Data Center Chilled Water System

Design Flow Solutions®

A chilled water system consists of a closed system of piping and pumps that circulate cold water through heat exchangers to remove heat generated from the operation of the data center servers.

DFS gives the engineer the ability to:

1. Define System Fluid and Properties
   - Define custom fluid, or select fluid from a DFS Library
   - Enter temperature and pressure

2. Input Data and Evaluate Assumptions
   - Calculate resistance coefficients \( C_v \) for the cooler and chiller. If the data is available, make a Flow Dependent Custom Component in DFS which takes into account the change in \( C_v \) with flowrate.

   \[ C_v = Q \sqrt{\frac{S_g}{\Delta P}} \]

3. Enter Piping Geometry and Dimensions
   - Build model with DFS
   - Pipe specifications, diameter, valves, fittings, size changes, elevation changes

4. Enter Custom Components
   - Insert pump, chiller, and custom components
   - DFS will calculate the pressure drop and flowrates

5. Analyze System & Check Flow Rates
   - Find pump operating point, power usage
   - Determine flow rates, pressure drops
   - Compare to cooler specs
   - Model valve lineups, print reports

ABZ, Incorporated
4451 Brookfield Corp. Dr., Suite 107
Chantilly, VA 20151
Phone: (800) 747-7401
Fax: (703) 631-5282
Email: sales@abzinc.com

www.abzinc.com