

CHILLER REFRIGERANT CONVERSION

Maintaining Critical Comfort

When Tampa General Hospital needed mineral oil removed from its 1,250-ton chiller, there were some important things to consider. The downtime had to be minimized in order to ensure the comfort of the hospital patients. However, retrofitting a large chiller to operate on HFC refrigerant and polyester oil is a major challenge.

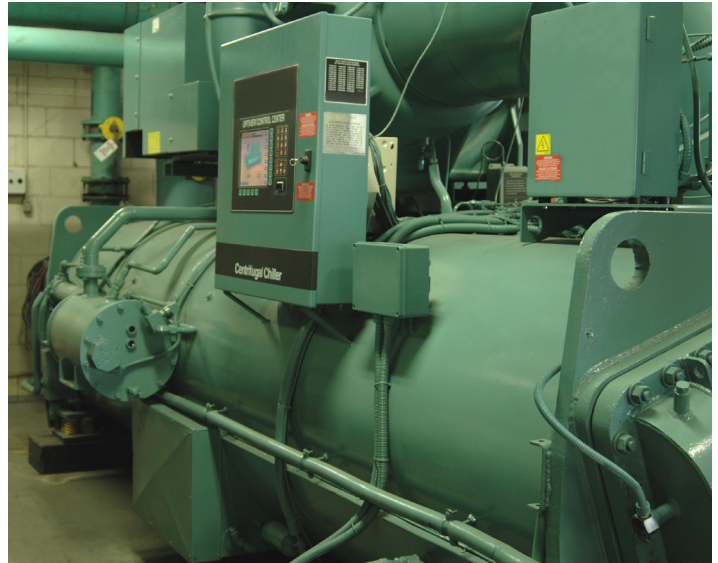
The service provider needed to find a way to speed up removal time of the mineral oil, and reduce the expense of using costly polyester oil for retrofitting and installing HFC-134a. The service company reached out to Hudson Technologies, and worked to find a solution.

Hudson, along with the service company's sales engineer, area service manager, and senior service technician, devised a systematic process designed to shave hours off the established method of flushing the system multiple times with ester oil.

How did they accomplish this? Using Hudson Technologies unique, proprietary and portable ZugiBeast®, of course!

Using the ZugiBeast®, they removed all the R-500 refrigerant from the chiller while simultaneously reclaiming it. Next they pulled the chiller down to atmospheric pressure, reclaiming the R-500 vapor. The compressor oil was drained from the gear box, and installed ball valves with quick-connect fittings were installed in the gear box, compressor lube oil system piping, and the lower sections of the refrigerant charging and transfer piping.

Next they took the reclaimed R-500 and began flushing the system by pumping it into the receiver (left at operating pressure) to absorb all mineral oil. They used the ZugiBeast®'s reclamation capability to remove the oil and stored the R-500 in cylinders. Next, they flushed the



compressor gear case, on to the oil piping and cooling system, then onto the evaporator, condenser and storage tank ensuring they did not wash oil film from the bearing surfaces.

Each stage of the process was carefully monitored through a sight glass. The refrigerant was tested to make sure there were no detectable levels of mineral oil. The process was completed by bringing the vapor pressure down and reinstalling the original piping and plugs. The chiller was brought down to 24 in. Hg to reclaim the vapor. In total it took 12 hours to cleanse the chiller of mineral oil.

The ZugiBeast® not only saved time but it eliminated the need for large quantities of ester oil, saving thousands of dollars. "It was amazing watching them reclaim the R-500 right on site, the use it to flush the mineral oil," said Jim Olachea, director of plant operations at Tampa General. By using the ZugiBeast®, the service company was able to complete the project days ahead of schedule.

REFRIGERANTSIDE® SOLUTIONS

- Chiller dehydration & decontamination (online & offline)
- Refrigerant moisture reduction (online & offline)
- Rust and particulate reduction
- Hermetic burnout decontamination
- Residue and particulate removal & decontamination
- Oil logged chiller decontamination
- Chiller decontamination including elimination of mineral oil
- SF6 field recovery

OTHER SERVICES

- Refrigerant recovery
- Refrigerant/oil sampling & analysis
- Refrigerant reclamation
- Cylinder maintenance
- Lithium Bromide Recovery, disposal & analysis
- Glycol Recovery, disposal & analysis

PRODUCTS

- Refrigerant sales
- Refrigerant buyback

