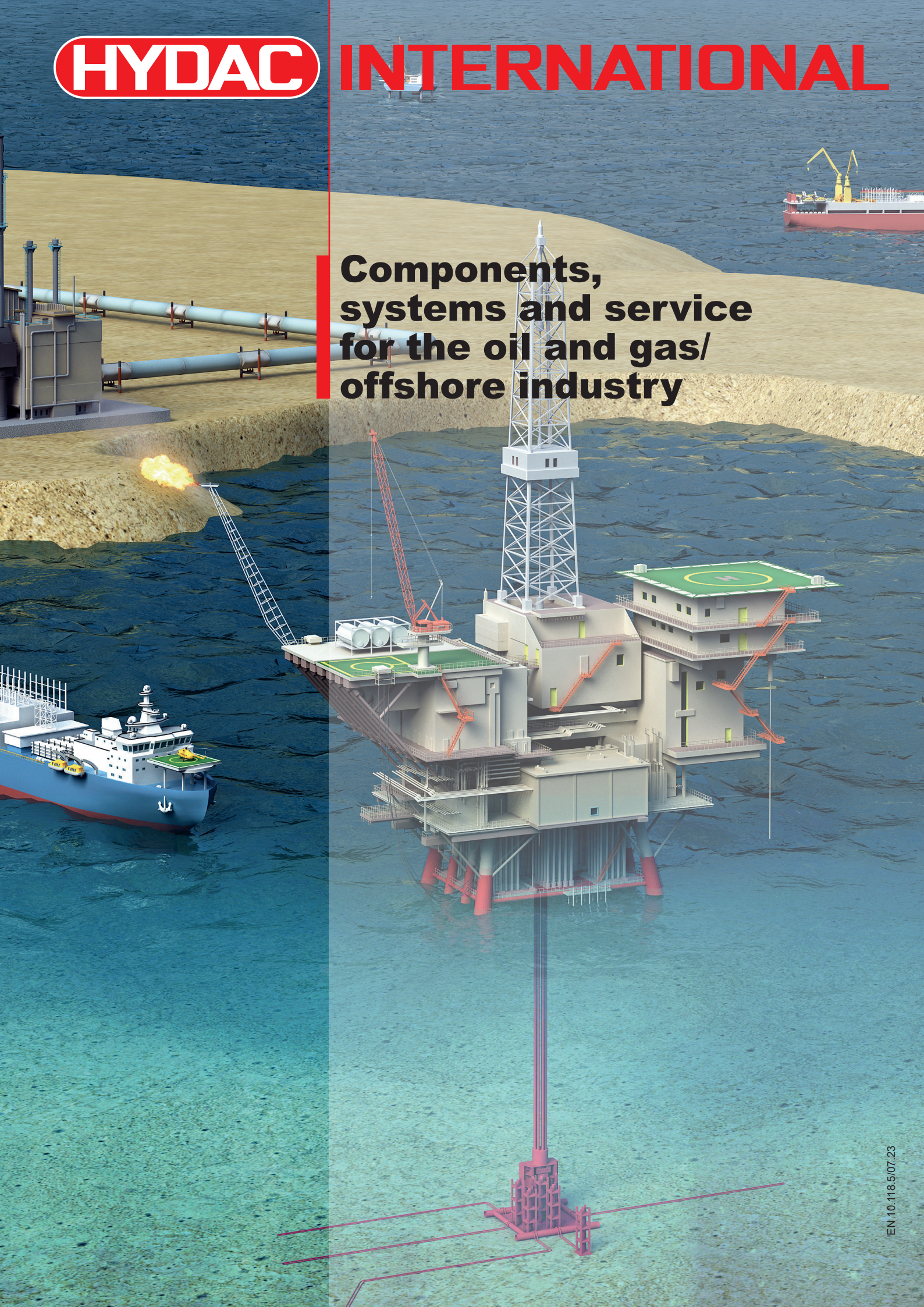
HYDAC INTERNATIONAL

Components, systems and service for the oil and gas/ offshore industry



EN 10.118.5/07.23

Your professional partner for the oil & gas / offshore industry

HYDAC was founded in 1963 and now employs more than 10,000 people worldwide. It is one of the leading suppliers of fluid power, process technology, hydraulics and electronics in numerous industry sectors.

HYDAC's wide range of products, combined with its expertise in development, production, sales and service enables the oil and gas / offshore industry worldwide to overcome the most diverse problems.

HYDAC supports its customers to find the most effective solution – from components to complete systems.

Our quality and environment certification to ISO 9001/2008 and ISO 18001 denote first class quality and responsible management of our resources.

Complete solution packages.
One supplier.
One point of contact.

Various international specifications and approvals such as:

- API
- Directive 2014/68/EU
- NORSOK
- Lloyds
- DNV
- ASME
- ABS

And much more…

In the oil and gas / offshore industry

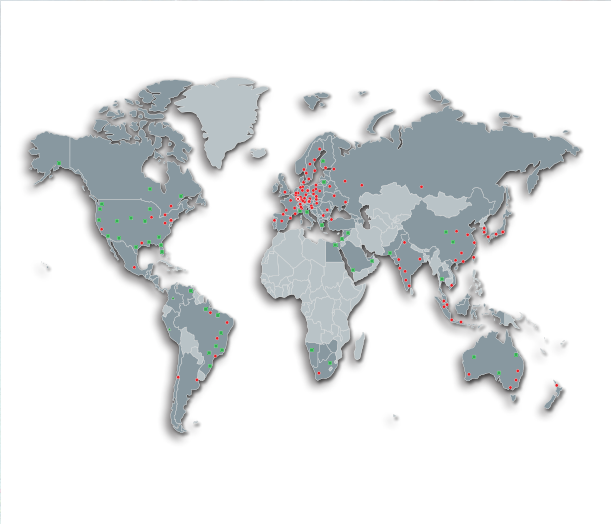
Whether it is onshore, offshore or subsea; from engineering to final production, HYDAC is a partner you can rely on.

Brief overview: HYDAC capabilities

- Engineering capabilities
- Working pressures up to 2,000 bar / 30,000 PSI
- Special materials: carbon steel, stainless steel 316, duplex and super duplex stainless steel
- Welding and production to international standards
- Special offshore coating
- Flushing according to customer requirement
- Hazard protection for applications onshore and offshore
- Condition monitoring of oil cleanliness and oil degradation in hydraulic and lubrication oils
- Worldwide technical and commercial support through global HYDAC presence
- Prevention of electrostatic discharge and resulting system damage, such as accelerated oil degradation or damage to system components, through the use of innovative HYDAC filter technology
- Energy-efficient components and systems

And much more…

Global presence



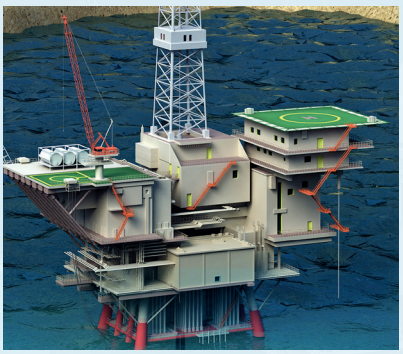
With over 45 subsidiaries, the international production facilities of the HYDAC group are located close to the customer and all over the world we represent quality: "Made by HYDAC". No matter what the job entails or where in the world you need us, we are there to help you in finding the best solution.

Components, systems and service for the oil & gas / offshore industry

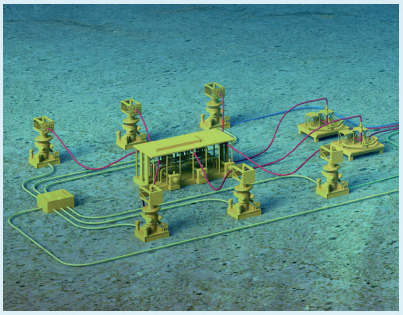
SOLUTIONS FOR CUSTOMER APPLICATIONS

Oil and gas /onshore

Oil and gas / offshore



Oil and gas /subsea



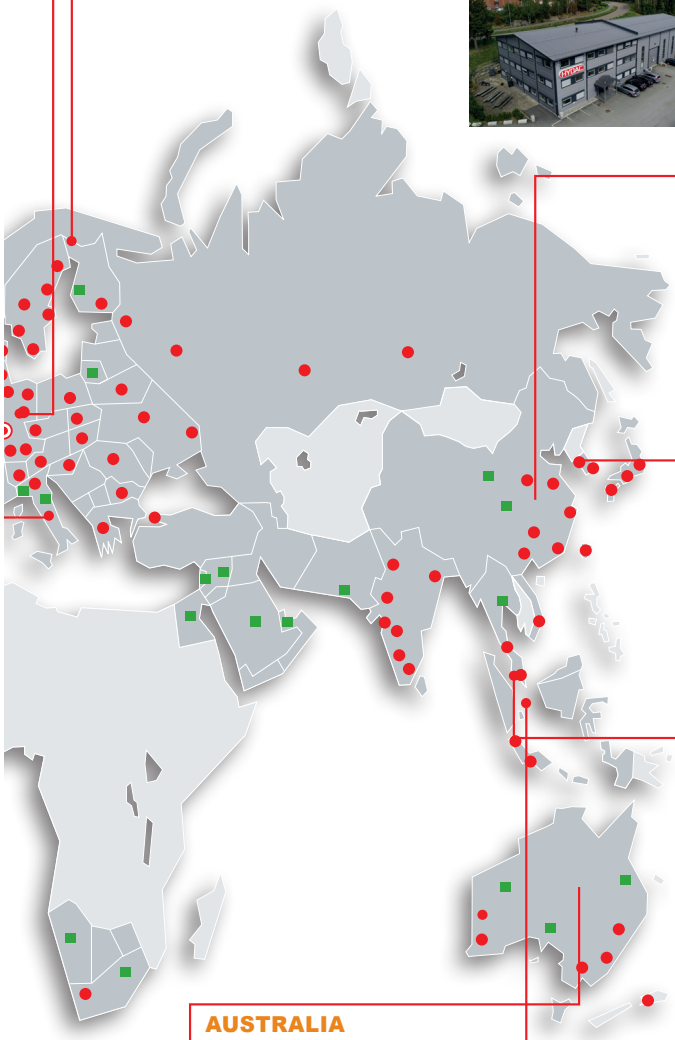
Brief overview:
HYDAC components, systems, service and training

Global presence

The HYDAC organisation is close to the customer. Worldwide.

HEADQUARTERS GERMANY

NORWAY



CHINA

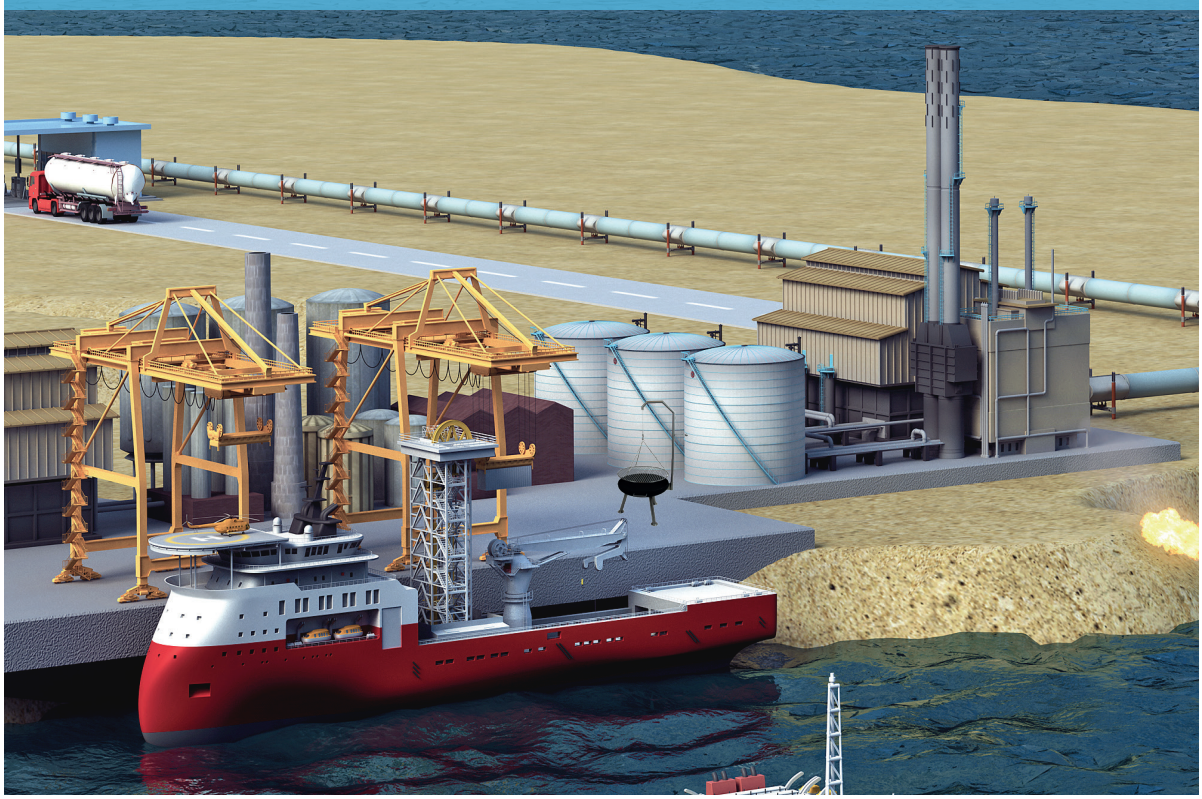
KOREA

MALAYSIA

SINGAPORE

AUSTRALIA

Components, systems and service for oil & gas / onshore applications



HYDAC offers solutions for customer applications, such as:

- Blowout preventers
- Compressors and gas turbines
- Loading systems
- Oil lubrication systems
- Hydraulic valve actuation
- Pipeline precommissioning equipment (i.e. flooding/flushing unit)
- Seal supply systems
- Pump systems (e.g. chemical injection systems)
- Top drives
- Water injection filtration
- Wellhead control panels
- Workover control systems
- Downhole tools
- Mobile well servicing units
  (e.g. fracturing, cementing, stimulation, coil tubing)

And much more…

Examples of HYDAC solutions

Oil and gas pipeline flooding with drinking water or sea water.
Back-flushing filters Autofilt® RF3 are used to protect the flooding pumps

Bladder and piston accumulators with electro-hydraulic actuation e.g. emergency shut-off for gas pipelines

Fluid Aqua Mobile FAM – compact unit for degassing, dewatering and filtration of hydraulic and lubrication oils

Lubrication systems as per API 610 & 614

Seal systems made out of 316 SS or duplex UNS S32205

Piston accumulator station SS210K

As shock absorber in fuel delivery (up to 850 m³/hr)

- Total gas volume 2300 L
- Media: petrol, diesel, kerosene
- 3-layer coating
- Safety and monitoring equipment
- Fully assembly (ready to connect)

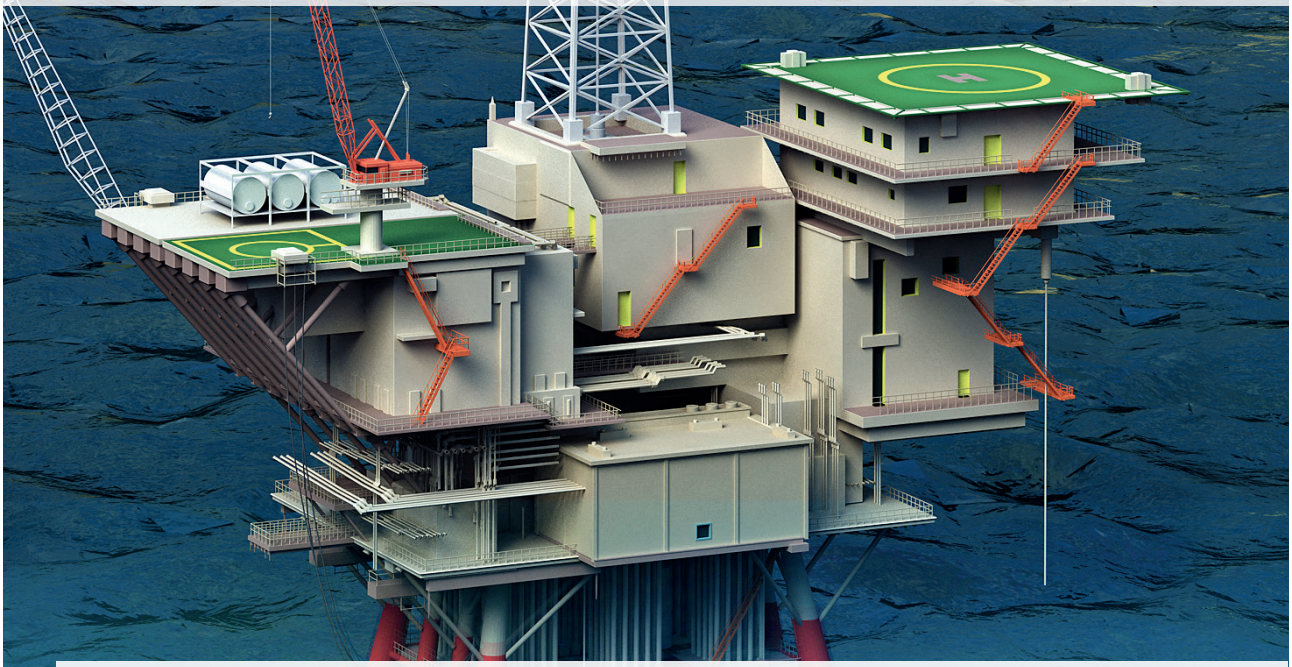
Customer benefit: no additional conversion needed on pipeline system, therefore enormous cost savings

Diaphragm accumulator SBO…F series

With welded-on flange as pulsation damper on displacement pumps

- Series product in stainless steel
- Simple installation
- Less sealing, less leakage
- Highly suitable for use in sea and salt water environments
- For almost all systems in up-, mid- and downstream applications
- With consideration given to the elastomer quality, highly suitable for use with special media

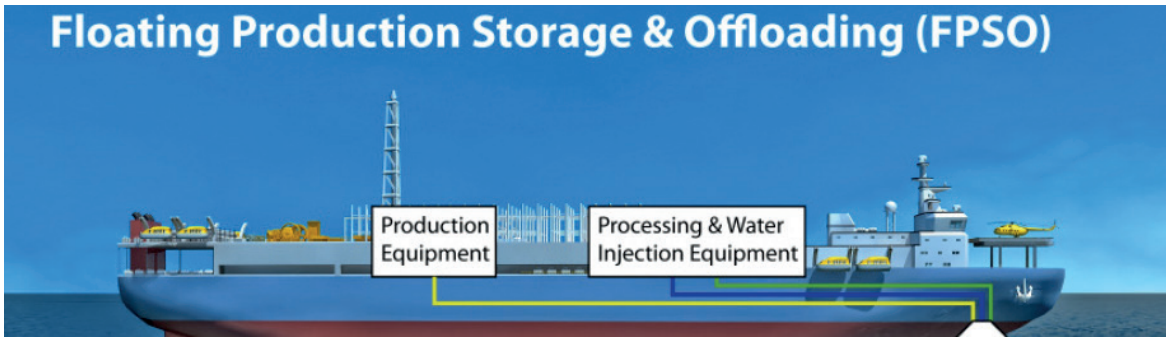
Components, systems and service for oil & gas / offshore applications



HYDAC offers solutions for customer applications such as:

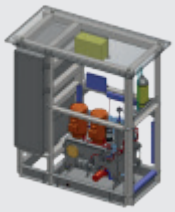
- Water injection filtration
- Heave compensation
- Blowout preventers
- Davits, A-frames & cranes
- Pipe handling equipment
- Mooring systems
- Pump systems (e.g. chemical injection systems)
- Compressors and gas turbines
- Oil lubrication systems
- Pipeline tensioning
- Seal supply systems
- Wellhead control panel
- Workover Control Systems

And much more…



AutoFilt® RF3

Process inline filter PLF1



HPU
hydraulic power unit

One of the first steps in the treatment of water is pre-filtration, followed by fine filtration. This is precisely where the HYDAC solution comes in. Three AutoFilt® RF3 filters with a filtration rating of 50 µm are used as coarse filters, and then three process inline filters PLF1 are installed further downstream to provide the fine filtration to 5 µm absolute In essence, the HYDAC filter solutions used in this application protect the high pressure pumps and the membrane system.

Offshore hydraulic power units

- HYCOM specialises in developing innovative new offshore hydraulic systems for various applications, such as wind turbines, heave compensation, special winches and more.

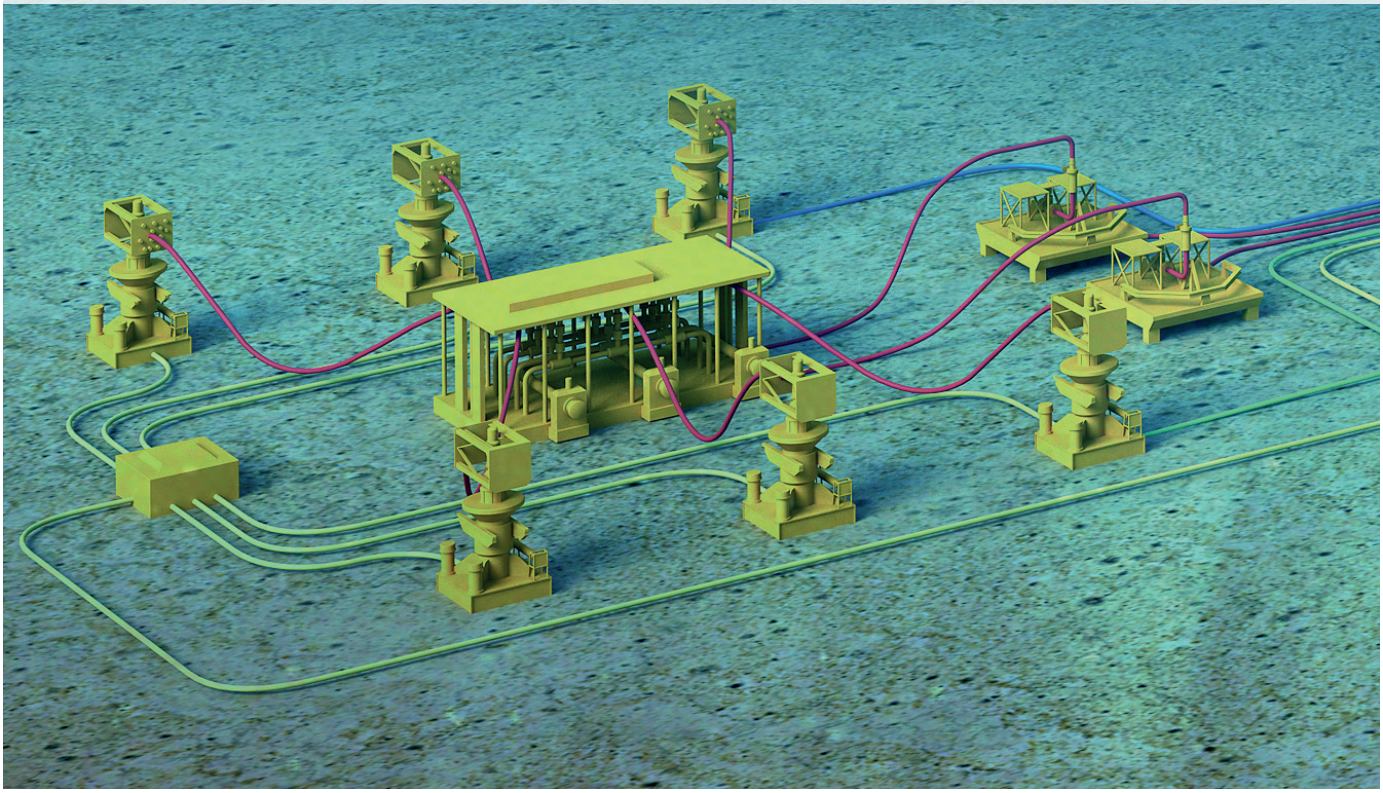
QHP
HYDAC INTERNATIONA

QHP bladder accumulators are designed and constructed especially for the oil and gas market. Depending on customer requirements, special elastomers, steel materials and connections are available.

QHP piston accumulators are designed for various oil and gas / offshore applications.

Info: www.hydac.com /
See brochure 7.700, brochure 7.807

Components for oil and gas / subsea applications



HYDAC offers solutions for customer applications such as:

- Subsea control modules
- Subsea accumulator modules
- Subsea blowout preventers
- Remotely operated vehicles
- Mono ethylene glycol filtration
- Downhole tools

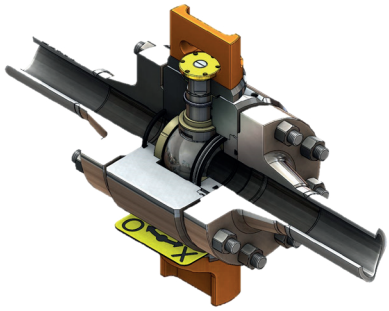
And much more…

Examples of HYDAC solutions

Subsea filtering for mono-ethylene-glycol (MEG)

QHP bladder & piston type accumulators and compensators for subsea applications

Stainless steel high pressure filter types for subsea applications



Subsea ball valve

- Our compact subsea ball valve with floating ball and two-way poppet for use in temporary applications.
- Low-torque single-side or double-side ROV operation.
- Perfectly designed for electrical operation with low torque.
- Manufactured from the material NORSOK M630/ASTM.
- Our subsea ball valves are certified to ISO 10423 – performance requirement 1 (PR1)

Brief overview: HYDAC components, systems, service & training

ACCUMULATORS

HYDAC, together with its fully owned subsidiary QHP, is the only company worldwide to develop, design, manufacture and distribute all forms and types of hydraulic accumulators.

- Bladder, piston, diaphragm and metal bellow accumulators for various oil & gas applications – onshore, offshore & subsea
- Wide range of international approvals

Bladder accumulators
Max. volume: up to 450 l
Max. pressure: 1,000 bar

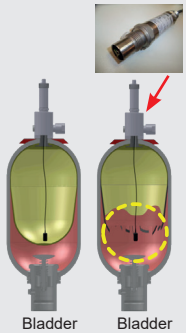
Piston accumulators
Max. volume: up to 3,500 l
Max. pressure: 1,000 bar

Diaphragm accumulators
Max. volume: 4 l,
Max. pressure: 750 bar

Piston accumulators and metal bellows accumulators
Max. volume and pressure on request

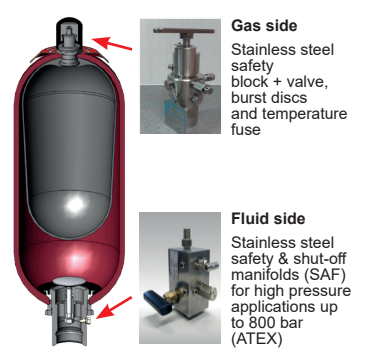
Info: www.hydac.com / See brochure 30.000

Accessories & safety devices



Bladder integrity system (BIS)

- Detection of fluid in the bladder
- Integrated pressure and temperature monitoring during operation
- Different interfaces (HART)



Gas side
Stainless steel safety block + valve, burst discs and temperature fuse

Fluid side
Stainless steel safety & shut-off manifolds (SAF) for high pressure applications up to 800 bar (ATEX)

Piston accumulators
Max. volume 3,500 l, max. pressure 1,000 bar

Charging and testing unit FPU-2

- In stainless steel
- Up to 800 bar

Info: www.hydac.com / See brochure 3.552

PROCESS FILTERS

Automatic back-flushing filters, inline filters, gas filters and filter skids for various filtration tasks of process fluids and gases. Typical applications include:

- Filtration of injection water both onshore and offshore
- Seal gas filtration / seal water filtration / fuel gas filtration
- Pipeline flushing (pre-commissioning of pipelines)
- Filtration of mono-ethylene-glycol (MEG)

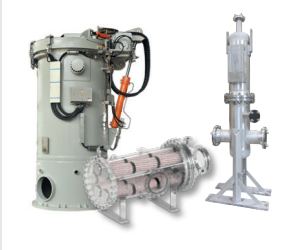
Gas filtration, e.g. for seal gas on a centrifugal compressor

Automatic back-flushing filter AutoFilt® RF3 / RF5 / RF7 / RF14

- Separation of solid particles from low-viscosity fluids
- Variable, flow-optimised housing design
- More efficiency thanks to conical filter elements
- Q_{max}: 10000 m³/h
- Filtration ratings: 25 - 3000 µm
- P_{max}: 100 bar

Mono-ethylene-glycol (MEG) filters used topside and subsea

- Filtration rating: 100 µm and 200 µm
- Setting range: up to 690 bar



Inline filter PLF1 / PLF2

- Effective separation of solid particles from low-viscosity fluids
- Modular design gives optimal flexibility in catering for every application
- Q_{max}: 10000 m³/h
- Filtration ratings: 1 - 90 µm
- P_{max}: 75 bar

Filter materials & filter elements

- Large selection of surface and deep filter materials such as wedge wire, Chemicron® metal fibre fleece and Processmicron® polyester fibre fleece
- Extremely high chemical, mechanical and thermal stability
- Excellent retention capacity
- Large filter areas thanks to optimised element structure
- High contamination retention capacity with minimum pressure loss

Skid solutions

- Individual skid and system solutions
- Examples of use: combination of multiple filters to handle large flow rates, combination of coarse and fine filters, mobile/temporary installations etc.

Info: www.hydac.com / See brochure 7.727

STAINLESS STEEL FILTERS

Stainless steel high pressure filters for various oil and gas applications

Stainless steel material used (head – 316 / bowl – 318) reduces galling. Port connections are available in BSP (up to 600 bar), NPT and autoclave-style thread forms.

MPSSF (up to 450 bar), HPSSF (up to 700 bar) and ACSSF (up to 1,035 bar) – flow rates up to 130 l/m – designed for filtering contaminants from offshore hydraulics as well as from chemical and industrial process engineering systems

Hazardous area clogging indicator VDHA with 316 stainless steel injection box available in 450, 700 and 1,035 bar

Hydraulic standard inline and offline filters, breather filters and filter elements with high filtration performance and simple handling for safe and economically efficient system operations on request

FILTER ELEMENTS

HYDAC offers high quality filter element technology constantly improved through our field experience, research and development.

- **Stat-Free®** and **Stat-X®** filter elements
- Protection from electrostatic discharge thanks to charging-optimised filter mat, O-ring caps, support tubes made from conductive materials
- Protection from sparks, low-speed detonation, explosion
- High performance/service life of oil and filter element
- High level of safety of operation
- Fewer oil changes, less varnish

Info: www.hydac.com
See brochure 7.017

HYDAC manufactures filter elements for every requirement, in line with the filter concept. When choosing the right filter element to suit you, we naturally take both technical and economic aspects into consideration and test new or challenging applications with you.

Info: www.hydac.com
Brochure 7.221, catalogue 70.000, catalogue 79.000

FILTER SYSTEMS

HYDAC offers a comprehensive range of easy-to-use measurement and analysis equipment. Whether it be solid particles or fluid contamination, for sporadic checking or as a permanent installation, under rough field conditions or in the laboratory.

HYDAC vacuum dewatering unit FAM ATEX FAM-15/30/50/70-EX

- Requirement of EU Directive 2014/34-EU and the Technical Rules TR CU 12/2011 of the Eurasian Economic Union for areas in which potentially explosive gas mixtures are likely to occur (Zone 1 / 2)
- For removal of free and dissolved water

HYDAC OffLine Filter OLF ATEX OLF-15/30/45/60-EX

- Our HYDAC OffLine Filters in the OLF 15/30/45/60 ATEX series work in potentially explosive atmospheres as robust offline filters for stationary applications in hydraulic systems and lubrication systems with large oil volumes. This results in an improvement in oil cleanliness and therefore higher component service lives.

HYDAC Condition Monitoring Package CMP Ex CMP 1000 EX Zone 1

- For potentially explosive zones
- For determining water saturation and the degradation condition of hydraulic and lubricating fluids in pressure circuits
- Sensor connection block in flameproof enclosure with visual particle counter and fluid condition sensor
- With data logger and network interface for local storage of measured data

HYDAC Pump Transfer Unit OFU-EX(ATEX)

- The Filter Pump Transfer Unit OFU is a mobile oil conditioning unit used to filter oil when filling systems and when transferring hydraulic and lubricating fluids.

Brief overview: HYDAC components, systems, service and training

BALL VALVES

Ball valves – standard

Secure blocking and redirecting of your media. Wide range of high-quality materials for extreme challenges in your application.

Our ball valves are available with special equipment:

- Locking device
- Position monitoring
- Mounting equipment
- With pneumatic, electric or hydraulic drive

Ball valves – custom design

We supply custom solutions for almost any application. Our expertise ranges from the requirements analysis and development to the finished product.

Get in touch – we will gladly assist you with your project from the outset.

Fluid level gauges/sensors

Visualisation and monitoring of fill level values. From our series standard (UV and temperature-resistant) to especially robust, break-proof and leak-proof special designs for maritime and offshore applications. The wide range of materials and designs enables customised solutions in a temperature range between -50 °C and +160 °C.
BV and ABS approval possible.

MOUNTING TECHNOLOGY

DIN 3015 clamps and series strips

The most economical solution for rapid, simple and secure mounting of pipes, hoses, cables and other components.

- All sizes of DIN 3015
- Up to Ø 420 mm
- Various materials
  - Stainless steel
  - Clamps (AL, PA, PP)

HY-ROFLEX

HY-ROFLEX is our mounting solution for large cables which are predominantly used in wind turbines. They enable extremely easy cable mounting.

- Ø up to 72 mm cables
- Short-circuit protection (20kA)
- Flame-resistant (UL94 class V0)

Clamping bands

Clamping bands are used to mount large-volume containers or parts in a wide range of shapes, such as air tanks, H2 tanks, fuel cell stacks, plastic containers, bottles and accumulators

- Diameter 100 - 2000 mm
- Various shapes
- Stainless steel A4
- Customised solutions

ELECTRONICS / CONTROL TECHNOLOGY

Sensors (pressure, temperature, flow rate) for use in potentially explosive atmospheres and controllers

- Versions for ignition protection types: explosion / flame proof, intrinsically safe and many others
- Approvals: ATEX, IECEx, CSA
- Optionally with HART protocol and PROFIBUS interface
- 4 - 20 mA output signal
- Controllers to SIL 2 / PL d

Pressure transmitter series HDA 4000

- Approvals: ATEX, IECEx and CCSAUS
- Ignition protection types: flameproof enclosure, intrinsically safe, non-sparking
- Measuring ranges: 0 to 1 bar to 0 to 2000 bar 0 to 14.5 psi to 0 to 30000 psi
- Output signal: 4 to 20 mA, 4 to 20 mA with HART protocol

Pressure transmitter series HDA 4000, redundant design

- Approvals: ATEX, IECEx
- Ignition protection types: intrinsically safe, non-sparking
- Measuring ranges: 0 to 40 bar to 0 to 600 bar 0 to 500 psi to 0 to 9000 psi
- Output signal: Signal 1: 4 to 20 mA Signal 2: 20 to 4 mA

Pressure transmitter series HDA 4000 for enhanced safety requirements

- Approvals: ATEX, IECEx
- Ignition protection types: intrinsically safe, enhanced safety
- Functional safety: SIL2, PLd
- Measuring ranges: 0 to 2.5 bar to 0 to 2000 bar 0 to 100 psi to 0 to 30000 psi
- Output signal: 4 to 20 mA with internal diagnosis

Pressure transmitter series HDA 4000, with flush membrane

- Approvals: ATEX, IECEx and CCSAUS
- Ignition protection types: flameproof enclosure, intrinsically safe, non-sparking
- Measuring ranges: 0 to 4 bar to 0 to 600 bar 0 to 50 psi to 0 to 9000 psi
- Output signal: 4 to 20 mA, 4 to 20 mA with HART protocol

Differential pressure transmitter series HPT 500

- Approvals: ATEX, IECEx and CCSAUS
- Ignition protection type: Flameproof enclosure
- Delta P measuring ranges: 2 bar; 3 bar; 5 bar; 8 bar 30 psi; 35 psi; 75 psi; 120 psi
- Operating pressure: 420 bar / 6090 psi
- Output signal: 4 to 20 mA

Electronic pressure switch series EDS 4000

- Approvals: ATEX, IECEx and CCSAUS
- Ignition protection types: flameproof enclosure, intrinsically safe
- Measuring ranges: 0 to 6 bar to 0 to 2000 bar 0 to 100 psi to 0 to 30000 psi
- Output signal: 1 or 2 transistor outputs
- Switching parameters can be set using programming tools

Temperature transmitter series ETS 4000

- Approvals: ATEX, IECEx and CCSAUS
- Ignition protection types: flameproof enclosure, intrinsically safe, non-sparking
- Probe lengths: 10.7, 50, 100, 250, 300 mm
- Measuring range: -25 to 100°C
- Output signal: 4 to 20 mA, 4 to 20 mA with HART protocol

Flow rate transmitter series HFT 3100

- Approvals: ATEX, IECEx and CCSAUS
- Ignition protection types: flameproof enclosure, intrinsically safe, non-sparking
- Measuring ranges: 1.2 to 20 l/min; 6 to 60 l/min; 15 to 300 l/min; 40 to 600 l/min
- Output signal: 4 to 20 mA, 4 to 20 mA with HART protocol

Info: www.hydac.com / See brochure 180.000

COOLERS

AC-LN 1-14

For cooling hydraulic systems, gearboxes and bearings

- Low-noise air cooler
- Cooling capacity: up to 200 kW
- Optionally with pump and filter
- With ATEX approval and corrosion protection

AC-MS – modular system

For cooling gas turbines, compressors and diesel/gas generators

Cooling box for heavy duty gas turbines:

- For cooling oil, water glycol, air or fuel
- Installation in an ICO 20/40" container possible
- Variable fan speed – low-noise and energy-efficient
- Customised models

AC-LN ATEX / AC-LNH ATEX

- For air coolers with AC motor (AC-LN) and hydraulic fan drive (AC-LNH) with 50 Hz and 60 Hz
- In zones with risk of gas or dust explosion in underground mining and above ground
- With anti-static fan, earthed components and ATEX-approved fan drive

Pump-transfer cooler filtration unit UKF

For cooling and lubrication of gearboxes

- With gear pump, filter and brazed plate heat exchanger
- For viscosities up to 20,000 mm²/s
- For continuous cooling and filtration of the gearbox in the bypass flow
- Optionally with closed-loop water volume control to ensure consistent oil temperature

ACA-LN / ACAF-LN

For cooling and lubrication of gearboxes and bearings

This series was specially designed for cooling and lubricating gearboxes with high-viscosity oil and low flow rates.

- Operating pressure up to 10 bar
- Flow rate: 10 to 85 l/min
- For mineral oil up to ISO VG 320

Gasketed plate heat exchanger

For energy recovery, cooling or pre-heating of oil or water, gas dehydration and gas sweetening

- Especially suitable for large volumes and high cooling capacities.
- Plate material: stainless steel, SMO, titanium for seawater applications
- Seal rings: NBR, EPDM, Viton
- Flow rate up to 2,000 m³/h
- Cooling capacity up to 30,000 kW

PUMPS

BIERI
HYDAC INTERNATIONAL

The micro-axial piston pump AKP20 / 30

is a highly compact axial devices with very high volumetric efficiency, a large speed range and enhanced reliability, even under tough environmental conditions.

- Max. operating pressure: 300 bar
- Displacement: 0.012 ccm/rev
- Max. rot. speed: 5,000 rpm

Micro-axial piston pump AKP103 / 105

- Max. operating pressure: 500 bar
- Displacement: 0.1 to 0.3 ccm/rev
- Max. rot. speed: 5,000 rpm

Special radial piston pumps SRK-ATEX

Extremely robust radial devices with extreme reliability, even under the toughest conditions, and suitable for use in potentially explosive zones.

- Max. operating pressure: 700 bar
- Displacement: 0.24 to 8.14 ccm/rev
- Max. rot. speed: 1,800 rpm
- Very high volumetric efficiency
- Self-venting and self-priming
- Suitable for potentially explosive applications up to 700 bar
- e.g. for wellhead control panels
- Highly compact axial piston pumps with very high volumetric efficiency
- Wide rotational speed range and enhanced reliability, even under adverse conditions
- Long service life and low-noise operation
- e.g. suitable for direction-controlled drilling for oil reserves under extremely tough conditions

HYDRAULIC CYLINDERS

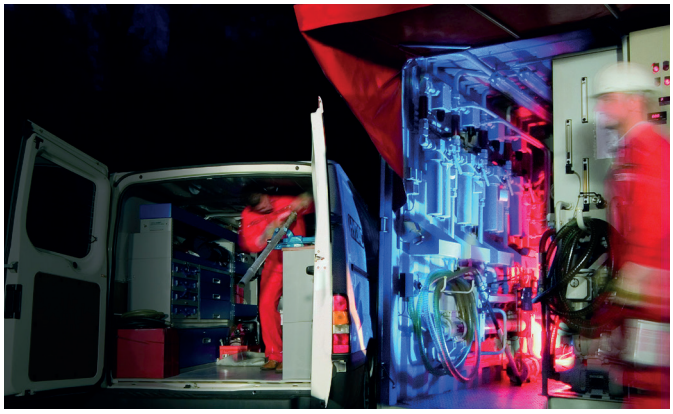
HYDAC hydraulic cylinders

- Extreme conditions, long service lives, high loads, special solutions for corrosion protection – none of this is a problem with HYDAC hydraulic cylinders.
- We supply custom cylinders, tailored to your specific requirements and according to the highest quality standards.

Further offshore applications

- Deck cranes (knuckle boom cranes, A-frame)
- Special deck superstructures, e.g. handling devices for installing wind turbines
- Heave compensation (incl. for subsea)
- Special rotary transmissions with ship approvals

HYDAC SERVICE AND TRAINING. CLOSE TO THE CUSTOMER.



From individual service all the way to fluid management

The HYDAC Servicenter offers a systematically constructed, comprehensive range of services which uses proper maintenance and inspection procedures to make a decisive contribution towards increasing the service life of hydraulic plants, lubrication systems and electrohydraulic open-loop and closed-loop controllers.

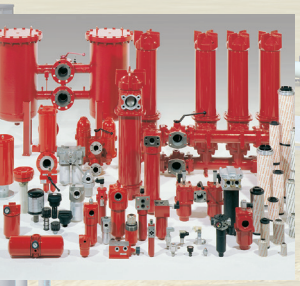
The qualification and many years' experience in hydraulics and electronics are reflected in the world-wide authorisation of HYDAC products and the close collaboration practised with the responsible acceptance agencies (TÜV, Germanischer Lloyd, DVGW, etc.) as well as in the sound training of the specialist personnel.

Info: www.hydac.com / See brochure 71.100

In an age when processes are constantly changing, Quality Assurance must take centre-stage in company activities. The continuous training and further development of staff is an important component in improving quality and therefore in ensuring the long-term success of the company. Starting from this realisation, we aim constantly to improve and to extend the provision of further training for our staff.

At HYDAC, quality, professionalism and individual customer support are our standards, and always present new challenges.

Accumulators 30.000



Fluid Filters 70.000

Process Technology 77.000

Filter Systems 79.000

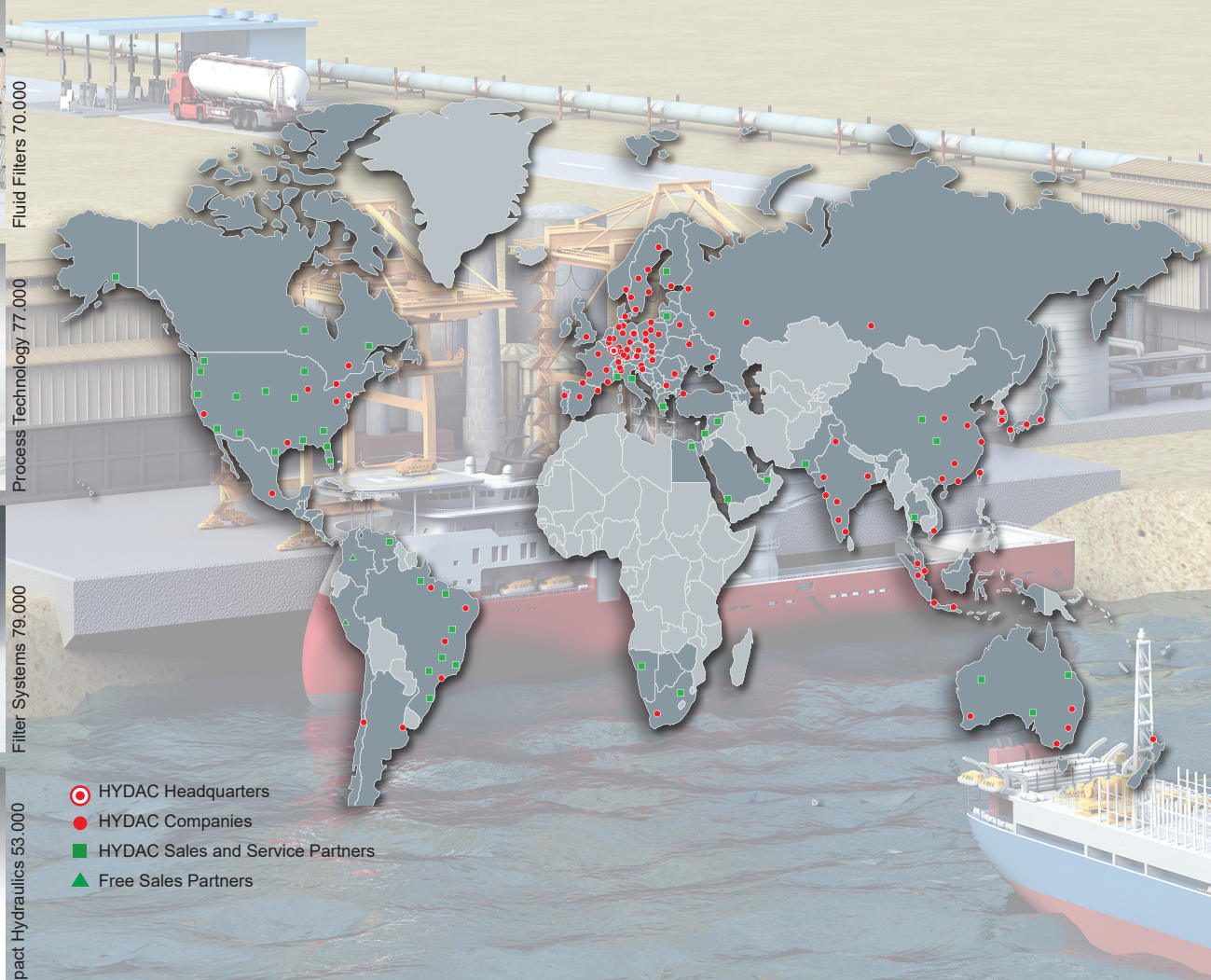
Compact Hydraulics 53.000

Accessories 61.000

Electronics 180.000

Cooling Systems 57.000

Global Presence.
Local Expertise.
www.hydac.com



HYDAC INTERNATIONAL

HYDAC International GMBH

Industriegebiet
66280 Sulzbach/Saar
Germany

Tel:
+49 6897 509-01
Fax:
+49 6897 509-577

E-mail: offshore@hydac.com
Internet: www.hydac.com

Note

The information in this brochure relates to the operating conditions and applications described.

For applications and/or operating conditions not described please contact the relevant technical department.

Subject to technical modifications.

EN 10.118.5/07.23