

Case Study: General Electric Corporation

Site Location:

- General Electric Corporate Headquarters
- Training Conference Center, Fairfield CT

Concerns:

- Several compressor failures over the years
- Service calls for continuous nuisance trips
- No visible oil in old compressor sight glass
- Low oil amount visible in new compressor
- Unable to rotate lead compressor

Equipment:

- Two (2) Dunham-Bush Chillers PCWX-210 (21yrs old)
- Two (2) Vertical Screws per chiller
- Flooded Evaporators
- Flash Tank with ball valves
- Each chiller had only one (1) LLS
- Water cooled condenser with stand alone head PSI control

Steps Taken:

- Install MCS microprocessor control system
- Adjust flash tank ball valves until discharge superheat was $> 20^{\circ}$ F
- Drain off excess oil that was added over the past 21 years

Results:

The upgrade was completed in July 2001. At start up, the MCS controller revealed the basic problem as low discharge superheat. Because the MCS controller monitors all critical areas, it saw that the discharge superheat was less than 5° F on both compressors and the discharge temperature was about 100° F. This low temperature resulted in oil migration from the compressors, causing repeated compressor shutdowns and failures.

Adjustments were made to the ball valves on the flash tank bringing the discharge temperature to approximately 130° F and the discharge superheat to approximately 25° F. These changes brought the oil that had migrated to the condensers back to the compressors. The excess oil in the compressors was then removed. The MCS controller also setup the compressors to rotate leads for more even wear and longer life.



Dunham-Bush Chiller with MCS Controls in a door mount application at G.E. Corporate Head Quarters.



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