped through hoses around the spindle cartridge to absorb heat. For applications requiring larger vacuum pumps (NBM), we use the Becker

Oil-less vane pump and a separate unit to provide for the spindle cooling function. As the CNC Product Manager, I wouldn't dare pull your leg.

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*From contributor D:*

One further note on the ELMO liquid ring series of pumps. If you are not cooling a spindle with the unit, you can use plain old tap water as the liquid ring medium. These pumps are quiet, compact, efficient, and relatively maintenance free. They discharge cool, uncontaminated air, and pull down to 28.5 in. hg. One drawback is that the largest unit offered is 15 HP. Above this horsepower range, a single large screw pump is usually much cheaper than multiple ELMO units.

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*From contributor A:*

I'm running a Multicam with 5 x 10 table and 20HP PDP (positive displacement?) vacuum pump supplied with the machine. Suction and hold down is excellent. I have had no problems, but the thing is very noisy. I don't have the option of putting it outside or in another room. I've been very pleased with the noise reduction I achieved when going to a rotary screw compressor, so I'm wondering if the results would be similar if I switched to a rotary screw or liquid ring type vac pump. Anyone have any recommendations? What would I have to look at HP wise with this type of pump? Would there be a similar reduction in noise?

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*From contributor D:*

If you can use a 15 hp pump, then the ELMO will be the least noisy option. With dust collection and other machines running, I have actually had to put my hand on these pumps to determine whether or not they are running. Above that horsepower, I have seen some Kaeser units with noise enclosures that were pretty quiet.

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*From contributor A:*

Thanks. I'll have to do some research to see how a 15hp Elmo might compare with my 20hp roots. I think I'm pulling about 15hg.

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