

SECTION 23 64 00: CHILLERS

1. GENERAL

- A. Water-cooled chillers are preferred for new installations. If air-cooled chillers are proposed, perform a life cycle cost analysis vs. water-cooled to confirm selection
- B. Avoid the use of small local DX equipment within a building wherever possible due to their high maintenance requirements
- C. Variable-flow primary chilled water systems are preferred over constant-volume and primary-secondary designs
- D. Larger chillers incorporating the use of variable speed drives (VFDs) shall require a building Harmonic Study to establish the level of harmonic filtration required for the chiller VFD
- E. Provide multiple chillers or compressors, if required, to achieve minimum turndown. Use of hot-gas bypass for turndown shall be the last option considered; consolidate into low load chiller discussion
- F. Variable-speed driven compressors are preferred, where applicable
- G. Magnetic bearing chillers are preferred for centrifugal chiller applications
- H. For centrifugal chillers, provide marine-style water boxes with hinged end access flanges on both ends of evaporator and condenser barrels. Where marine-style boxes are not available, provide swinging davit arms to facilitate removal of evaporator and condenser barrels for cleaning and tube access.
- I. Chiller VFD cooling is preferred to be by chilled water or refrigerant. If manufacturer only offers cooling by condenser water, provide dual y-type strainers for water filtration. Strainer bank shall have DP sensor across it tied into the BAS
- J. Chillers using HCFC-123, HCFC-22 and R-134A refrigerants are not allowed
- K. Air-cooled units shall be provided with low-ambient controls if located outdoors
- L. Submit product literature detailing the following:
 - 1. Ratings
 - 2. IPLV performance curves for accurate energy modeling analysis inputs
 - 3. Dimensions
 - 4. Materials of construction
 - 5. Applicable wiring diagrams
 - 6. Control interfaces
 - 7. BACNET communications address mapping
 - 8. Accessories
- M. Warranty: chillers to be provided with a minimum 5-year extended warranty, including parts and labor

Facilities Design & Construction Standards

- N. Manufacturers:
 - 1. Carrier, McQuay, York (water cooled)
 - 2. Carrier, McQuay, York, Trane (air –cooled)
 - 3. Multistack (modular)

2. CONTROLS

- A. All equipment controls shall be able to be fully integrated into the campus JCI controls system through full BACnet.
- B. Water–cooled chillers shall be provided with microprocessor-based controls, and shall interface with the campus BAS through BACnet.
- C. Air–cooled chiller and split-system DX units shall have start/stop, status and alarm interface with the campus BAS.
- D. Provide chillers with individual manufacturer-furnished chilled water (and condenser water as required by the manufacturer) flow-proving switches

3. FILTRATION & WATER TREATMENT

- A. Evaluate the need for side stream filters on chilled water systems
- B. Provide side stream filters, with 5 micron filtration, on condenser water systems
- C. All “modular” chiller installations shall include a manufacturer-furnished strainer assembly or dual basket strainers, with manual flow transfer capability and DP gauge, on the chilled water return line to the chillers.
- D. Coordinate with Brown’s water treatment vendor for chemical treatment system requirements