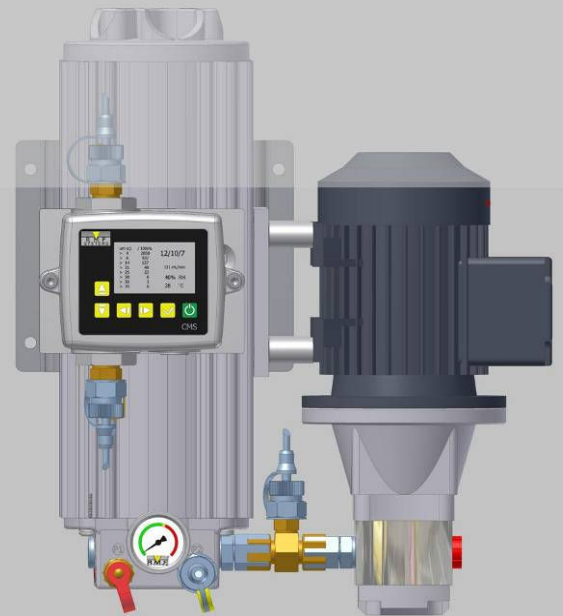
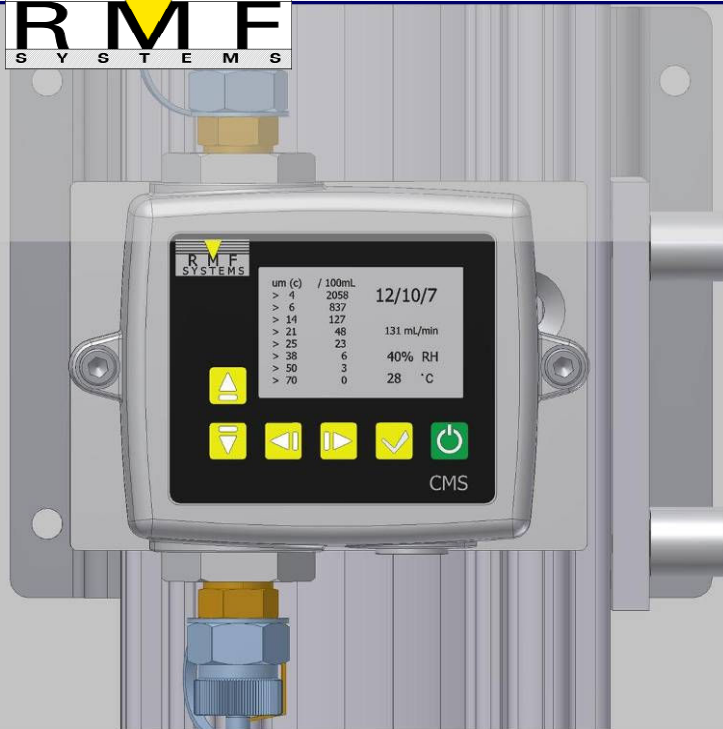


Contamination Monitoring Systems



Smart off-line filters

The growing demand for Condition Monitoring solutions and the successful application of depth filtration on hydraulic and lube oils systems have led to the development of RMF Off-line filters with an integrated Contamination Monitoring System (CMS). This development allows machine operators to keep their hydraulic oil clean and monitor the contamination levels real time. The Contamination Monitoring System (CMS) can be combined with the entire selection of off-line filters in the RMF Systems range.

The low cost CMS has 8 channels for solid contamination measurement and a Moisture (RH) & Temperature option. It reports in any of the international standard formats ISO 4406:1999, NAS 1638, AS 4059E and ISO 11218.

RMF Systems Smart Off-line filters are characterized by their extremely efficient filter elements with a fineness of 0.5 micron. If required different micron sizes are available to suit any specific application. The Smart Off-line filters can also be equipped with special water absorbing pre-filters in case of extreme water contamination. These water absorbing spin-on cans will remove most of the water prior to the fluid reaching the cellulose element.

Specially designed for industrial hydraulic installations, the RMF Smart Off-line filters are available in single or multiple housing configurations. The Smart Off-line filter units can be easily mounted to new and existing hydraulic installations. An integrated pump-motor unit in the Off-line filter, pumps the oil from the reservoir through the filter unit.

After filtering the oil is returned to the tank.

Integrated Contamination Monitoring System (CMS)

The CMS in-line contamination monitor automatically measures and displays particulate contamination, moisture and temperature levels in various hydraulic fluids where ongoing measurement or analysis is required.

- Measures and displays the international standard formats ISO 4406:1999, NAS 1638, AS 4059E and ISO 11218
- 8 Channels solid contamination measurement
- Moisture (RH) & Temperature option
- 9-36 Volt DC
- Large backlit display and keypad
- Multicolour LED status alarms
- Programmable test times
- Manual/ Auto operation
- Programmable alarm relays
- PC/ PLC Operation
- Windows based software included
- RS 485 communication standard



Contamination Monitoring Systems



Economical

The hydraulic market accepts that 80% of mechanical failures are caused by contamination in the system. The RMF Smart Off-line filters attack this contamination at source and in addition to solid particles, these filters are also capable of removing water from the oil. This prevents the catalytic reaction of water and solid particle contamination, resulting in extended useable oil life. The use of RMF Smart filters means less defects, less maintenance, and less wear and tear of the hydraulic components. The integrated Contamination Monitoring System allows machine operators to monitor the contamination levels real time and receive warning if contamination levels for both solid particle and water exceed set target levels.

Applications

RMF Smart Off-line filter units can be fitted to every imaginable industrial application where hydraulic and/or lubrication systems are present. The standard range of Off-line filters can be utilised in reservoirs with a maximum volume of 11.000 litres. A large selection in electrical motors and filter elements is available.

In recent years RMF Systems have developed a great deal of experience in cleaning and keeping clean hydraulic and lubrication systems in:

- Steel industry
- Plastic moulding industry
- Maritime industry
- Petro chemical industry
- Paper industry

Advantages

- Extremely clean oil due to high filtration efficiency
- Permanent reporting of contamination levels
- Permanent reporting of moisture RH % and temperature
- Prevention of channel forming by radial filtration direction
- Increased flow capacity
- Large dirt holding capacity
- Large water holding capacity
- Compact and easy-maintenance design
- Environmentally friendly elements available
- Longer usage life for oil and components
- Reduces cost of ownership



**Managing your oil
contamination**



CMS Technology

LED Based Light Extinction Automatic Optical Particle Counter

CMS Analysis Range

ISO 4406:1999 code 0 to 25

NAS 1638 Class 00 to 12

AS4059 Rev.E. Table 2 Sizes A-F: 000 to 12

(lower Limits Test Time dependent)

CMS Particle Sizing

4,6,14,21,25,38,50,70 μm (c) to revised ISO 4406 Standard

CMS Software

All CMS units are supplied with software to automatically download new results as they are generated. Historical results can be downloaded from the CMS's inbuilt memory. The CMS memory has space for around 4000 log entries, when full, the oldest log entry is overwritten. Which test is logged, and when, is determined by the log settings Each log entry is time-stamped and contains the CMS serial number, so that it can be identified later.

CMS alarm relay status LED

All CMS versions have a multicolour indicator on the front panel, which is used to indicate the status or alarm state. The alarm thresholds can be set from the supplied software via the serial interfaces.

- Green indicates that the test results passed, i.e. none of the alarm thresholds were exceeded.
- Yellow indicates that the lower cleanliness limit was exceeded, but not the upper one.
- Red indicates that the upper cleanliness limit was exceeded.
- Blue indicates that the upper water content limit was exceeded.
- Red and blue alternating indicates that both cleanliness and water content upper limits were exceeded.
- Pink indicates that the upper temperature limit was exceeded.

Related products

For connecting a PC/LAPTOP to the CMS a USB-I connector is required, it comprises of a USB; RS 485 interface with a terminal block pre-wired to connect to the CMS. An external DC adaptor can be used to power the complete system, or if the computer is always connected during use, power can be taken directly from the USB cable.

Note: powered PC/Laptops only

RMF systems also offers a ready made electrical control cabinet which can be mounted directly on the " Smart " filters, with the exclusion of the OLU1A series.

The control box allows easy installation of the RMF Smart Filter electrically and provides the connection of the Condition Monitoring System (CMS) to a PC/ Laptop via USB. The control box includes the 24Vdc power supply for CMS it also includes a RS485-to-USB converter to communicate via USB with the CMS. The control box has a USB (type B) panel connector and 2 meter USB cable is included. The use of an additional USBi is not required for this option. The rest of the electrical circuit includes start/stop buttons for e-motor and CMS, motor protection relay, emergency stop button and main switch. The CMS is equipped with 2.5 mtr. cable and the control box is supplied with same length of electrical motor cable. If longer cables are required this is of course possible. The size of the Electrical control box is 200 mm wide x 360 mm high x 150 mm deep and it is made of ABS.



**Managing your oil
contamination**