TECHNOLOGY TOGGLED

A COMMERCIAL FACILITY INSTALLATION

ARMSTRONG

Chiller plant efficiency improved by 66%, reducing energy consumption 763,000 kwh in the first year. 27% of the efficiency improvement is directly attributable to the OPTI-visor.

"The project has been a complete success."

Dave Clayton
Director of Operations

Whirlpool

OPTI-visor™ is an add-on control solution that advises a BMS system on optimal speed settings for the operation of HVAC components.

Background

Whirlpool is the world's largest manufacturer of home appliances with brands such as Whirlpool, Maytag, Jennair and KitchenAid. Management wanted to improve the energy efficiency of a stand-alone central chiller plant at the 584,000 ft² headquarters in Benton Harbor, Michigan. Armstrong supported the retrofit project with an installation of an OPTI-visor.

Without operating data to draw upon, the efficiency baseline was estimated to be just over 1 kW/ton. This was based on the chiller manufacturer's published efficiency claims plus a review of system components.

It would later turn out that over 70% of the system operating hours were below 35% capacity. In this zone the chillers were using twice the published efficiency. Based on this is was collectively agreed that the real efficiency baseline closer to 1.8 kW/ton.

ON/OFF testing

In the first month, the operators were still gaining trust in the system and didn't always follow the OPTI-visor recommendations. With digital records operators were able to review operating stats in the time periods when the BAS accepted the recommendations. With approval, system efficiency was tracked for one month of operation with the OPTI-visor alternating on and off. Results showed a 0.5 kW/ton. (27%) efficiency improvement directly attributable to the OPTIVisor optimization strategy.

In all, the project was a great success. Energy consumption has been reduced by 763,000 kwh in year one. Chiller plant efficiency improved by 66%, partly through operation in free cooling mode. Financial results are equally impressive suggesting a simple payback of less than the original estimate of 3 years.

Net Project Cost: $140,000

Energy Savings/Year: $61,532

3 Year Savings: $184,597

Tech-info

System equipment includes

- 3 × 850 ton variable speed chillers
- 3 × variable speed chilled water pumps
- 3 × variable speed condenser pumps
- 3 × Cooling towers with variable speed fans. Total 50HP in fans
- 1 × OPTI-visor™ to optimize central plant operation

TORONTO
+1 416 755 2291

BUFFALO
+1 716 693 8813

BIRMINGHAM
+44 (0) 8444 145 145

MANCHESTER
+44 (0) 8444 145 145

BANGALORE
+91 (0) 80 4906 3555

SHANGHAI
+86 (0) 21 5237 0909

SÃO PAULO
+55 11 4785 1330

LYON
+33 (0) 420 102 625

DUBAI
+971 4 887 6775

MANNHEIM
+49 (0) 621 3999 9858

ARMSTRONG FLUID TECHNOLOGY
ESTABLISHED 1934

ARMSTRONGFLUIDTECHNOLOGY.COM

FILE NO.: 9.575
DATE: DECEMBER 2019
SUPERSEDES: NEW
DATE: NEW