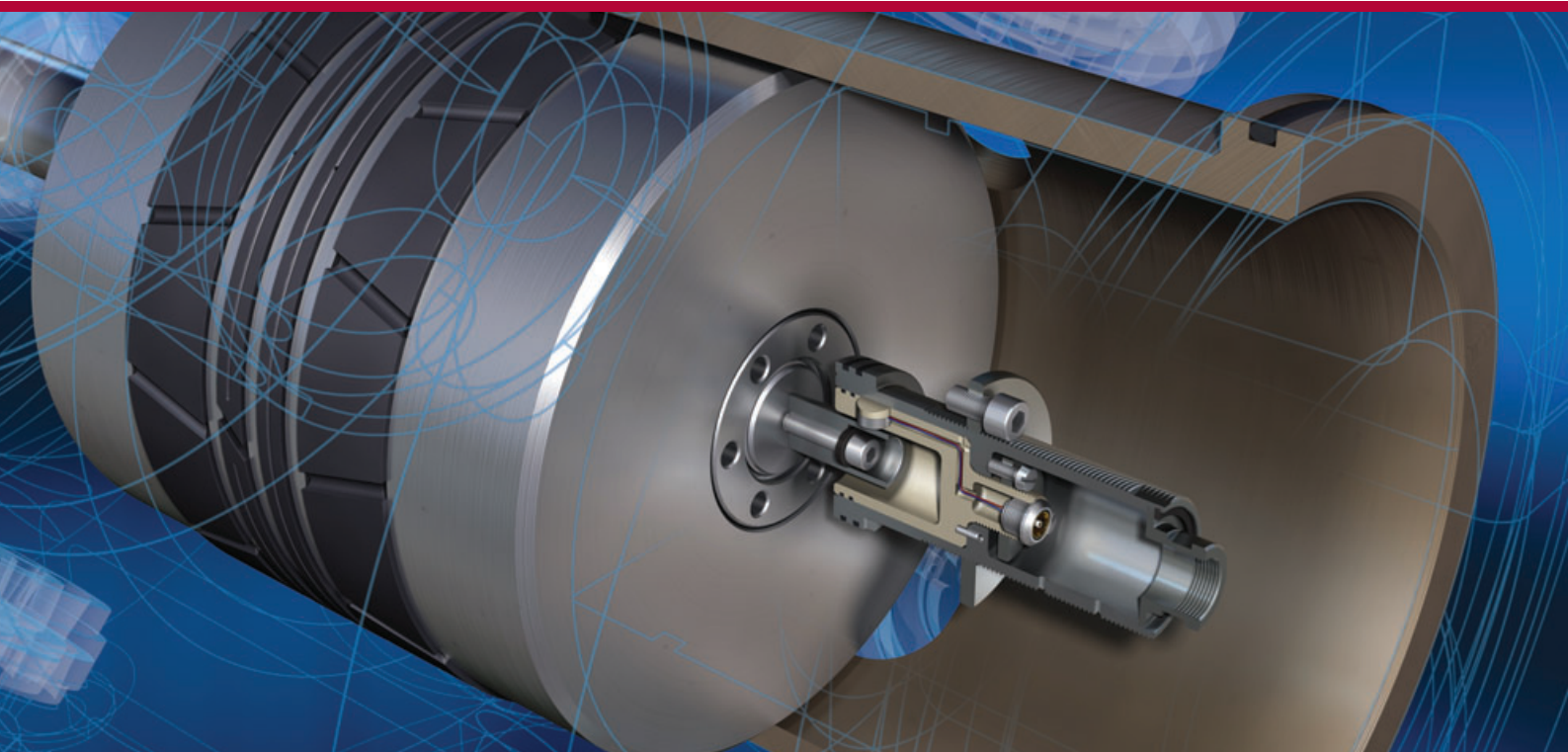


WearCOM – the reliable monitoring system for rider ring wear



Trust is good, control is better. Especially when it comes to rider ring wear.

Operators need to rely on trouble-free operation of their reciprocating compressors. Due to their susceptibility to wear, rider rings are key components in reciprocating compressors that account for both the machine's reliability and availability. In many a case continuous monitoring of their wear status is indispensable for reliable compressor operation. So far, however, all measuring systems have only been able to measure rider ring wear indirectly and therefore have limited accuracy.

Dirt, liquids, catalyst debris or insufficient lubrication may considerably and unexpectedly reduce rider ring life. If rings are replaced too late, the piston contacts the liner which may lead to damages causing expensive repair works and production losses. On the other hand, good operating conditions may extend ring life beyond scheduled service intervals.

Traditional measuring systems often give unsatisfying results since wear is not measured directly but derived indirectly from rod drop measurements. Wear estimations based on rod-drop measurements are strongly influenced by:

- Rod vibrations
- Crosshead clearance
- Piston rod and rod coating materials
- Compressor operating conditions
- Precision in calibration
- Accuracy of compressor geometry data

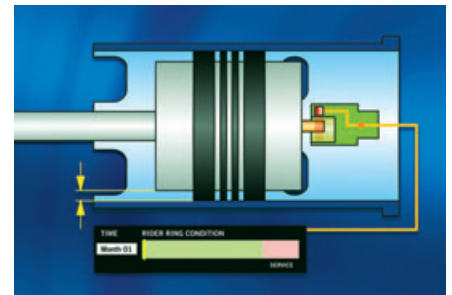
WearCOM – the exact and direct monitoring system for rider ring wear – developed by HOERBIGER.

Wear is measured directly at the piston and not derived indirectly from rod drop measurements. Thus, actual rider ring wear can be determined with maximum exactness – a fact that makes WearCOM superior to any of the conventional rod drop measuring systems.

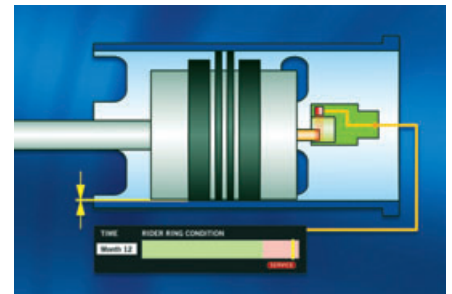


Thanks to WearCOM rider rings can be replaced at exactly the right time which increases both safety and productivity. What is more, spare part costs are reduced since rider ring life can be fully exploited.

Working principle of WearCOM



New rider rings



Alarm as a result of ring wear

WearCOM – the most reliable monitoring system for rider ring wear

WearCOM comprises the following components:

- Sensor cartridge
- Target
- Armored WearCOM coax cable
- WearCOM transmitter

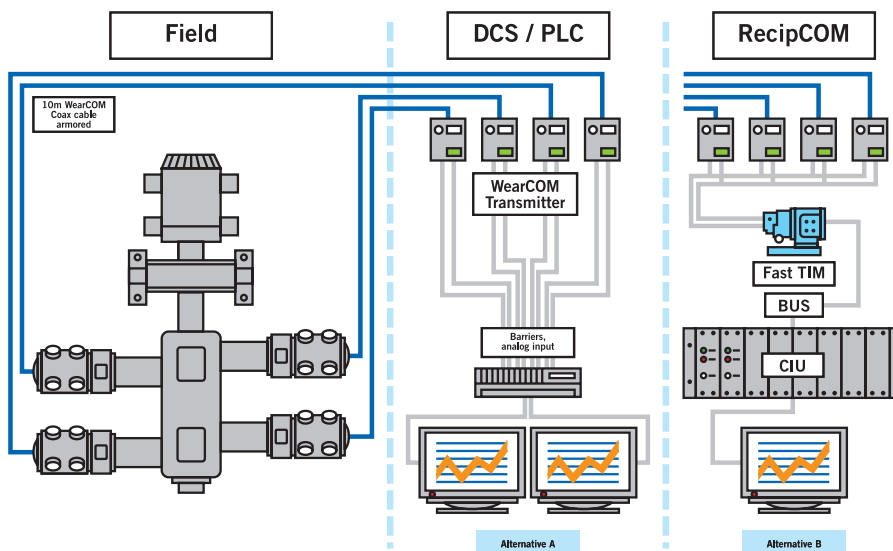
The stainless steel sensor cartridge is installed in the cylinder cover with the sensor being located at the highest position. The cylindrical target is then mounted to the end of the piston rod. Whenever the piston is in top dead-centre position, the target immerses into the sensor cartridge and the distance between the target and the sensor is measured.

The distance measurement is taken at each revolution. As a result of increasing wear and gravity the piston is sinking down.

Thus, the distance between the sensor and the target is enlarged with the degree of change corresponding to the degree of rider ring wear and indicating the remaining stand-out of the rider ring.

Each cylinder is equipped with a sensor cartridge as well as a WearCOM transmitter. The transmitter's signal output is either connected via barriers to the DCS/PLC or directly to the decentralised data processing units (Fast-TIMs) of the HOERBIGER RecipCOM online monitoring system. In the system, the values can be recorded or set as a trend. In addition, limits can be defined that trigger an alarm.

In case, the HOERBIGER online monitoring system is used for data acquisition, the recorded data and alarms can be forwarded to the DCS/PLC via Modbus.



The advantages of WearCOM

- Contrary to calculating rider ring wear indirectly from rod drop, it is measured directly at the piston. This makes WearCOM so precise and reliable.
- No re-calibration of the system is necessary after rod replacement since the target material is always the same. Piston rod coating material and thickness do not affect WearCOM measurements.
- In spite of thermal growth the system's comprehensive measuring capacity enables monitoring of rider rings with up to 4 mm stand-out.
- WearCOM is easy to operate and service. Operators can start-up the system without any assistance from external supervisors.

The features of WearCOM at a glance

Application range:

- Compressors in the process and natural gas industries
- Horizontally opposed cylinder configuration
- Up to 200 bar
- Discharge temperature of up to 200° C
- Max. compressor speed 1500 rpm
- Ex-certification: ATEX II2G EEx ia IIC T4
- Suitable for most gases

Signals:

- Simple 4 to 20 mA signal equivalent to actual stand-out of rider rings
- Connection: 2-wire technique

Can be used:

- As a stand alone solution (direct integration into DCS/PLC)
- In combination with HOERBIGER RecipCOM online monitoring system
- In combination with existing monitoring systems

Your benefits:

- Reliable and precise rider ring wear measurement
- High accuracy
- No keyphasor (TDC sensor) required
- No calibration required
- Large measuring range: rider ring stand-out up to 4 mm
- Easy to operate and start-up: no external supervisor required

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