Case Study:

Rockwell Automation OEM Referral

Objective

- Assist our partner and their customer with the installation of a variable frequency drive and control system configuration.

Solutions

- Designed a custom configuration of standard products to meet requirements for power density, mechanical stability, and transportability.
- Specific systems were chosen to reduce footprint and part count.
- Include reactor filtration, rectification, and brake choppers to mitigate excessive regenerative energy in excess of the needs of adjacent inverter systems.
- Connected two 4000 ADC busses to allow the sharing of energy and braking resources across 18 motors.

Results/Benefits

- The customer was pleased with the Quad Plus design and quality of fabrication and will continue to look to Quad Plus for power and control system needs for subsequent packages.
- Custom configurations allow for fewer spares, lower expenses, and smaller footprint.
- All components installed using custom enclosures to allow for maximum mechanical integrity when transporting from site to site.

OEM Referral Leads to Custom Work and a Happy Customer

Background

Quad Plus received a referral from our manufacturing partner, Rockwell Automation, to assist with a customer's oil and gas application. We determined that the original proposed variable frequency drive and control system configuration would not fit within the customer's required footprint for the industry-specific use.

Quad Plus Solution

Quad Plus designed a custom configuration of standard products to meet the end user's requirements for power density, mechanical stability, and transportability.

To save space and reduce the overall part count, Quad Plus engineers chose the Rockwell PowerFlex 755TM modular air-cooled inverter system as the basis for two 4000 ADC common bus lineups serving nine 600 HP motors at 600/690 VAC per lineup. Each lineup includes reactor filtration, rectification, and a system of brake choppers to mitigate excessive regenerative energy over the needs of adjacent inverter systems.

A unique feature of the design provides a tie circuit to connect the two 4000 ADC busses, which allows the available energy and braking resources of each lineup to be shared by all eighteen motors. To simplify spares, inverter modules were limited to two common configurations and used in parallel to supply appropriate capacity.

For the 4000 ADC bus lineups, each motor operates from identical paired inverters. Two additional but separate lineups support their 2400 HP prime mover using five identical inverters in parallel on their own common DC bus. All lineup components were installed in custom enclosures to minimize the footprint and provide maximum mechanical integrity to withstand transport from site to site.

Quad Plus®