

DELTA P VALVE® - Case History

Midway Airport – Chicago, IL

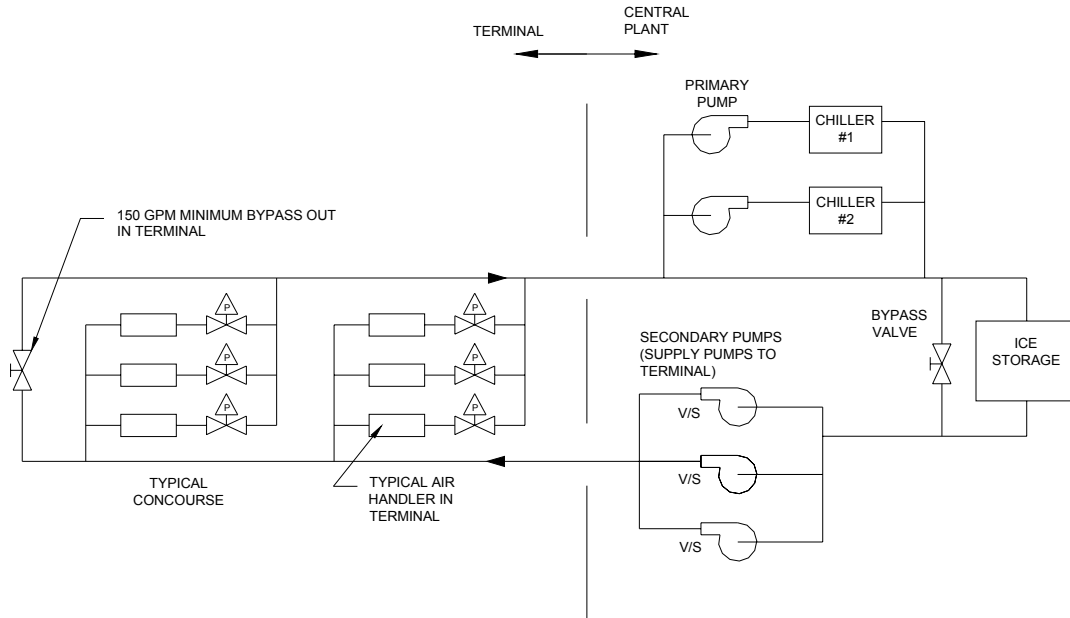
The Midway Airport Central Heating and Refrigeration Plant is the first district energy plant to be outsourced by the City of Chicago Port Authority. Northwind Midway, a division of Exelon Thermal Technologies, won the outsource contract. As of March 2000, the 75% installed energy plant, including ice storage, is capable of providing 3675 tons of refrigeration capacity during peak output hours.



In addition to outsourcing the energy plant, Midway Airport expanded and remodeled its terminal buildings. The chilled water supply is set to 37°F leaving the plant. Chilled water return is designed for 55°F. To ensure optimum performance at all cooling loads, this 18°F delta T design was a prime consideration in configuring the system.

Unique System Features

1. The entire facility is pumped from inside the central plant. No pumps are used in the terminals.
2. Design delta T is 18°F. The chilled water system achieves 18-24° delta T at all cooling loads.
3. Design flow is 4900 gpm. In 2002, the actual required flow has never exceeded 3500 gpm.
4. No balancing requirements. Pressure-independent modulating DeltaPValves™ on each cooling coil control the flow precisely at all load conditions assuring high delta T's.



System Specifics

Chillers – (2) York 1655 Ton Electric Centrifugal

Ice Machines – (2) FES 1200 Ton Screw Compressors

Ice Storage – 14,000 ton-hours

Chilled Water Design Flow – 4900 gpm

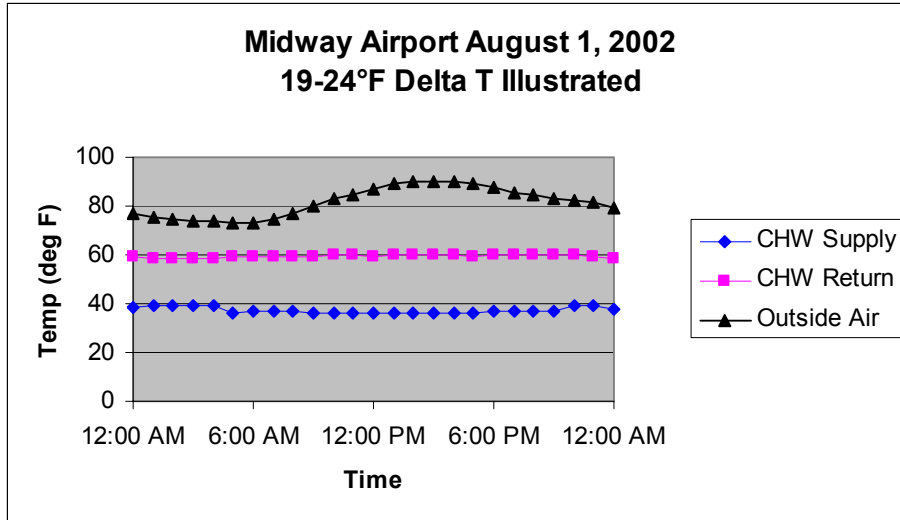
Chilled Water Pumps – (3) 2500 gpm @ 140' head

Chilled Water Valves - DeltaP Valves™

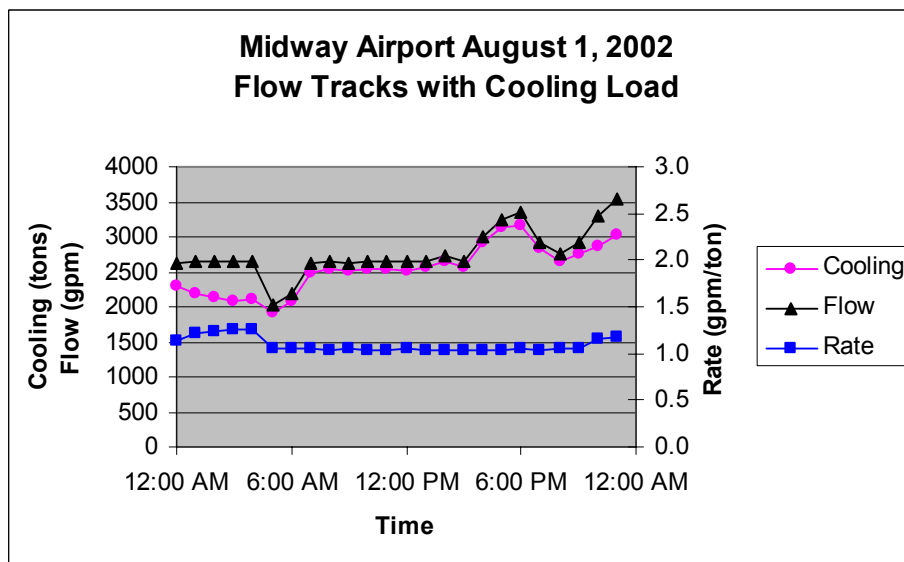


Results

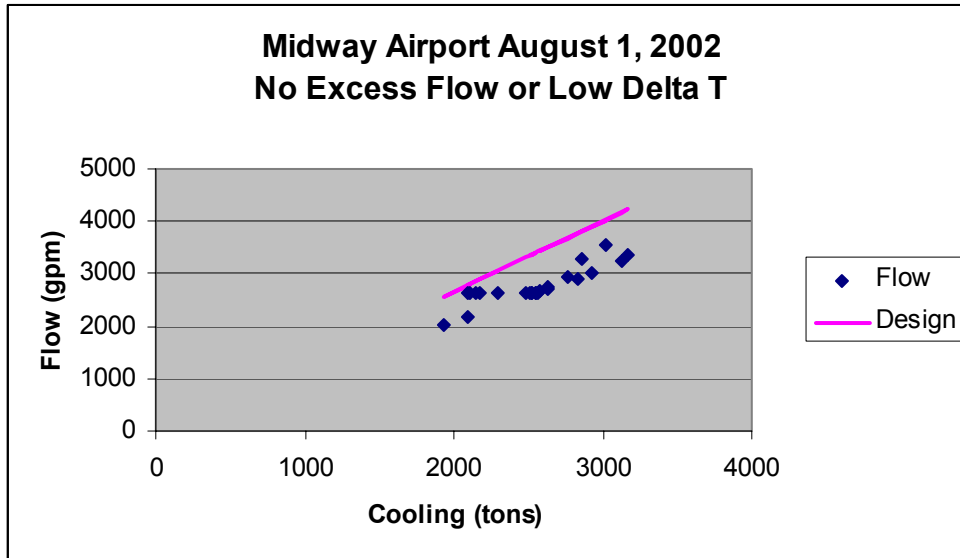
1. Delta T meets or exceeds design (18 deg F) in all cooling load conditions ensuring sufficient flow to all locations in the airport.



2. Flow is approximately half of design at 89 deg F. Flow is matched precisely to the cooling load. Half the flow represents approximately 30% pump power in a distributed system.



- Midway Airport maintains design delta T or better in all cooling load conditions and does not suffer from excess flow and low delta T.



For More Information

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