Coalescer-Filter

PiW 1975

Description

The Coalescer Filter was especially designed to separate water from hydraulic fluids.

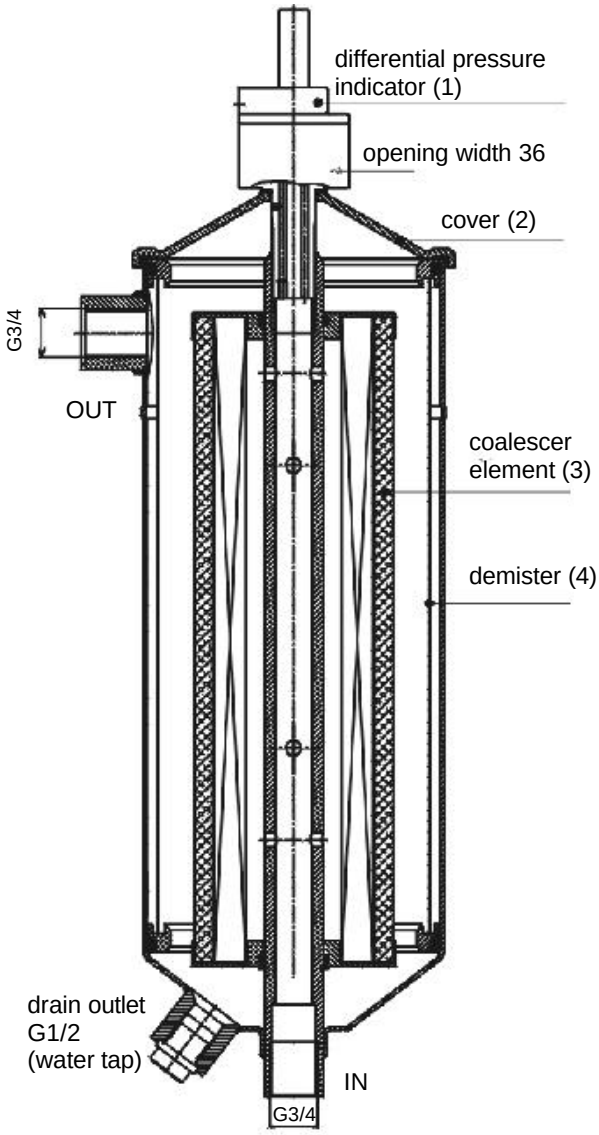
According to the VDMA Regulations 24 568, the amount of water in HE pressure fluids has to be kept under 1.000 ppm (0,1%). HLP fluids should not contain any water at all. Water always causes turbidity which can be seen by the human eye. Turbidity is physically an emulsion, whereby pressure fluids are contaminated with small droplets of water. This is the reason why a mechanical separation from these water droplets has to take place, which is called the coalescer-principle. The droplets are collected in various layers, the accumulated water then leaves the coalescer layer and is trapped in a special hydrophobic issue where the separation from the pressure fluid then takes place. The water is released from the system by sedimentation. It is important, that a certain differential pressure is not exceeded in the process. The viscosity needs to be taken into account for a perfect operation. The coalescer works best if the pressure fluids contain a minimal amount of emulsive additives.

The consequence:

Special expensive oils in systems that are in constant danger of water ingression, can be replaced by simple, cost-efficient pressure fluids.

Operating Instruction

The max. viscosity for an effective water separation should no exceed 68 mm²/s. The coalescer should run with a differential pressure of approx. 0,3 bar, that means that the volumetric flow is determined by the viscosity of the oil. To prevent premature contamination of the coalescer, a dirt filter with a retention rate of $ß_6 \geq 75$ should be installed before the coalescer, because the coalescer element is so fine and therefore very sensitive to dirt. In order to recognise the separated water, a transparent water-detection device with a tap should be mounted to the cone of the filter housing.



When does the coalescer element need to be replaced?

A differential pressure indicator with a switching point of Δp 1,2 bar is mounted at the top of the filter housing.

As already mentioned above, the filter should run at a Δp of approx. 0,3 bar. If the indicator signals in the "correct" conditions, the coalescer element is contaminated and needs to be replaced.

Replacing the coalescer element

Before an element can be replaced, the entire system needs to be shut down and the filter released from the pressure.
Use the water tap to empty the housing.
The differential pressure indicator (1) also serves as a cover screw which needs to be removed to take off the cover (2).
Remove the coalescer element (3) from the housing.
The demister only needs to be replaced if it is damaged.
Push a new coalescer element over the centre pipe in the housing.
Check the seals in the lid-cover for possible damages, replace if necessary.
Place the lid-cover back on top of the housing and tighten it with the differential pressure indicator.
Close the water tap.

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PiW1975_GB 10.2003