



SIEMENS



# tiastar™ Motor Control Centers Integrated Drives

[www.usa.siemens.com/mcc](http://www.usa.siemens.com/mcc)

## **Leverage the advantages of a unified motor control solution.**

Integrating variable frequency drives into your motor control centers allows for the most convenient, compact and economical method of implementing a total motor control system. It eliminates the need to mount individual drives and feeders which add cost and complexity to the installation. Today, many plants and buildings have less room for electrical equipment making it even more important to utilize the available space wisely.

# Combining the Best of Both

## Managing Hazards and Reducing Risk are Top Priorities

For decades motor control centers have been utilized to provide a convenient, economical solution for mounting various motor control systems. The inclusion of variable frequency drives is just one of these options. Utilizing the inherent structure and bus design of the Siemens tiastar Motor Control Center allows you to compartmentalize bus, variable frequency drive and wiring to segregate and protect portions of your electrical system.

### LOWER ENERGY CONSUMPTION

Siemens variable frequency drives enable precision adjustment of electric motors and rotation speeds. Whether you're operating fans, pumps or compressors, or running equipment with frequent braking or overhauling loads, the effects of switching to VFDs are immediate and measurable.

### INCREASE EFFICIENCY

It is a known that the use of variable frequency drives offers efficient use of energy. Additionally tiastar motor control centers provide an efficient way of packaging drives as part of a motor control system. In comparison, the traditional installation of individual drives requires more space for conduit/wire than the integrated MCC line-up.



### SAVE TIME

The modular design, predefined bus and wireways save time during design, commissioning and installation of electrical systems. Users often wish to modify variable frequency drive systems by adding more control or internal modifications. Flexible tiastar Motor Control Centers allow you to expand loads, reconfigure units or upgrade your process. The plug-in construction allows flexibility in layout and enhances maintenance. Users can arrange the units in any order or location before, during and after installation to consolidate process controls or accommodate future expansions. Because units are built for simple removal from the motor control center, they are relatively compact and easy to handle.

### IMPROVE CONTROL

Variable frequency drives offer greater responsiveness and smoother operation than alternatives like pressure and flow adjustment methods. In addition, Siemens intelligent operator panel significantly simplifies operator control.

### PRESERVE ASSETS

Extend the life expectancy of your capital assets by reducing wear-and-tear such as dry running and overload. The advanced system controls and absence of moving parts that require maintenance/repairs lengthen mechanical life and reliability.

### INCREASE UPTIME

Including network communications of the variable frequency drive to a PROFIBUS DP inside tiastar-Smart motor control centers permits the generation of early warning codes to predict possible problems. This allows you to act on potential situations to avoid production losses.

### OVERCOME BUDGET RESTRAINTS

The practice of using multiple feeder circuits to supply individually mounted variable frequency drives many times adds duplicate components and unnecessary wiring and labor cost. Using the tiastar Motor Control Center to mount variable frequency drives eliminates this duplication. The motor control center main supplies the system power, and the compartmentalized bus design distributes the power to each unit. This also benefits future expansions by drastically reducing the costs for the main power feed and bus already in place.

### REALIZE SAVINGS

SinaSave, our free, downloadable software tool allows you to calculate your energy savings potential and see how quickly you can realize a return on investment.

# Drive Greater Savings

## A Case Study

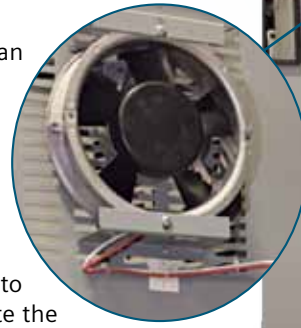
For one Texas manufacturer, attaching VFDs to existing fan motors is already paying out over \$10,000 per month in energy savings. At an annual savings of over \$120,000 and an under six-month return on investment, it has proven to be the right action.

### CHALLENGE: Reduce Dryer Fan Energy

The manufacturing process requires large industrial fans to draw out moisture. The MRO team decided to investigate the benefits of installing a VFD. Without a VFD, a 50 horsepower motor with a 90-percent efficiency, operating 24/7, would consume more than \$25,000 in electrical costs every year. A motor can easily draw 600 percent of its full load amps to overcome friction and inertia when starting. When a variable frequency drive controls the motor, this initial power surge is eliminated, and energy use is significantly cut.

### SOLUTION: Siemens Variable Frequency Drives

The team captured the electricity demands for one fan before and after installing a 200-horsepower drive. The fan was drawing 175 Amps; after connecting the VFD, the current pull dropped to 95 Amps – a 54-percent reduction. Now the plant uses 45 drives and has already achieved **six-figure energy savings**.



# Technical Specs

Siemens SINAMICS G120 Variable Frequency Drives are setting a completely new global standard in the field of compact inverters.

<b>SIEMENS SINAMICS G120 VARIABLE FREQUENCY DRIVES</b>	SINAMICS G120 Drives offer optional Safety Integrated Functions	<ul style="list-style-type: none"> <li>• Safe Torque Off (STO)</li> <li>• Safe Stop 1 (SS1)</li> <li>• Safely Limited Speed (SLS)</li> <li>• Safe Brake Control (SBC)</li> </ul>
	SINAMICS G120 Drives offer optional Efficient Infeed Technology	<ul style="list-style-type: none"> <li>• Line Reactors not required</li> <li>• Braking Resistors not required</li> <li>• Minimal generated harmonics</li> <li>• No heat generated when braking</li> <li>• 22% less Power Consumption</li> <li>• Superior Energy Efficiency</li> <li>• Reactive Power Compensation</li> </ul>
	Ratings of Siemens SINAMICS G120 Drives in tiastar MCCs	Ratings: Up through 250 HP at 480VAC (High Overload) Up through 300 HP at 480VAC (Low Overload)

Siemens variable frequency drives are among the most efficient in the industry. Integrated drives reduce harmonic current distortion, lower energy consumption, reduce maintenance, regulate power factor to near unity and extend the life of both distribution systems and equipment. Realize the significant cost savings of more efficient power consumption with integrated Siemens drives.

For more information, contact your Siemens representative or visit us at [www.usa.siemens.com/mcc](http://www.usa.siemens.com/mcc).

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Order No.: CCB-INTDR-0811  
Printed in USA  
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