



Case study: Air Treatment
Powder Coating for Fan Manufacturer

Quick facts

By installing the Z-Duct heat exchanger, the fan manufacturer has achieved:

- Over 60% energy savings
- An average 25% production increase
- Less than one year payback
- Easy maintenance and reduced costs

Fan Manufacturer Saves Energy, Increases Production with Munters' Z-Duct Heat Exchanger

During a thorough survey of a fan manufacturer's production facility, consulting firm, Richard Hilton & Associates discovered an opportunity to reclaim 350°F air from the plant's powder coating curing oven. The firm knew that

by reclaiming the heat in the paint curing process, the fan manufacturer would not only save significantly on energy consumption, but they would also improve their overall production time.

Richard Hilton & Associates works

closely with manufacturers who are energy conscience and desire to reduce their energy footprint. The father-and-son owned company had a long standing history of working with Munters (previously DesChamps Technologies)

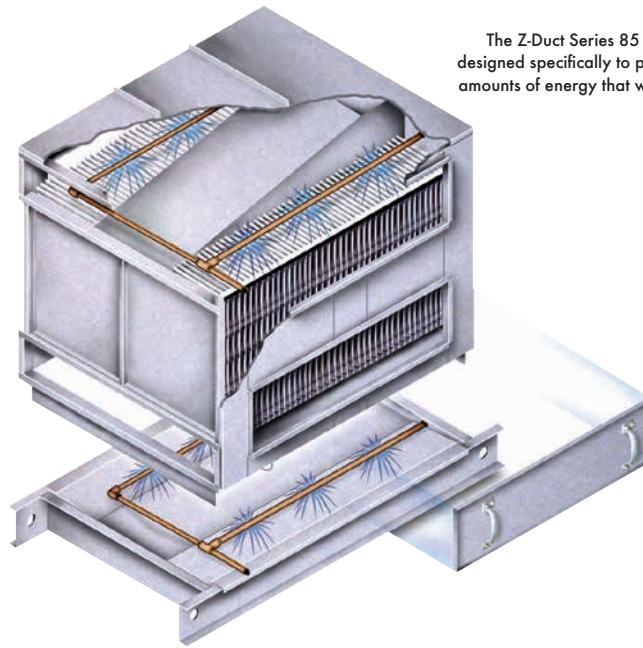
for over 30 years and knew this powder coating application would be an ideal project for Munters' high temperature heat exchanger systems.

"They (Richard Hilton & Associates) were certainly ahead of their time in that they were always looking for ways to save their customer fuel through innovative heat recovery," said Nicholas Des Champs, Founder of Des Champs Technologies.

While surveying the fan manufacturer's facility, Richard Hilton & Associates examined the powder coating process. The fan manufacturer had two finishing lines using six burners per line in order to cure their powder coated fan parts inside an 80-foot curing oven.

During the curing process, 100% make-up air was being taken from the plant at 70°F and heated up to 350°F in order to match the exhaust volume of the oven. This heating process consumed an excess amount of energy, so Munters installed two Z-Duct Series 85 heat exchangers to take the 350°F exhaust air as waste heat and use it to pre-heat the make-up air instead. Because of the efficiency of the air-to-air heat exchangers, the facility no longer needed to use plant air, and could use outside air as their make-up air source.

In the wintertime, 10°F make-up air is being heated up to 230°F and introduced



The Z-Duct Series 85 air-to-air heat exchanger is designed specifically to permit the recovery of large amounts of energy that would otherwise be wasted.

into the open ends of the drying tunnel to recover 64% of the waste energy.

The benefits of installing Z-Duct Series 85 systems were realized immediately. Now that the air coming into the oven was warmer, the drying process required less curing time. The incoming air now heated and cured the product in the first 20 feet as opposed to it previously needing to travel to 60 feet on the line to heat up. This allowed the manufacturer to reduce the number of burners required from six

to three, resulting in a 25% production increase. Also, because plant air was no longer pulled in for the operation, the make-up air requirements for the building were reduced, stabilizing the building pressure and reducing the cost of plant heating in the winter.

With these energy saving benefits and production increase, the manufacturer achieved a payback in less than 6 months.



Munters installed two Z-Duct Series 85 heat exchangers for the paint curing process to take the exhaust air as waste heat and use it to pre-heat make-up air instead.

Did you know?

- Nearly 1/3 of the nation's total energy use is consumed in U.S. industrial facilities.
- Approximately 90% of process heating energy comes from the combustion of fossil fuel.
- Direct heat recovery to production (like powder paint curing ovens) has the highest potential efficiency because it doesn't require any "carrier" to return the energy to the product.

Source: U.S. Department of Energy

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