

Improving operational efficiency in a petrochemical refinery

As a petrochemical company expanded to become the largest facility in the Middle East, Emotron drives were chosen for their durability, modular flexibility and service support.

Emotron high power VFDs built up with unique Power Electronic Building Blocks (PEBBs) were selected for the high pressure pumping system of the critical RO plant providing demineralised water for the plant processes, firefighting requirements and human needs.

From a valve controlled membrane pressure system to variable speed pumping



In the first phase of the project a valve controlled membrane pressure system with pumps on fixed speed was chosen. This led to various problems:

- Mechanical problems with bearings and pump impellers due to rush starting
- High noise in the process area due to the high pressure system and throttling mechanism
- Poor system efficiency
- Inability to maintain set pressure under all conditions

As a result, a variable speed pumping system incorporating VFDs for motor speed control was chosen for the high pressure pumping system in the second phase of development.



The Emotron PEBB modular system

Emotron high power VFDs are built up by combining power modules called PEBBs (Power Electronic Building Blocks).

Each PEBB is a complete VFD in itself comprising of input semiconductor fuses, rectifier, DC capacitors, chokes and inverter IGBTs – with only the control board missing. Multiple PEBBs are connected to a common control board and function as a single unit.

This makes it excellent for redundancy, scalability and ease of service.





Emotron scaleable IP54 drives available up to 4MW



A worldwide service organisation, complete with remote access solutions and local partners for peace of mind

Interchangeable PEBB for critical applications

The PEBB concept has been a highly valued characteristic in the petrochemical industry, securing operational efficiency at all times, due to:

- Redundancy feature for critical applications
- Each PEBB module having its own semiconductor fuse which limits possible damage to that module only
- Lower spares inventory as parts are common
- Interchangeability of PEBB modules thereby ensuring that critical pumps can be kept operational even in case of VFD failure
- Easy for maintenance personnel to remove PEBB modules and repair them in workshop.

Reliable service support

Trained service engineers and a well-equipped service centre via local partner PJ Global Engineering Co. further ensures high uptime in this particular facility.

The Emotron worldwide partner network and remote access solutions offer a complete service offer including:

- ✓ Putting into operation/commissioning
- ✓ 24/7 support
- ✓ Maintenance
- ✓ Security for critical processes
- ✓ Repairs
- ✓ Extended warranty

After the VFDs were supplied, a network and harmonic study was conducted to demonstrate the levels. VFD and system efficiency was also calculated and submitted.

After over two years of satisfactory operation the next project extension was started. The end customer insisted on Emotron VFDs for the new requirement of 4x800kW and 4x90kW VFDs to operate pumps.

We put all our energy into saving yours.



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About CG Drives & Automation Emotron

CG Drives & Automation has developed, manufactured and delivered efficient and reliable motor control equipment for over 40 years under the brand of Emotron. Since 2011 we form a part of CG Power and Industrial Solutions Ltd., a global pioneering leader in the management and application of electrical energy.

At CG Drives & Automation we use our know-how to create technical solutions that fit your requirements, and our personal commitment to make them work in practice.

Simplicity and reliability are keywords applying to our products and solutions, as well as the service and support that our committed professionals provide.

CG Drives & Automation has five core markets with sites in the Nordics, India, Germany, the Netherlands, MEA and a dedicated partner network worldwide.

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