

HUNGER **Hydraulik**

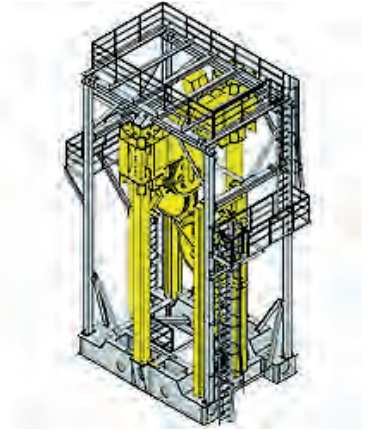
EIN UNTERNEHMEN DER HUNGER-GRUPPE

Hydraulic Cylinders for Offshore Applications II



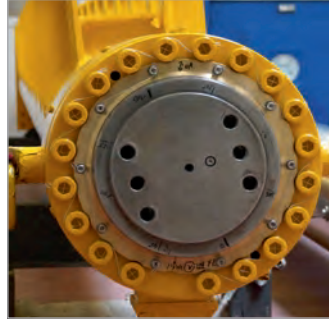
Your Partner for Complete Solutions

CMCE Cylinders



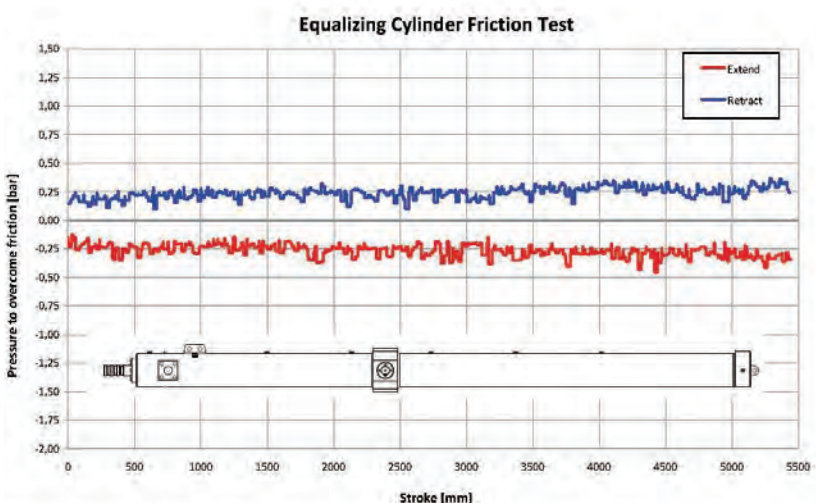
The CMCE- (Crown Mounted Compensation and Equalization) cylinders are installed in the top of the derrick where they compensate vertical movements of the drilling rig relative to the ground fixed and standing still drilling rod.

Two main and two equalizing cylinders are always working parallel which requires identical friction behavior of each cylinder couple. Depending on the wave run the maximum moving speed of these cylinders can go up to 2 m/sec.



Because the cylinders have to realize this high speed movement with water based hydraulic fluid a special Hunger seal and bearing arrangement is considered in the design.

In case of the CMCE- main cylinders also some special features are integrated into the cylinder design. Their cylinder body is equipped with supports for an external guide rail where the middle beam of a pulley runs. And in the main cylinder itself the oil feeder for the above installed equalizing cylinder is integrated. The equalizing cylinders are designed as three chamber cylinders with a pretension piston which always guarantees a minimum tension in the connected tightrope.



Technical data:

CMCE main cylinder (example)

- Bore diameter: 480 mm
- Rod diameter 420 mm
- Stroke 8.890 mm

CMCE equalizing cylinder (example)

- Bore diameter: 280 mm
- Rod diameter 100 mm
- Stroke 8.100 mm

Certification can be done according to:

- DNV standard for certification no. 2.9 hydraulic cylinders and DNV offshore standard E101 "Drilling Plant"
- ABS / CDS (Classification of Drilling Systems)
- Lloyds register

DPACs and Piston Accumulators

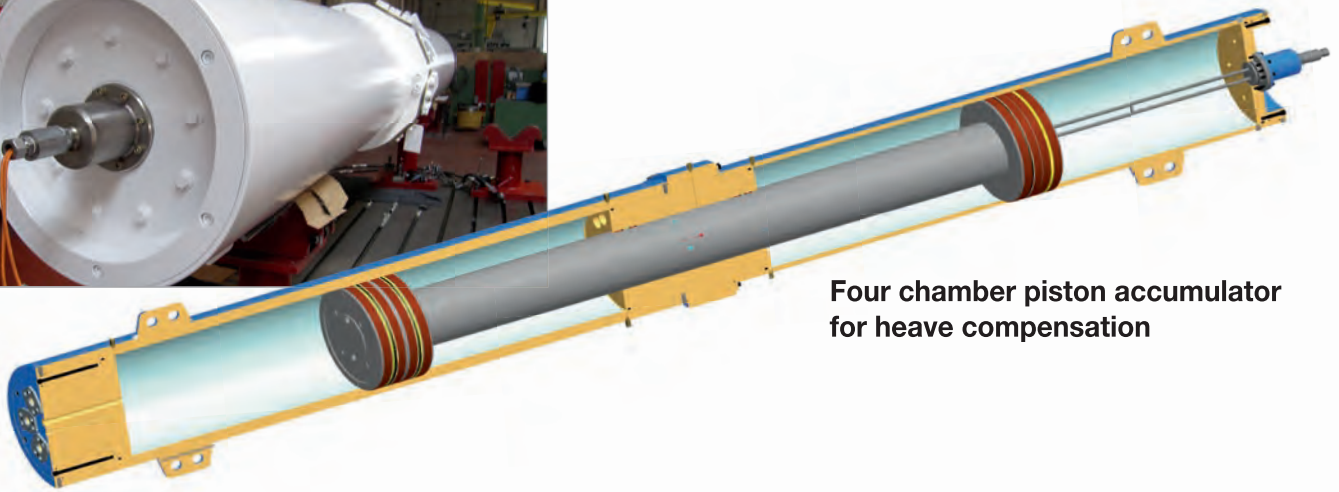
The DPACs for cranes with a heave compensation are designed as four chamber accumulators with high and low pressure oil and gas sides.

An integrated and redundant position measuring system delivers always the information about the current piston position to the system control.

Seal elements from Hunger guarantee with their low friction properties a fast reaction to all fluid requirements and with it for a safe and accurate control of the handled load.



For cylinders running with fast speed piston accumulators are used to deliver the required high flow rates to the cylinders. Typical applications are knuckle boom cranes with a heave compensation or CMCE systems.



Four chamber piston accumulator for heave compensation

The CMCE accumulators are designed with two chambers, one for gas and one for the water based fluid, separated by a piston. The typical volume is about 3.300 liter. These accumulators are equipped with special seals, designed for high speed and low friction.

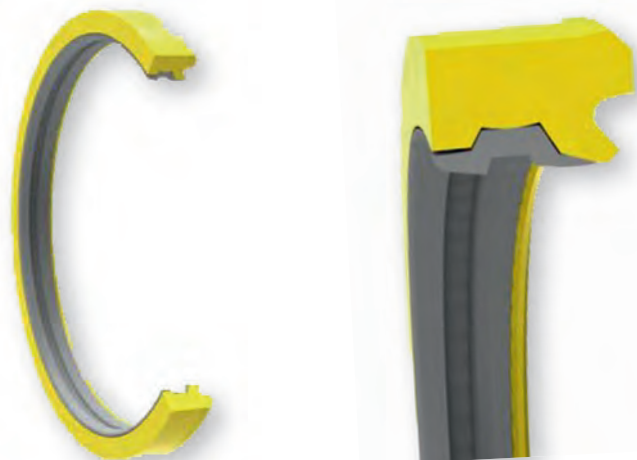


General technical data:

- **Bore diameter up to:** 610 mm
- **Stroke up to:** 11.292 mm
- **Pressure range:** 207 bar



Special Seal and bearing elements for high dynamic movements



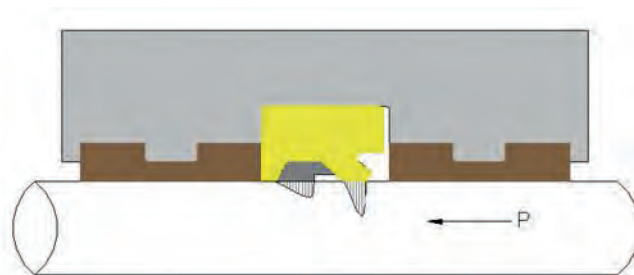
Our sister company Hunger DFE is an experienced hydraulic seal system provider and partner of customers in the oil and gas industry since several years.

Hunger DFE offers a large range of PTFE-Compounds, elastomer, rubbers and molded thermoplastics - each grade adapted to the demands of the application

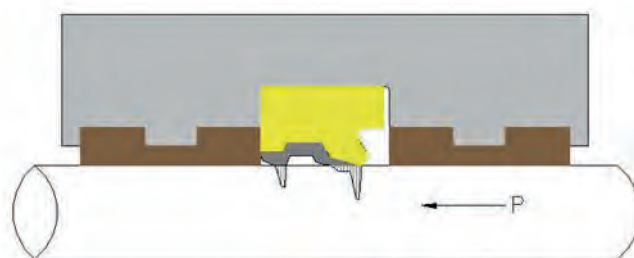
Hydraulic equipment and seals in oil and gas industry have to bear hardest climatic and geologic conditions and must operate successfully at any time. To secure these properties and guarantee a safe, efficient and economic production, different solutions special adapted to the application are offered.

Accumulator loaded, high dynamic long stroke cylinders need a special tailor made sealing and bearing system to cope with extraordinary system loadings and operational speeds. Only highest quality engineering plastics, elastomers and PTFE-based compounds can guarantee low friction grades and stick slip free movements.

Special developed Hunger DFE components like friction reduced lip seal TRO-I can improve the reliability of the whole cylinder system remarkably. For these demanding applications piston rods often come with coatings consisting of carbides, oxides or stainless steel in order to improve service life under operation – Hunger seals can be adapted to these hard wearing surfaces



friction gradient lip seal TDI



friction gradient TRO-I

For more details about this type of seals and further offshore sealing solutions please see Hunger DFE brochure „Offshore technology“

Die HUNGER-Gruppe - The HUNGER Group

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HUNGER Hydraulik

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