

# DRY PUMP OUSTS OIL SEALED PUMP IN CNC ROUTER

After four years of using a rotary vane vacuum pump, President Terry Mote, of The Allen Company, wanted to purchase a more efficient vacuum pump for use on a Motion Master CNC router. The Allen Company, located in Edina MN, specializes in the machining of plastics, making a variety of parts for OEM's and end users. The plastic panels and custom pieces are used for a variety of industries, including semiconductor, telecommunications and process equipment.

Mote wanted a pump that did not need continuous maintenance, unlike his current vane pump that required frequent repairs. Their maintenance routine consisted of complete overhauls every year, vane replacements and changing the oil every 2,000 hours of operation.

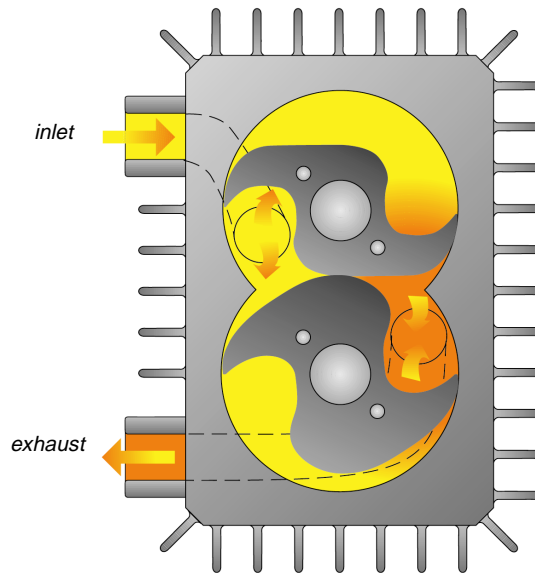
One of the biggest drawbacks of the 7.5 HP vane pump was that it could not maintain a vacuum of 17" Hg. It was constantly falling below 17" Hg, leading to frequent pump burnouts. Another shortcoming was that the vane pump was undersized for the application, which required a large capacity of CFM in order to properly hold the piece to be machined on the spoil board table.

Along with finding a pump that would have consistent holddown vacuum levels, an additional requirement was that the pump would not have smoke or odor as a byproduct. With the vane pump, piping had to be installed to carry the smoke and odor away from the plant.

In February of 2000, the Allen Company decided to go to dry technology with a Busch Mink Model 1352BV vacuum pump.

The Busch Mink is a rotary claw-type, positive displacement, dry pump designed for either pressure or vacuum applications. Vacuum or pressure is produced by two non-contacting rotors in an oil-free pumping chamber. Two non-contacting claws trap a volume of air at the inlet and convey it to the exhaust where it is compressed and discharged. Wearing parts are

separated from the pumping chamber which leads to a longer pump life with low maintenance.



*Rotary Claw Cutaway*

One of the most significant benefits with the Busch Mink is the amount of CFM the pump provides at operating pressure. Also, the Busch Mink can run at any point in its vacuum range, without operational problems. Oil lubricated and oil sealed pumps, when run at vacuum levels at or below 20" Hg, tend to run hot, blow oil and smoke, due to the high mass flow at these pressure levels. The Busch Mink eliminated these problems for The Allen Company.

The Busch Mink runs more than eight hours a day, five days a week. It has eradicated their routine maintenance, allowing them to completely forget about the vacuum pump and let them focus on their product.

"Since installation, the gear box oil (.75 qts) has been changed once. The vane pump required regular maintenance," said Mote. "With the Busch Mink, it's never a problem. We put it back in the corner and ignore it. We don't have to baby-sit the pump."

Another plus of low maintenance over the vane pump is that the Busch Mink has improved product quality by

saving time. They no longer have to seal off leaks on the gasket.

"For us, the number one advantage is not to have to gasket tables to satisfy the vane pump," said Mote.

With the higher CFM of the Busch Mink, it can also be tied into other pieces of equipment that need vacuum. At The Allen Company, it is hooked into one router and six machining centers, where additional parts are held down by vacuum. Consistent vacuum levels have resulted in better holding power on the piece to be machined.

"With the wide operating range of the dry pump, it can be run anywhere, at any vacuum level, without any problems," said Mote.

Other advantages they have gained with the Busch Mink include, elimination of oil leaks, oil blowby and oil smoke from the vacuum pump. Since the dry pump does not smoke or put off an offensive odor, it does not have to be vented. In the summertime, it is piped outside to get rid of the heat. In the fall and winter it goes unvented to keep the heat in the building. The Busch Mink can discharge into the environment since it is pollutant free.



*Busch Mink Vacuum Pump*

"In the future, we will be replacing our vane pumps with the Busch Mink. I don't understand why anyone with a CNC router is not using this pump," said Mote.

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