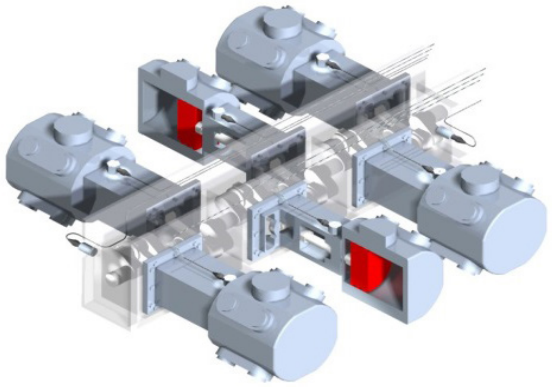
Cost-Effective Reciprocating Compressor Monitoring



Periodic (monthly or quarterly) measurements can be made with portable instruments, but the services associated with personnel to manually collect and interpret this data are typically very expensive. Online monitoring solutions are also available, but can likewise be very expensive - exceeding $100,000 per throw when a full suite of measurements is desired.

Overview

The SETPOINT™ system makes online reciprocating compressor measurements affordable by putting applications within reach that were previously cost-prohibitive, without sacrificing the quality of measurement.

Business Challenges

Reciprocating compressors can be some of the most critical and expensive assets in a refinery. Because they can provide higher compression ratios than axial or centrifugal machines, many processes are not practical without them - but they are more costly to maintain than their centrifugal/axial counterparts. As such, the ability to predict failure and isolate root cause on these machines is essential, allowing maintenance to be planned around on condition-based criteria rather than time-based or run-to-failure strategies.

Benefits:

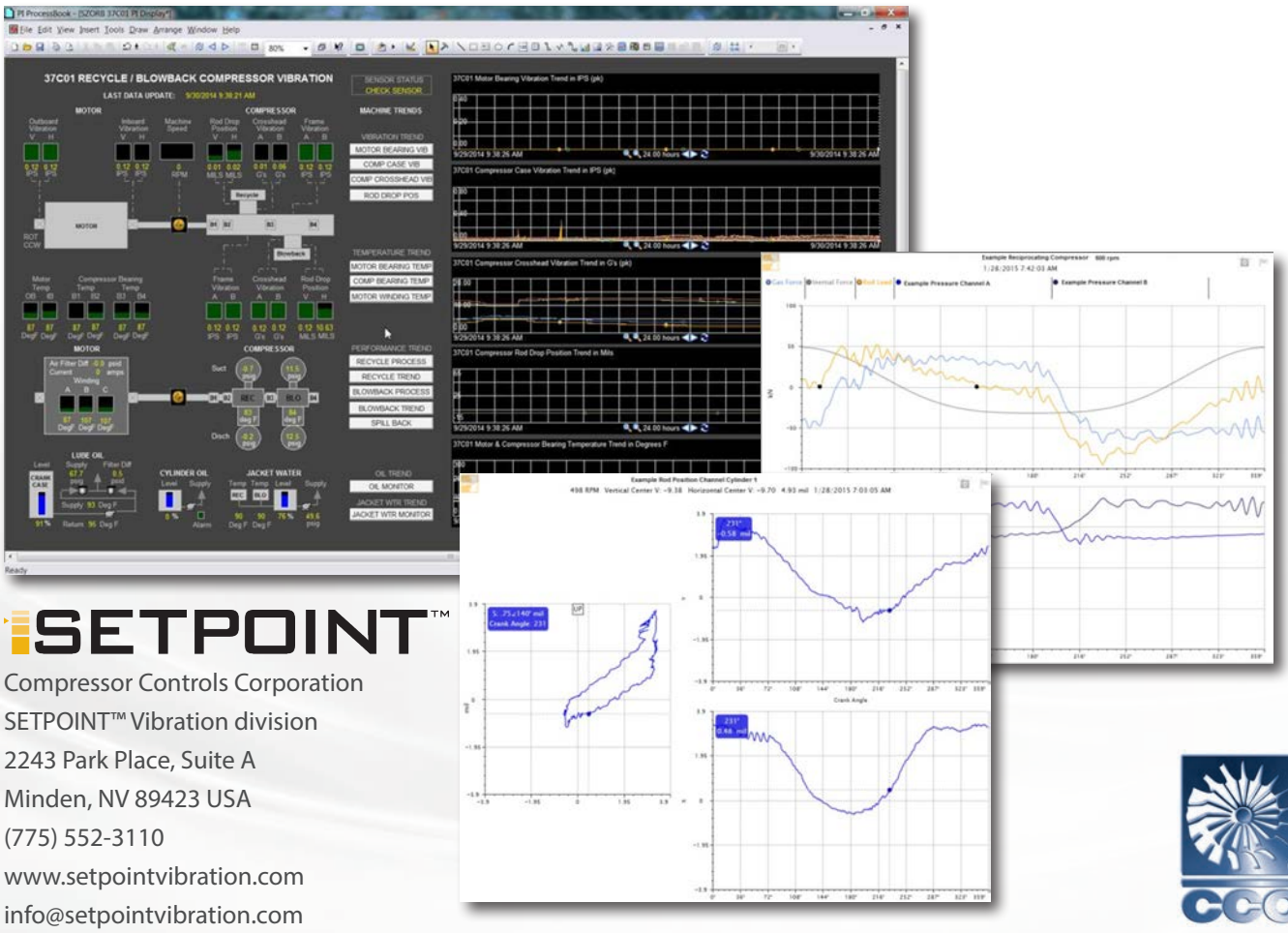
Use single monitor module type for every measurement

Our 4-channel UMM (Universal Monitoring Module) can be programmed for more than 35 different channel types, including the full suite of reciprocating compressor measurements (frame vibration, speed/phase, impact, rod drop / rod position, rod load, cylinder pressure, etc.). Other providers require specialized modules for each reciprocating measurement type, at prices considerably above those of "conventional" vibration measurements. These costs are compounded through more complex spare parts requirements – different modules for each measurement. The SETPOINT system delivers the same measurements in a single module type that is priced the same, no matter how you configure each channel.

Cost-Effective ReciprocatingCompressorMonitoring

Condition monitoring in the OSIsoft PI System eliminatestheneedforseparatestand-alonesoftware

Every other provider requires a stand-alone software package to collect, archive, and display the high-speed waveform data associated with vibration, cylinder pressure, rod load, and other machinery condition measurements. SETPOINT is the first system to stream all data – including waveforms – directly from our monitoring hardware into off-the-shelf PI System software that you may already be using in your operations. This effectively eliminates an entire layer of unnecessary computing and software infrastructure in many plants. And, because a wealth of other process information already resides in the PI System, correlation of process and mechanical data is simple – everything is in one database. Once in the PI System, this data can be visualized using standard PI System tools such as PI ProcessBook. When you need to view specialized waveform displays, simply launch our free CMS Display app. It allows you to view timebase, pressure-volume, rod load, rod drop / rod position, and a host of other specialized plot types needed for reciprocating compressor diagnostics. All of the data needed for these plots is stored in the PI System database where it can be easily accessed by anyone in your enterprise.



SETPOINT™

Compressor Controls Corporation
SETPOINT™ Vibration division
2243 Park Place, Suite A
Minden, NV 89423 USA
(775) 552-3110
www.setpointvibration.com
info@setpointvibration.com

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