

# EMERSON



## PROBLEM / CHALLENGE

Emerson's semiconductor manufacturing facility struggled to maintain the tight temperature and humidity tolerances necessary for production with its aging mechanical infrastructure. The chilled water (CHW) plant and distribution system suffered from elevated flow rates, low differential temperature ( $\Delta T$ ), and excessive energy consumption.

## SOLUTION

Emerson initiated a 2-year phased approach to improve system reliability and efficiency. DeltaPValves replaced the existing air handling unit (AHU) CHW valves in phase 1. This immediately cut the distributed CHW flow in half and allowed the chillers to deliver adequate cold supply water throughout the first summer. Phase 2 replaced major equipment in the central plant, including chillers, cooling towers and pumps.

## RESULTS

The CHW system  $\Delta T$  is consistently averaging 12-14°F, up from 4-7°F previously. Precise flow control at each AHU resolved the space temperature and humidity issues, maintaining the specified tolerances even during hot, humid summer weather. Improved system stability also reduced the peak cooling load from 750 Tons to 600 Tons, allowing further central plant optimization and deferring future capital costs. Measurements at the chilled water plant show a *65% reduction in electrical consumption and \$120,000 in annual utility savings.*

## Chilled Water System Retrofit

### Location

Eden Prairie, MN

### Facility

50,000 ft<sup>2</sup>

Manufacturing

### Savings

\$120,000/year

65% kWh Reduction

20% Lower

Cooling Load