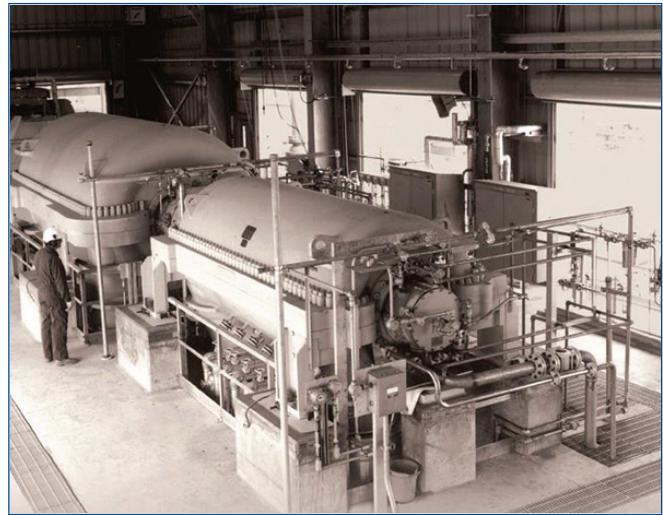


Compressor Control Services

- Discover how well your compressor is performing
- Increase compressor efficiency and availability
- Gain full potential of your compressor controls upgrade



Maximize the performance of your compressors by consulting with subject matter experts.

Introduction

Compressor controls have significant impact on your compressors lifetime, energy consumption and availability. The difference between an efficient and inefficient compressor operation can cost you \$100k per year or more.

Emerson's Compressor Control Solution consists of engineering tools and services developed and supported by a team of experienced compressor experts and consultants. The process starts with discovering the potential for improved compressor operation. Then, provides a solution to design and implement suggested enhancements to achieve the desired business result.

Most of the services can be performed remotely in collaboration with the customer personnel via email, online services and phone conversations.

Benefits

When a compressor is not performing well, it's consuming more energy than it should, requires more attention from the Operator, and trips occasionally. Lack of visibility of process parameters and understanding of existing control principles lead to excessive safety margins and more conservative setpoints which costs thousands of dollars each year.

An Emerson expert can review available documentation, assess the compressor, process, and instrumentation, and talk to the operations personnel to decide which steps need to be taken to make the compressor safer and more efficient.

From an ROI perspective, an investment in the compressor control system, valves, instrumentation and piping around it may not be obvious. Even for a very experienced user of the compressor, it's hard to calculate the savings that such investment will bring.

Emerson's compressor control experts have knowledge of best-in-class compressor performance and are able to calculate the financial variance between present performance and predicted performance when the retrofit is completed. This data can help make a deliberate decision of investing.

Modern plants face higher personnel turnover. Experienced engineers and operators retire, and it's hard to replace them with equally knowledgeable personnel. Very often, new hires have little knowledge of compressor operation and troubleshooting.

Emerson compressor control experts can show your personnel:

- Principles and limitations of compressor operation
- Best practices to operate compressor safely and efficiently
- How to understand why the compressor tripped
- How to read the compressor map and historical data
- Which measurements are critical and require most attention

Even when the user has a good compressor control system installed, compressors still trip occasionally. Compressor surges can still occur with a well-tuned and modern control system. Some causes may be malfunctioning transmitters, valves or communication lines.

An Emerson compressor control expert can review all available historical data remotely, and analyze trends, alarms, and events to provide a preliminary root cause analysis. This data can be confirmed during the next turnaround. Alternatively, the preliminary analysis can be confirmed during a site visit.

Emerson expert can use email and online communication services (e.g. WebEx) to help the site personnel gather the right data and review it together after the analysis is ready.

It is not the hardware and software that determine the quality of a system. Design and commissioning services are critical for the end result. It is the engineering knowledge and experience to tune the system that makes the compressor operation safe and efficient and the operator interaction easy and straightforward.

Emerson's control engineers can design and install the system. When it's installed, an expert will perform surge testing and fine tuning of the control loops and conduct operator and engineer training to make sure that the system is able to deliver maximum value to the user.

Services Description

Emerson offers several service programs to help you maintain, sustain, and enhance the performance of your compressors. For each of these programs, we use a team of expert consultants that have experience with many compressor applications including Air, Crack Gas, Wet Gas, Syn Gas, Refrigeration, Booster, Pipeline and others.

Our Compressor Control Services include:

- Compressor Health Assessment
- Compressor Optimization Benefit Study
- Compressor Trip Analysis
- Design and Commissioning Services

These services can be tailored to fit your specific needs and requirements.

Compressor Health Assessment

A compressor's performance depends on its mechanical state, its process measurement instruments and mechanical parameters, the valves and actuators that change those parameters, and control loops which automatically maintain the parameters according to thresholds and setpoints.

Whether or not you have an Emerson compressor control system, instruments and valves, and Emerson expert can perform an assessment that will answer the following questions and many more:

- Do I have all required instruments to see the parameters or can additional instruments give me valuable data?
- Do my existing instruments meet the technical requirements for the compressor control application?
- Are my existing instruments properly tuned to show the parameters with maximum precision and response time?
- Are my antisurge valves adequately sized for the antisurge service?
- Are my positioners properly tuned to provide maximum speed and precision of valve positioning?
- Does my Antisurge Control System provide safe and efficient control, or it can be improved?
- Does my Load (performance) Control System provide the most economical way to operate compressor load?
- Is my method of load-sharing between parallel compressors the most efficient or can it be improved?
- Which control functions can be automated to improve the compressor performance? ***This service can be delivered remotely with the support of site personnel.***

Compressor Optimization Benefit Study

Reducing operation costs requires the most efficient use of existing assets and careful economical investment decisions.

An Emerson expert can assist in obtaining the necessary data and provide calculations to help determine whether the investment in a new compressor control system, valves or instrumentation will provide a positive ROI. The investments that we recommend are determined by the Compressor Health Assessment. In addition, an Emerson expert will help answer the following questions:

- How does excessive antisurge valve opening affect energy consumption?
- How much in production loss or excessive energy consumption does overly-conservative control setpoints cost?
- How much in production loss does a compressor trip cost?

Occasionally, the amount of instrumentation on-site does not allow Emerson to make these calculations. Therefore, Emerson can provide a list of required measurements and can assist in the selection of the devices as preparation for the assessment of potential energy savings. ***This service can be delivered remotely with the support of site personnel.***

Compressor Trip Analysis

An Emerson expert can remotely analyze the historical data before and after a compressor trip to determine the root cause of the trip. It could be a mistuned control system, malfunctioning valve or transmitter, or many other reasons. The analysis requires sufficient high-resolution process data.

An Emerson expert will provide a written procedure to test the device that is suspected to be the root cause of the compressor trip. As an additional service, the Emerson expert can visit the site to perform the test.

A historian is required. Average time allotted per control loop is one day.

Design and Commissioning Services

Emerson engineers provide services to design, configure, install and commission a complete compressor control solution. The scope can cover individual compressors, complete multi-sectional compressor trains, or several parallel compressor trains. Our experts will review the process, operating objectives, and constraints and limitations to design the control strategy and develop a project execution plan.

The following methodology is used for implementing compressor control applications:

- FEED and scoping study
- Kick-off meeting
- Develop bill of material for all required DeltaV control system components
- Develop compressor control strategy
- Create control system diagrams and architectures
- Issue project documentation
- Supply all required system components
- Configure DeltaV control modules
- Set up in-house simulation and testing
- Provide commissioning and tuning
- Provide operator training.

Most of these activities are executed off-site by a local Emerson office.

FEED study and the kick-off meeting can be delivered remotely with the support of site personnel.

Commissioning is an on-site activity involving traveling of the Emerson expert.

Related Products

- SmartProcess™ Compressor

Ordering Information

Description	Model Number
SmartProcess Compressor - Main License for 1 compressor. Includes 1 Load Control Loop and 1 Antisurge Control Loop	VF1058B1C1
SmartProcess Compressor - Load Sharing Control	VF1058CLSC
Annual Application Support for SmartProcess Compressor	VF1058S1

Emerson

North America, Latin America:

+1 800 833 8314 or
+1 512 832 3774

Asia Pacific:

+65 6777 8211

Europe, Middle East:

+41 41 768 6111

[www.emerson.com/
SmartProcessCompressorDatasheet](http://www.emerson.com/SmartProcessCompressorDatasheet)

©2020, Emerson. All rights reserved.

The Emerson logo is a trademark and service mark of Emerson Electric Co. All other marks are the property of their respective owners.

The contents of this publication are presented for informational purposes only, and while diligent efforts were made to ensure their accuracy, they are not to be construed as warranties or guarantees, express or implied, regarding the products or services described herein or their use or applicability. All sales are governed by our terms and conditions, which are available on request. We reserve the right to modify or improve the designs or specifications of our products at any time without notice.

