

## **HYDAC** INTERNATIONAL

### **Monitoring & maintenance of mobile working machines**

Service units & solutions



EN 7677 001.20

Knowledge is POWER – Motion Force Control is our Business

HYQUIP Limited New Brunswick Street Horwich Bolton Lancashire BL6 7JB UK

## Solutions for production and quality management

New oils are often more contaminated than the machine manufacturers specify. For this reason, it is essential to ensure safe and clean fluid handling prior to the delivery of the finished machine.

Solid particle contamination, water and internal wear lead to increased valve and pump failures. The consequences of this include erratic hydraulic machine movements, leakages, losses in efficiency and early machine failures.

Mobile and stationary oil conditioning units keep the machine hydraulics in good condition, avoid any losses in efficiency and reduce costs for spare parts. The technical cleanliness of components and systems is determined according to ISO 16232 and VDA 19 guidelines as part of the quality management process. This is because initial damage and early machine failures can only be avoided by installing "clean" machine components and using clean oil.

### Increased machine availability due to:

- The improved condition of machine hydraulics upon delivery via filling filtration
- Knowledge of and minimisation of component contamination
- Avoidance of early machine failures or problems during commissioning at the customer's location

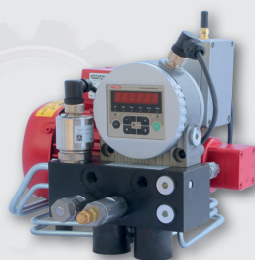


### Measuring devices

- Extraction units to determine the technical cleanliness of components according to VDA 19 and ISO 16232/18413 guidelines

ContaminationSensor  
Module CSM-E

ContaminationTest Unit  
CTU 1000

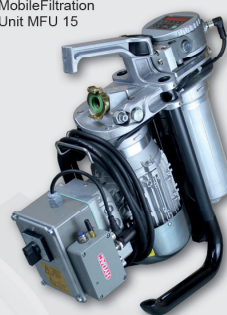


### Fluid conditioning units

- Portable service units for filling hydraulic systems, flushing small hydraulic systems, cleaning in bypass flows (integrated fluid sensors are also available) and filling/venting of hydrostatic drives

MobileFiltration  
Unit MFU 15

Filtration unit  
OFX





## Additional machine equipment

Hydraulic components are an essential part of mobile working machines. If they work perfectly, this improves productivity and the safe operation of the entire machine.

Smart predictive maintenance solutions enable condition-based maintenance to take place.

Sensors which are installed on the machine to monitor the fluid, operation and components provide data on a regular basis. This data can then be collected, stored and analysed.

Smart solutions make centralised monitoring of multiple machines possible.

The data can be interpreted to provide recommended actions for efficient and environmentally friendly machine operation.



### Increased machine availability due to:

- Stationary on-board sensors for fluid condition monitoring (e.g. pressure, particle contamination, oil condition, temperature)
- Sensors, controls and software for predictive maintenance
- Monitoring of hydraulic oils and lubrication oils

### Increased service life of mineral oils and bio-oils and therefore conservation of resources due to:

- High-quality, specific filters and filter elements which are also available with optional water removal
- Fluid preparation with on-board fluid conditioning systems
- Expert fluid analysis
- Fluid optimisation of systems

### Increased productivity due to:

- Continuous monitoring of hydraulic oils and lubrication oils with sensors, controls and software designed for proactive maintenance
- High-quality, specific filters and filter elements which minimise wear of hydraulic components

#### Measuring devices

On-board sensors for machine condition monitoring in terms of:

- Solid particle contamination
- Water saturation
- Oil condition
- Pressure
- Temperature

FluidMonitoring Module  
FMM



#### Fluid conditioning units

- Compact and stationary filters specially designed for use in bypass flows (also available with integrated fluid sensors)

OffLine Filter  
OLF 5



OffLine Filter  
OLFBD



## Solutions for customer service

Just as when mobile working machines are filled for the first time, the hydraulic fluids which are used during maintenance work/servicing and which need to be replaced or replenished must also be prepared via filling filtration and transfer filtration.

With proactive maintenance, fluid conditioning measures are introduced as soon as the fluid condition begins to deteriorate.

Predictive maintenance means that the data collected and analysed can be used to plan servicing and avoid machine failures.

Reacting to changes in the fluid cleanliness in a timely manner ensures that fluid-related machine downtimes or component failures never happen in the first place.

The service life of the fluids used can also be doubled or even tripled. In practice, oils with otherwise satisfactory physical and chemical properties are often replaced too early due to contamination levels which are too high.

### Increased machine availability due to:

- Mobile measuring devices for the condition monitoring of hydraulic oils and lubrication oils (e.g. particle contamination, oil condition, pressure, temperature) for servicing purposes
- Expert fluid analysis

### Successful servicing due to:

- Safe fluid handling with fluid conditioning units which are also available with integrated fluid sensors
- Customer-specific packages which are tailored to individual requirements
- Efficient tools for the diagnosis and repair of unexpected errors and failures (troubleshooting)

### Conservation of resources due to:

- Reductions in fluid consumption by a factor of 2 to 3



#### Measuring devices

- Portable and mobile service units for the monitoring of measured variables which are measured in the context of hydraulic systems e.g. water, particle contamination, pressure, temperature, flow rate and linear position
- Charging and testing units for filling bladder, piston and diaphragm accumulators with nitrogen or for testing/adjustment of the pre-charge pressure
- Customer-specific service cases for adjustment and maintenance work as well as troubleshooting purposes

Portable data recorder  
HMG



FluidControl Unit  
FCU



Service case  
HMG



Charging and testing unit  
FPU



#### Fluid conditioning units

- Portable service units for filling hydraulic systems, flushing small hydraulic systems and cleaning in bypass flows (integrated fluid sensors are also available)
- Mobile fluid conditioning units for dewatering, degassing and filtration of hydraulic fluids and lubrication fluids (also available with integrated fluid sensors)
- Conditioning units for transfer/tank conditioning of diesel fuels (filtration and dewatering)

LowViscosity Units  
LVU



MobileFiltration  
Unit MFU 15



FluidAqua Mobil  
FAM 5







## Customer focus is company policy.

With over 9,500 employees worldwide, HYDAC is one of the leading suppliers of fluid power, hydraulic, electronic and cooling equipment. We have a wide-ranging and versatile portfolio of innovative products and systems. This, as well as our expertise in development, manufacturing, sales and service, has grown over time. As a result, we can meet our customers' requirements and provide solutions for the most diverse challenges associated with fluid and lubrication oil monitoring/conditioning in almost all sectors of industry.

## Global Presence. Local Expertise.

With 50 subsidiaries and 500 sales and service partners worldwide, HYDAC not only offers a worldwide presence but also local expertise in close proximity to customers and their projects.

## HYDAC system solutions: One contact. One supplier. One responsibility.

Wherever you need us, we are there to help you. As well as helping you to find the best solution, we assist you throughout your entire project and take full responsibility for the production of components and systems.

## Worldwide specifications and approvals.

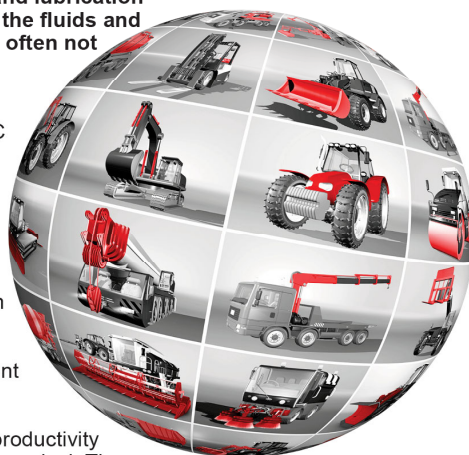


# Your professional partner for the optimum conditioning of your operating fluids

70 – 80 % of all failures in hydraulic and lubrication systems are due to contamination of the fluids and components used. In practice, this is often not sufficiently recognised.

For various mobile applications, HYDAC offers a wide range of sector-specific components and systems in the fields of hydraulics, cooling, electronics and control technology.

In many mobile working machines, the hydraulics are the most valuable system components. As the machine ages, the hydraulics lose their precision and productivity. This is caused by component wear which is brought on by improper hydraulic oil handling and levels of oil contamination which are too high. The productivity declines until operation becomes uneconomical. The wear and resulting drop in productivity is often only noticed once it reaches 20%. This results in enormous productivity losses.



To keep productivity high and ensure it for as long as possible, construction companies, servicing departments, suppliers and rental companies in the mobile working machine industry must keep a constant eye on their hydraulics. Regular oil analyses and adequate, proactive conditioning measures reduce operation costs and keep the machine's productivity at its highest level.

HYDAC's tools for fluid conditioning and cleanliness monitoring provide assistance during production, quality control, on-board installation and servicing.

## Training

The HYDAC Training Center provides comprehensive, experience-based training in all aspects of hydraulics, measuring technology and maintenance. We also conduct training sessions at customers' own premises.

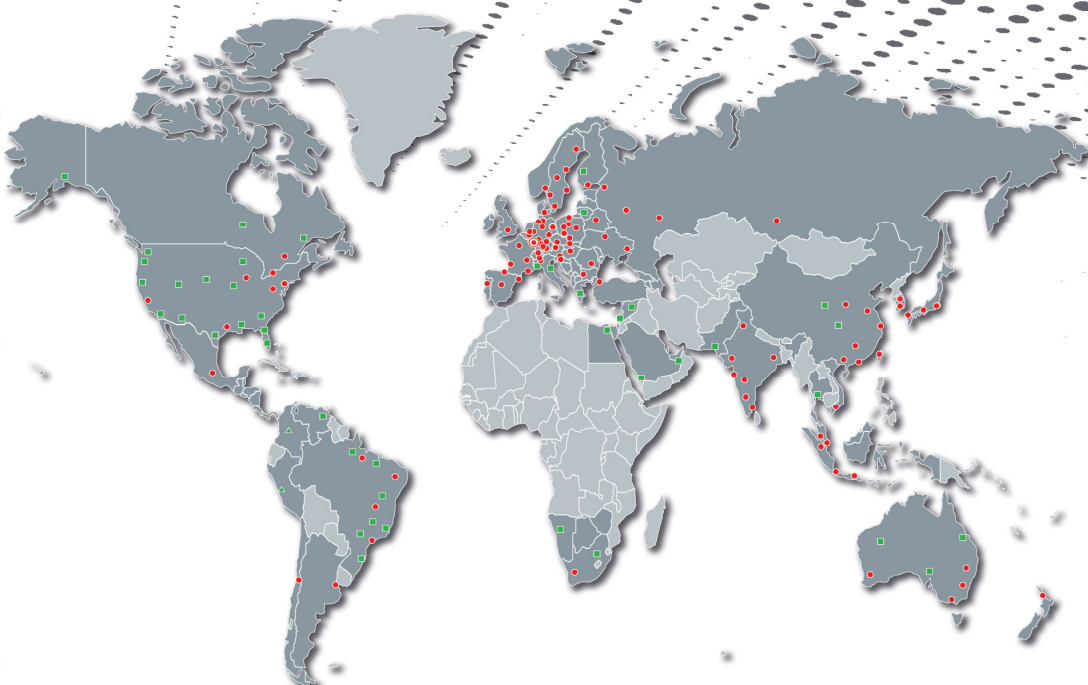
You can find out about the seminar topics and dates in our seminar catalogue ([www.hydac.com](http://www.hydac.com)). Alternatively, you can contact us at:  
**HYDAC Trainings Center, plant 12 a**  
[training-center@hydac.com](mailto:training-center@hydac.com)






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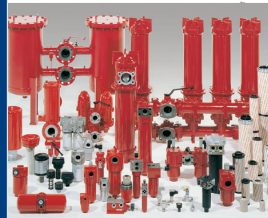
## Global Presence. Local Expertise.



-  HYDAC Headquarters
-  HYDAC Companies
-  HYDAC Sales and Service Partners
-  Free Sales Partners



Accumulator Technology 30,000



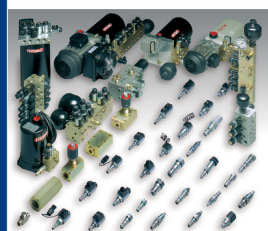
Filter Technology 70,000



Process Technology 77,000



Filter Systems 79,000



Compact Hydraulics 53,000



Accessories 61,000



Electronics 180,000



Cooling Systems 57,000

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GMBH