



HYDAC

INTERNATIONAL

**Systems, Components
and Fluid Engineering /
Service for
Cleanliness Technology**



Your Partner for the Highest Demands and Quality

HYDAC Your Professional Partner for Industrial Part Washers.

HYDAC has been one of the leading suppliers of fluid technology, hydraulics, electronics and cooling equipment for more than 50 years and has over 8,000 members of staff worldwide.

The width and depth of our range of products, combined with our recognized expertise in development, manufacturing and service, has allowed us for some years now to solve the most demanding challenges associated with cleaning technology and cleanliness in our customers' production plants worldwide.

In addition to standard products, HYDAC has a wealth of special components and system solutions from the filtration, cooling, sensor and monitoring sectors to ensure technical cleanliness. This range of products is supplemented by a comprehensive range of services.

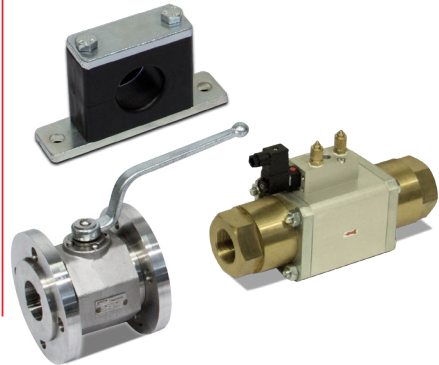
Our range of services:

- Consultation
- System and process chain analyses
- Optimizing existing systems
- Creating and improving filter concepts
- Developing overall system concepts
- Integral solutions for monitoring technical cleanliness during production

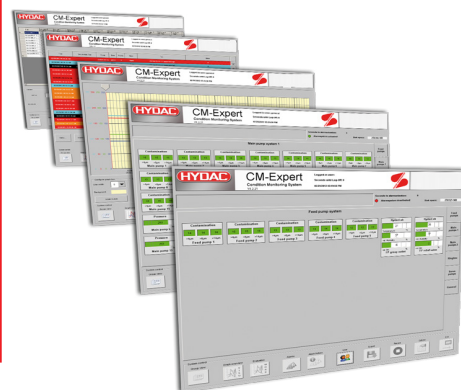
FILTER HOUSING



VALVES & MOUNTING TECHNOLOGY



CONDITION MONITORING



MEASUREMENT TECHNOLOGY



COOLING SYSTEMS



HYDAC offers you a comprehensive technical range of components, systems and services - fluid engineering / service. The aim is to optimize the availability and process results of machines and fluid power systems and to reduce operating costs. The system operator's needs and requirements are always paramount.

We therefore support you as a versatile system partner and offer comprehensive advice and solutions regarding technical cleanliness in cleaning technology. Cooperation with and trust of system operators and manufacturers is our top priority.

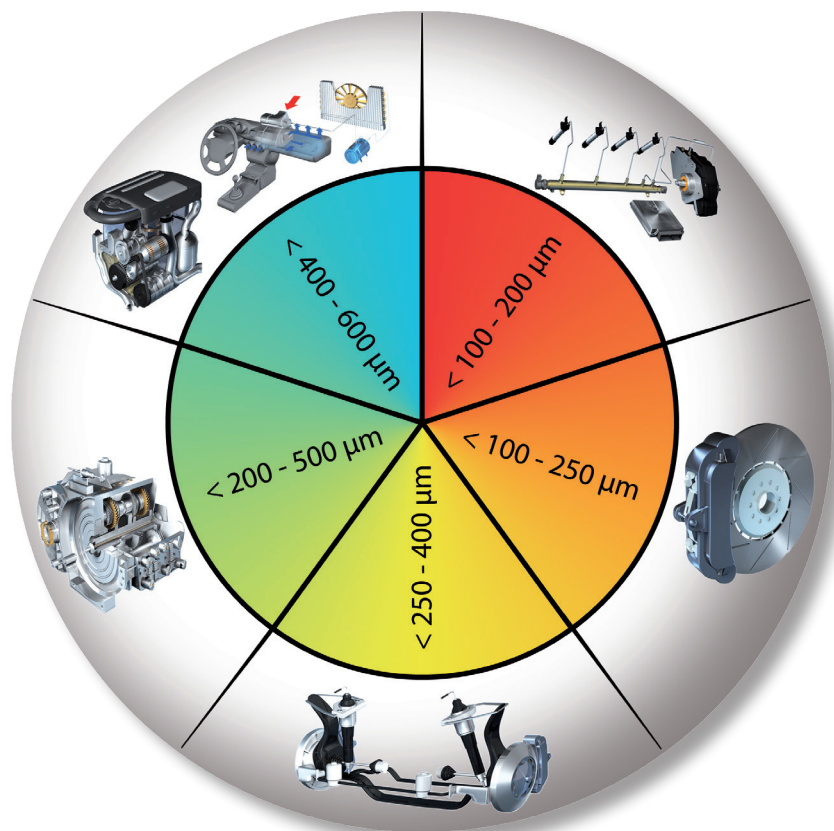
FILTER ELEMENTS



TECHNICAL CLEANLINESS OF COMPONENTS AND SYSTEMS



Cleanliness Technology and Your Requirements Thinking in Processes.



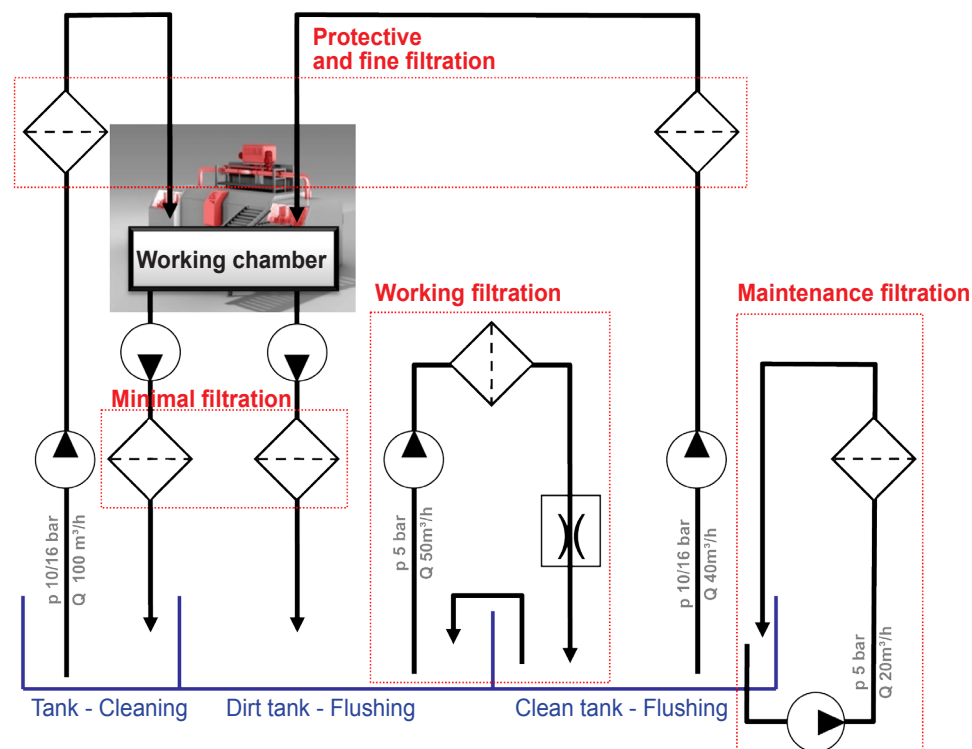
Systematically getting to grips with challenges

Modern drivetrain technologies and higher power densities demand first-class quality in the production of components and systems. Among other things, stringent requirements for technical cleanliness ensure that failures during the warranty period are minimized. Therefore, the production of new system components is closely concerned with the requirements for technical cleanliness. Modern part washers must meet these requirements:

- Maintaining the required critical values of technical cleanliness
- Short cleaning cycles
- Fluid residues adhering to the components must be kept to a minimum
- Extended life of bath fluid
- Cleaning, flushing, deburring and drying in compact systems
- Energy-efficient design
- Filtration without consumables and / or extended filter lifetime with enhanced cleanliness requirements
- Securing the required system availability
- Monitoring operating media (quantity of particles, particle size, amount of residual oil), monitoring system parameters, e.g. pressure, temperature, level, flow rate, and many more.



Filtration Concepts Perfect Solutions to Your Requirements.



HYDAC back-flushing and candle filters ensure the continuous separation of particles from the cleaning fluids with a high level of efficiency. Failures in function-related components are therefore minimized as a result of the consistently high fluid quality. The optimized filter materials can be adapted flexibly to the operating conditions in minimal, working, maintenance and protective filtration.

Minimal filtration

- Directly capturing the contaminant load in the return line
- Coarse filtration which removes large volumes of contamination from the system

Working filtration

- Conveying the fluid from the dirt tank to the clean tank
- Removal of coarse and (some) fine contamination
- Ideally continuous conveyance

Maintenance filtration

- Maintenance and conditioning of the fluid in the tank
- Removal of finer contamination

Protective and fine filtration

- The (high) fluid purity required for constantly maintaining technical cleanliness is achieved between the supply pump and the industrial part washer
- Removal of ultra-fine particles from the fluid
- Longest possible chemical and physical resistance of the fluid
- Good retrofitting

Technical cleanliness along the process chain

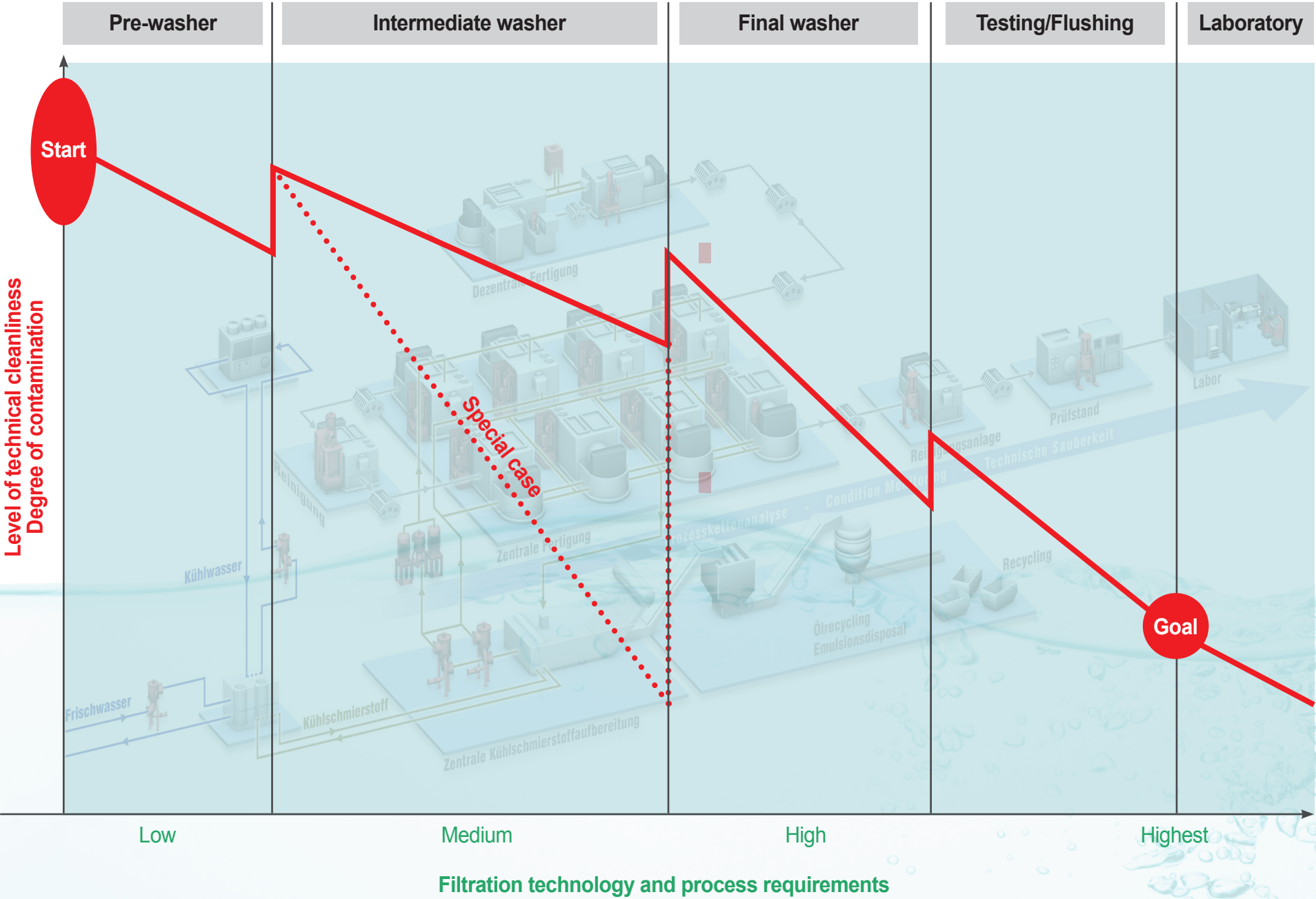
The automotive industry is the driving force for further development of technical cleanliness. Due to constantly rising quality standards, demands on the quality and cleanliness of components are also increasing.

Contaminated components entail costs because of faults, complaints and in some cases complete system shutdown.

Wherever critical particles lead to system failures, residues from production may be the cause. The reduction of production stage failures, rework and greater system availability are only some of the advantages of good cleanliness management.

Functioning cleaning and testing processes are crucial for maintaining technical cleanliness across the entire process chain up to the finished product. HYDAC pays close attention here to carefully coordinated filter concepts in all relevant systems and to optimizing their efficiency.

The required cleanliness of the final product determines and defines the requirements on the process and the respective individual steps. Cleanliness technology requirements can therefore be precisely formulated. Thinking in processes is important here. Using HYDAC components and system solutions, we help you bring the degree of contamination down below a predetermined critical value (e.g. no particle > 600 µm) and remove contaminants (e.g. particles, fats).



Filter Housing

The Right Solution for Every Application.



AutoFilt® ATF – TwistFlow Strainer

Flow rates: Up to 400 m³/h
Filtration ratings: Dependent on particle nature
Pressure ranges: Up to 16 bar
Filter element type: Conical slotted tube filter elements Conical wire mesh filter elements SuperFlush coating optional

- Features:**
- Particularly suited to the separation of solid particles in suspension up to several grams per litre
 - Hybrid consisting of a centrifuge separator and an inline filter
 - Coarse separation by centrifugal force with guaranteed filtration rating due to conical slotted tube filter element in the second stage
 - Depending on particle nature, filtration ratings of < 200 µm may also be achieved



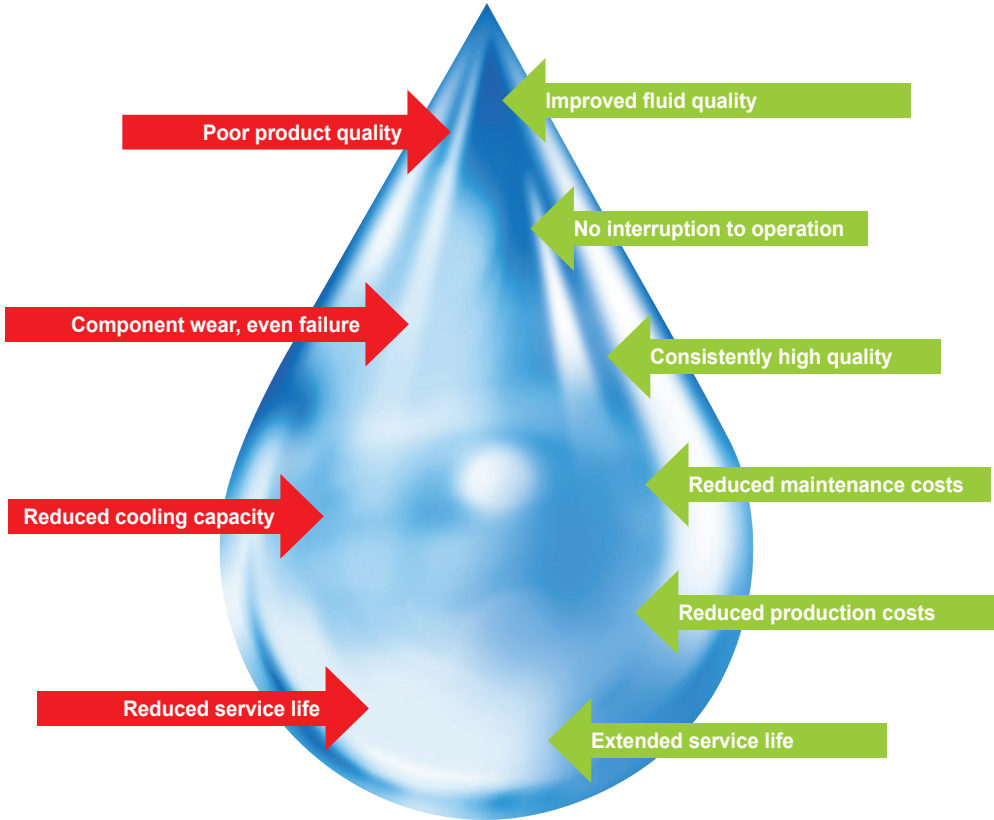
AutoFilt® RF3 – Back-Flushing Filter

Up to 10,000 m³/h
25 - 3,000 µm
Up to 100 bar (on request)
Conical slotted tube filter elements Conical wire mesh filter elements SuperMesh conical filter elements SuperFlush coating optional

- Features:**
- Self-cleaning system for the continuous separation of solid particles from low viscosity fluids
 - Fully automatic function and intuitive operation thanks to the new filter control AutoFilt® Control Unit
 - Isokinetic filtration and back-flushing
 - Good flow characteristics lead to a compact design whilst achieving high filtration performance with low pressure drop when the flange is in a flexible position
 - Optionally available with black-flush treatment unit BTU: Fully automatic filtration system with continuous separation of solid particles and treatment of the back-flush volume in a process twist sieve (PTS). A lifting pump returns the cleaning fluid via a buffer tank

High-Quality Filter Elements

Top Quality Pays Off in the Long Run.



The aim of the filtration is to keep the cleanliness of cleaning fluids at a continuous level throughout the production process. The cleanliness of the cleaning fluid is determined by the cleanliness requirement of the component being cleaned.

Sustainable filter concepts for complying with the cleanliness requirements of the cleaning fluid are important elements of an entire system solution. It is crucial here to correctly choose high-quality filtration when it is required and to select inexpensive solutions wherever this is possible. An incorrect filter concept or lack of filtration of an industrial part washer can lead to problems during system operation and in the process sequence. Make us the partner by your side and benefit from the advantages of optimum filtration.

- **Correct preselection**
By selecting the correct filter material or by optimizing the existing filter concept, operating costs can be significantly reduced.
- **Surface filters** are generally cleanable filters which can be operated automatically. Downtimes due to filter exchange are ruled out because HYDAC back-flushing filters clean themselves during operation. These filters are particularly suited to handling heavy contamination loads.
- **Depth filters** are generally non-cleanable filters which have to be replaced. They offer a defined filtration efficiency and are therefore also suitable for the most stringent cleanliness requirements of the cleaning fluids. In order to avoid downtimes, HYDAC offers these filters in duplicate so you can switch between the two. This ensures that one filter is always carrying out the filtration task, while the second filter is available for the exchange, even during full operation of the system.

Convincing diversity

Due to the wide range of filters offered by HYDAC, we can provide a suitable filter for every requirement, whether it is for handling heavy contamination loads, filtering machining chips or providing the purist cleaning fluids with the most stringent demands.



WBF – Wombat Filter Housing

Up to 25 m³/h
1 - 200 µm
10 / 16 bar
Filter bag (standard and economy) Wombat filter element (premium)

- Features:
- 2 sizes (standard size 1 + 2)
 - Energy-efficient flow control
 - Fulfills the most stringent cleanliness requirements
 - Vertical inflow prevents bypass formation, also with filter bag use
 - No dead spaces or undercuts
 - Optimum sealing geometry



PLF1 – Process Inline Filter

Up to 100 m³/h
1 - 90 µm
10 / 16 bar
PELF1

- Features:
- Suitable for applications with the highest cleanliness requirements
 - High contamination retention capacity
 - Secure sealing of the filter elements in the housing
 - Compact design with high flow rates, can be used as high-flow filter
 - Protection of the clean side during filter element change thanks to fixed support tube
 - Low pressure drops due to large filter area and large flow cross-sections
 - Superior handling compared to disposable candle filter elements



AMRF – Automotive MultiRheo® Filter

Up to 1,200 m³/h
1 - 90 µm
Up to 16 bar
Flexmicron Economy® Flexmicron Standard® Flexmicron Premium®

- Features:
- For open systems subject to the continuous ingress of contamination from the outside
 - The filter elements protect components such as nozzles, high pressure pumps or working filters, for example in industrial part washers
 - Defined filtration rates and high separation values
 - Compact housing with high flow rates
 - Efficient system and component protection



OLSW – OffLine Separator Water

20 l/min
Dependent on the application
6 bar
OilRheo elements

- Features:
- Unit to remove oil from cleaning fluids (water with mineral oil < 10 vol%) that are mixed with mineral oils (density < 900 kg/m³)
 - Can be used when conventional oil separators have reached their limit
 - Coalescence principle where tiny oil droplets combine into larger drops in the coalescing elements and these large drops rise to the top due to the buoyant force of the water
 - Installed in the bypass flow; a prefilter is optionally available
 - Cost-effective removal of oil from aqueous fluids
 - Extended service life of the aqueous cleaning fluids used
 - Compliance with environmental protection and disposal regulations

Filter Elements

The Right Solution for Every Requirement.



Flexmicron Economy®

Filter material:
Polypropylene, polyamide, spun spray
Filtration ratings:
1...90 µm
Filtration efficiency:
90 %...95 %
Differential pressure max.:
2 bar
Temperature max.:
Up to 60 °C

- Features:**
- End caps welded, not glued
 - All standard element geometries available
 - Wide range of adapters (compatible with existing systems)
 - Minimum-cost design



Flexmicron Standard®

Filter material:
Polypropylene, polyamide, spun spray
Filtration ratings:
1...90 µm
Filtration efficiency:
95 %...99.8 %
Differential pressure max.:
2 bar
Temperature max.:
Up to 60 °C

- Features:**
- End caps welded, not glued
 - All standard element geometries available
 - Wide range of adapters (compatible with existing systems)
 - High level of cleanliness due to graduated depth filter construction
 - High contamination retention resulting from effectiveness of depth type filter material



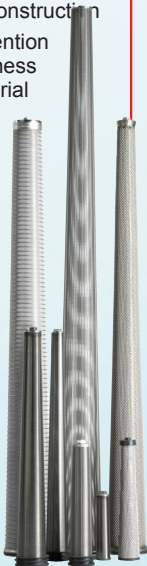
Flexmicron Premium®

Filter material:
Polyester, (glass fibre) pleated
Filtration ratings:
1...90 µm
Filtration efficiency:
99.98 %...99.995 %
Differential pressure max.:
2 bar
Temperature max.:
Up to 100 °C

- Features:**
- All standard element geometries available
 - Wide range of adapters (compatible with existing systems)
 - Stable filtration efficiency, even with pressure and flow rate pulsation
 - High fluid compatibility
 - High chemical resistance
 - High contamination retention capacity thanks to pleated design
 - Robust support for non-woven media to prevent material migration under mechanical stress

Back-flush filter elements

For our series of AutoFilt® automatic back-flushing filters, we also offer a wide range of filter elements which are tailored to your individual filtration task. The special conical shape and configuration of the filter elements allow consistent flow, resulting in a low pressure drop and complete cleaning of the filter elements.



Continuous, defined, clean!
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.

By using high-quality HYDAC filter elements with a continuous and defined filtration efficiency, absolute filtration of your cleaning fluids is guaranteed.



Economy / Standard filter bag

Filter material:
Polypropylene
Filtration ratings:
1...200 µm
Filtration efficiency:
Differential pressure max.:
1.4 bar
Temperature max.:
Up to 60 °C

- Features:**
- Cost-effective 1-layer design for applications with low requirements
 - Cleanliness-enhanced 2 and 3-layer designs for applications with high requirements
 - Material compound with high level of safety during operation and optimum adaptation to the bag receptacle
 - High degree of efficiency
 - Sealing lip ensures bypass-free sealing
 - No particle transfer to the clean side due to thermally welded seams
 - Sealing collar made of polypropylene

Filter retrofitting

For optimizing your filtration processes, HYDAC can offer you suitable alternatives, various sizes, and premium and low-cost materials for existing filters.



Wombat

Filter material:
Polyester, pleated
Filtration ratings:
1...90 µm
Filtration efficiency:
> 99.98 %
Differential pressure max.:
2.5 bar
Temperature max.:
Up to 90 °C

- Features:**
- Very high fluid cleanliness
 - Longer service life as filter bag
 - High contamination retention capacity
 - Lower pressure drop
 - Robust element design
 - High temperature stability
 - Conical design for fast element change



PELF1

Filter material:
Polyester, pleated Ecomicon®
Filtration ratings:
1...90 µm
Filtration efficiency:
> 99.98 %
Differential pressure max.:
2.0 bar
Temperature max.:
Up to 90 °C

- Features:**
- Very large filter area per element, 5.25 m² when 20" long
 - Low pressure drops due to large flow cross-sections
 - High contamination retention capacity due to deep pleats
 - Very high and constant filtration efficiency throughout the filter lifetime
 - High fluid compatibility and fully incinerable
 - Very good handling

System Components

Proven Technology for Stable Processes and High Flexibility.



Cooling Systems

Whether you're adjusting the temperature of a cleaning bath or cooling electrical cabinets, HYDAC offers energy-efficient products.

Heat exchangers

When it comes to energy-efficient solutions, it is often advisable to heat baths using plate heat exchangers or to retrofit systems. By constantly controlling the fluid temperature you guarantee consistent process results. A central heating supply can also be made available if the necessary infrastructure is present. Alternatively, concepts can be developed so that process heat from machining centres or individual machines is used to heat cleaning baths.

HYDAC plate heat exchangers, brazed or gasketed, provide a high degree of efficiency. Ingenious geometry in the ridges of the stainless steel plates gives them their crucial competitive edge.

Control cabinet cooling

Stringent requirements for machine availability and harsh machine operating conditions in the industrial sector mean that heat is produced in control cabinets. Regardless of the cooler used, whether air/air, air/water or refrigeration, HYDAC guarantees reliable continuous operation by optimally adjusting the temperature of the control cabinets.

Whether integrated into a machine or used as a separate auxiliary cooler, HYDAC cooling systems will tackle any cooling task and guarantee quality for your products with utmost precision. Control cabinet cooling can also be connected to your central cooling water system on request for the sake of energy efficiency.



Valves, Mounting Technology & Accessories

The wide range of valves, mounting technology and accessories means HYDAC can offer you a variety of product solutions.

Valves and ball valves

HYDAC coaxial valves and low dead-space (pocket-free) ball valves are optimally suited to being used in your industrial part washer. The coaxial valves, known as process-governed solenoid valves (diaphragm type) made in stainless steel, are space-saving and low-maintenance. These properties combined with special block solutions reduce connections for your part washers.

Mounting technology

For attaching pipes, hoses, cables and/or various types of components wherever you wish, HYDAC offers the right mounting solution for almost all fields of application. Differently configured clamps, bars, straps, holders, clamping bands and other products not only enable attachment, but also have shock-absorbing, vibration-damping and noise-absorbing properties. Forget individual installations and let us offer you compact mounting for filter housings. The variety of mounting technology enables easy, time-saving and therefore cost-effective installation into your part cleaning system.

Displays

By using HYDAC fluid level displays, fluid level checks and thermal switches you can directly check and monitor the operating fluid level in your part cleaning system. HYDAC offers you the best ways of keeping an eye on the fluids in your systems.

HYDAC offers more than you think!

With its variety of products, HYDAC offers you not only the right filter technology, but also a wide choice of system components from the cooling, valve, sensor and monitoring system sectors.

These components and subsystems are available individually tailored to your needs.

They are therefore advantageous because they provide the greatest possible flexibility when designing systems.

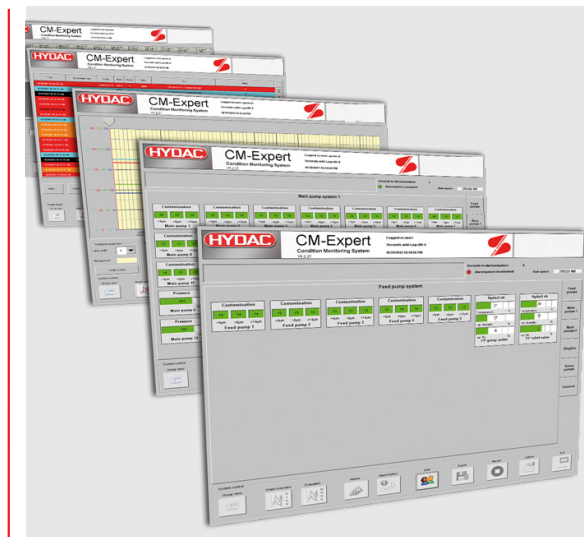


Measurement Technology

HYDAC offers a comprehensive range of easy-to-use measurement systems. HYDAC sensors are used for online monitoring, recording and diagnostics of fluid-related parameters such as pressure, filter differential pressure, overheating and fluid level.

- Electronic Pressure Switch EDS 3000 for nozzle monitoring during spraying procedures
- Flush Membrane Pressure Sensors HDA 4000 and EDS 3000 for connection without any dead space
- Electronic Temperature Sensors ETS 3000 and HTT 8000 for temperature monitoring of the system
- Electro-Mechanical Flow Switch HFS 2500 to control the flow rate of the system
- Electronic Level Switch ENS 3000 and HNS 3000 for fluid level and temperature monitoring
- Level Switch HNS 500 for non-contact fluid level monitoring
- Portable Data Recorder HMG 3010 for on-site monitoring by recording and storing measurement data

With sensors available in a range of Analogue (0-10v & 4-20mA), Digital (Transistor & Relay) and serial communication (e.g. IO-Link) interfaces, HYDAC is able to offer advice on the right transducer for your application and to supply the product to meet that specification. HYDAC also offers a wide range of ATEX approved transducers specifically for use in explosive environments as well as those with a diagnostic function.



Condition Monitoring

The combination of HYDAC measurement technology and system process parameters makes it possible to make a combined evaluation of the available data using condition monitoring (CM).

The load condition of the system (e.g. pump states, valve switching times, etc.) and the condition data of the fluid can be monitored systematically and easily by means of CM.

CM Expert provides a remarkably expanded diagnostics depth which goes far beyond conventional threshold monitoring. In addition, the machine data available from the system operator, e.g. start/stop trigger, cycle times, energy consumption, etc., are incorporated into the data analysis so that the analysis is not limited to only external sensors, but can be operated as an integral machine component.

By using CM-Expert, the condition of individual machines can be monitored throughout the production line clearly in one control centre and maintenance and repair measures can be planned preventively, in order to identify diminishing processes and avoid failures.

Technical Cleanliness

Top Quality Puts You a Step Ahead.



Extraction Units

The specially developed extraction units for analyzing technical cleanliness in accordance with VDA Guideline 19 (ISO 16232 or ISO 18413) have numerous applications in a wide variety of industries. Individually designed adaptations for carrying out cleanliness analysis provide solutions from the same company.

Analyzing the type, size and quantity of contamination enables quality standards to be verified and documented, and the requisite optimization measures to be implemented. With HYDAC extraction units from the CTU and CTM module range, you get reliable and reproducible analysis results.

ContaminationTest Unit CTU

The HYDAC ContaminationTest Unit CTU 1000 is used to determine the technical cleanliness of components.

ContaminationTest Module CTM

The ContaminationTest Module CTM is a modular system designed to analyze the technical cleanliness of components.

- **Supply module CTM-SC:** (supply and control): Module for fluid supply, control and data storage.
- **Extraction modules CTM-EB:** Modules for component analysis. The modules vary in size / model and extraction process. They feature four types of extraction in different combinations.
- **Extraction Flushing CTM-EF:** By adapting to the geometry of the components being sampled, the module can be used for flushing components in contact with fluid.
- **Fluid Analyzer CTM-FA:** Module for determining the particle count according to ISO 16232 by preparing the fluid and evaluating via an optical particle counter.



Flushing Stands

You achieve the highest level of cleanliness with the semi-automatic flushing stands designed by HYDAC. Targeted flushing of cleanliness-relevant components or sections (e.g. internal bores or lines) distinguishes the HYDAC flushing stand from conventional cleaning processes and therefore means that challenging cleanliness requirements are ultimately achieved.

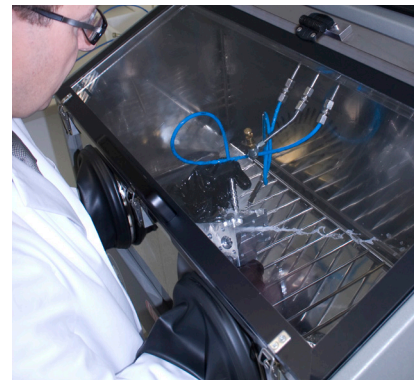
When designing flushing stands, HYDAC places great value on meeting customers' needs to give them complete satisfaction. The concept of the flushing stand therefore consists of a standard supply module, as well as modules for conditioning the rinsing fluid and accommodating control technology. The individually designed user interfaces of these modules can be used to monitor or influence processes. Customized work modules provide optimally designed work stations, including component adapters and adaptations which are optimized for cleanliness.

The HYDAC flushing stand is used at the end of a production process chain between the part cleaning system and cleanliness testing. Due to precisely defined drying steps, it can be guaranteed that the components are drip-free after the flushing process.

The flushing stands are in-house developments. This means that we can meet the particular requests of our customers without a problem, whether this is a wish for special component adapters, adaptation to the control or integration of the customer's internal processes, such as component recognition by using bar codes, DMC or even RFID.

Transparency in technical cleanliness with HYDAC

Technical cleanliness is becoming increasingly important in many sectors. More efficient motors and systems and increasing warranty claims are steadily driving up the demands for cleanliness management. Technical cleanliness analyses are designed to record the current condition and monitor the cleanliness of manufactured components, as well as to check and optimize the production process.



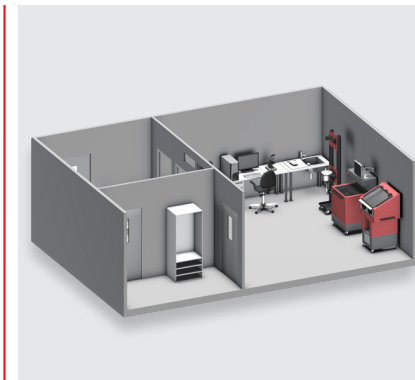
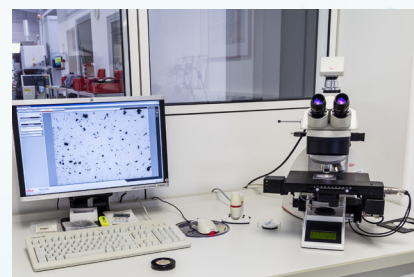
Laboratory Analysis

In the HYDAC laboratories, we offer you the service of analyzing the costs of your components, filters and fluids.

Experienced laboratory staff guarantee expert analysis of component cleanliness based on established standards (ISO 16232 or VDA Volume 19, internal company standards and customer specifications).

As a member of the industrial association for "Technical Cleanliness" (TecSa), HYDAC played a leading role in developing the VDA 19.1 and 19.2 / ISO 16232 guidelines for cleanliness testing in the automotive industry, as well as in the further development of these publications. HYDAC supports the automotive industry with products and services to implement the objectives of technical cleanliness.

The laboratory for technical cleanliness is currently in the accreditation phase. We meet the current requirements for this and will be able to support you in the future as an excellent laboratory partner.



Laboratory Design and Turnkey Laboratories

To achieve and maintain high quality standards, preventive process control is necessary. Having a laboratory specifically for regular cleanliness analysis is often a cost-effective alternative in such cases. HYDAC is your reliable partner for designing, planning and implementing tailor-made solutions.

As a specialist in technical cleanliness, HYDAC can provide support if you are setting up a new laboratory to monitor technical cleanliness. HYDAC offers everything from individual extraction units, to laboratory design through to the fully fitted laboratory.



Mobile Laboratory

On-site analysis

With our mobile laboratory we provide expert advice and proactive support for the various questions about technical cleanliness. We can therefore analyze the cleanliness of sensitive components based on VDA Volume 19, ISO 16232 or customer specifications directly on site.

Process chain analysis

HYDAC also offers to professionally analyze your production process chain so as to optimize the production processes in respect of technical cleanliness.

You profit by saving time and money thanks to the direct on-site analysis. We can give a striking analysis of the CURRENT condition of your production process. A further advantage is that the influence of logistics on the analysis result is minimized. You can count on the extensive knowledge of our experts who are ready with a suitable solution for every requirement. This includes the different production steps such as logistics, manufacturing and cleaning.

Given HYDAC's experience, we can provide support in the automotive industry, the agricultural, construction and commercial machinery industries, aviation and aerospace technology, the electrical industry and many other industries.

Fluid Conditioning Quality Assurance with the Perfect Strategy.

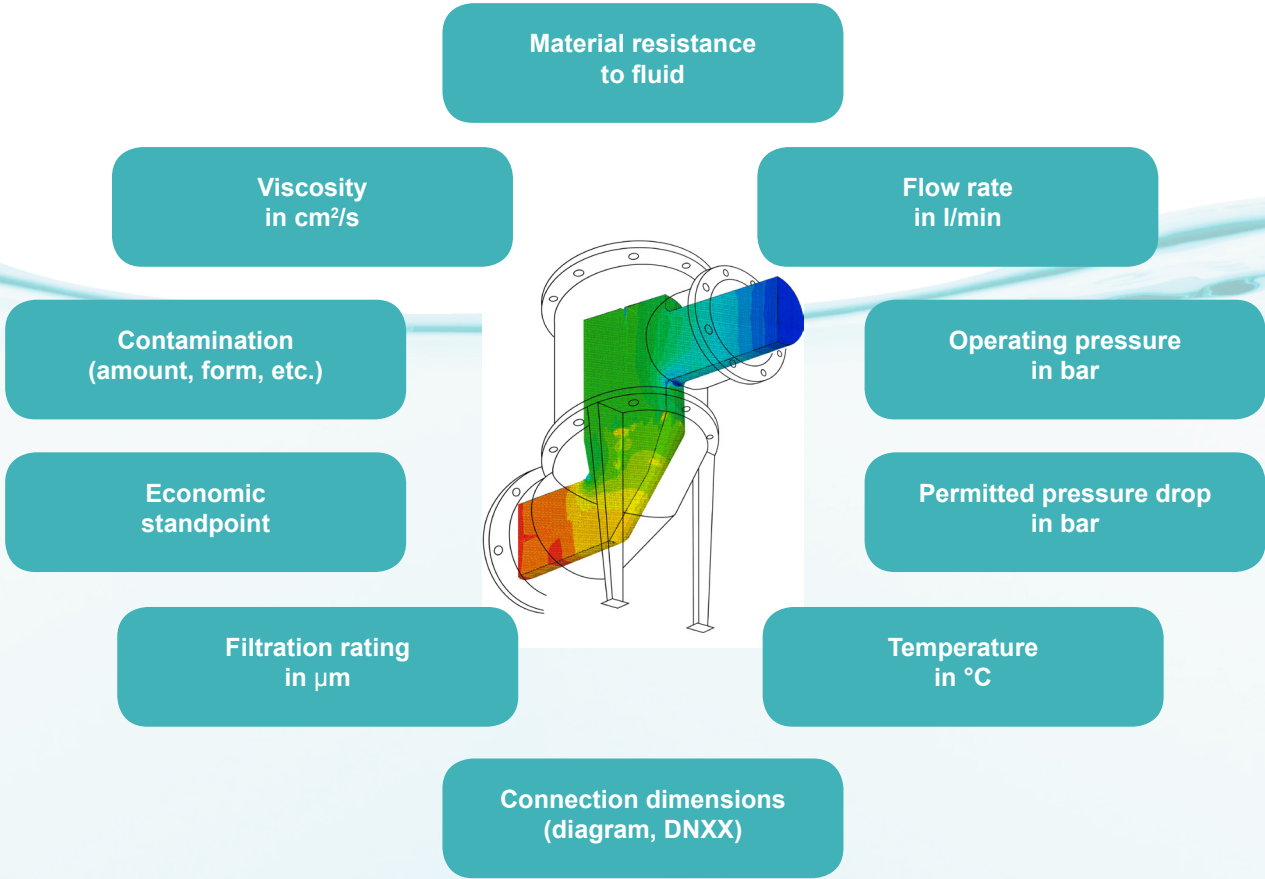
At first glance, the initial investment in high-quality HYDAC filtration often seems to be the more costly option. However, numerous practical examples show that our customers have had very positive experiences during operation with the use of HYDAC components and systems. Considering the significantly increased filter lifetimes, the extended life of bath fluid, the reduction of wear on system components and the maintenance savings, the additional investment often seems to pay off within just the first year of use. Our aim is to significantly reduce your running costs and expenditure in accordance with the TCO approach by using high-quality technology.

What top quality means for you

- Increased machine and system availability due to condition-based monitoring
- Improvement of quality image and compliance with quality standards
- Avoidance of recalls
- Reduction of production stage failures
- Lowering of warranty claims
- Lowering of operating fluid consumption due to more intensive fluid conditioning
- Reduction in costs as a result of less production waste
- Identification and elimination of weak points in processes
- Optimization of internal and external processes
- Customized documentation of the technical cleanliness of components

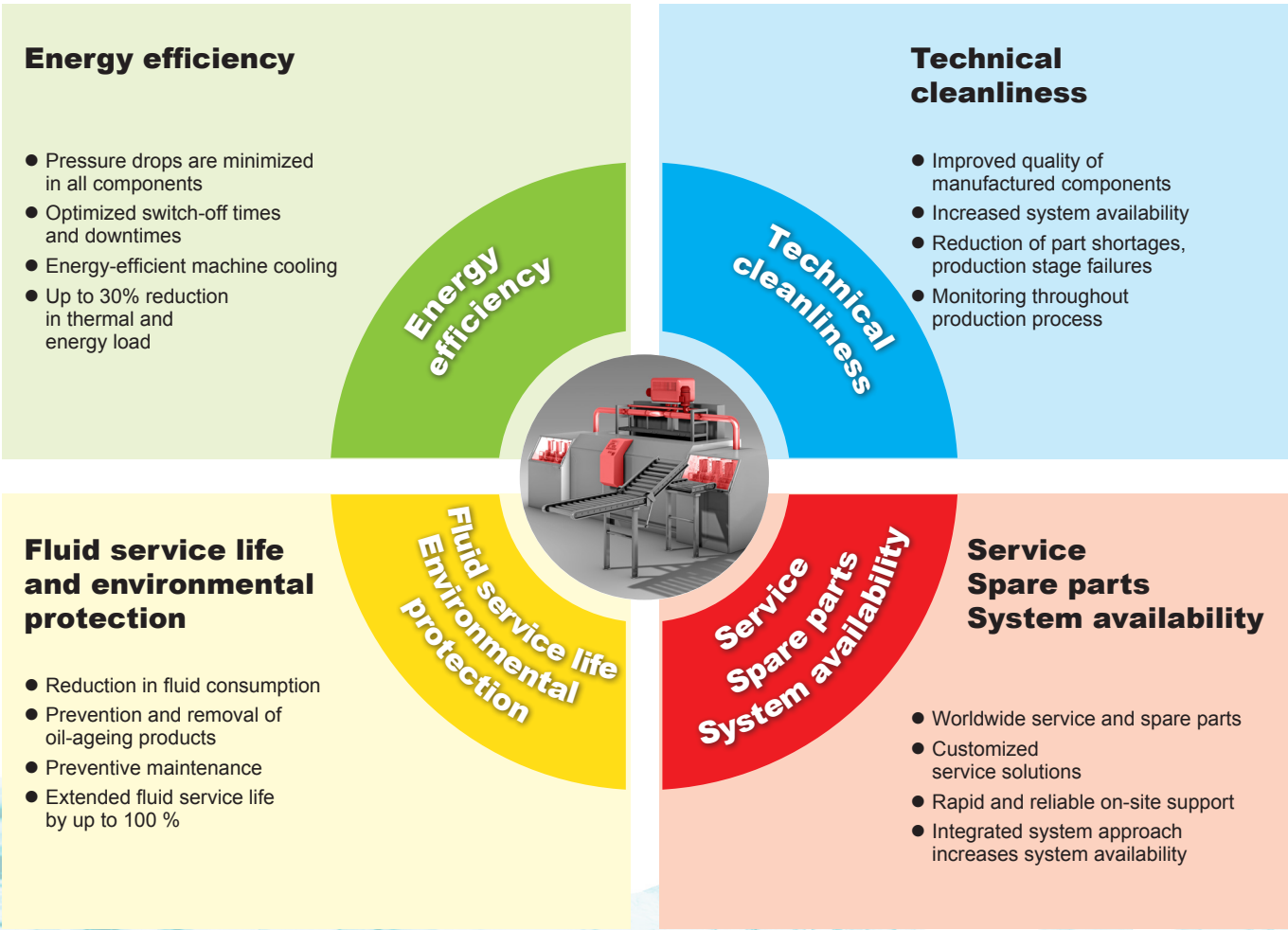
The ten principles of sizing & design

Correctly choosing the right filter for your application depends on many different factors and is of vital importance for determining the optimum solution for your system. The ten principles of sizing and design form a checklist of what information we require from you so we can provide a suitable solution:



HYDAC All from a Single Source and Present in Your Production Process.

For over five decades, HYDAC has been working on solutions to extend service life and protect components. HYDAC is responsible for a large proportion of the cooling, energy storage and filtration of fluids used in production, including hydraulic, lubrication and testing oils, cleaning fluids and cooling lubricants. Filtering, cooling and fluid monitoring are vital factors in making fluids last as long as possible and thus to increasing machine and system availability. HYDAC, your reliable partner for expertise in production.

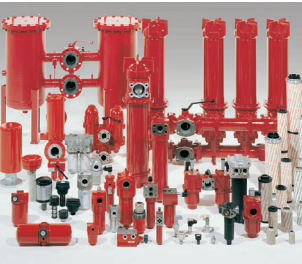


Your consultation notes:

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Accumulator Technology 30.000



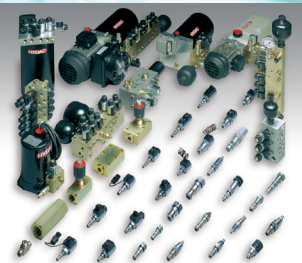
Filter Technology 70.000



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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- HYDAC Companies
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HYDAC INTERNATIONAL

HYDAC International
GMBH

Industriegebiet
66280 Sulzbach/Saar
Germany

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

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

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.