



Managing Critical Metal Dust

Longhorn Fabrication relies on RoboVent to get the job done.

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Our new laser cutting system was so fast it flat outran the NC that controlled it. So Mazak tweaked the software in our computers until they were able to get out in front of the cutting. That left just one problem: finding a dust collector that could keep up.”

Josh Carpenter, Laser Manager at Longhorn Fabrication and Design in Dallas, Texas, is remembering the installation of the company's Mazak HTX 510 4000-watt laser cutting system. “We'd been doing plasma and laser cutting for years and were ready to upgrade to a faster and more powerful laser. What I needed was a dust collector that would keep both the plasma and laser operations at the top of their games. So I asked Mazak to make a few modifications to the air filtration system that came with the HTX 510. Mazak did a great job, and even arranged for a loaner to get us up and operating until the modifications were complete, but the loaner system they found just didn't have the beef.”

Longhorn is a state-of-the-art provider of structural and sheet metal fabricated components that prides itself on the fact that all fabrication, from engineering and design to production, welding and finishing, is completed in-house. And that's where the problems with the old

dust collector began. “You couldn’t run it in-house,” Josh remembers. “It had to sit outside – in the elements. When it rained, water would turn the dust into mud, clogging the filters. There were 14 filters in the system and at \$400 each, it made replacing them a pricey business.”

With all these issues, Josh couldn’t wait for the RoboVent Plaser system that Mazak was sending him to get installed. “I couldn’t wait to replace the loaner unit so I installed the Plaser, ductwork, and wiring myself,” Josh reports. “It was really pretty simple.” And how is it working out? “The quality and performance of the RoboVent Plaser unit is a hundred times better.”

“To begin with, the Plaser can run indoors, in the same space as the laser. Ours is about fifteen feet away. The air that’s pumped out of the Plaser is exhausted into the shop and the quality is excellent. Then, too, there’s the matter of durability. Every 2,000 hours the Mazak must be cleaned and have its mirrors replaced. The Plaser runs 24 hours a day – I have over 7000 hours on it – and I’ve not had that first problem with it. And I’m still on the original filters. Maybe I should replace them, but I’ve checked them with a differential pressure gauge and I can’t see the need. They’re in excellent shape.”

Pat Gilmour, Business Development Director for RoboVent, says he isn’t surprised. “Most of our competitors use a paper filter that’s designed to serve a wide variety of different industries – pharmacies, welding shops – one size fits all. We use our proprietary Endurex filter made of a synthetic membrane that is custom designed for laser cutting operations and provides extraordinary filter life. We know of operations that have 12,000 to 14,000 hours on them and so far haven’t needed replacing.”

The Mazak laser is a versatile cutting system that permits quick and easy adjustments to accommodate differing material types and thicknesses by altering consumables such as gasses, nozzles and lenses throughout a completely automated “lights out” process. The result is a smorgasbord of different smoke, fumes and particulates. “Mild steel is the worst,” says Josh. “Cutting it produces a mountain of carbon, metal oxide dust, and slag. Aluminum, on the other hand, fills the table with little particles that just happen to



be flammable. If my dust collector weren’t up to the challenge I could take my choice of fire now, from the flammable particles, or fire later, when the dust coats all the electronics in the shop and its conductivity creates short circuits wherever it builds up. And speaking of fire, the dust collector must also pull the heat out of the cutting table and draw in cool air from around it. If you don’t pull the heat out of the cutting table and let it build up instead, sooner or later fire could occur or the electronics could just melt down. Happily, the Plaser manages it all with ease. And I don’t have to worry about health issues, either.”

“Once again, it’s our filters,” says Pat Gilmour. “Most filters are 99.9% efficient to a particle width of 0.5 microns. Ours are 99.99% efficient to a particle width of 0.3 microns. It doesn’t sound like much of a difference but where health is concerned it can mean either protecting your workforce or something quite different. The smaller the particle, the more dangerous it is to the body. Down to a certain specific gravity, a particle will fall to the floor from its own weight. Below that, it will hang in the air for a long time, often until it’s inhaled, then find its way to the lowest and most vulnerable part of the lungs. We take the quality of air in the workplace seriously because our customers do.”

The operation of the Plaser system is similar to, but also opposite from, the air filter in a car. In an automobile, air from the outside

is drawn through the filter which traps debris and permits clean air to be drawn into the carburetor. In the Plaser unit the cleaning of the dirty air stream operates in much the same way, but we add a “self-cleaning” system however, where pulses of compressed air are blown outward from the centers of the cylindrical filters periodically, effectively shedding the accumulated debris that then falls into a collection bin for easy removal. It also makes filter replacement a much more manageable reality. “Some dust collector manufacturers seem as interested in the after-market sale of replacement filters as they are the original sale of the collector” observes Pat Gilmour. “They build the collectors so you have to use their filters and can only buy them from the manufacturer. At RoboVent, we design solutions that anticipate and include downstream efficiencies in downtime and costs. If I wouldn’t have it in my shop, we won’t sell it to you”

Designed specifically for laser, plasma and torch cutting, Plaser is an integral package that includes spark arresstance among its many features. It’s also a system that has won favor with Mazak, which ships all their highly sophisticated laser cutting systems with the Plaser air filtration system. And that has resulted in some very satisfied customers. The final word belongs to Josh Carpenter at Longhorn:

“Without Plaser, I couldn’t run.”