

MAXE™



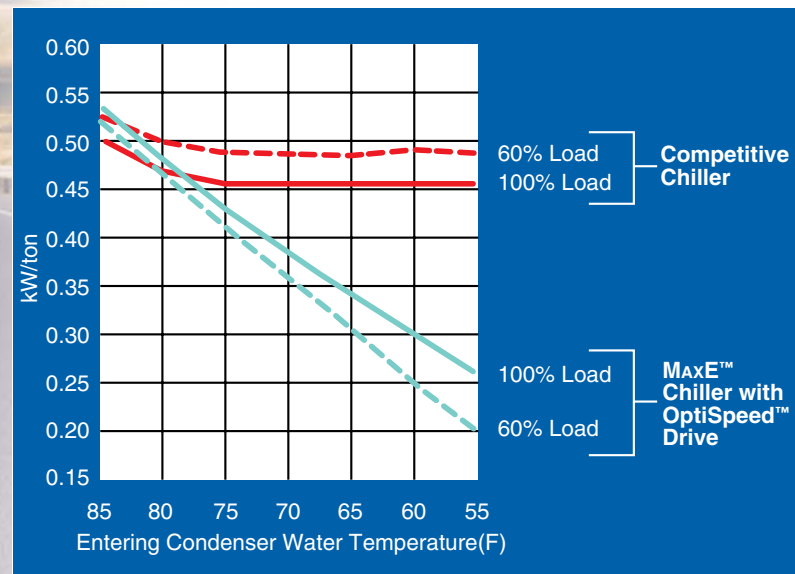
Centrifugal Chillers

BEST ROUTE TO
REAL-WORLD
ENERGY PERFORMANCE



YORK®

MaxE™ Chillers Deliver Maximum Efficiency



Unsurpassed in energy efficiency, MaxE centrifugal chillers can reach 0.20 kw/TR at off-design conditions.

The Importance of Real-World Energy Performance

YORK® MaxE™ centrifugal chillers provide the best route to real-world energy performance — the combined performance at *all* operating conditions, not just design. Because chillers in the real world operate nearly 99% of the time at off-design conditions, off-design performance is the major factor in energy consumption. That's why MaxE centrifugal chillers are engineered for maximum efficiency at both design and off-design conditions.

Unsurpassed Integrated Part Load Value

The Air-conditioning and Refrigeration Institute (ARI) Chiller Certification Program endorses the validity of off-design analysis to compare chiller energy consumption. Measured with ARI's Integrated Part Load Value (IPLV), MaxE centrifugal chillers are

unsurpassed in energy efficiency. Equipped with a YORK OptiSpeed™ variable-speed drive, they can reduce energy-usage ratios to new lows: 0.40, 0.30, and even 0.20 kW/TR at off-design conditions.

Adaptive Capacity Control Optimizes Performance

When a MaxE centrifugal chiller is equipped with an OptiSpeed drive, it incorporates advanced Adaptive Capacity Control logic, which continually optimizes chiller operation. It closely examines critical operating parameters, and then determines the most efficient way to operate. In addition, it lets you optimize your savings when using intelligent control strategies, such as chilled-water reset. Adaptive Capacity Control logic also accommodates the characteristics of the refrigerant used in the chiller — today and tomorrow.

Take Advantage of Colder Entering Condenser Water

Unlike competitive chillers which require entering-condenser-water temperature (ECWT) from the cooling tower to be held artificially high, YORK MAXE centrifugal chillers can utilize lower ECWT. The lower ECWT lowers the compressor workload, and that leads to dramatic energy savings throughout the chiller's lifetime.

Powerful Control Center Saves Energy

MAXE chillers feature the OptiView™ Control Center, which uses microprocessor capabilities to save you energy. Operation at just 1°F below the design chilled-water-temperature setpoint can increase chiller energy consumption by as much as 3%, wasting thousands of kilowatt-hours and dollars each year. The digital precision of the OptiView Control Center lets you set chilled-water temperature to a resolution of $\pm 0.1^\circ\text{F}$. As a result, you eliminate the energy wasted by drifting a degree or more from the setpoint.

The OptiView Control Center can also be used to schedule daily operating hours and holidays. No longer is energy accidentally wasted cooling the facility when it's not needed.

SYSTEM STATUS
SYSTEM RUN
LEAVING CHILLED LIQUID CONTROL
SETPOINTS SCREEN

DATE: 04 Aug 2001 TIME: 2 45 PM CONTROL SOURCE: Local ACCESS LEVEL: Operator Home

Leaving Chilled Liquid Temperature
 Setpoint: 47.0 °F
 Remote Range: 10.0 °F

Leaving Chilled Liquid Temperature Cycling
 Shutdown: 43.0 °F Offset: 4.0 °F
 Restart: 47.0 °F Offset: 0.0 °F

Current Limit Setpoint: 100 %

Local Motor Current Limit: 100 %
 Pulldown Demand Limit: 100 %
 Pulldown Demand Time: 0 Min

Local Leaving Chilled Liquid Temperature Setpoint: 47.0 °F
 Range: 10.0 °F
 Leaving Chilled Liquid Temperature Cycling Offset Shutdown: 4.0 °F Restart: 0.0 °F
 Remote Analog Input Range: 0-10 Volts

Print

SYSTEM STATUS
SYSTEM RUN
LEAVING CHILLED LIQUID CONTROL
SCHEDULE SCREEN

DATE: 06 Jul 1999 TIME: 11 45 AM CONTROL SOURCE: Local ACCESS LEVEL: Service Home

Standard Weekly

Sun	Mon	Tue	Wed	Thu	Fri	Sat
Off	9:00 AM	9:00 AM	9:00 AM	9:00 AM	9:00 AM	Off
Off	5:00 PM	5:00 PM	5:00 PM	5:00 PM	5:00 PM	Off

Press Select button to start programming.
 Use cursor keys to select desired time.
 Press Enter key to input start/stop time.
 Press +/- key to switch from AM to PM.

Print

Setup
 Select
 Schedule Disabled
 Reset Exceptions
 Repeat Sunday

The OptiView Control Center helps you operate your chiller more efficiently by allowing for the precise setting of chilled-water temperature and operating schedule.

Maximum Control with OptiView™ Control Center



Easy to Read

YORK has always pioneered powerful, yet simpler chiller control. We were the first to apply microprocessor-based, plain-language-display control centers to centrifugal chillers. Now, YORK MAXE centrifugal chillers feature the full-screen, full-color OptiView Control Center.

It's an advanced, microprocessor control center that sets the standard by presenting more data in the friendliest way possible. You still get the code-free, plain-language data you're accustomed to from a YORK microprocessor control center. But now it's even easier to read, thanks to a large, full-color screen using advanced active-matrix display technology.

This larger display shows even more data per screen with far less button-pushing. And that makes it much quicker and easier to operate your chiller. To facilitate a higher level of monitoring and control, data outputs are shown in association with illustrations

of the appropriate chiller components — a layout that minimizes user confusion. For convenience, all data can be displayed in nine different languages, in addition to Imperial or SI units.

Easy to Operate

With the OptiView Control Center, data input is foolproof. A dedicated keypad for numerical input minimizes keystroke errors. Cursor controls for screen navigation make it easy to access all input, control, and monitoring functions. Plus, a “navigation bar” quickly guides you to the level of information you need.

Get the Message — Quickly and Graphically

Thanks to the large, active-matrix screen, detailed logs can be read directly from the OptiView Control Center. Instead of keystroke after keystroke to gather sufficient data from a small, monochrome LCD screen, a single button can reveal an array of chiller information that is quickly seen on a single screen. Data output is provided in precise, digital form. Valuable operator time is freed for other important activities.

Advanced Data Logging

For convenience, a printer can easily be connected to the OptiView Control Center without interfacing through a BAS system. A printed log can be obtained automatically, at predetermined time intervals, without operator involvement. In addition, service technicians can use a portable printer to download information for troubleshooting and repair. All this can also be done while connected to a BAS system.

These sample screens demonstrate how easy it is to access and view more useable data. They are typical of the over 35 screens available on the OptiView Control Center.

On-Screen Trend Analysis

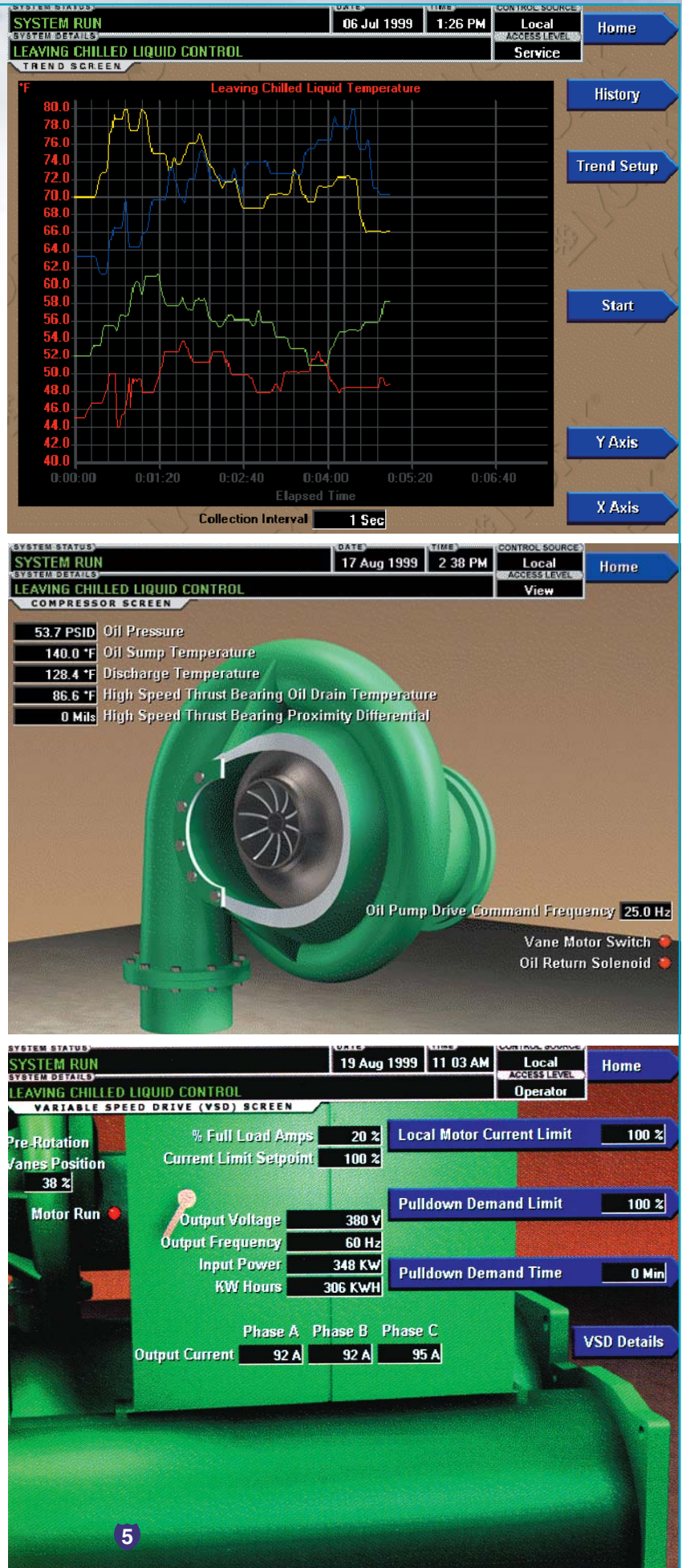
The OptiView Control Center's full-screen, full-color display allows on-board trending of up to six different values, selected from over 100 items. The values and sampling interval are all user-selectable. This flexibility allows operators to select parameters that are critical for their operation, and do trending without a BAS interface and separate monitor.

Easy to Integrate

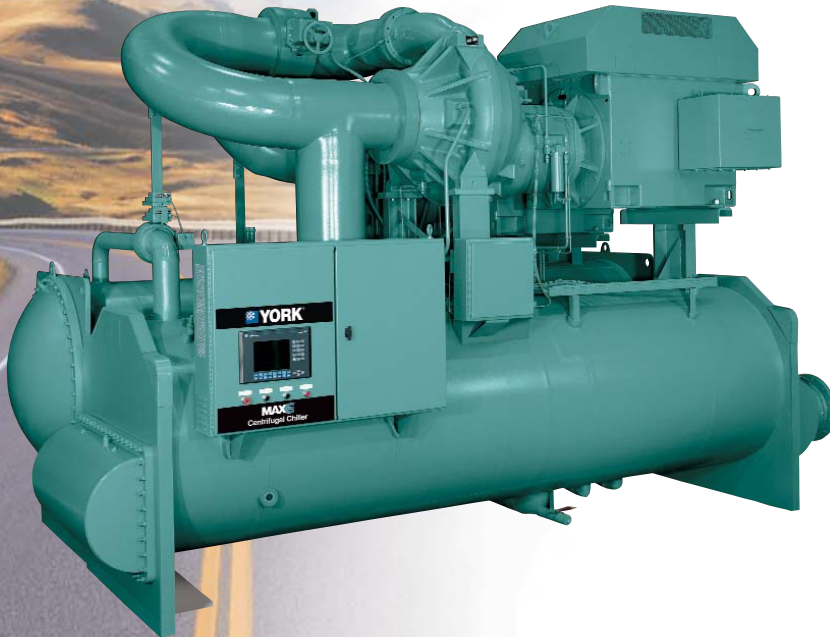
Energy savings and ease-of-use can be fully realized when the HVAC system is an integrated part of the BAS system. The OptiView Control Center is designed to communicate with most existing control systems on the market today, as well as BACnet and LonMark systems.

Easy to Secure

You can rest assured that along with state-of-the-art control, the OptiView Control Center provides advanced levels of security. Setpoints are protected by a user-selectable security access code. A "Remote" mode allows a BAS to implement sophisticated control strategies as a first priority. A "Local" mode provides full control at the control center. "Operator" mode opens control software to your commands. And "Service" mode gives qualified service personnel exclusive access to special functions.



Versatile Design Provides Maximum Flexibility



Energy-Source Choice

In addition to high-efficiency electric-drive motors, the MaxE chiller line is also available with a natural-gas-engine driveline to tap the inherent environmental, energy, and cost benefits of this alternate resource. Process or utility-supplied steam is another possible power source, freeing you from the electric grid. With so many energy alternatives to choose from, you can make the most of utility rebates and demand-side-management strategies to save even more money.



The versatile MaxE family of chillers provides flexibility in compressor configurations and energy sources, to satisfy unique applications and take advantage of available energy sources.

The YORK MaxE line of centrifugal chillers offers the broadest range of energy sources and compressor configurations in the industry. And that versatility gives you the flexibility to meet virtually any application need you may encounter.



Environmental Responsibility

In answer to environmental and refrigerant phase-out concerns, MaxE chillers are charged with HFC-134a refrigerant, which has zero ozone-depletion and no phase-out schedule.

In addition, MaxE centrifugal chillers' compatibility with future refrigerants is assured. That's because YORK uses an open-drive design that is proven to allow quick and economical changeovers to alternative refrigerants.



Handles Pressure Jobs

Certain jobs require chillers to operate beyond the limits found in typical air-conditioning applications. In these cases, the compressor must develop higher differential pressure on the refrigerant gas in the compression phase, producing higher head pressure. YORK meets this challenge with a compound-compressor design that handles brine chilling, heat pump applications, and other unusually demanding applications.

Maximum Reliability with Minimum Maintenance

OptiView Control Center Keeps You Well-Informed

The OptiView Control Center provides complete information on your chiller's operating condition. Safety-shutdown information includes day, time, cause of shutdown and type of restart required. Color-coding of fault messages allows easy determination of chiller status. Yellow messages are shutdowns with automatic restart, requiring no operator intervention. Red messages are displayed for shutdowns requiring manual restart, alerting the operator that a system check may be required.

The Trending Screen can show changes in motor current, oil temperature and pressure, refrigerant pressures, or water temperatures, all of which can be valuable indicators of developing problems. This capability gives you ample time to take corrective measures before any expensive downtime is incurred. With the OptiView Control Center, you can see when to schedule routine maintenance in advance of actual need.

Open Drive is Reliable and Easy to Maintain

The hallmark of a YORK centrifugal chiller is the open-drive design — a proven configuration that continues on MAXE centrifugal chillers. Why? One of the reasons is that a motor burnout is no longer a catastrophic failure. While motor burnouts are infrequent events, it only makes sense to utilize a chiller design that minimizes the resulting downtime. With an open-drive design, a burnout only affects the air-

The screenshot displays the OptiView Control Center interface. At the top, it shows 'SYSTEM STATUS' as 'SYSTEM RUN', 'DATE' as '24 Nov 2001', 'TIME' as '11:54 AM', 'CONTROL SOURCE' as 'Local', and 'ACCESS LEVEL' as 'Operator'. Below this, the 'HISTORY SCREEN' is active, showing 'LEAVING CHILLED LIQUID CONTROL'. The interface includes buttons for 'Home', 'Trending', and 'Custom View'. The 'Last Normal Shutdown' section shows a message: '11:09:00 AM 24 Nov 2001 LOCAL STOP'. The 'Last Fault While Running' section shows a message: '9:49:18 PM 18 Oct 2001 AUXILIARY SAFETY - CONTACTS CLOSED'. The 'Last Ten Faults' section lists ten faults with their timestamps, dates, and descriptions, color-coded by severity. At the bottom, there are buttons for 'Select Fault' (Normal), 'View Details', 'Print History', and 'Print All Histories'.

No.	Time	Date	Message
1	11:50:33 AM	22 Nov 2001	CONDENSER - HIGH PRESSURE CONTACTS OPEN
2	12:09:48 AM	30 Oct 2001	CONTROL PANEL - POWER FAILURE
3	9:49:18 PM	18 Oct 2001	AUXILIARY SAFETY - CONTACTS CLOSED
4	4:02:12 AM	12 Oct 2001	MOTOR CONTROLLER - CONTACTS OPEN
5	11:00:07 PM	28 Sep 2001	LEAVING CHILLED LIQUID - LOW TEMPERATURE
6	10:30:30 AM	05 Sep 2001	CONTROL PANEL - POWER FAILURE
7	2:47:02 AM	24 Aug 2001	MULTIUNIT CYCLING - CONTACTS OPEN
8	5:26:50 PM	12 Aug 2001	CONDENSER - HIGH PRESSURE CONTACTS OPEN
9	11:12:22 AM	22 Jul 2001	LEAVING CHILLED LIQUID - LOW TEMPERATURE
10	8:20:00 AM	24 Feb 2001	AUXILIARY SAFETY - CONTACTS CLOSED

cooled motor. The rest of the chiller is not contaminated with products of combustion.

The motor is easy to remove, and can be repaired at a local motor shop. As a result, downtime due to motor burnout is dramatically reduced.

Electrical Protection Extends Motor Life

Equipped with an OptiSpeed drive, the MAXE chiller starts "softly," never letting the inrush current exceed 100% of the full-load amps. By limiting the inrush, the motor windings do not rub together with expansion, which extends the life of the insulation, contributing to longer motor life and less chiller downtime. Lower inrush also reduces torque stresses on the motor and compressor driveline.

Color-coded fault messages allow early determination of chiller status and required operator action.



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