



FILTERALL Limited

INDUSTRIAL FILTRATION AND ALLIED SERVICES

Technical Specification Number S125 for Cleanable Oil Filter , Type FC rev Q 2013
www.filterall.com

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1. GENERAL

Contamination of lubricating oils by solids can reach critical proportion in some cases such as stone crushers, gearboxes, cutting oils, etc...

This is due to the continuous migration of solids into the oil system. After some period of time, the lubricating quality of oil diminishes to danger point and oil laden with abrasive solids becomes a grinding solution.

Such oil/solids mixture will promote wear of machine parts instead of protecting them by smooth lubrication.

Centrifugal Cleanable Filters have long been recognized in the automotive industry as a major oil/maintenance cost cutter. Filterall has investigated the use of centrifugal filters in various industrial areas and can now offer a number of packages combining centrifugal filters and Filterall oil purification experience and technology.

The filter itself rotates at speeds of up to 5000 RPM using oil pressure as the motivating power while solid contaminants from the same oil are trapped in the filter due to centrifugal gravity forces.

Simplicity of cleaning and maintenance of the centrifugal filter is the main attraction when compared with conventional solid bowl centrifuges.

2. DESCRIPTION OF OPERATION

Oil is drawn into the positive displacement pump and supplied under 400 - 600 kPa pressure to the centrifuge. Oil fills in the centrifuge and travels downwards, leaving the centrifuge under pressure via two diametrically opposed tangential nozzles. The reaction of the oil leaving the nozzles provides the driving force causing the rotor to spin.

Oil leaves the centrifuge via a bottom opening into an open oil tank (except in portable type filter set where it is discharged under pressure.)

Not all solid particles are trapped within the filter after one pass of oil, only the largest ones. As the oil is continually recirculated through the centrifugal filter, smaller and smaller particles are trapped in the filter. Under favourable temperature/viscosity conditions, even particles below 0.5 micron are eventually eliminated from the oil.

3. MOTIVATION

How, When and Where to use Cleanable Centrifugal Filters

We at Filterall would argue that “CONTINUOUS SOLIDS INGRESS REQUIRES CONTINUOUS SOLIDS REMOVAL”.



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Ingress of solids into a crusher oil system can reach up to 50 gm per hour. A conventional in-line type cartridge filter will be blocked in a matter of hours and then pass unfiltered oil to various lubricating points.

To change cartridges in a filter on a daily or weekly schedule is very costly. On the other hand, a cleanable filter set type FC, connected to a tank on a bypass loop independently of the lubrication system, will trap solid contaminants as they migrate into the oil.

Since the cleaning of the filter is simple and fast, and there are no parts to replace in the process of cleaning, it has become no doubt the cheapest method of oil maintenance. If continuous operation of the cleanable filter type **FC** is not possible or practical, Filterall has developed a portable type of cleanable filter, type **FC-P**, which can be connected to any oil reservoir by inlet and discharge oil hoses for the required period of time and then moved to the next oil reservoir. When the oil system is in operation and the solids in suspension is the best time to filter it. This way, not only the oil in the reservoir but the whole oil system is cleaned.

Why Clean The Oil ?

Extended oil life cuts down on oil usage and obvious , immediate savings related to oil usage can be calculated. Less visible savings but not necessarily the smallest, are savings on replacement parts, labour and shut down of production. A carefully controlled experiment has shown that in crushing operations for example, cost savings on spare parts are 2 to 3 times higher than savings on oil with a continuous Filterall filtration system type **FC**.

4. STANDARD EQUIPMENT

Cleanable filter type FC comes in 3 oil throughout capacities. For ease of installation under various plant conditions, the standard filter is supplied in the following modules:

1. Centrifugal filter with pressure gauge.
2. Pump/motor set with pressure regulating valve.
3. Tank mounting bracket or drain box (per client choice).

5. OPTIONAL ACCESSORIES

Option H: - Set of flexible inlet/outlet oil pipes with field attachable end fittings, strainer and one isolating valve.

Option S : - Motor starter/circuit breaker combination, for installation by client.

Option P : - Portable filter mounted on 2 wheels and stand complete with hoses, electric cable and automatic controls.



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6. OIL SYSTEM ACCESSORIES

To increase the safety of any oil system operation, Filterall offers the following safety accessories:

Water in Oil Detector (Model W): - With voltage free contacts for client's alarm connection or for connection to automatic water discharge valve.

High/Low Oil Level Sensor (Model HL): -Set of 2 sensors, high and low, are incorporated in one unit connected to the tank by 1/2" BSP pipes.

7. GUARANTEES

Mechanical Warranty :-

Filterall warrants the machinery supplied under this specification against defects in material and workmanship under normal use and service for a period of **12 months** from date of shipment. Filterall's obligation under this warranty is limited to repairing or furnishing without charge, F.O.B. point of manufacture similar part to replace any part which within warranty period is proven defective. Filterall shall not in any event be held responsible for any specials, indirect or consequential damages.

Performance Guarantee :-

Filterall guarantees that the performance of the equipment will be within limitations as detailed in "Duty and Performance" in this specification.

8. INSTALLATION

Always install the filter above the oil level in reservoir and make sure that oil outlet from the filter is not obstructed.

The portable filter, as opposed to a fixed installation, can discharge oil up to 10m height.

**FILTERALL RESERVES THE RIGHT TO CHANGE ANY PART
OF THIS SPECIFICATION WITHOUT NOTIFICATION**