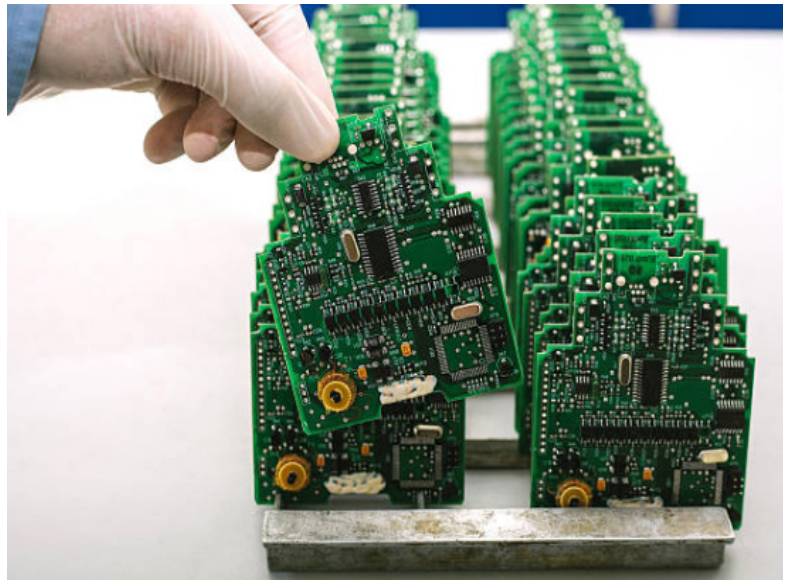


# Rack and Racks of Medical Devices

Elimination of manual drying of racks for medical device components improved throughput and increased safety, due to mitigation of ergonomic issues, with the help of Paxton air knives providing faster and more complete drying.

## THE CLIENT

A Medical Device leader located on the West Coast provides multiplex molecular diagnostic solutions designed to enhance patient care, improve key quality metrics, and reduce the total cost-of-care. This medical device company focuses on changing the diagnostics landscape, combining out-of-the-box thinkers and game changing technology to revolutionize patient care.



## THE CHALLENGE

The medical device production facility previously used compressed air to dry their parts after their washdown process.

The drying process was totally manual: parts come out of sink and are placed in a rack that is roughly 3" X 12" and blown off using a handheld compressed air wand. The plant uses two separate lines:

- Line 1 washes and dries printed circuit boards (PCBs). The PCBs are solid and about 2" square and are placed on a rack that holds about 40 boards.
- Line 2 washes and dries a perforated polycarbonate part. These parts are also placed on a rack holding 40 parts. The drying of these parts is complicated by the geometry of the perforations.

Both lines needed a better drying process, automating the process to reduce drying time and manhours required, eliminating ergonomic issues caused by the manual drying, and ultimately, reducing cost and improving efficiency.

## THE SOLUTION

After looking online, the medical device's facility engineer researched Paxton's air delivery devices and concluded that Paxton's Spyder Manifolds would be the ideal air delivery device for their drying needs. She requested two different quotes using Spyder Manifolds. The first configuration would use two separate blower systems with enclosures, one for each line, with each blower powering one Spyder Manifold. The second configuration would use one larger blower and enclosure, located between the two lines since the



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lines are only 4' apart, with this blower powering two Spyder Manifolds, one for each line.

After reviewing the application, the Paxton application engineers, having a combined 75+ years of air system design experience, proposed an alternate, more efficient and effective solution: Duplicate systems were quoted, each having two 28" long and one 33" long stainless-steel air knives with center top inlets powered by one PX-2000 blower, with blower enclosures to reduce noise and protect the blower. Additionally, the air knives would be mounted within another Enclosure, the Drying Enclosure, fitted with racks to support the product racks that will be placed in the enclosures during the drying process.

Since the product racks will be manually moved to the Drying Enclosure, it was desirable for the blower to be turned off when the technician opens the Drying Enclosure door, to reduce noise and disturbance to the technician. However, turning a blower on and off frequently is bad for the blower. Paxton recommends that the user not start and stop the blower more than 6 cycles per hour. Cycling the blower on and off more than 6 cycles per hour puts a strain on the drive components and can shorten the service life of the Paxton system. To accommodate the needs of the technicians, as well as the needs of the blower, Paxton recommended the use of a VFD: the VFD will be connected with switches to ramp down the blower to about 10% of full speed when the door to the drying enclosure is opened. After the technician removes the dried parts and racks, they will put the wet parts and racks into the enclosure and close the doors. They will activate a switch and the blower will speed up to full capacity to dry this next batch of parts.

## ■ THE BENEFITS

Paxton's solution allows the plant to receive a more reliable and cost-efficient solution to replace their compressed air usage.

- Elimination of the ergonomic concerns they had with their operators moving handheld blow guns around for hours at a time
- Reduction in the usage of expensive compressed air
- Reduction in the Noise level
- Lower energy consumption, as the Paxton blower uses only 20% of the energy that an air compressor does
- Reduction in the number of employees needed for the drying process, allowing employees to be redeployed to higher value-added activities.

In addition to these benefits, the plant now has a reliable and energy efficient solution in its new Paxton Air System. The Senior Process Engineer said "Paxton was great to work with to develop the best solution for our drying needs. I highly recommend Paxton!"

For more information on the ultra-high efficiency PX-series centrifugal blowers, [click here](#) or scan this QR code with your smart phone.



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