

SUCCESS STORY

VFD IMPROVES COMPRESSOR LIFE AND SERVICABILITY

INFORMATION

Industry

Multiple: Automotive, Food and Beverage, Pharmaceuticals, etc.

Application

Rotary Screw Compressor

Product

Yaskawa GA800 Industrial VFD



COMPANY HIGHLIGHTS

The customer is a global supplier of high-quality industrial compressors with manufacturing and service facilities worldwide. They provide high-quality air distribution equipment to various markets and applications wherever air distribution products are required, such as construction sites. Air distribution is crucial in ensuring the successful operation of machinery and other manufacturing processes.

THE VFD APPLICATION

The customer requires exceptional performance, long service life in harsh environmental conditions, and field serviceability for the variable frequency drives (VFDs) controlling the Oil Injected Rotary Screw compressors. Stationary compressors are expensive equipment with a life span of nearly 20 years.

OIL INJECTED ROTARY SCREW TECHNOLOGY

Compressors containing rotary screw technology use a gear system to compress the gas to provide air pressure, with the oil acting as both a lubricant and pressure seal in the gearing. Compressors are necessary for applications that require continuous air or stored air on a regular schedule.

Application examples include manufacturing plants, food processing, automated manufacturing systems, lumber-cutting systems, agriculture, machine tools, petrochemicals, and pharmaceuticals.

INTERMITTENT LOADS, VARIABLE SPEEDS, AND ENERGY SAVINGS

Rotary Screw Compressors use VFDs to ensure the lowest cost energy consumption and to maximize energy efficiency.

With a VFD, there is a nearly linear relationship between power consumption and air delivery, which provides the most efficient performance over the entire duty cycle. Even in continuous demand situations, raising and lowering speed is required to meet the air demand, as air is often stored in pressurized tanks. Furthermore, on-demand speed changes reduce the strain on components and parts, increasing the system's overall life.



Yaskawa VFDs save energy, have a long service life, and provide simple serviceability in compressor applications.

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The conditions surrounding compressors are often dirty, hot, or located outside. As dirt and contaminants build up on the fans and heatsinks, the VFD loses its ability to cool. Components can overheat, leading to premature failure as the VFD continues to heat during operation. Furthermore, the importance of the air supply to run the equipment allows for minimal downtime for preventative maintenance, failures, or breakdowns.

Measures to prevent contaminant buildup and endure harsh environments are vital for compressor VFDs. Therefore, the customer sought field-serviceable VFDs that could withstand extreme heat without affecting the overall service life.

THE YASKAWA SOLUTION

Yaskawa provided samples of the **GA800 Industrial VFD** that were certain to meet the customer's high expectations for field serviceability and operation in harsh environments.

One exemplary feature is the **GA800's** simplified heatsink cooling fan replacement. On smaller Yaskawa VFDs, the fans can be easily replaced and the heatsink cleaned by removing the fan cage. On larger VFDs, the fans can be accessed and replaced by removing the VFD's front cover. Both cases significantly improve the ease of preventative maintenance.

Satisfied with the samples provided to them, the customer began working with Yaskawa through the VFD validation process. This included heat runs, load cycling, peripheral component reviews, and capacity discussions. Both companies conducted regular design reviews throughout the entire process to ensure they had adequate time to review data and formulate responses.

Yaskawa invited the customer's field group to review Yaskawa prototypes and provide valuable feedback. Notable results of this collaborative effort are pre-loaded VFD settings that allow for automatic, reliable programming in the field and flange-style doors for electrical enclosures designed to reduce drive contamination.

The customer and Yaskawa have enjoyed nearly 15 years of successful partnership. Yaskawa continues to provide unmatched VFD designs in terms of quality and reliability.