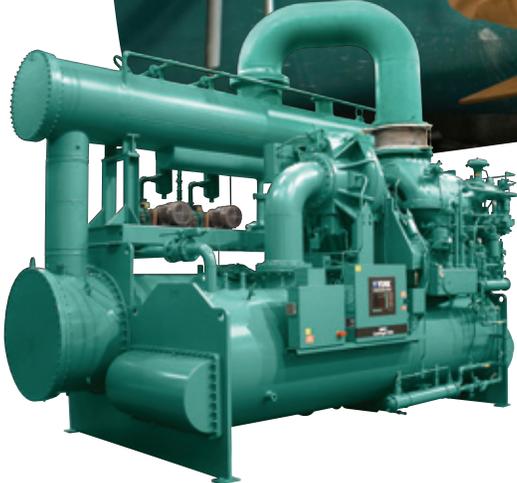
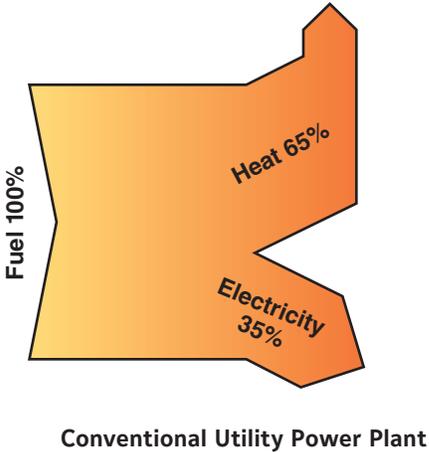


The best chiller choice for large CHP plants



BY JOHNSON CONTROLS

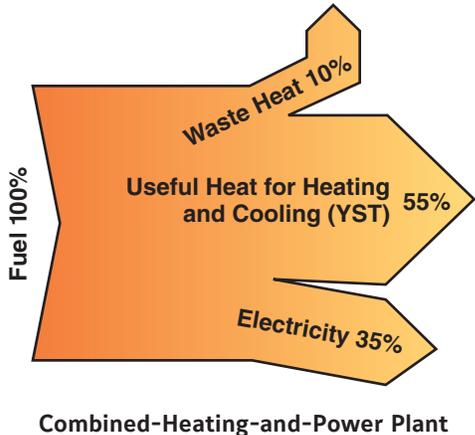
Specify the chiller that uses your CHP plant's full potential



Your optimum solution for large CHP plants

With today's concerns about the costs and consequences of fossil-fuel consumption, a combined-heating-and-power (CHP) plant is a very economical and environmentally responsible solution. That's because much more of the primary energy is turned into useful secondary energy. As a result, a CHP plant provides two to three times the energy utilization compared to conventional power generation and, in turn, shrinks your facility's "carbon footprint."

Even so, a >1 MW CHP plant, which utilizes a combustion turbine, significantly underutilizes its energy potential if it does not include cooling. While the plant's output of medium-pressure steam is usually fully utilized during the heating season, much of the output is wasted during the cooling season, if cooling is accomplished with an electric chiller powered by the electric utility.



The solution is to use steam as the chiller driver. By using steam for cooling, a CHP plant can make full use of its summertime steam production. A MAXE™ YST steam-turbine-drive chiller, manufactured by Johnson Controls, ensures that CHP efficiency is maintained year-round. And it means less carbon dioxide and other emissions are exhausted into the atmosphere. That's why using MAXE YST chillers for CHP cooling is a green, "win-win" solution, economically and environmentally.



The economic and environmental potential of a CHP plant is fully realized by using steam for cooling.

Experienced in alternative-chiller technology

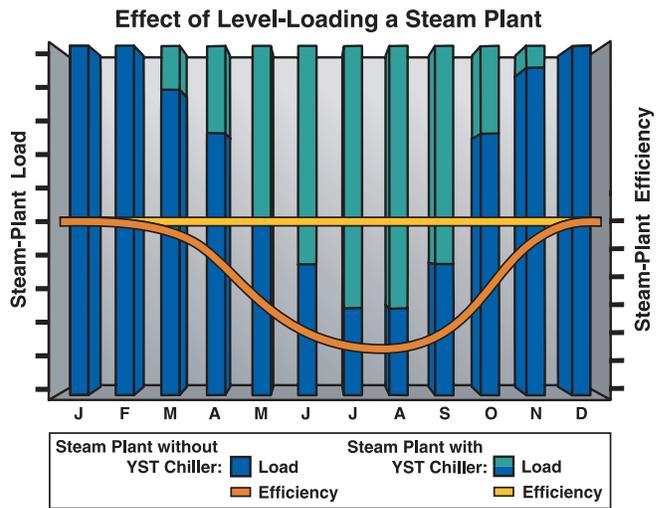
Johnson Controls has decades of experience with steam systems, which has culminated in the most advanced alternative-fuel chiller. Johnson Controls engineering ensures that an efficient, multistage, steam turbine is integrated with the optimal steam condenser to make the most efficient use of available energy to power the chiller. The drive is configured with the proven efficiency of a MAXE centrifugal chiller. The result: unbeatable efficiency at real-world operating conditions.

Focus on minimizing operating costs

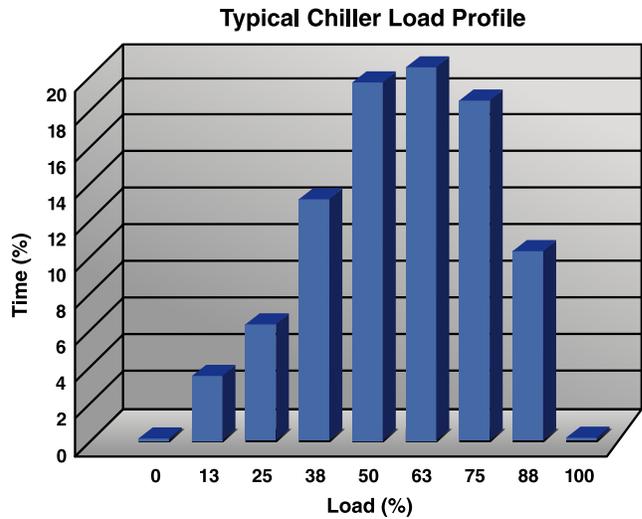
In the real world, chillers operate nearly 99% of the time at off-design conditions. Consequently, how a chiller operates at off-design determines the real energy costs. The MAXE YST chiller is designed to deliver superior performance at both design and off-design conditions. It is engineered to take advantage of the steam turbine's inherent variable-speed capability to seamlessly optimize chiller speed and to handle low entering-condenser-water temperatures, allowing the chiller to operate at the highest efficiency.



MAXE YST steam-turbine-drive centrifugal chiller, manufactured by Johnson Controls.



The use of a MAXE YST steam-turbine-drive chiller improves the summer energy utilization of cogeneration plants.



Chillers spend nearly 99% of operating hours at off-design conditions.

Compact packaging with the flexibility to fit any job

Application flexibility

The MAXE YST steam-turbine-drive chiller handles all the usual operating conditions you normally encounter with traditional chillers, including a wide range of leaving-chilled-water temperatures, entering-condenser-water temperatures, and fluid flows.

Furthermore, the MAXE YST platform has been designed for all normal steam pressures. However, should you have an unusual steam condition, the chiller has the flexibility to accommodate this also.

Modular configuration provides maximum flexibility

Typically, manufacturing a steam-turbine-drive chiller is an engineering-intensive process that involves integrating many different components. But Johnson Controls works smarter. We've evaluated each system component to dramatically simplify the overall chiller design.

The MAXE YST chiller employs a modular concept. Components can be easily mixed and matched. They are pre-designed to take advantage of advanced manufacturing techniques and ensure proper fit and prompt delivery.



The components of the MAXE YST chiller are pre-designed to ensure proper fit and prompt delivery. All steam components required to efficiently manage the turbine-exhaust steam are supplied within the chiller package.

Compact footprint

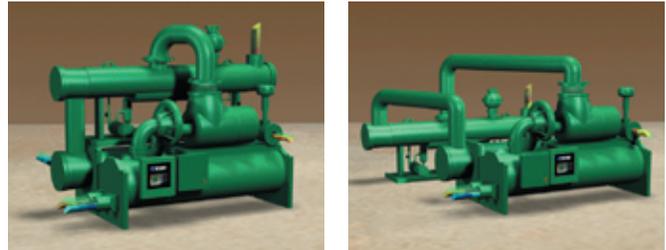
Traditional steam-turbine-drive chillers require significant real estate because of their side-mounted steam condenser. The MAXE YST chiller places the steam condenser on top of the chiller, so the footprint is smaller than competitive steam-turbine-drive chillers and much the same as a compact electrical chiller. Where preferred, the traditional side-mounting of the steam condenser can be selected from the extensive list of available options.

Handle industrial duty with industrial options

Demanding industrial applications require an array of options to meet customer needs. Because the MAXE YST chiller was born out of an industrial design, Johnson Controls has the unique ability to custom-configure a unit to meet your special requirements.

Low noise

Because it uses a quiet steam-turbine drive instead of an electric motor, a MAXE YST chiller operates at significantly reduced sound levels compared to many electric chillers.



The steam condenser can be top-mounted (far left) or side-mounted.



The YST chiller is born out of an industrial design.

Sophisticated controls specifically designed for steam



Optimized to control steam

Previous generations of steam-turbine-drive chillers used a collection of various component controls. The MAXE YST chiller is the first steam-turbine-drive chiller where the control system has been developed from the ground up to control the complete chiller. At the heart of the system is the OptiView™ Control Center. Its powerful microprocessor and graphical user interface set the standard by presenting more data in the friendliest possible way.

In operation, proven OptiView control logic continually monitors all chiller and steam conditions, and automatically determines the most efficient way to run the chiller. Furthermore, the control algorithms have been developed from process-industry experience to ensure that the YST chiller will handle extraordinary operating conditions in a controlled and safe manner.

Instantly grasp the big picture

Johnson Controls has packaged the control system so carefully that a lack of steam-operator experience is not a problem. Thanks to the large, active-matrix, color screen of the OptiView Control Center, data is shown in association with illustrations of the key chiller components. The clear layout, animated graphics, and plain-language readouts are easy to read, virtually eliminating operator confusion. Visual cues explain key information, making operation essentially intuitive.



The OptiView Control Center utilizes a large, active-matrix, color screen with visual cues that make operation essentially intuitive.

Information when and where you want it

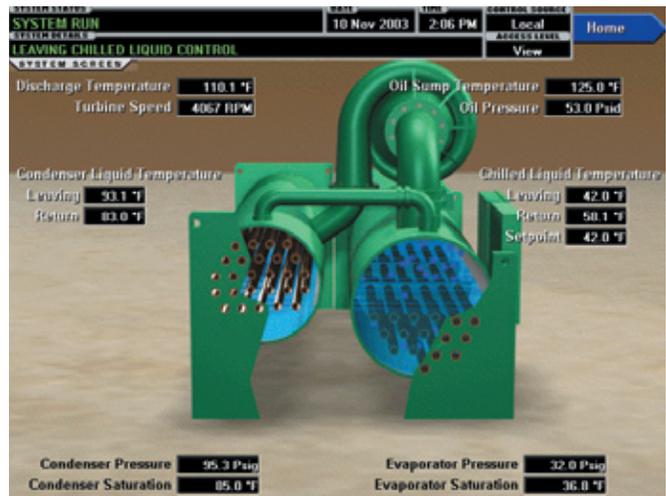
With the OptiView touch screen, all key data is available for review at your fingertips. Detailed data logs and trending can be displayed directly on a single screen – or printed logs can be generated automatically at predetermined time intervals. System information can also be downloaded to a PC to simplify performance and troubleshooting analysis.

Start the system automatically

Traditionally, steam-turbine-drive chillers required manual starting. Available with the MAXE YST chiller is an industry first – fully automatic starting of the chiller. The option is enabled by the OptiView Control Center and the addition of automatic valves, solenoids and sensors.

Full system connectivity

The OptiView Control Center is designed to communicate with most building- and process-management systems on the market today, including BACnet, LonMark, and MODBUS systems. An open protocol allows all operating data to be accessed and read anywhere on the network.



The clear layout, animated graphics, and plain-language readouts virtually eliminate operator confusion.



Reliability that pays you back in long-term savings, peace of mind



HFC-134a: The long-term refrigerant of choice

To ensure your chiller satisfies environmental concerns over the long haul, MAXE YST chillers use HFC-134a, which has zero ozone-depletion potential and no phase-out schedule.

Decades of worry-free operation

MAXE YST chillers are built for industrial duty, to serve as your primary chiller. You can count on MAXE YST chillers to provide the same low-maintenance, highly reliable operation, and long service life that make MAXE centrifugal chillers the preferred choice in the most demanding applications in the world.

Where technology and service expertise come together

By integrating proven steam-turbine-drive technology with our MAXE centrifugal chiller design and OptiView Control Center, Johnson Controls has created the most efficient, most reliable way possible to maximize your real-world energy savings.

Johnson Controls also offers services to ensure that our MAXE YST chillers deliver all their benefits from the start. Our sales engineers and project management team are specially trained to complete your project on-time and on-budget. Then, technicians can implement start-up and commissioning, as well as train in-house staff. Finally, factory-trained service technicians can provide contracted maintenance procedures, as well as perform repairs and enhancements to maximize your savings over your equipment's entire lifecycle.

For the talent and technology to optimize the performance of your large CHP plant, call your nearby Johnson Controls Sales Engineer today.