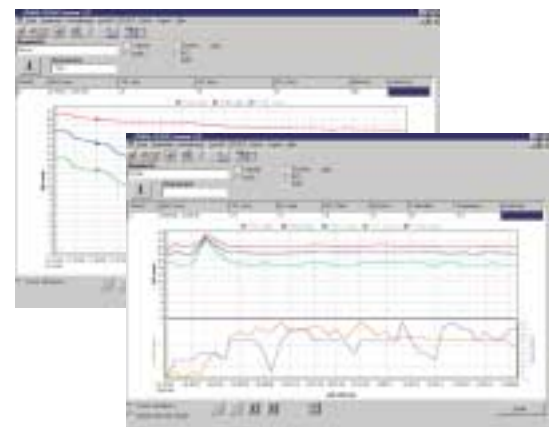


... to a technically clean system.

The way to a clean system

The pre-conditions are: clean components, filling with clean fluids, flushing and system filtration. Constant online monitoring makes it easy for you to keep a check on your product so that faults can be detected early and eliminated quickly and effectively.



Documentation on systems

HYDAC Services

Component analyses:

We carry out component cleanliness analyses for you, in line with existing standards and technical specifications.

In HYDAC's own laboratory



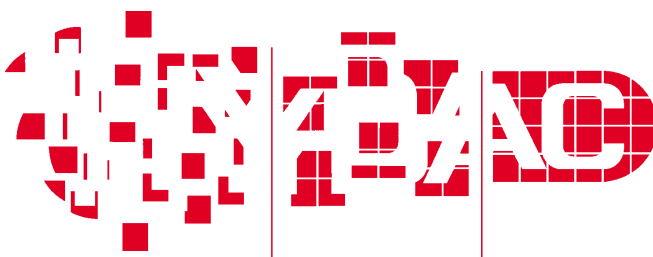
On site on the assembly line



Documentation of the analyses

Solution packages:

One supplier. One contact. Service included.



From high-quality components

and reliable subsystems

to high quality complete systems

Supporting literature:

- TECSA Quality Standards
- VDA Quality Management in the Automobile Industry Volume 19
- ISO 16232
- ISO 12345
- ISO 18413

HYDAC INTERNATIONAL

Technical Cleanliness of Components and Systems.

HYDAC

- Engine oil
- Coolant
- Fuels
- Brake fluid
- Hydraulic oil for steering and suspension
- Air conditioning fluid
- General hydraulic oil
- Transmission oil

From a clean component...

Clean components and clean systems

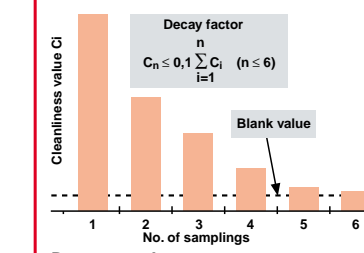
Technical cleanliness is becoming increasingly important in many sectors of industry, the automotive industry, mobile hydraulics and production systems. Phrases such as "reduction and avoidance of start-up breakdowns and wear" and the difficulty of ever increasing warranty periods are driving up the demands for component cleanliness.

The benefits to you

By obtaining relevant component cleanliness data you are one step ahead of your market rivals.

Confronting the demand from customers for "technically clean components".

As a supplier or as a manufacturer of complete systems, you are expected to provide technically clean products and systems. This can lead to a confusing array of additional product costs and therefore to a loss of competitiveness. By working with HYDAC it is possible to keep these costs to a sensible level and therefore safeguard your competitive edge.



Decay graph

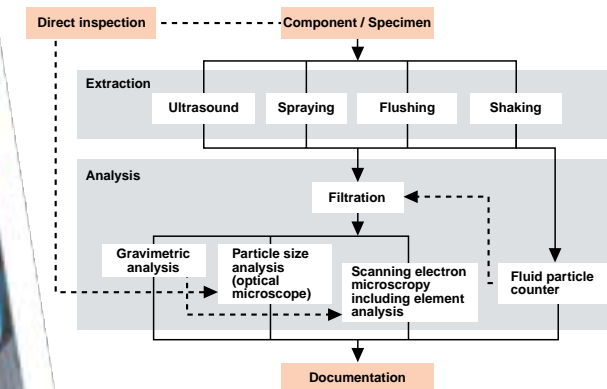


Documentation on components



The way to a clean component

Not all obtainable data is important. In the main gravimetric analysis (weight in mg) and particle size measurement (longest particle in µm) are studied for component contamination. This data is then analysed in relation to the component, to the relevant component surfaces or to the volume of the whole system. Depending on the requirement it is necessary to determine the type and composition of the particles.



For every task
the right solution.
From **HYDAC**

**HYDAC
measurement
and analysis
systems**



CS 2000 series Contamination Sensor
AS 2000 + AS 1000 AquaSensor
HMG 1000 series Portable data recorder
FCU 2000 series FluidControl Unit
EDS 3000 Electronic Pressure Switch
ETS 1700 Temperature switch
EVS 3100 Flow rate sensor
ALPC 9000 series Automated laboratory particle counter

**Applications
of HYDAC
measurement
and analysis
systems**



Contamination Sensor On board
 Contamination test bench
 Contamination control Software CoCoS
 Temperature monitoring
 Measurement of the contamination using FCU
 Multi-function portable data recorder HMG
 Cleanliness monitoring during filling

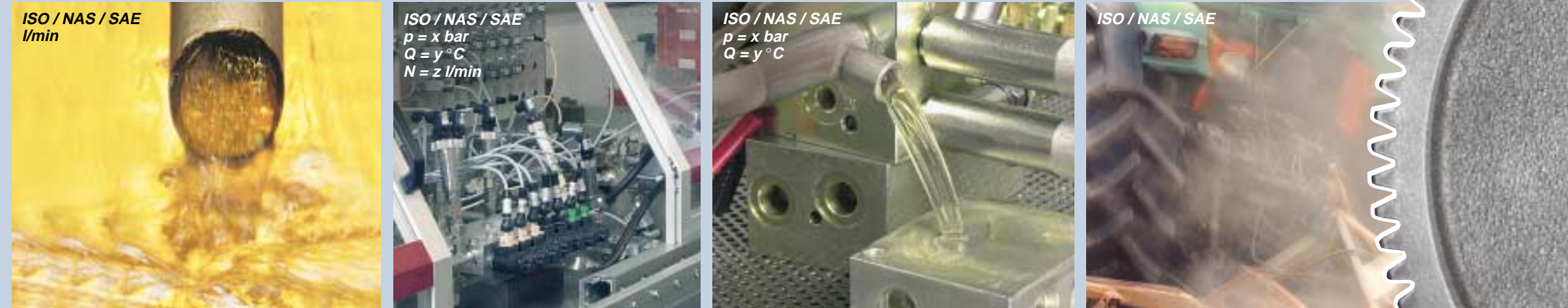


CTU 2000 series Contamination Test Unit
FES Fluid Extraction Set
FAS Fluid Analysis Set
WTK 200 Water Test Kit
MM S5 Measuring microscope



Component inspection using the CTU
 Contamination Sensor CS on the cylinder test rig
 Component testing
 Analysis and documentation in the laboratory or on site

Contamination management is concerned with the analysis and optimization of processes from the point of view of the technical cleanliness of components, systems and fluids.



ISO / NAS / SAE
 l/min
 $p = x \text{ bar}$
 $Q = y \text{ } ^\circ C$
 $N = z \text{ l/min}$

Filling with clean fluids
 Test rig, function, cleanliness
 Flushing, Flushing units
 On board sensors, fluid monitoring



Laboratory test room



Component cleaning, water-based



Machining centre

**HYDAC
Filtration
Applications**



Test rig
 Filling unit
 Flushing on military tank system
 Change-over low pressure filter FLND
 Return line & suction boost filter RKM



RF3 protective filter Washing machine
 RF3 with twist-sieve, Cooling/cutting fluid applications
 OLF on industrial cleaning system
 RF4 on machine tool
 PMRF, open, with Mega Rheo elements
 ERF honing oil system
 Filter used in industrial cleaning of components

**HYDAC filters,
filtration units
and systems**



OF7 Portable filtration unit
OLF 15 - 60 series Offline filter
RKM Return line & suction boost filter
MFM mobile inline filter
NFD Low pressure filter
FUM Flushing unit



RF3 Back-flushing filter
RF4 Back-flushing filter
RF Return line filter for mobile technology
ERF Coil-up filter
FLND Change-over inline filter
 Stainless steel elements and slotted tubes
Mega Rheo MR Filter elements
Deka Rheo DR Filter elements
RFLD Change-over inline filters