

PRESS RELEASE

An alternative to separators: oil care filtration of lubricating oil with oil-recovery-system

Description of the system

The oil care filter system consists of:

- automatic filter AF 173 GM,
- transfer pump (20-80 l/min) and
- oil-recovery-system with filter PI 1975 E incl. sludge tank and oil recovery pump (5,6 l/min).

The compact MAHLE automatic variofilter system AF 173 GM with integrated cyclone effect is supplied by a frequency controlled pump, sucking the oil from the crank case.

This inline pressure filter, which can be cleaned in process, requires no waste disposal measures such as filter material. During cleaning the filtrate flow is not interrupted or reduced dramatically.

The integrated cyclone effect facilitates pre-separation of heavy particles, which gather in the conical bottom of the filter. The solids load to filtering element is reduced for longer filter cycles. The liquid then flows inward out through the filter element. The required separation of the remaining particles takes place on the MAHLE segmented filter element. The filtrate then flows out of the filter at the top, opposite the inlet connection return to the engine.

Once the differential pressure limit or a time set has been reached the segmented element is turned by an electric motor and the cleaning valve is opened at the same time. The cleaning is carried out by using either pressurized air or filtered process fluid. The segments pass over the cleaning channel and external pressure jet one after the other. An opening and sealing of the jet takes place. During the sealing, an integrated pressure tank is pressurized. When opening in each segment, a pressure impulse results in the cleaning of the separated particles from the surface of the filter material. The particles, collected on outer side, are removed through the back-flushing channel with a low amount of external medium. One turn (6 sec.) is enough for cleaning all segments.

The residue collected in the cone is discharged during off-time or during operation through the drain valve.

The oil sludge is sent to the recovery tank via collecting pipe. In the recovery tank the level is controlled by three level switches. These switches are protected by a baffle plate.

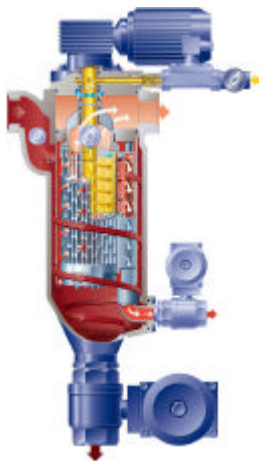
After some cleaning cycles of the automatic variofilter system the lowest level switch closes. When the level reaches the middle switch the recovery pump is activated. The oil is pumped to the inlet side of the automatic filter via the oil recovery filter PI 1975E, where the particles are trapped down to the size of 3-5µm. The reverse flow is prevented by a check valve. Reaching the lower level switch the oil recovery pump is stopped.

By returning the oil from the recovery tank to the inlet of filter an addition safety aspect is fulfilled. In case of malfunction of the oil recovery filter no sludge can be filled to the filtered oil because it will be returned to the recovery tank immediately.

The upper level switch is the overflow alarm for the recovery tank. In case of actuator or switch trip the full plant will be stopped.

A breathing air filter on the recovery tank protects the oil system from dirt of the environment.

The MAHLE vario filter system is used in the application of lubrication oil filtration as well as fuel oil filtration on diesel engines used in Marine technology and power generating technology. The system is certified by Germanischer Lloyd.



Picture 1: automatic filter AF173



Picture 2: test plant M& RSK ARUN



Picture 3: demonstration plant



Picture 4: MS M& RSK ARUN