

Your Solution For Energy and Cost Saving

Optimize Your Chilled Water Plant

With its Distinction Series™

McQuay Offers More
High Efficiency Chiller Options
Than Any Other Manufacturer



McQuay[®]
Air Conditioning

Engineered for flexibility and performance.™

DESIGNING CHILLED WATER PLANTS



The days of assigning a building load to one or more equally sized chillers and then specifying a full load kW per ton are gone forever.

Designers are challenged to design the optimum chiller plant for a particular building.

There is a well deserved increase in the interest directed at entire chiller plant operation on a year-round basis. This is, after all, what determines annual energy consumption and operating cost. A chiller's full load efficiency has become much less important.

This is seen in ARI Standard 550/590-1998, Standard for Water Chilling Packages Using the Vapor Compression Cycle that gives a method for estimating the energy use of a single chiller in a building. These figures of merit called the IPLV and NPLV are based on a formula that weights a chiller's efficiency at various part load points and gives an over-all kW per ton efficiency. Full load operation is weighted at one percent, part load performance at ninety-nine percent of the operating hours!

There has been discussion in the air-conditioning community about the application of IPLV/NPLV to multiple chiller applications in addition to the current single chiller method. Some state that the rating method should include actual weather data and building load profile using programs such as DOE-2. Energy deregulation, demand shedding, critical service applications, and multiple energy sources further complicate decision making.

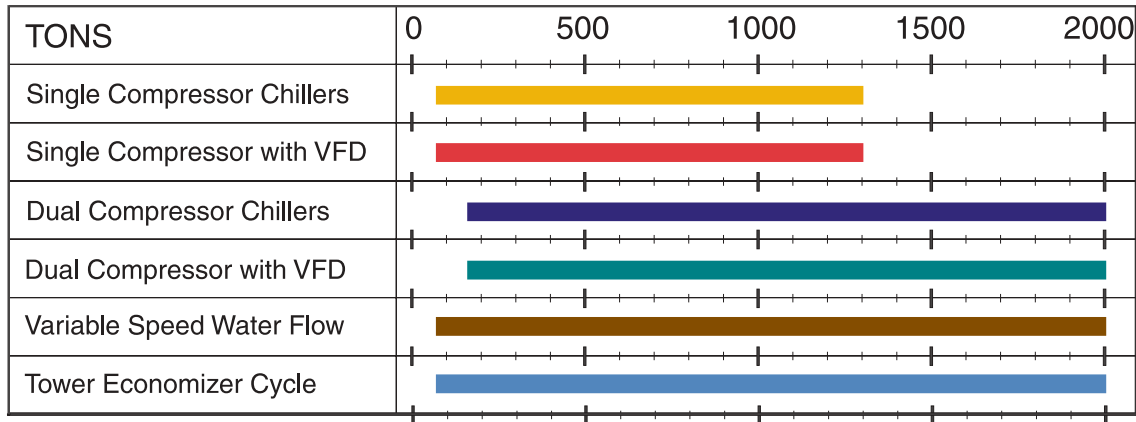
So it is more important than ever that the designer has the largest possible arsenal of chiller options from which to choose the best units for a specific project. What are some of these options?

- Mix-Matching Chiller Capacities
- A Wide Variety of Efficiency/Cost Options
- Variable Frequency Chiller Drives
- Dual Compressor Centrifugals for Efficiency and Redundancy
- Variable Speed Chilled Water Pumping
- Tower Economizer Cycles
- Optimizing Chilled Water and Condenser Water Temperatures

“Why Do It Any Other Way”

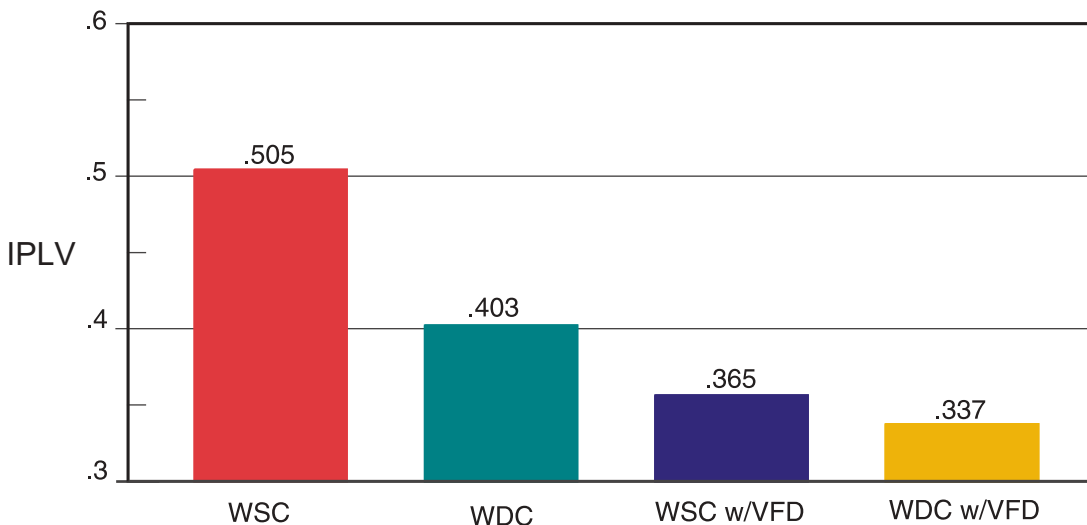
McQuay International is the only manufacturer that can offer all these options. McQuay can offer expert advice and computer evaluation programs to assist the designer in the vital task of chiller plant optimization.

McQuay Offers the Widest Size Range of ARI Certified, Ozone Safe Centrifugal Chillers



NOTE: ARI limit for certification is 2,000 tons. McQuay dual compressor chillers with or without VFD are available up to 2,700 tons.

This selection gives the plant designer the ability to pick and chose the exact capacity, chiller type, and conditions of service required for either a single or multiple unit chiller plant, and provides tremendous flexibility for replacement chiller applications. The chart below illustrates the relative IPLV efficiencies of various McQuay options for a 500 ton selection. The chiller cost increases as the efficiency improves.



Notes: WSC = Single Compressor Centrifugal Chiller
WDC = Dual Compressor Centrifugal Chiller
VFD = Variable Frequency Drive

How McQuay Chillers Achieve Outstanding Efficiencies



WDC are Dual Compressor Chillers equipped with two equally sized centrifugal compressors, each with highly efficient performance on their own. Two principles govern these chillers' operation.

1. Centrifugal compressors are most efficient at high loading.
2. Chiller performance is enhanced with large heat exchangers.

At 60 percent or less chiller capacity, only one of the two compressors needs to operate. Since this compressor sees twice the normal heat exchange surface and is operating at or close to full compressor load, the unit efficiency is maximized.

WSC and WDC single and dual compressor chillers can be equipped with Variable Frequency Drive (VFD). A VFD modulates the compressor speed in response to load and evaporator and condenser pressures as sensed by the microprocessor. Despite the small power penalty associated with the VFD the chiller can achieve outstanding part load efficiency. VFD's really prove their worth when there is reduced load combined with low compressor lift (lower condenser water temperatures) dominating the operating hours.

The WDC/VFD dual compressor chiller benefits from both of these features and is the most efficient chiller in the market today.

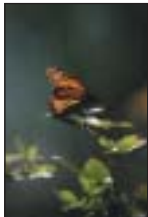
Every McQuay Chiller is Packed with Advantages to Provide Safe, Reliable, Efficient Operation

HFC-134a Refrigerant	Low toxicity, zero ozone depleting
Positive Pressure	No ingestion of moisture and contaminants
Hermetic Refrigerant-Cooled Motors	No leaky, high maintenance shaft seals
Modern Gear Drive Compressor	Low inertia components for low bearing loads, fast acceleration and coast down
New Impeller Designs	Designed for maximum part-load efficiency
MicroTech Controller	Optimize chiller operation for site conditions
Open Protocol	Ready interface with any BMS

“Why Do It Any Other Way”

AND ALSO

NEED TO ELIMINATE ON-SITE FOSSIL FUELS?



If you have the need to eliminate on-site fossil-fuel fired hot water heaters for space heating/reheat/OA heating/domestic water and are attracted to COPs of 3 to 8, McQuay has the perfect answer for this part of the plant.

The McQuay Templifier™ Heat Pump Water Heater is a chiller derivation and is unique in the industry. It reclaims low grade heat, amplifies its temperature through the refrigeration cycle, and delivers the heat at useful temperatures for heating loads. Typical heat sources are condenser water on its way to a cooling tower or ground water. Capacities range from 500 to 24,000 MBH (150 to 7,000 kW) with temperatures up to 160°F (71°C).

NEED EFFECTIVE COOLING WITH STANDBY POWER?

McQuay has a unique, flexible, low cost solution when chiller operation on standby power is required. The very low starting inrush of a McQuay dual compressor chiller equipped with VFD provides the most value from a standby generator set.



McQuay International delivers engineered, flexible solutions to meet your commercial, industrial and institutional requirements. Count on us for a large range of product options, knowledgeable applications expertise and responsive support. McQuay products and services are provided through a worldwide network of dedicated sales and service offices.

We are your source for value-added HVAC systems including:

- Centrifugal and Screw Compressor Water Chillers (10-2700 tons)
- Air-Cooled Scroll Compressor Chillers (10-130 tons)
- Evaporative Cooled Chillers (60-240 tons)
- Absorption Chillers (100 to 1500 tons)
- Applied Rooftop Systems and Rooftop Air Handlers (18-135 tons)
- Vision™ Customized Air Handlers (900-42,500 cfm)
- Vertical Self-Contained Floor-by-Floor Units (15-145 tons)
- Unit Ventilators
- Fan Coils
- Water Source Heat Pumps
- Packaged Terminal Air Conditioners

For more information or the name of your local McQuay representative, call 1-800-432-1342 or visit our web page at www.mcquay.com.

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