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We have equipped a large number of compressors in oil production and refineries, petrochemical and chemical industries, industrial gases production, natural gas collection, transport and distribution, PET blowing plants, marine industry and more.

We design, manufacture and repair valves with diameter approximately ranging from 10 to 500 mm suitable for a very wide range of working conditions, high delivery pressures, high pressure ratio and all type of gases including corrosive elements. Innovation and technology is our tradition: with patent applications and inventions our ideas are giving rise to marketable innovative products.

Our team of engineers is specialized in designing and optimizing customized products. Using and implementing several sophisticated software our technical department develops products and technologies aimed to solve our customer’s issues, thus enabling the OEMs to improve the performance of their own compressors.

To meet high quality requirements we are constantly investing in new machines and new production technologies. High production standards and flexibility are achieved by specialized and skilled operators. Reliability and efficiency are crucial aspects for our customers and their end users worldwide.

In order to meet our own requirements our Quality Assurance System is certified in accordance with the UNI EN ISO 9001:2000 standard and the Environmental Management System is certified according to the UNI EN ISO 14001 standard.

High quality products, OEM oriented commercial policy and overhauling service, over the years helped to gain the confidence of the most important compressor producers. For their end user customers we offer an efficient valve overhauling service in different parts of the globe, under further development.

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The Cozzani System for Energy Saving

**FluxFlow™ Electromechanical Actuator System for stepless capacity control**

FluxFlow™ an electromechanical actuator system for the stepless capacity control in reciprocating compressors has been completely developed by Dott. Ing. Mario Cozzani S.r.l. in order to meet growing need of energy saving, stability of the process and reduction of emissions.

Industrial applications such as refineries, chemical plants, gas transport and storage require a reliable, quick, precise and, above all, flexible stepless capacity control system so as to suit all end-user needs.

**FluxFlow™ Working Principle**

The FluxFlow™ system is based on the reverse flow principle that consists in:

- Making a given quantity of gas flow back into the suction plenum
- Controlling the capacity of the compressor by keeping the suction valve opened beyond the bottom dead center
- Compensating only the required gas quantity in order to obtain energy saving

**FluxFlow™ Electromechanical Actuator**

The innovative control system for suction valves is based on an electromechanical actuator which is operated only by electrical current. The necessary force to control the valve is obtained by means of a magnetic field.

The main feature of the actuator provides the name “FluxToFlow” to the system: the magnetic flux controls the compressor flow.

- Only power required
- Holding force is generated by the magnetic field
- High-dynamic performances
- Built-in position sensor
- Non-linearity of the force-displacement relation
- Low-Power Consumption
- Adjusting device for easy installation

ATEX 94/9/EC: II 2G EEx e c II T4

Thanks to electrical power only, the system generates, for each of the windings inside the actuator, a magnetic field which is adequately intense to attract the movable metallic components and to operate the necessary force to keep the valve shutter opened during the compression cycle.

**FluxFlow™ System Architecture**

The FluxFlow™ system is modular and is easily adaptable to any required configuration with no need of modifications.

The main components of the system are:
- Electromechanical actuators installed on the suction valve covers
- System Control Unit (SCU)
- Actuator Control Unit (ACU)
- Sensors for the measurements required by the system

The Closed-loop control which, measuring the compressor pressures, keeps the given parameters steady

The Control Room which is directly interfaced with the System Control Unit (SCU)

Remote monitoring

**FluxFlow™ Advantages**

- Maximum energy saving
- Electromechanical actuator: only electrical connections are needed
- Maximum system adaptability to the process requirements
- Stepless capacity control
- Wide capacity control range (10-100%)
- High dynamic performances
- Independent control for each actuator
- Easy installation and maintenance
- Synchronized action with the compressor cycle

**FluxFlow™ Application Range**

- Maximum compressor speed: 1200 rpm
- Maximum holding force: 6000 N
- Capacity Control Range: 10 - 100%
- Suitable for oil-free or lubricated operating
- Suitable for corrosive environment
- Suction valve with non-metallic plate or ring
- Maximum number of controlled valves: 32
- ATEX 94/9/EC II 2G EEx e c II T4

The combination of suction pressures, temperature, valve size, gas type and compressor speed, defines the operating range of the system.

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**Reverse Flow Phase**

- Suction valve is kept opened

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**PV Diagram**

- Wide Control Range
- Independent control for each stage
- HE - 2 Stage
- HE - 1 Stage
FluxtoFlow™

FluxtoFlow™ Electromechanical Actuator System for stepless capacity control

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reverse flow phase

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- Sensors for the measurements required by the system
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The compressor capacity control is effected by 4 - 20mA control signals.

These signals can be managed directly by:
- The Control Room which is directly interfaced with the System Control Unit (SCU)
- The Closed-loop control which, measuring the compressor pressures, keeps the given parameters steady

FluxtoFlow™ Advantages

- Maximum energy savings
- Electromechanical actuator: only electrical connections are needed
- System adaptability to the process requirements
- Stepless capacity control
- Wide capacity control range (10-100%)
- High-dynamic performances
- Independent control for each actuator
- Easy installation and maintenance
- Synchronized acting with the compressor cycle
- Remote monitoring

FluxtoFlow™ Application Range

- Maximum compressor speed 1200 rpm
- Maximum holding force 4,500 N
- Capacity Control Range: 10 - 100%
- Suitable for oil-free or lubricated operating
- Suitable for corrosive environment
- Suction valve with non-metallic plate or ring
- Maximum number of controlled valves: 32
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The combination of suction pressures, temperature, valve size, gas type and compressor speed, defines the operating range of the system.
Flux to Flow

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Flux to Flow™ Application Range

- Maximum compressor speed: 1200 rpm
- Maximum holding force: 6,000 N
- Capacity Control Range: 10 - 100%
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