HydroCOM

Experience real capacity control and energy savings
How much control do you really have when it comes to capacity control?

You have many options available to you for controlling capacity for your reciprocating compressor. HydroCOM, however, achieves best results in terms of speed, energy savings and accuracy.

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

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

- **Control range**
  Does my control system have large control range for highest flexibility?
  Is it efficient on all loads?

- **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?

- **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?

- **Environmental restrictions**
  Does my system help to fulfill stringent environmental conditions unlike control-flares?
HydroCOM: A wise investment for efficient capacity control

HydroCOM is an efficient, stepless, dynamic and fully-automated control system. It saves money due to excellent controllability and by significantly improving performance and pays for itself within a short period of time.

Is HydroCOM right for my compressor?

- **Yes, if you want to lower your energy and capital costs.**
  HydroCOM capacity control follows an intelligent concept: just the required amount of gas needed is being compressed, unlike other control systems like bypass valves that recirculate compressed gas, or stepped control that compresses more gas than you need. HydroCOM lowers capital costs of efficient multistage compressors. Capital costs of a compressor with HydroCOM are lower compared to a compressor with 50%, 75% and 100% stepped control.

- **Yes, if you want a stepless control range and stable process parameters.**
  Fork unloaders installed on the suction valves are actuated hydraulically resulting in a stable stepless control over a broad control range from (0) 10% to 100%. Any capacity variation is bumpless in comparison to stepped control.

- **Yes, if you need immediate capacity control response and highest control dynamics.**
  HydroCOM is very fast and precise much faster than bypass valves or variable clearance pockets. The capacity can be changed within three revolutions of the crankshaft.

- **Yes, if you want a fully automated capacity control system.**
  HydroCOM interfaces to your DCS or PLC for automatic actuation. Therefore, a minimum of intervention is required for operation.

- **Yes, if you are concerned about gas flaring and complying with environmental regulations.**
  Based on the intelligent concept of HydroCOM, it reduces CO₂ emission costs since energy savings are realized. HydroCOM reduces the need for gas flaring since it only compresses the volume of gas required by the process. Thus, it reduces environmental impact and helps to comply with environmental regulations.

**Proven success**

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

How HydroCOM works:
At full load gas is compressed during the entire compression stroke. At partload HydroCOM holds the suction valve open at the start of the compression stroke and automatically closes the valve when the desired volume of gas is in the cylinder. Only the gas required is compressed to discharge pressure.

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 straight forward 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.

Monitor and protect your compressor with RecipCOM, our machinery protection and online monitoring system. RecipCOM is certified according to IEC 61508 / 61511 and complies with API 670.
HydroCOM’s many success stories

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

Over 1000 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.

Dresser Rand / Refining / Hydrodesulfurization (HDS)

Kobelco / Refining / Residue desulfurization (RDS)

Borsig / Natural gas storage

Ariel / Gas turbine plant

Neuman & Esser / Chemical / Chlorine electrolysis

Thomassen / Refining / Hydrotreating

This compressor is the largest API machine ever built.
The benefits of HydroCOM at a glance

- Reduce energy and CO₂ emission costs
- Reduces capital costs for multistage compressors
- Control capacity with fast, stepless precision from 10%*) to 100%
- Stabilize line conditions under dynamic control
- Standardised components for highest reliability
- Integrate easily into your plant control system
- Upgrade your existing compressors easily

*) depends on application

More than 1000 HydroCOMs have been successfully installed – benefit from our experience

compressor-mechatronics@hoerbiger.com

Technical data of HydroCOM

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control range</td>
<td>(0…) 10%…100%</td>
</tr>
<tr>
<td>Max. suction pressure</td>
<td>160 bar / 2320 psi</td>
</tr>
<tr>
<td>Max. suction valve temperature</td>
<td>120° C / 220° F</td>
</tr>
<tr>
<td>Max. compressor speed</td>
<td>1200 rpm</td>
</tr>
<tr>
<td>Suited for corrosive environment?</td>
<td>yes</td>
</tr>
<tr>
<td>Suited for non-lube applications?</td>
<td>yes</td>
</tr>
<tr>
<td>Ex-certification</td>
<td>EU (ATEX), US (FM), Canada (CSA), Japan, Russia (TR), Korea, Brazil (INMETRO)</td>
</tr>
</tbody>
</table>

*) depends on application

www.hoerbiger.com

HOERBIGER is active throughout the world as a leading player in the fields of compression technology, drive technology and automation technology. In 2013, its 6,400 employees achieved sales of 1.05 billion euros. The HOERBIGER brand is synonymous with performance-defining components in compressors, industrial engines and turbines, automobile transmissions, and multifaceted mechanical engineering applications. Innovations in attractive technological market niches are the basis for components, systems and services that offer unique selling propositions and long-term benefits for the customer. We set standards.

This product brochure contains product specifications based on research and development on the one hand and on manufacturing on the other. Dependent on place of installation, operating conditions and specifications, several parameters of the described product may change. Thus, HOERBIGER assumes no liability or warranty for the accuracy and completeness of the information covered in this brochure.