



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

**Global Presence.
Local Expertise.
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- HYDAC Companies
- HYDAC Sales and Service Partners

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Note

The information in this brochure relates to the operating conditions and applications described.
For applications and operating conditions not described, please contact the relevant technical department.
Subject to technical modifications.

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HYDAC

INTERNATIONAL

**Components,
Systems and Service
for the Pulp and
Paper industry.**



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Your partner for expertise in the Pulp and Paper industry

General overview

70–80% of all downtime in hydraulic/lubrication systems and up to 45% of bearing failures are caused by contamination in the hydraulic and lubricating media. These failures result in extensive costs, caused by unplanned downtime and repair work along with a shortening of system service life.

At HYDAC, we use our many years of experience combined with our extensive product range and customised solutions to increase system availability, reduce downtime and increase productivity.

- Hydraulic and lubrication systems for wet section, press section, size press or film press, dry section, winding, roll cutter, packaging
- Treatment of fresh water, river water, process water, superclear filtrate, condensate, coating colour, water for slide ring seal and nozzle protection
- Measurement sensor systems to monitor system pressure, oil level, temperature, water content, contamination level, flow rate, oil condition
- Oil service units for dewatering, filling and cleaning (mobile bypass flow units)

- Wood yard
- Thermo-mechanical pulping method
- Power plants and residual waste incineration
- Waste water treatment

- Pulp
- Stock preparation
- Pulp machine

- Paper machine

- Filtration for oil and process applications

- Condition Monitoring – visualisation, sensors, electronics, cooling

- System, service and training



All from one supplier. HYDAC fluid engineering involved in your production.

Energy efficiency

- Pressure drops are minimised in all components
- Optimised switch-off times and downtimes
- Energy-efficient unit cooling
- Reduced CO₂ levels (reduced carbon footprint)

Process reliability

- Reduced fresh water consumption
- Protection of system components
- Water circuits closed up
- Higher quality process media
- Fresh water savings

Conservation of resources

- Branch-orientated filtration solutions
- Prevention and removal of oil-ageing products (varnish)
- Preventive maintenance
- Condition Monitoring

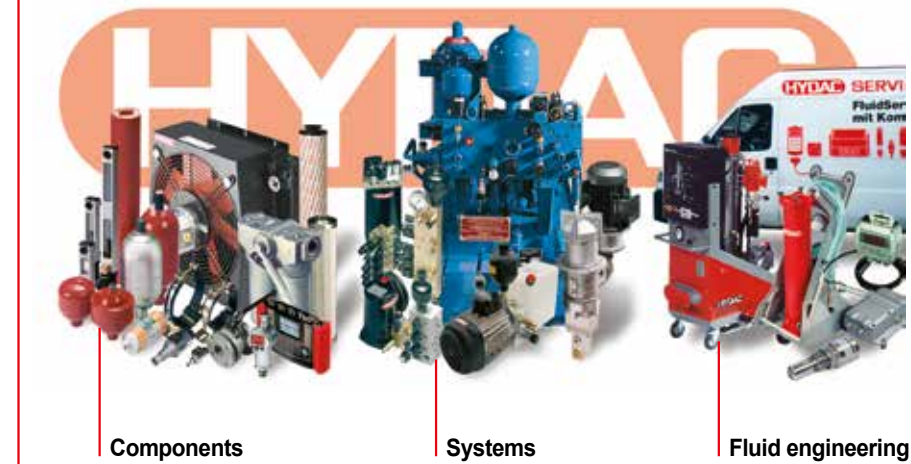
System availability

- Worldwide service and spare parts
- Customised service solutions
- Quick and reliable on-site support
- Integrated system approach increases system availability



We can help you.

HYDAC system solutions.
One supplier. One contact.



Wherever you need us, we are there to help you find the most effective solution – for every application, from components to a complete system.

Reliable, thanks to internationally certified quality.



Global and yet local.

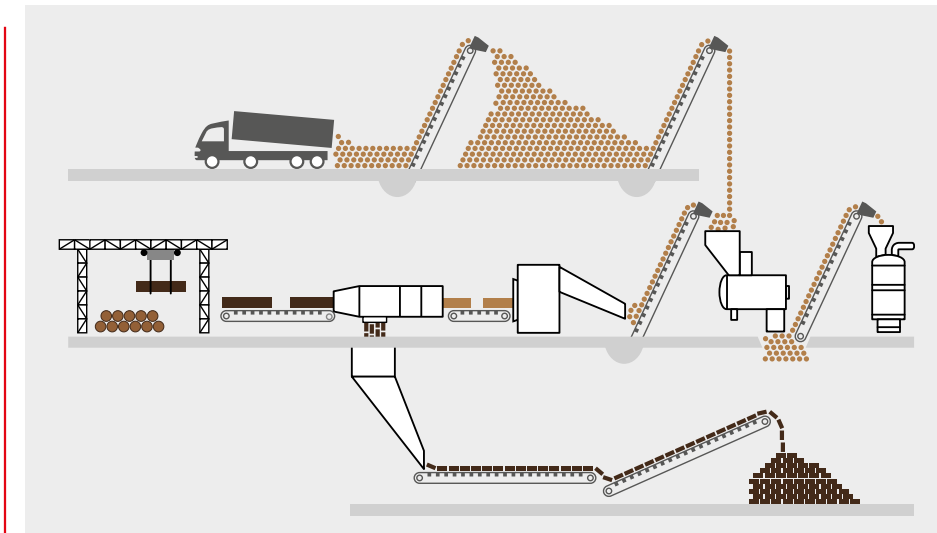


With over 8,000 employees worldwide, HYDAC is one of the leading suppliers of fluid technology, hydraulic and electronic equipment.

Our wide range of products, combined with our expertise in development, manufacturing, sales and service, enables the diverse requirements of the paper and pulp industry to be met worldwide.

Our quality and environment certification to ISO 9001/2000 and ISO 14001 denote first class quality and responsible management of our resources.

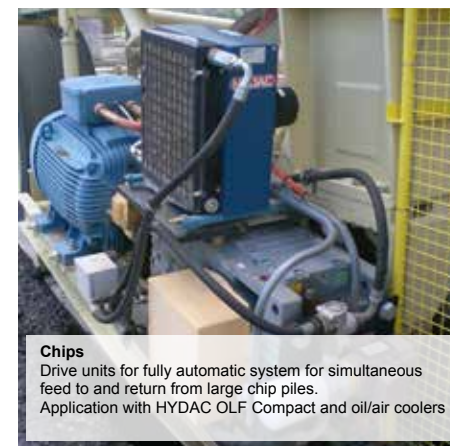
Wood yard



The process steps required to produce chemical pulp, mechanical pulp and groundwood are as follows:

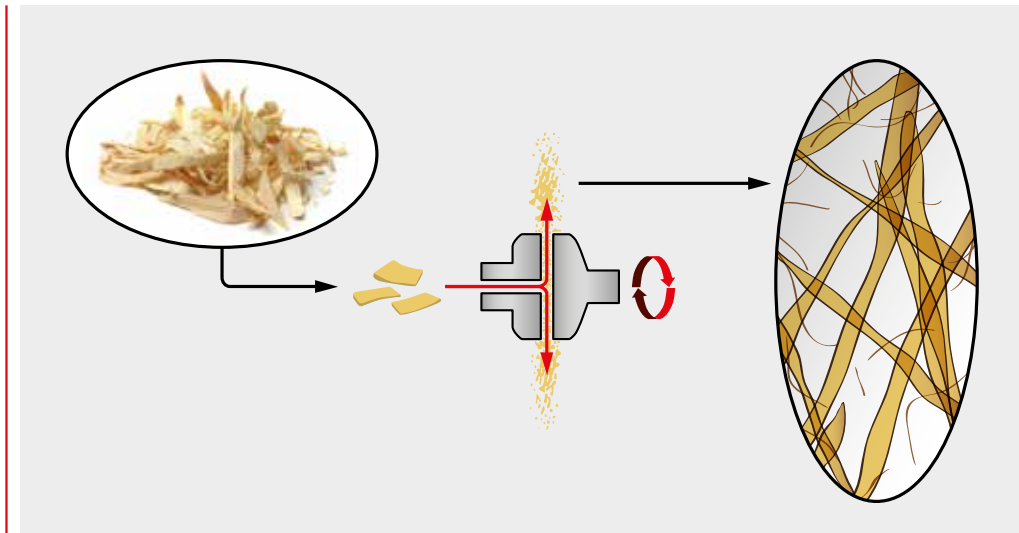
Wood → Storage → De-barking → Chipping → Defibration → Fibres

- **Storage:**
Once the wood has been delivered by train or lorry, it is stored in the wood yard for two to three weeks before being processed. The stack of log wood, 2 to 4 metres in length, is watered to stop it from drying out.
- **De-barking:**
The dark bark needs to be removed from the log wood, as it would disrupt the following processes and impair the paper quality. The de-barking is followed by a visual inspection, with any wood that is found to have some bark remaining being put through the process step a second time.
- **Chipping:**
To produce chemical and mechanical pulp, the wood is shredded to small chips and then stored in piles. If the wood is to be defibred in the grinder to form groundwood, the chipping processing step is omitted.
- **Defibration:**
Chemical substances or mechanical forces are used to perform the pulping, or a combination of both. Digesters are used to create chemical pulp, refiners are used to make mechanical pulp and grinders are used to make groundwood.
- **Aims:**
 - Efficient de-barking
 - Producing uniform chips for fibre extraction
 - Minimising wood loss



- **Applications:**
Chippers, drum de-barkers, screw conveyors, cutting units, distributor systems, hydraulics (lifting, pressure generation), lubrication (bearings/gearboxes)

Thermo-mechanical pulping method



Method for defibring wood chips by means of heat and pressure between the two rotating discs of a refiner (thermo-mechanical pulp = TMP). In this method, chipped wood waste is steamed and then ground to individual fibres in refiners under steam pressure. TMP is mainly used in place of cellulose or groundwood as a fresh-fibre replacement for print media paper.

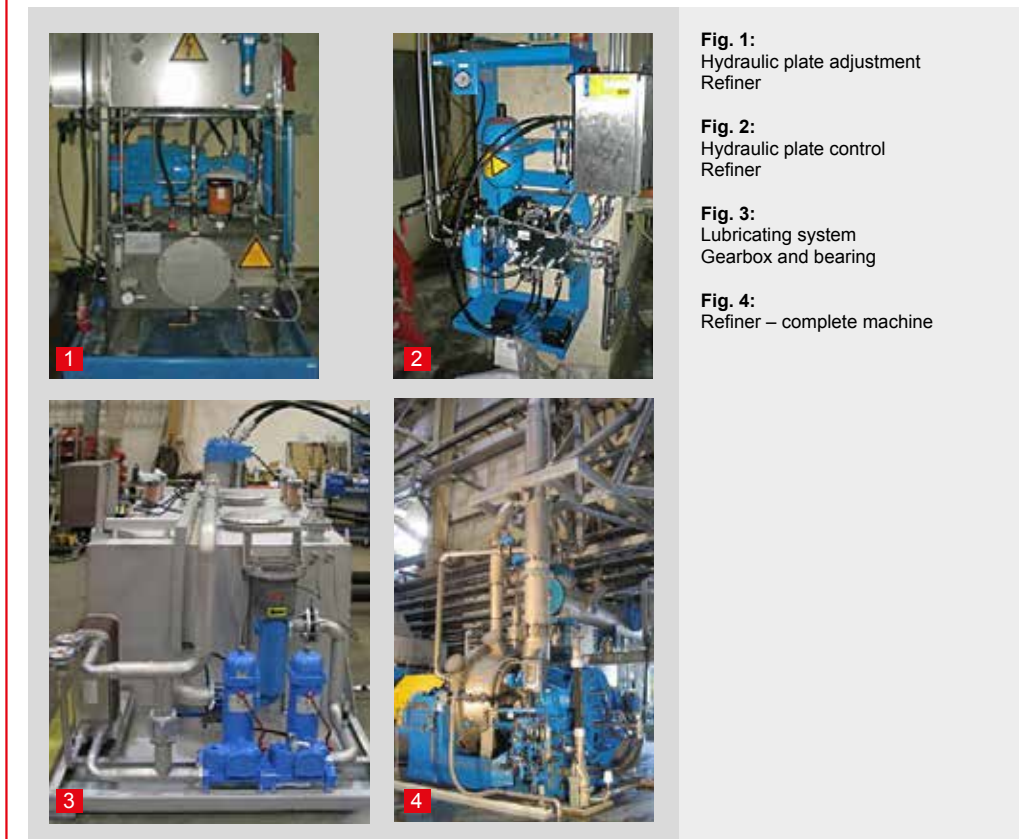


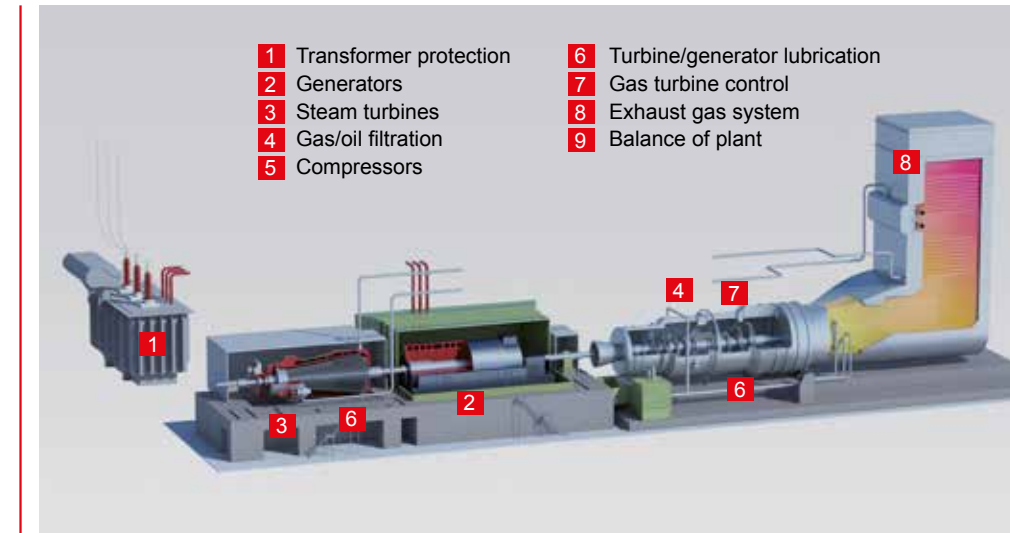
Fig. 1:
Hydraulic plate adjustment
Refiner

Fig. 2:
Hydraulic plate control
Refiner

Fig. 3:
Lubricating system
Gearbox and bearing

Fig. 4:
Refiner – complete machine

Power plants and residual waste incineration



The standard size for a refuse derived fuel power plant is 50–220 MW, which means that most of them are industrial power plants. These power plants are often set up as combined heat and power plants in connection with larger industrial enterprises, taking in process steam or local heat and/or providing refuse derived fuels. An example of such an enterprise would be a paper factory, which requires large amounts of heat while producing reject paper as a refuse derived fuel.

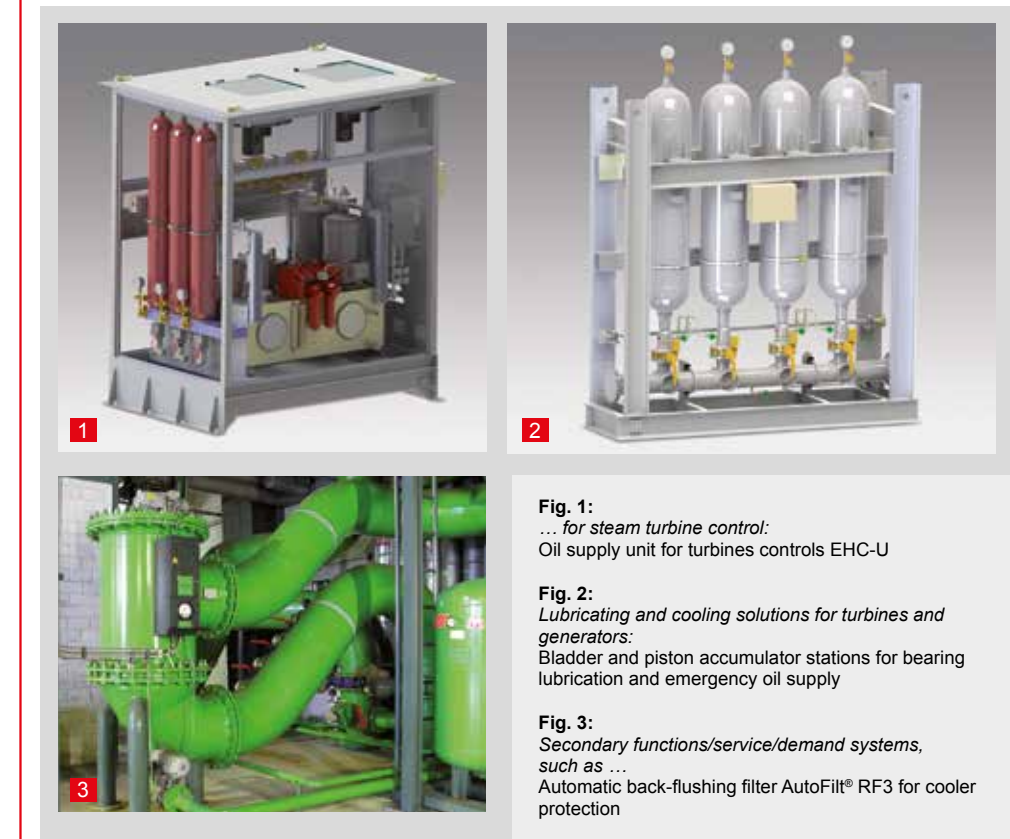
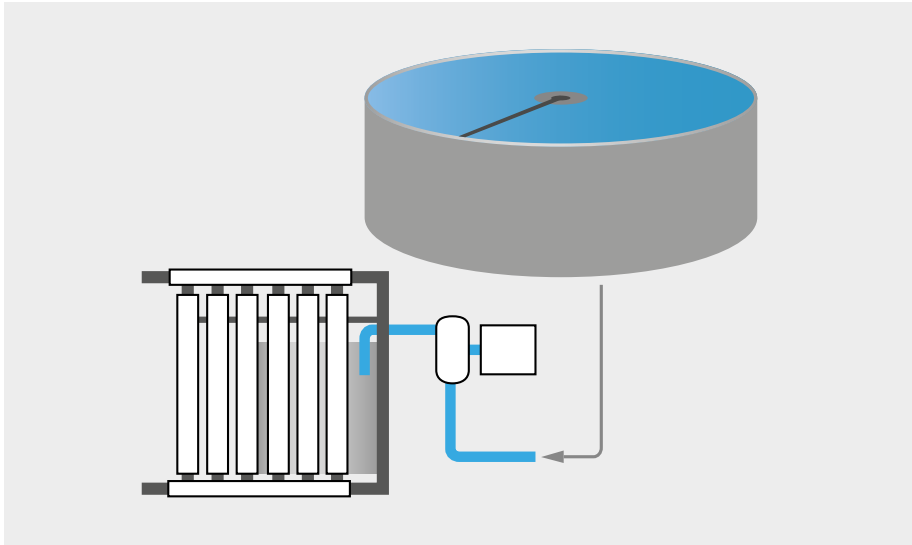


Fig. 1:
... for steam turbine control:
Oil supply unit for turbines controls EHC-U

Fig. 2:
Lubricating and cooling solutions for turbines and generators:
Bladder and piston accumulator stations for bearing lubrication and emergency oil supply

Fig. 3:
Secondary functions/service/demand systems, such as ...
Automatic back-flushing filter AutoFilt® RF3 for cooler protection

Waste water treatment



Water is an indispensable tool in paper manufacture. Water is mainly used for sheet formation, but also for cleaning purposes and cooling.

To create 1 kg fine paper, roughly 50 to 100 litres of water is required. Only 10 litres of this is fresh water. The remainder is return-circuit water. Waste water treatment plants of various types are used to prepare the return-circuit water.



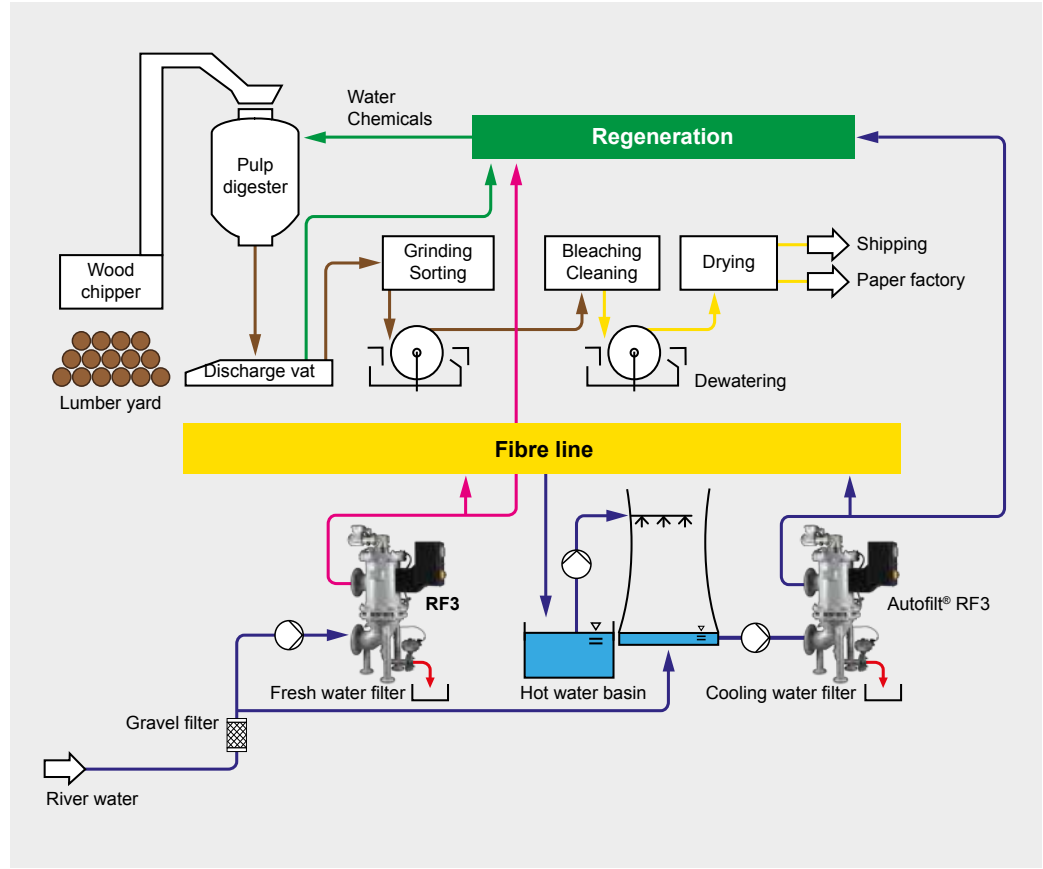
Fig. 1:
Application:
In the waste water treatment plant of a paper factory, waste water is treated in a ozonisation stage. Disruption is caused by plastic particles carried over from waste paper treatment.

Fig. 2:
Application:
The stainless steel back-flushing filter is used to treat presedimented waste water from the paper factory to make process water. The filtrate is used for the spray pipes and used as seal water for slide ring seals. The filtration line increases recirculation and greatly reduces the factory's amount of waste water.

Fig. 3:
Protective filtration, cooler

Pulp machine

High availability.
Low maintenance costs.



For the pulp and paper industry, HYDAC offers a wide product range of hydraulic filters, process filters and matching sensor systems to monitor the fluid state.

Components for:
Wet section, press section (shoe press), cutters, baler

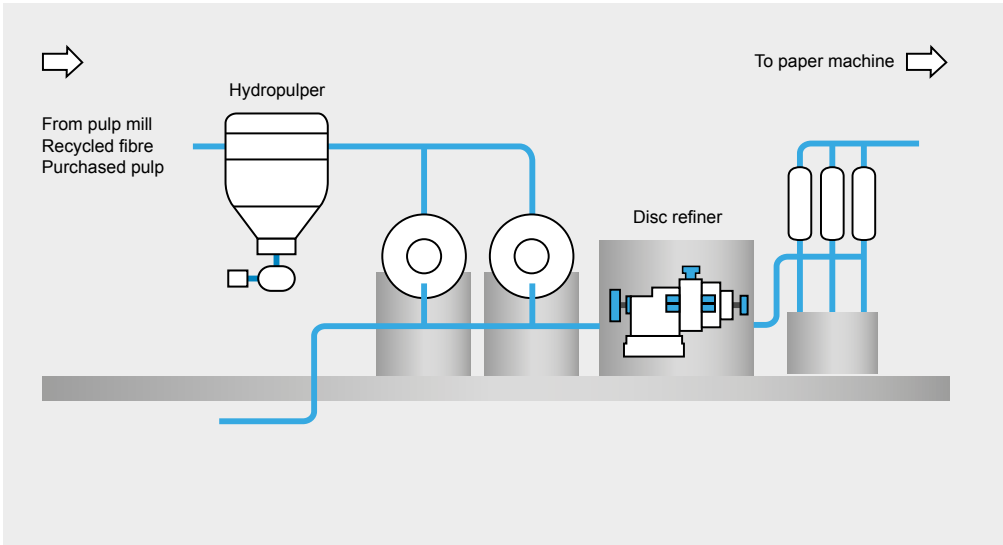


Fig. 1:
High-pressure filter block for 24-hour operation

Fig. 2 + fig. 3:
Filter stations including pressure sensors for the hydraulic shoe press
Cooling circuit (fig. 2) and high-pressure circuit (fig. 3)

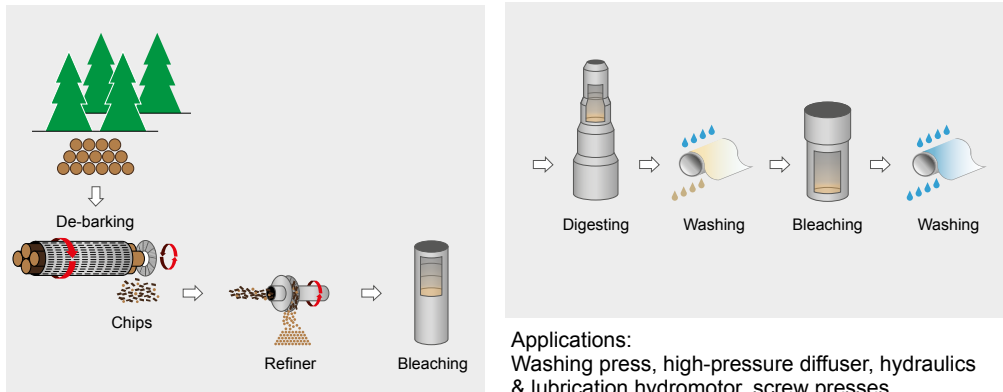
Stock preparation

Consistent quality.
Environmentally responsible.



The first step in manufacturing paper is preparing the stock, which involves defibring the wood. The preparation method that is chosen depends on the type of wood and on what the paper will eventually be used for.

Mechanically prepared pulp (mechanical pulp) **Chemically prepared pulp (chemical pulp)**



Applications:
Refiner

Applications:
Washing press, high-pressure diffuser, hydraulics & lubrication hydromotor, screw presses

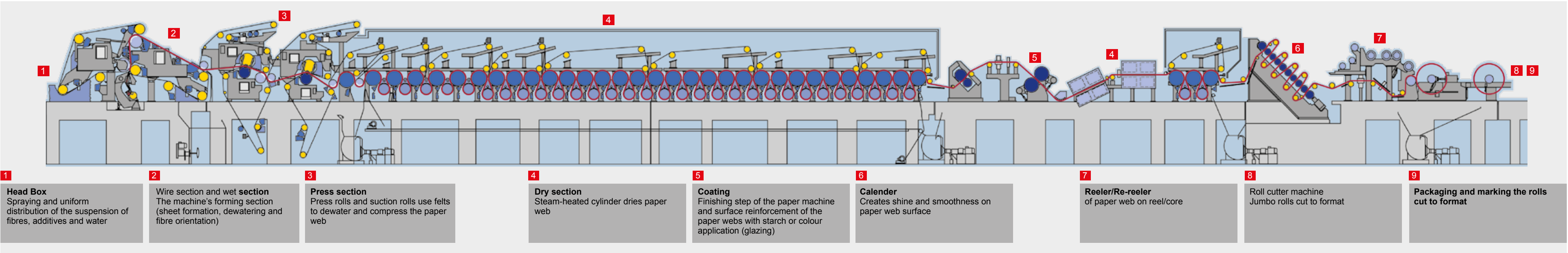
In action:



Applications:
Lubrication for pump station and control block for dispersing system

Your paper machine

A complex system with stringent requirements.



HYDAC solutions: For increased plant availability and minimised downtime

HYDAC filtration

For pure oil and energy savings

HYDAC's new Optimicron® filter elements provide:

- Differential pressure up to 30% lower
- Enormous cost and energy savings thanks to low differential pressure
- First-class filtration performance thanks to high-quality microglass media
- Increased robustness and better incident flow to the filter mat (diffuser effect) thanks to innovative outer casing

NEW: Optimicron® Pulp & Paper filter elements, optimised for use in paper machines

■ For safe and simple filter change

- Element can easily be removed from above
- Ergonomic element change (two-part filter hood)

■ For low fresh water consumption and long service life for process media

- Expert treatment of fresh water, hot water, condensate, spray water, cooling water, water for trim nozzles and moistening spray nozzles, seal water, extinguishing water and coating colours.

HYDAC oil maintenance devices

For increased system availability

- Filtration during filling to avoid initial damage
- Increased component protection thanks to offline filtration (mobile/stationary)
- Continuous dewatering for high component service life
- Reduced oil ageing lengthens oil change intervals

HYDAC coolers

For increased safety

- Thermal overload prevented by installation of air and water coolers and repumping cooling filter units



HYDAC accumulators

For high level of operating reliability

- Hydropneumatic accumulators for emergency running characteristics, energy storage and pulsation damping

HYDAC Service

For reliable commissioning

As a specialist in systems and fluids, the HYDAC SERVICENTER is happy to help, for example with:

- Filtration and flushing
- Piping
- Installation

■ For reliable plant operation

Should you so wish, HYDAC can support your project across the entire service life.

You can make use of a comprehensive range of easy-to-use measurement and analysis equipment to monitor fluid condition and technical cleanliness. Protection for component and system is increased thanks to permanent online measurement of parameters such as system pressure, amount of contamination, water content, temperature, flow, oil level, viscosity and dielectric constant.

Fluid laboratory vehicles are at your service worldwide.

HYDAC all-in-one solutions

For consistent quality from a single source

Complete functional solutions including peripherals, such as:

- Mounting technology
- Shut-off and change-over valves
- Accessories for traction, damping and tanks
- Threaded connections
- Couplings
- Measurement ports
- Fluid level gauges

Fluid problems can cause high costs.

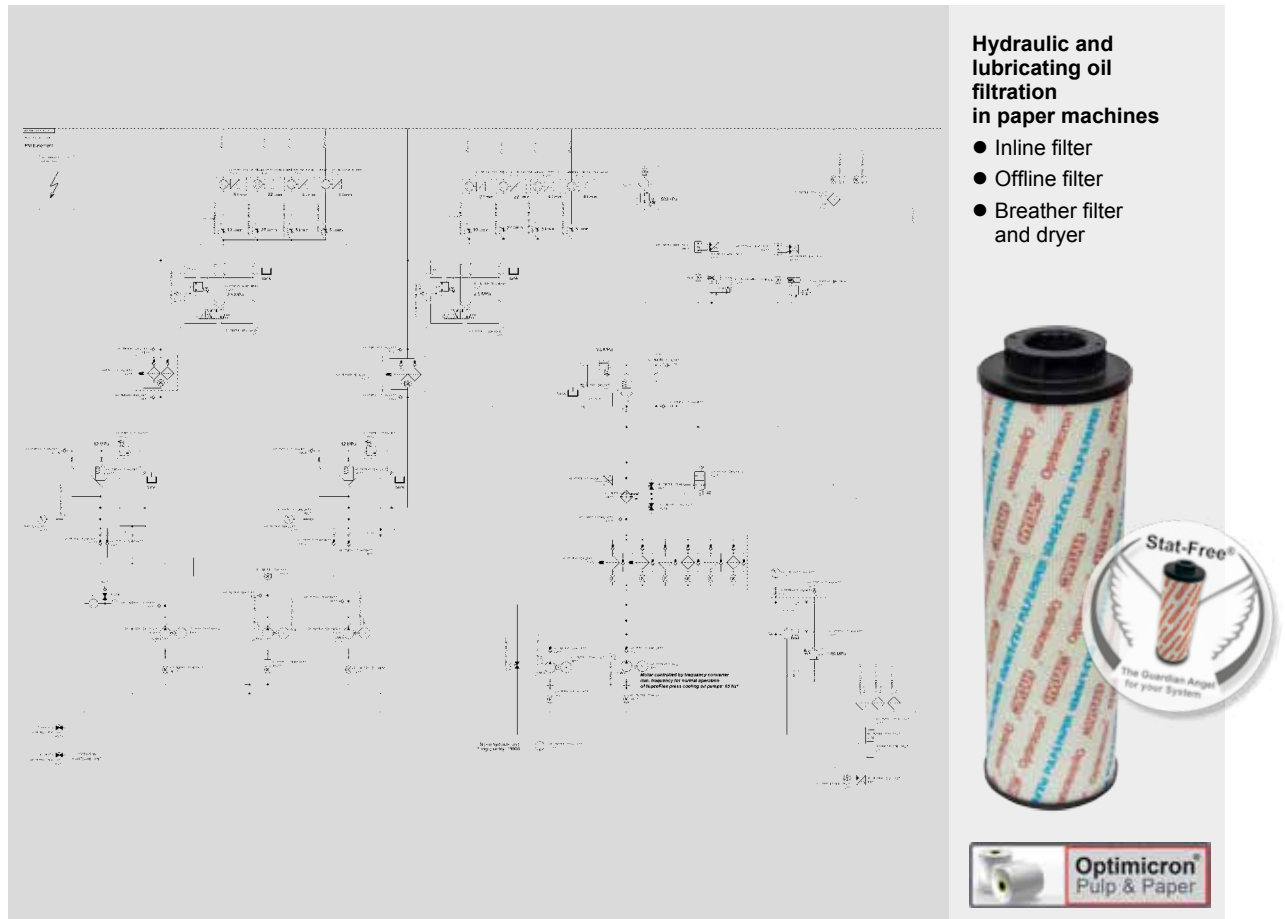


Safety aspects in the pulp and paper industry

Accessories	● Ball valves ● Fluid level gauges ● Coaxial valves ● Mounting technology, ...	
Accumulator stations	● Emergency functions (e.g. opening and closing the rolls) ● Pulsation damping ● Energy accumulators	
Measurement sensors and devices	● Pressure/temperature ● Fluid/contamination (particles in the water) ● Oil ageing ● Position ● Fluid level/flow	
Fluid service and handling	● Stationary and mobile fluid servicing systems for filtering, dewatering, degassing and conditioning operating fluids.	
FluidCareCenter FCC	● Systematic fluid analyses in our own lab or at customer's premises to find the perfect fluid for your plant.	

Oil filtration

Innovative filter technology for sustainable filtration.

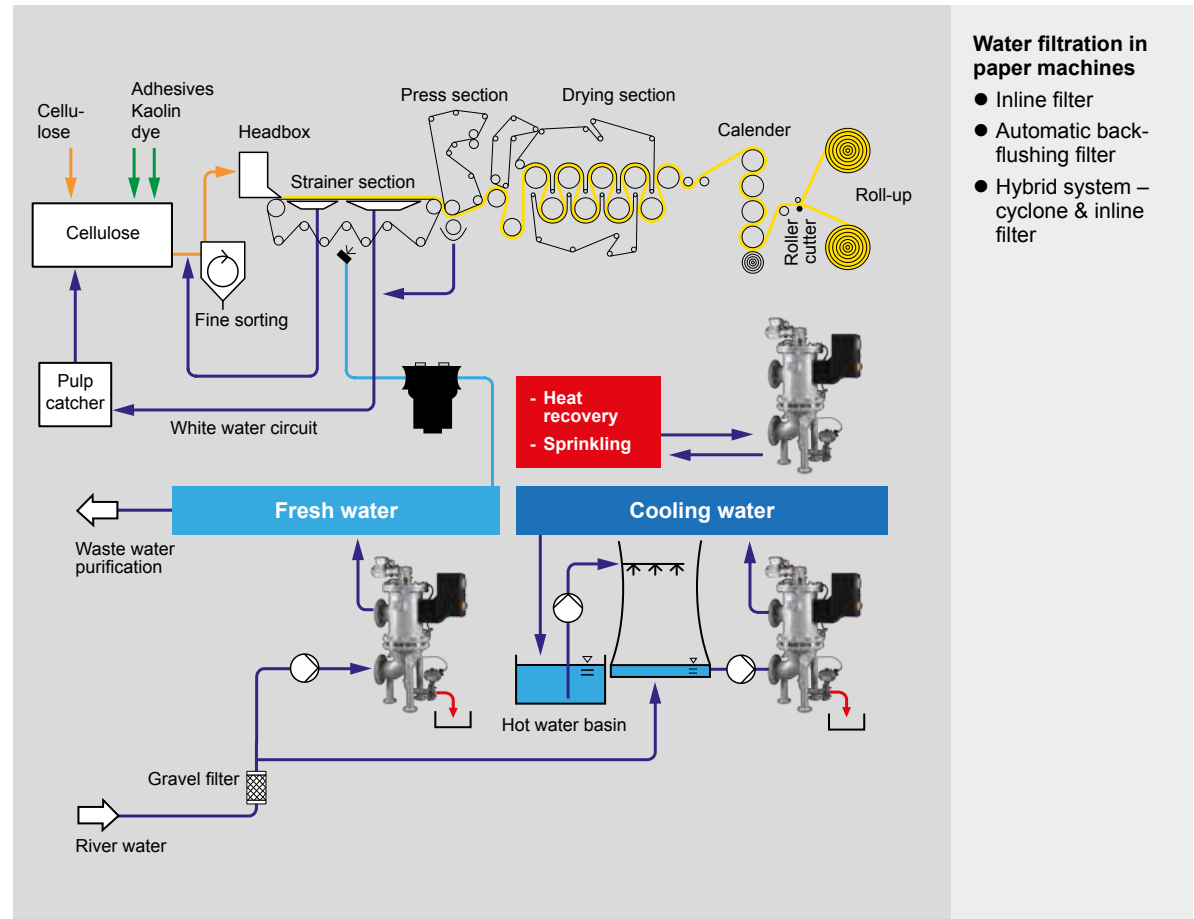


In action:

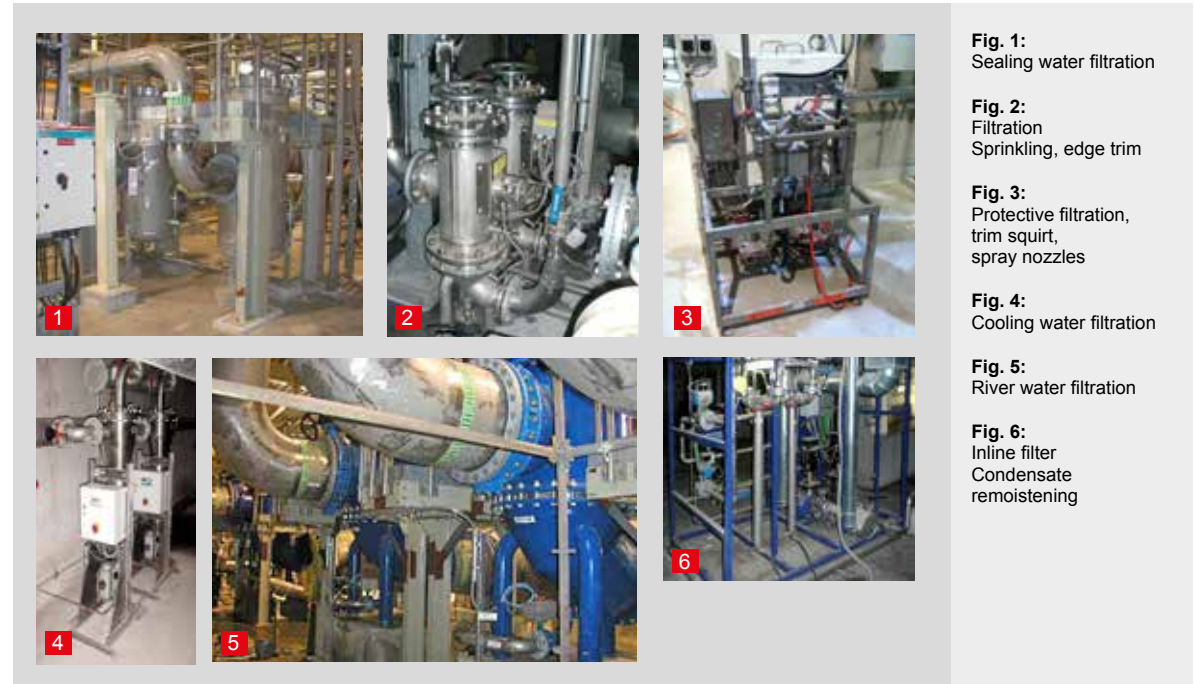


Water filtration

Filters and filter elements for process technology

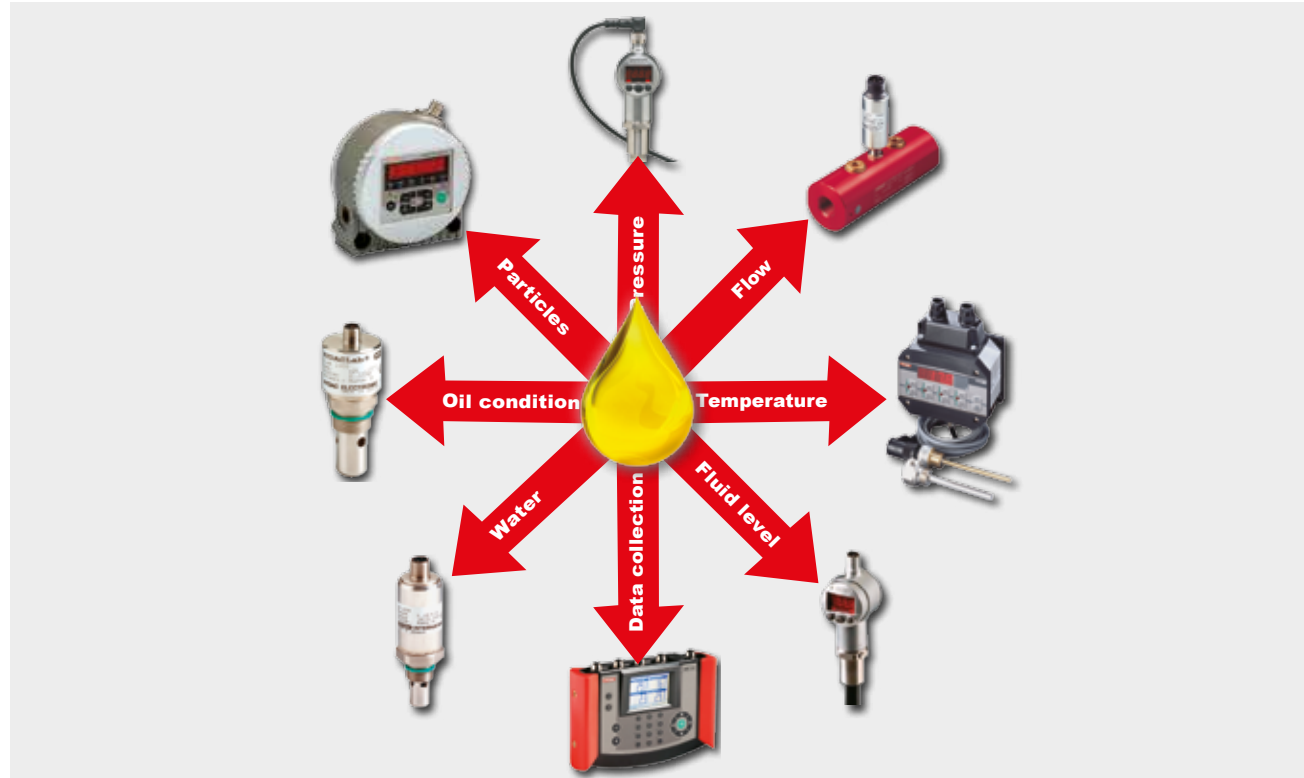


In action:



Condition Monitoring

Preventive maintenance
to increase fluid service life.



A large percentage of downtime in hydraulic and lubrication systems is caused by contamination of the fluids used, in the form of particles, mixtures, water and the like.

Alongside contamination, the oil itself is exposed to physical and chemical ageing processes that can also cause corrosion and downtime. It is thus clear that the condition of the oil to some extent indicates the condition of the entire system.

Determining the oil condition on the basis of the particle contamination, water content or viscosity, etc., using modern and inexpensive HYDAC sensors is therefore an efficient way to monitor the state of the entire hydraulic and lubrication system.

In action:

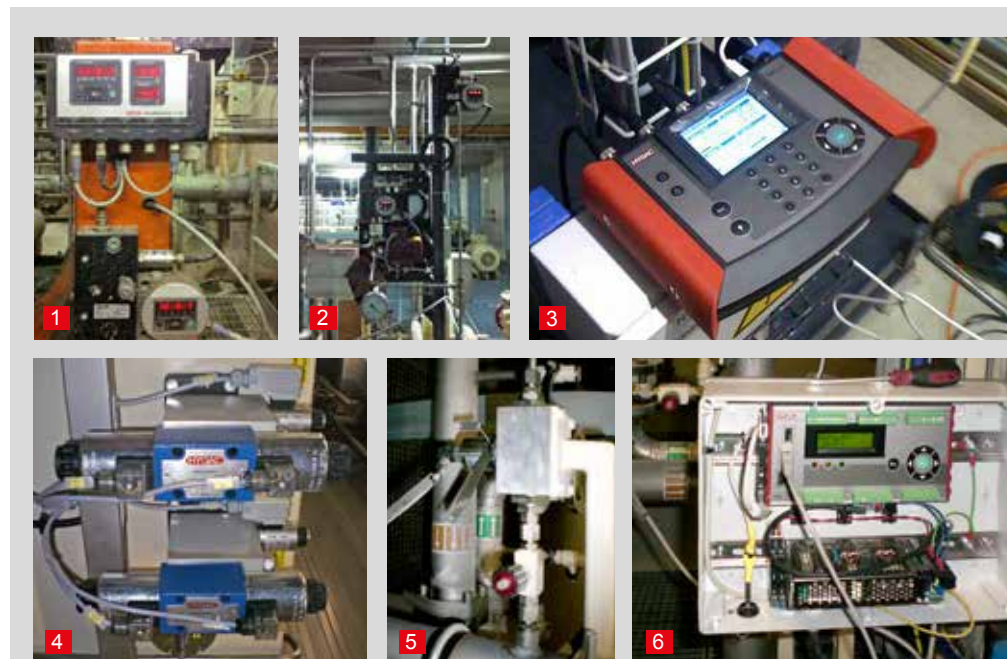


Fig. 1-6:
Solutions for monitoring
particle contamination
and moisture content. As
individual component or
all-in-one solution. With or
without visualisation (local
or incorporated into the
machine).

Sensors and electronics

Branch orientated solutions –
all from a single source.

In action:



The range of sensors includes products for the measurement of pressure, temperature, distance, position, level, flow volume, speed as well as contamination and oil condition. In addition to products for standard applications, the product portfolio covers special applications such as potentially explosive atmospheres or applications with increased functional safety.

Cooling

A cool solution for every application.

In action:



In all hydraulic systems, energy is converted and transported. This involves some energy being lost, in the form of heat. Channelling this heat away is the job of heat exchangers and coolers.

Whether it involves cooling with air or water, return flow or bypass flow, a standard or a customised solution, you are sure to find just the right cooler for your application in our product range.

Systems

Branch orientated hydraulic and lubrication units



In action:



HYDAC does not just produce components, but also connects these optimally with each other into sub-systems right up to ready-to-use complete systems. Tried and tested technology, high quality standards and detailed testing procedures guarantee the performance capability of HYDAC system solutions.

Based on well-founded knowledge on the paper industry, HYDAC is in a position to develop customer-specific solutions such as complete lubrication systems for the central lubrication and for the dry and wet sections, as well as hydraulic systems for the press section.

Systems

Energy-efficient drive systems with integrated safety functions.



Variable speed pump drives & electromechanical systems

Application areas:
Push floors, roller drives, shoe press, packaging and conveying technology



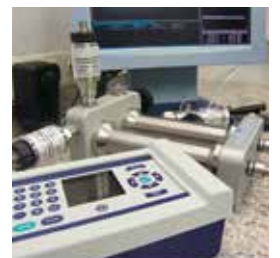
Service

From start-up to rebuild.
Service vehicles in action worldwide.



The HYDAC Servicenter offers a systematically constructed, comprehensive programme of services which makes a decisive contribution to increasing the useful life of hydraulic plants, coupled with correct maintenance and inspection, lubrication systems and electrohydraulic controls and regulators.

The qualification and many years' experience in hydraulics and electronics are reflected in the worldwide authorisation of HYDAC products and the close collaboration practised with the responsible acceptance agencies (TÜV, Germanischer Lloyd, DVGW, etc.) as well as by the grounded training of the specialist personnel, who are in possession of, for example, radiation passports.



Training

Extensive practical knowledge of hydraulic matters.



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.