MSC TECH

973-884-5000

MSC - THE ONLY TRUE HVAC SERVICE COMPANY - WE FIX IT

NEWSLETTER - OCTOBER 2012

SERVICE CALL

Heat Recovery - The two most common heat recovery systems are circulating glycol and heat recovery wheels. In this photo is a heat recovery wheel that rotates between the supply and exhaust duct work. A computer monitors the wheel performance and speed. This wheel is cooling 95F outside air to 79F. Pretty impressive.

Low Temperature Systems - Process cooling systems sometime require a wide range of low temperatures. Some systems range from 5C to well below zero and even much lower. Cryogenic systems use liquid nitrogen heat exchangers for cooling from -20F and lower. Low temperatures require specialized custom equipment and the expertise to service them.

Don't Believe in Preventive Maintenance? Think Again.

Nowadays, businesses are recognizing more than ever the value of a good HVAC preventive maintenance program to prevent breakdowns, optimize efficiency, and extend the life of their equipment. In fact, MSC has seen preventive maintenance business steadily increase over the past few years, and many existing clients have upgraded their PM programs and made improvements to their maintenance routines.

But despite what common sense dictates and HVAC experts advise, there are still – and always will be – PM holdouts, those who are willing to gamble that their system will continue to run without a hitch, with little to no upkeep. An HVAC system is conveniently out of sight and out of mind, easy to overlook or ignore when running on a tight budget. Naturally, many find out too late that theirs was a losing gamble. Case in point: a small NJ production facility that considered – and rejected – implementing a preventive maintenance program from MSC.

When we visited the facility earlier this year to inspect the HVAC system and discuss the customer's needs, some signs of disrepair – iced coils, low airflow, etc. – were apparent. The facilities manager was advised of the issues, given an estimated cost to correct them, and quote for a PM program customized for the facility's particular needs. But while the facilities manager was receptive, one of his superiors was not, opting to save money by forgoing a professional PM program and handling basic maintenance in-house. He reasoned that the HVAC system had been running just fine without professional PM and insinuated that PM program contracts are for the gullible.

Four months later, MSC received a call from the facilities manager: there had been a major compressor failure. Production was shut down, goods that were in mid-production were lost, and stored product and materials were in immediate jeopardy. Though we were able to quickly restore the walk-in boxes and save existing product, production was halted for several more days while parts and equipment were located and repairs were made. Between ruined product, production downtime, and the cost of repairs and new equipment – all of which would have been avoidable if existing issues had been addressed and the equipment properly maintained – the debacle cost the company tens of thousands of dollars.

High utility bills don't explicitly point to inefficient HVAC, and lost employee productivity is often difficult to pinpoint, so it's common for companies to ignore PM when trying to save money in the short term. But preventable or premature equipment failure can't be overlooked. It's important to recognize that a functioning HVAC system is vital to productivity, and preventive maintenance is an absolute necessity.

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Project Analysis: Screw Compressor Failure

MSCA STAR QUALIFIED

When equipment fails, it is important to determine the root cause to prevent future malfunction and failure. MSC is often called in to perform a post-mortem examination and in depth-analysis of failed equipment. Once we've ascertained the root cause of failure, a comprehensive Project Report is prepared for the customer. These reports, which include diagrams, photographs, and step-by-step analyses of what ultimately led to the failure, are also distributed to MSC technicians and used as instructional tools as part of our continuing training program.

MSC recently performed a failure analysis of a McQuay screw compressor and prepared a fourteen page project report for a large New Jersey manufacturing firm. At teardown, gate rotor sealing gaskets were found to be shredded. The fibrous composite material was found throughout the compressor – in the separator, clogging the oil filter, and inside the screw end motor windings. Excessive heat had severely damaged motor windings and roller bearings.

MSC technicians concluded that a combination of rotor wear, excessive heat, and poor lubrication led to the failure of the screw compressor. Gate rotors had worn over time, and a low refrigerant charge contributed to the resultant overheating. The increased heat accelerated gate rotor wear, eventually restricting oil flow through the oil filter. Finally, heat levels were excessive enough to warp the composite gate rotor gasket material. This prevented the rotor from turning and resulted in complete compressor failure.

To view the complete Project Report with photos and diagrams, please click here.