

Envision™ Compressor Performance Module (CPM)

On-Line Performance and Condition Monitoring Software

As part of the Dresser-Rand Envision suite of performance and condition monitoring software, the Envision Compressor Performance Module (CPM) provides operators with real-time and historical centrifugal compressor performance calculations. Data is primarily gathered from the plant's existing control interface to minimize the duration and cost of installation.

Why Monitor Compressor Performance?

Lowered Operating Costs and Predictive Maintenance
 Real-time monitoring of centrifugal compressor performance can ensure that a compressor train operates at peak efficiency.

CPM uses the same calculations as the Dresser-Rand factory test stand. Early warning of performance degradation allows for prompt corrective action to avoid excessive energy/fuel usage and reduced compressor wear-and-tear. The information provided by CPM is crucial to identify performance degradation due to anomalies such as:

- Fouling
- Seal damage
- Internal labyrinth seal damage
- Balance piston seal leakage
- Process-related surge, stonewall or mol. weight changes

Know Your Compressor

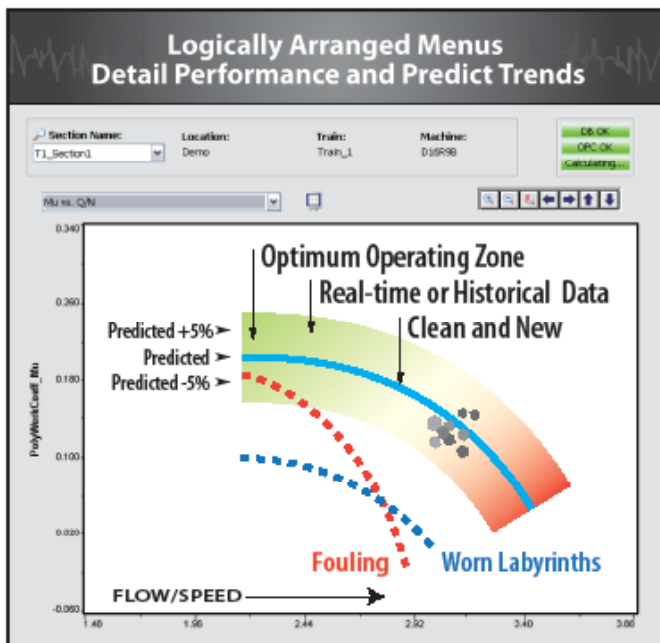
With Envision CPM, users will assess the compressor trains performance relative to factory determined performance maps. By having this information early, operational and maintenance activities can be planned ahead of a required shut down which can reduce the impact on production and decide what corrective action will be needed before servicing the compressor.

When CPM is combined with the Envision Health module for on-line vibration diagnostics, operators will gain additional information on compressor condition to reduce maintenance costs and increase availability.

What CPM Offers

OEM Test Stand Accuracy

The foundation for accurate compressor performance monitoring is in applying the correct gas properties and equations of state so that each CPM configured compressor section has a unique gas analysis entered. This is especially important for services with high pressures or complex gas mixtures.



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Dresser-Rand OEM expertise ensures that the most appropriate methods are implemented for your operating conditions. This experience is incorporated into every configuration.

Through the use of accurate gas properties, CPM offers corrected enthalpies for accurate compressor efficiency calculations, which allow for more precise analysis of energy usage and in suggesting probable fouling locations (e.g. impeller or stationary parts).¹

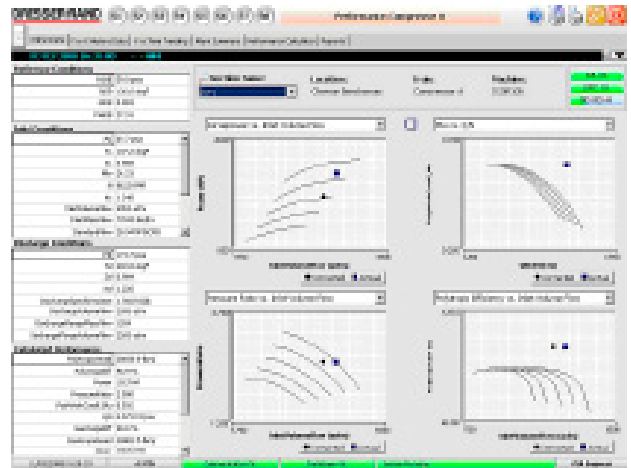
Implementation of CPM

Comprehensive Information - When and Where You Need It

The Envision CPM reporting tool gives users data in a variety of ways. Select from multiple formats of the graphs or create trends from historically stored data. Alarms can be sent to designated e-mail addresses. CPM data and calculations are provided in a variety of graphic representations, including: Polytropic Efficiency vs. Flow/Speed; Polytropic Head vs. Volumetric Flow; Polytropic Pressure Coefficient vs. Flow / Speed; Polytropic Work Input vs. Flow / Speed; Horsepower vs. Volumetric Flow; Pressure Ratio vs. Volumetric Flow; and Polytropic Efficiency vs. Volumetric Flow. All graphs, data and views are available remotely through a thin web client interface running on a standard PC. Since CPM operates within the Envision software suite with world-wide access, users can access CPM as if they were on-site from wherever they are stationed in the world.

An Easy, Flexible, Open Architecture

- Easy – Charts and graphs are available for easy and straightforward visualization.
- Flexible – The CPM system monitors multiple trains / train sections simultaneously, even when controlled by different control systems or processors. (Data can be viewed from multiple control system PDC/DDE servers). Viewed data can be accessed from local and remote workstations and stored data can be accessed in Microsoft Access® / Excel® format for future use.
- Open – The CPM system supports OPC, DDE, and server functionality for open architecture.



¹ Performance monitoring is performed in accordance with ASME PTC 10, Performance Test Code on Compressors and Exhausters.

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