

VANTAGE™

High Performance Compressor Control System

THE MOST ADVANCED CONTROL SOLUTION FOR ALL COMPRESSORS



**COOPER
TURBOCOMPRESSOR**

Vantage™ High Performance Control System

The industry's most advanced control solution from the first name in centrifugal compressor design — Cooper Turbocompressor.

Cooper Turbocompressor is the first compressor manufacturer to offer off-the-shelf control solutions for all styles of compressors with the new Vantage™ High Performance Control System.

Now, you have one source for air compressors, compressor controls and system control solutions. Cooper Turbocompressor is the company that introduced the first microprocessor control for centrifugal compressors over two decades ago. Now we bring you the latest control system technology with Vantage™ technology.

World-class control from two world-class companies.

The Vantage™ system was developed as a result of our strategic alliance with Bay Controls, known in the industry for its expertise in designing compressor controls and compressed air solutions.

Vantage™ controller and air solutions for all your compressed air needs.

The Vantage™ controller comes standard on all our centrifugal compressors and is available as an upgrade on all other competitive centrifugal compressor products. In addition, a Vantage™ solution is available for any model reciprocating or rotary screw compressor.

The most efficient and reliable compressor control available anywhere.

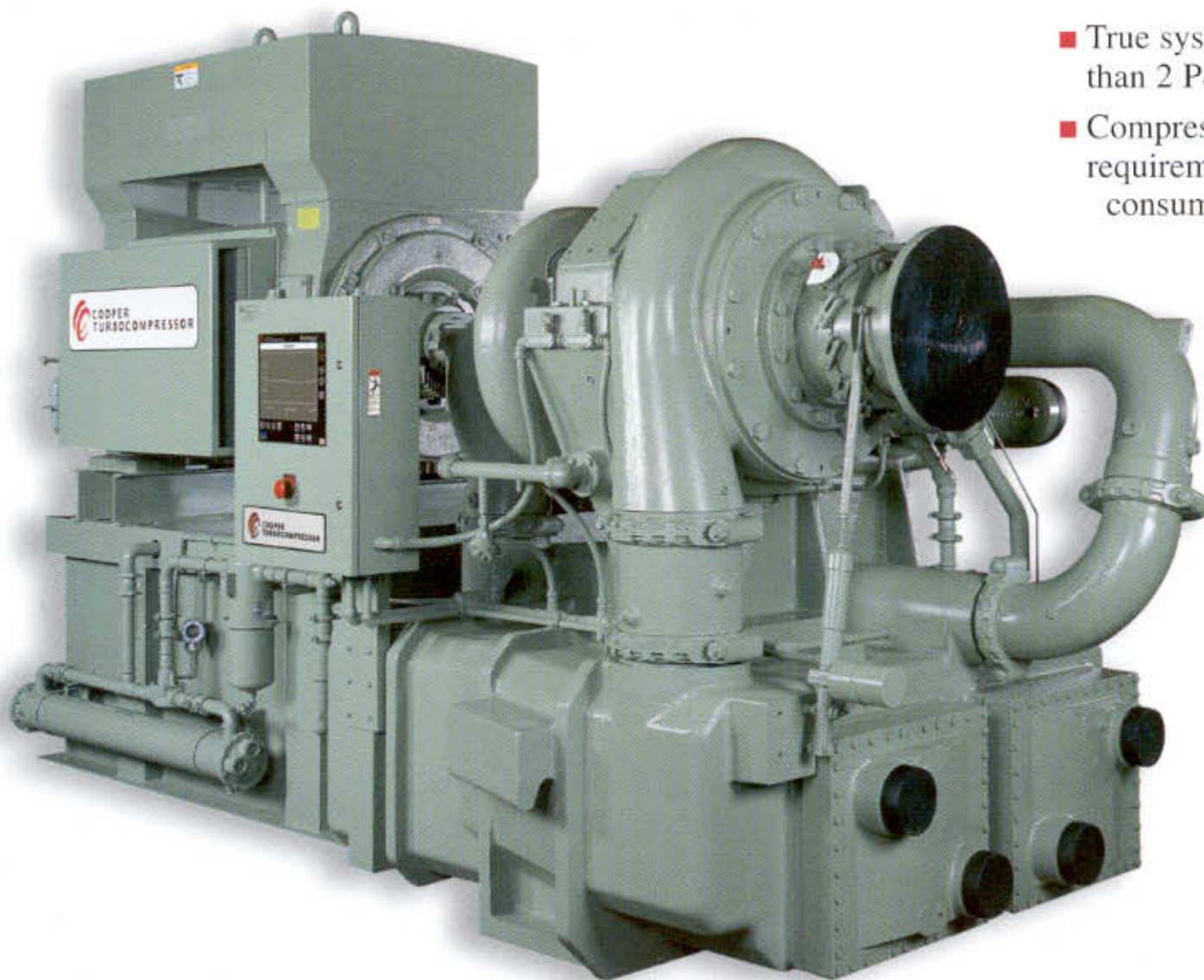
- The Vantage™ system uses Polytropic Head and inlet flow to accurately predict the true surge point relative to changing operating conditions.
- The Vantage™ control strategy maximizes a compressor's operating throttle range, increasing useable turndown and substantially reducing or eliminating wasteful compressor blow-off.
- Reacts to large system demand changes better than any other controller.
- Results in optimal operating efficiency and reliability in compressed air supply.

Precise pressure control for all system demand conditions.

- True system pressure control that typically varies less than 2 PSI even during large changes in system demand.
- Compressors can operate at minimum pressure requirements of the plant to optimize their energy consumption.

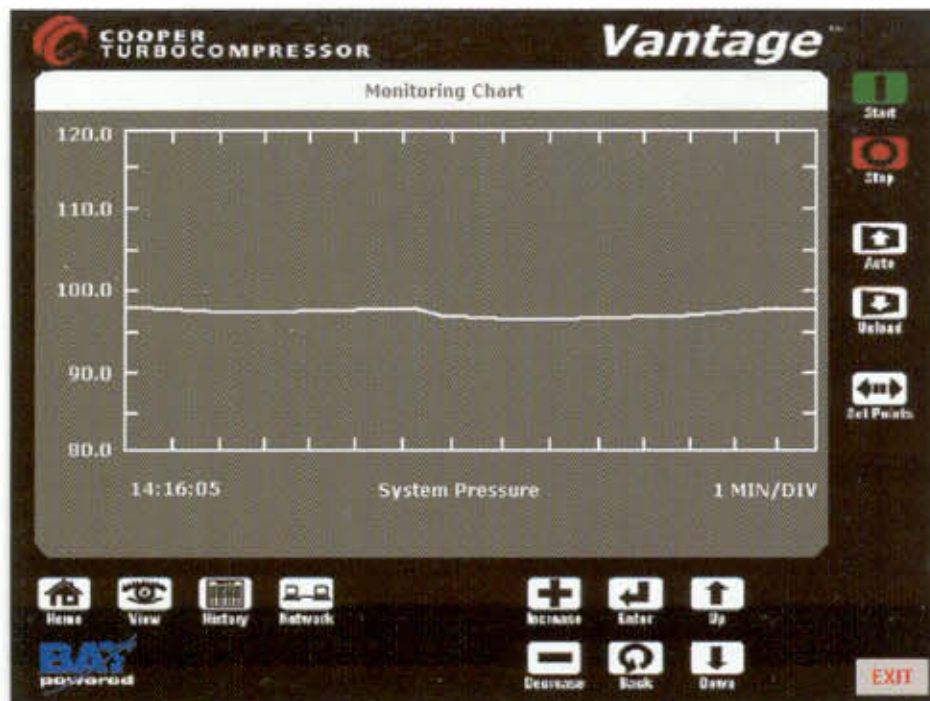
Saves energy to save you money.

- Vantage™ controllers safely operate the compressor closer to the actual surge curve than any other controller.
- Offers greater operating turndown and true system pressure control for significant energy savings.
- Typically delivers 10-20% greater operating range over other OEM controllers.
- Can result in tens of thousands of dollars in annual energy savings.



The most advanced surge detection.

- The Vantage™ SurgeWatch system assures accurate surge detection earlier and more reliably than any other method.



Easy-to-use information display.

- Full page, 640 x 480, graphic LCD display for the user interface with an integrated 15 key, tactile keypad.
- Provides 24 lines by 80 characters of detailed information on the operational condition and settings of the controller.
- Large, back-lit display is easily read under all ambient lighting conditions.

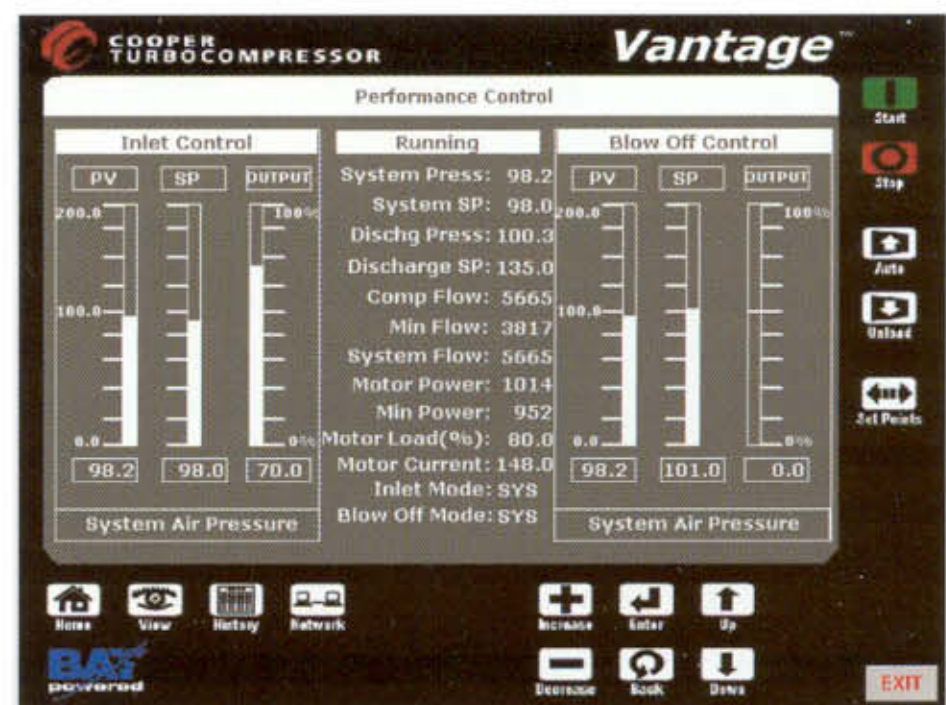
Monitoring Views and History.

- Event history provides critical diagnostic and operating information, listing the last 256 events, including start-up, shutdown, set point changes, and more.
- Protection history provides operating information listing the last 256 alarm warnings and trips.
- Monitoring view provides a complete picture of compressor operation in real time.
- Monitoring chart is a graphical depiction of real time monitoring information.
- Efficiency view provides real time information of the compressor's performance.
- Multi-level security system restricts access to critical functions.

Optional features to meet your needs.

Compressor Networking for further operational savings

- Compressor Networking can operate up to 32 compressors as one coordinated system.
- Assures that each compressor is operating at peak efficiency levels, with the ability to respond to changes in system demand.
- Operates as many compressors at full load as possible and modulates one compressor.
- Compressor Networking is available for all brands and models of centrifugal, reciprocating and rotary screw compressors.
- Provides ability to automatically start and stop compressors as needed.



Performance History

The Performance history maintains a record of the power consumption, compressor and system mass flow, and compressor and system efficiency for twelve months, and maintains daily detail performance information for the current and previous month. This report is viewed through the Vantage™ operator interface. No other centrifugal compressor controller has this useful operational report built-in to the local controller.

Integrated Operation Scheduler.

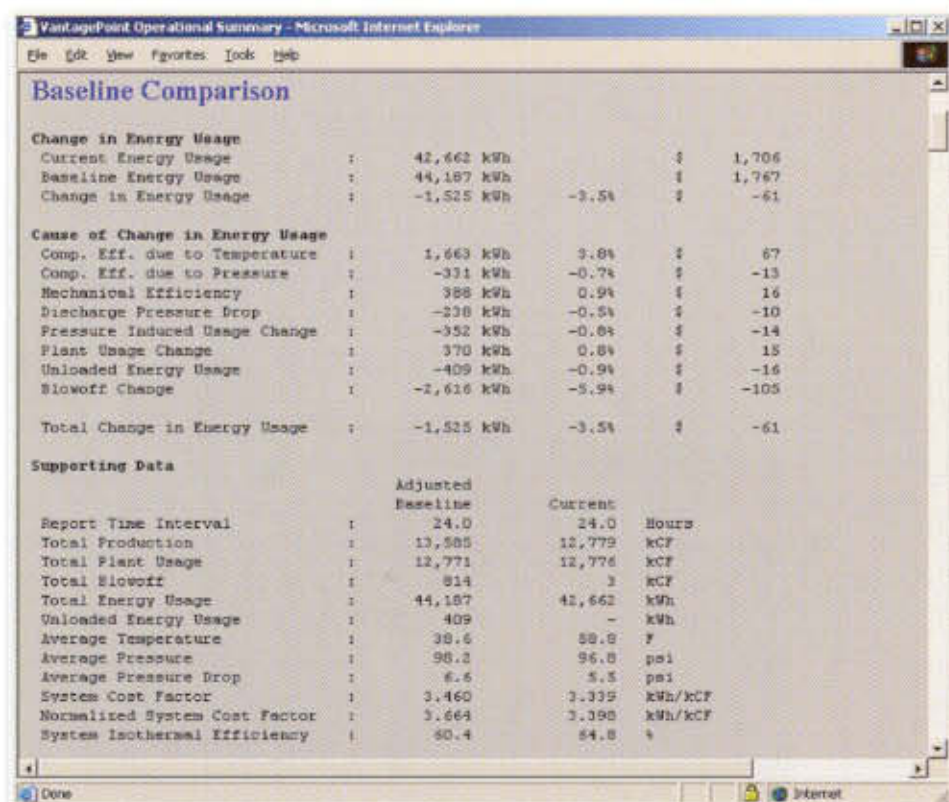
The Vantage™ system is available with an Operation Scheduler that provides the ability to automatically change the system pressure setpoint, the maximum load setpoint, and start and stop compressors at a configurable date and time. It automatically reduces the system air pressure setpoint during non-production periods, saving considerable energy. The Operation Scheduler allows optimization of compressor selection to more efficiently meet production demand.

VantagePoint™ Web-based monitoring



Connect and control your compressor 24/7.

VantagePoint™ service is a Web-based monitoring, support and management service available on all Vantage™ control panels. VantagePoint™ service allows 24/7 connectivity and data acquisition to manage your compressed air system wherever you are - at home, on the road or in your office.



■ Data Acquisition for Performance Measuring

All of the data from each controller is acquired continuously.

■ Control

If configured, accepts control commands and setpoint changes.

■ Remote Diagnostics

Provides the ability to have Cooper Turbocompressor analyze your compressor and system performance.

■ Monitoring

Provides you with the most recent data for the controller and systems.



■ Security

Provides connectivity using proprietary virtual private networking technology. The VantagePoint™ servers use secure-socket-layer (SSL) encryption. This ensures a private communication channel between the customer's browser and the VantagePoint™ servers.

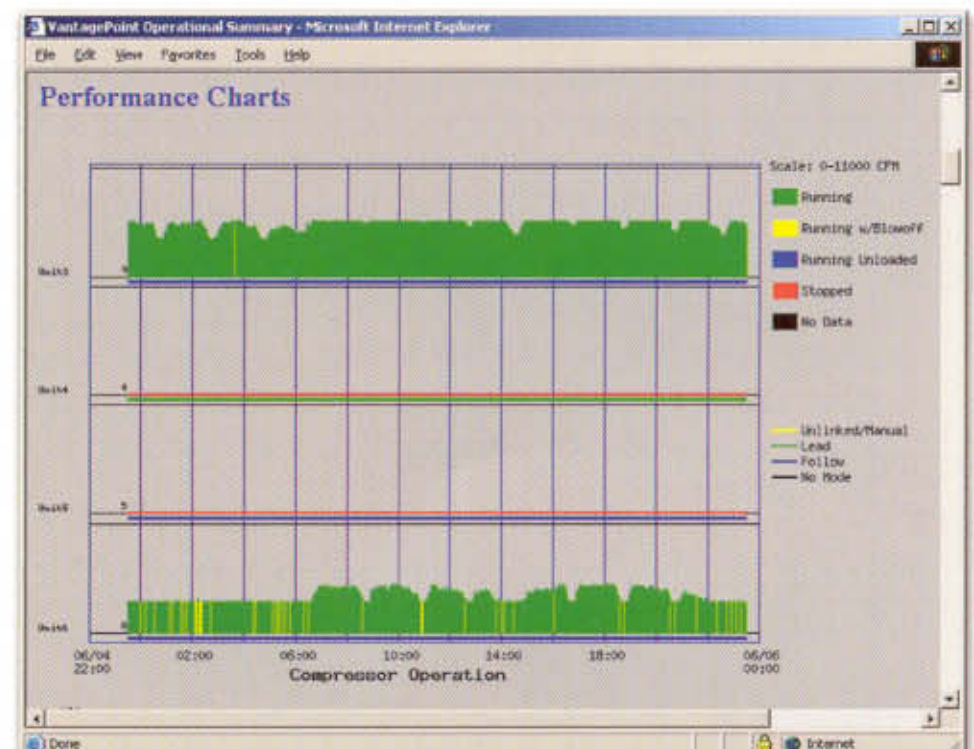
■ Flexibility

Can be integrated with other web-based resource management applications.

■ Engineering services.

Vantage™ system applications can be extended and modified for Cooper Turbocompressor's Vantage+™ Engineering which provides additional services beyond the enhancements to software, instrumentation and system tuning. These include:

- Plant air system profiling
- Daily performance and operation review
- Monthly performance enhancement engineering
- Annual performance review and demand profiling
- Calibration and air system study services



The Vantage™ system delivers thousands of dollars in energy cost savings

The Vantage™ solution optimizes compressor and system performance resulting in tens of thousands of dollars in annual energy savings.

First, let's put compressed air costs in perspective.

Over the life of a system, the energy costs far exceed any of the other costs.

Now let's compute compressed air energy costs

Example

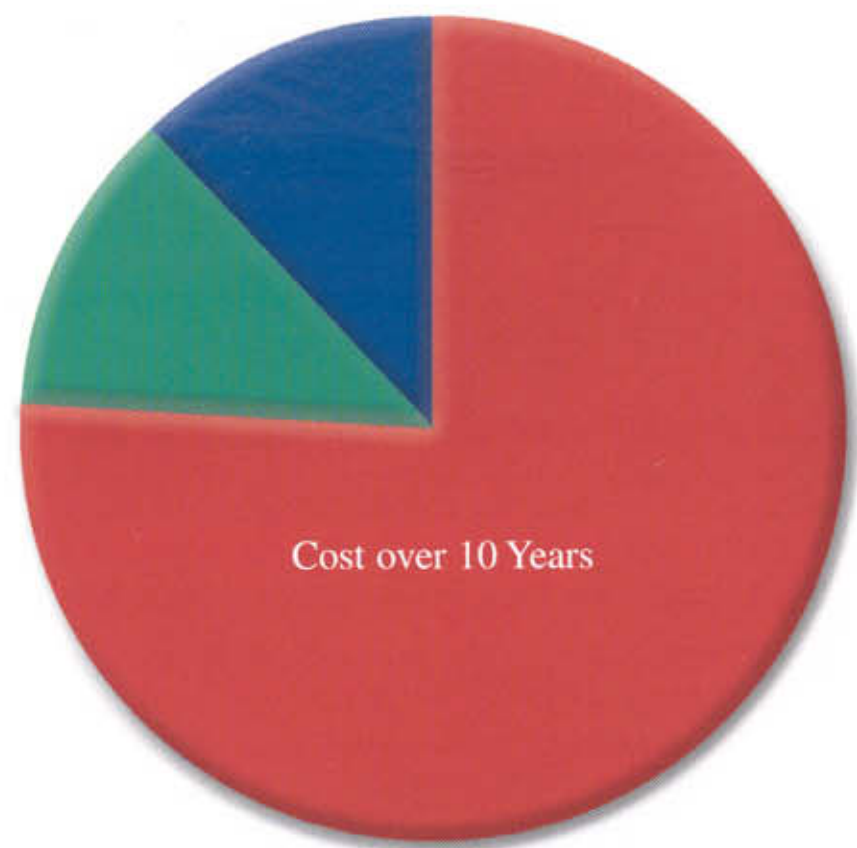
- 500 hp compressor, 95% efficient motor, 8400 hours per year of operation

$$\frac{500 \text{ hp} \times 0.746 \times 8400 \text{ hours} \times \$0.05/\text{kWh}}{0.95}$$

Electricity costs = \$164,905 per year

The Vantage™ solution cuts energy costs five ways:

- 1. Precise pressure regulation**
The Vantage™ system maintains plant pressure within 1 - 2 PSI, which allows overall pressure reduction. Reducing pressure improves compressor efficiency saving energy dollars.
- 2. Setpoint reduction**
Available Operation Scheduler automatically reduces system pressure setpoints during non-production periods, minimizing energy usage.
- 3. Leak reduction**
Reduced pressure reduces air leak losses resulting in optimum compressor efficiency and energy savings.
- 4. Compressor Networking**
The Vantage™ system allows precise control over a full range of compressor types such as centrifugal, rotary screw and reciprocating compressors. Compressor Networking assures that each compressor is operating at peak efficiency levels, with the ability to respond to large changes in system demand.
- 5. Centrifugal Blow-Off Waste**
The Vantage™ system maximizes a compressor's operating range by taking advantage of the compressor's full turndown capabilities.



- Electricity 76%
- Maintenance 12%
- Equipment 12%



Get the Vantage™ system and Take Control

Vantage™ state-of-the-art compressor control technology provides everything you need to enhance your compressor efficiency and save energy dollars.

- Individual compressor and system control
- Multi-master design
- Networking and connectivity
- Maximum energy savings
- Information management
- Web-based remote monitoring and support.



Cooper Turbocompressor strives for continuous improvement in all aspects of our business. Cooper Turbocompressor reserves the right to modify designs and specifications without notice or obligation. Nothing contained in this brochure is intended to extend any type of warranty, expressed or implied.

