HydroCOM: High energy savings and excellent controllability

HOERBIGER
Almost all applications require efficient capacity control systems

Most of them simply waste energy, are slow and inaccurate.
HydroCOM, however, achieves best results and pays for itself within a short period of time.
It saves money due to excellent controllability and by significantly improving performance.

Some questions you should ask yourself about your existing control system:

**Economical aspects**
Does my control system waste energy like a bypass valve?

**Process issues**
Does my control system react quickly enough and does it precisely control all required pressure levels, flow rates or other parameters unlike step control or bypass valves?

**Control range**
Does my control system have any limitations with respect to molecular weight, suction pressure, temperature, minimum load, etc. as with speed control, pockets, step control etc.?

**Automation requirements**
Can my control system be fully integrated into the DCS to allow remote control unlike pockets and manual operation? Does it provide any kind of self-diagnosis functions?

**Monitoring advantages**
Does my control system act as a platform for monitoring? Does it provide online pV (pressure volume), vibration and rider ring wear monitoring?

**Environmental restrictions**
Does my system help to fulfil stringent environmental conditions unlike control-flares?
There are many reasons to invest in HydroCOM from HOERBIGER

HydroCOM is the smartest, most efficient, stepless, highly dynamic and fully automated control system with monitoring features.

What makes HydroCOM the perfect answer to your compressor control system problems?

**Highest energy savings**
HydroCOM follows an intelligent concept: just the required amount of gas needed is being compressed.

**Stepless control range**
HydroCOM uses hydraulic actuation to utilise the full control range. HydroCOM is independent of process variations such as suction pressure, molecular weight changes, temperatures etc.

**Highest control dynamics**
HydroCOM is very fast and precise due to the quick response of the solenoid valve inside the actuator: within 3 crank-shaft revolutions load changes from 10 to 100% are possible.

**Fully automated system**
HydroCOM interfaces to a DCS or a loop controller.

**Monitoring**
HydroCOM is not only a control system, it is also a platform for monitoring. The HOERBIGER online monitoring system with pV (pressure-volume), vibration and rider ring wear monitoring increases compressor reliability, productivity and safety.

**Proven success**
HydroCOM is used in a variety of applications. Basically every reciprocating compressor installation can be equipped with HydroCOM.
The heart of HydroCOM: smart actuators

The basic principle of HydroCOM:
Normally gas is being compressed during the compression stroke.
With HydroCOM the suction valve is kept open by the unloader so a certain amount of gas is pushed back into the suction chamber. Then, at precisely defined point of time, the unloader is released and the suction valve closes. Therefore only the gas remaining in the cylinder is being compressed.

1. Electric housing
Microprocessors inside the electric housings handle the fast and precise actuator timing. When installing the actuator only power supply and bus cables have to be electrically connected.

2. Valve housing
The valve housing is the “hydraulic heart” of the HydroCOM actuator. Oil pressure (connection on top) is applied to the hydraulic piston to push the unloader down when needed. The solenoid valve (similar to those in common rail diesel injection systems) is the fast switching element giving the HydroCOM its high dynamics.

3. Seal housing
The seal housing fits directly to the suction valve cover. It separates the oil-section of the valve housing and the gas-section of the compressor. A temperature sensor measures continuously the valve cover temperature and makes this value available for indication in the process control system. This temperature is used to monitor the condition of the suction valve.

4. HydroCOM unloader
The motion of the HydroCOM unloader is controlled by the hydraulic pressure applied in the valve housing.

5. Suction valve
The HOERBIGER plate or ring type suction valve with non-metallic sealing elements ensures long life time and best efficiency.
HydroCOM supports complete systems integration

Clear system interfaces allow easy and straightforward integration of compressor and HydroCOM.

Modular system design
Due to its modular design HydroCOM is easy to integrate into both existing and new compressor installations. Process control tasks are implemented in a DCS or a loop controller. In a control panel the HydroCOM “Compressor Interface Unit” (CIU) carries out data exchange between DCS and HydroCOM.

Monitoring with HydroCOM
Embedded temperature monitoring of suction valve covers allows insight into compressor conditions such as leaking valves, leaking piston rings, etc. Optional Fast Transmitter Interface Modules (FTIM) and software is available for further in-depth Compressor Condition Monitoring (CCM).
HydroCOM’s many success stories

Many users worldwide take advantage of the outstanding performance of HydroCOM.

Over 500 HydroCOM installations are achieving significant advantages over other systems.

HydroCOM installations are found in many industrial applications including:
- Chemical plants
- Refineries
- Gas transport and storages
- Gas turbine plants

HydroCOM’s leading edge technology, optimal integration and excellent maintenance features have proven to be the ideal choice for customized process control systems.

Not only does HOERBIGER lead the way in compressor controls, it also provide local support from the largest service network in the world.
The benefits of HydroCOM at a glance

- Maximum energy savings
- Stepless control for excellent controllability
- Large control range for process flexibility and easy start and stop
- Fast and precise: ideal for processes requiring stable dynamic control
- Suction valve temperature monitoring on-board.
- Fully integration into plant control system
- Fully automatic for minimum intervention of operation required
- Easy upgrade / integration for existing compressors (fits on most compressors, implementation within a short shut down period, no additional space required)
- High standardisation of parts / systems for high reliability and cost effectiveness on spares
- Optional upgrade to online monitoring including pV, rider ring wear and vibration monitoring
- Proven at over 500 installations

### Technical data of HydroCOM

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
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</thead>
<tbody>
<tr>
<td>Control range</td>
<td>(0...) 10%...100% *depends on application</td>
</tr>
<tr>
<td>Max. suction pressure</td>
<td>160 bar / 2320 psi</td>
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<tr>
<td>Max. suction valve temperature</td>
<td>120° C / 220° F</td>
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<tr>
<td>Max. compressor speed</td>
<td>1200 rpm</td>
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<tr>
<td>Suited for corrosive environment?</td>
<td>yes</td>
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<tr>
<td>Suited for non-lube applications?</td>
<td>yes</td>
</tr>
<tr>
<td>Suction valve</td>
<td>non-metallic plate or ring</td>
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<tr>
<td>Max. number of actuators</td>
<td>48</td>
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<tr>
<td>Ex-certification</td>
<td>EU (ATEX), US (FM), Canada (CSA), Japan</td>
</tr>
</tbody>
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