



Lube oil filter – 350 series

Continuously automatic backflushing lube oil filter

Application

The automatic filter 350 is designed specifically for full-flow filtration of lubricating oil used in large engines that burn all types of fuels (distillate, Gas, DO, bio-fuels and HFO) dedicated to high capacities.

The 350 is intended for protection of:

- Main lubrication system on crosshead and trunk piston engines
- Servo or control oil systems in crosshead engines

The 350 requires minimal investment yet delivers:

- Highly reliable operation with minimal running costs
- True peace of mind

Unique features

- Robust disc-type filter elements
- Constant pressure drop across the filter
- Backflushing process driven by filtered oil
- Compact and simple design
- Suitable for combination with backflushing cleaning by a centrifugal separator, such as the Alfa Laval Eliminator
- Optional integrated backflushing treatment system: Diversion Chamber

Key benefits

- Simple design – Few components make maintenance easy and operating costs low
- Environmentally friendly – Minimal oil loss, extended oil life-time and no disposal items
- Durable – Robust design reduces the risk of the filter element cracking
- Easy maintenance – Continuous backflushing prevents adhesion of retained solids to the filter surfaces, which results in:
 - No manual cleaning of the filter elements
 - Low and constant pressure drop across the filter elements, which further reduces the risk of cracking
- Easy to troubleshoot – Constant pressure drop across the filter, combined with the pressure drop indicator, facilitates the detection of a malfunction in the lube oil system
- Self-sufficient – Use of filtered oil for the backflushing process eliminates the need for auxiliaries power (no air or electricity required)
- Constant pressurized flow – Combination with a backflushing treatment system, such as a centrifuge or diversion chamber, is possible
- No need for a sludge treatment unit – The diversion chamber collects the particles backflushed from the full-flow chamber and cleans itself to concentrate sludge, acting as an automatic and maintenance-free sludge treatment system. This eliminates the need for any consumable items or manual cleaning system.



Alfa Laval lube oil filter 350

Working principle

Overview

The oil to be filtered is pumped from the lube oil sump through the filter and to the engine.

When the oil reaches the filter, it first passes through a strainer located in the inlet body. This removes any large foreign particles, such as pieces of rags.

Once past the strainer, the oil then passes through the full-flow filter elements, which trap solids, and onwards to the engine. A small amount of the filtered oil (3 to 5% of the flow to the filter) is used to backflush part of the full-flow filter elements and to drive the hydraulic motor.

The backflushed oil with solids from the full-flow chamber is then fed to the lube oil sump or the lube oil tank.

Filtering in the full-flow chamber

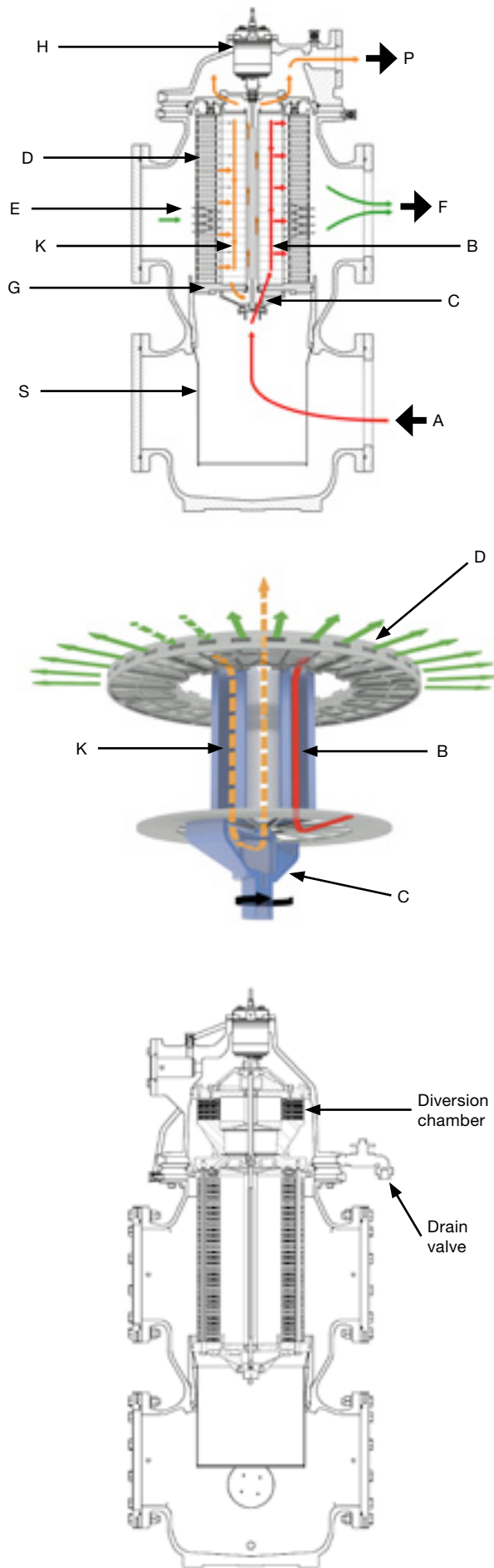
1. Unfiltered oil enters the filter at (A), flows through the strainer (S) and through the openings in the distribution cover (G), which are not tapped by the distributor (C) into the chambers (B). These chambers (B) are the independent fluid columns formed when stacking the full-flow elements (D).
2. The oil is distributed through the full-flow filter elements (D) into 14 of the 16 filtering columns. Solids are trapped on the inner side of the elements in the filtering columns.
3. The filtered oil flows into the full-flow chamber (E) and is fed through the filter outlet (F) to the engine.
4. A portion of the filtered oil is routed from the full-flow chamber (E) to the hydraulic motor (H) to drive the distributor (C).

Backflushing in the full-flow chamber

1. While the full-flow takes place in the filtering columns (B), solids are removed from the elements in column (K) by backflushing (from outside to inside of the column) using part of the filtered oil from the full-flow chamber (E).
2. The backflushed oil from which solids have been removed flows through the column (K) up into the distributor (C) and is recirculated to the lube oil sump from the backflushed oil outlet (P).
3. For a filter with diversion chamber (optional):
The backflushed oil with solids from the full-flow chamber is led to the diversion chamber where it is filtered again, before it is led back to the lube oil sump.

The filter elements in the diversion chamber are backflushed (with filtered oil) in the same manner as in the full-flow chamber.

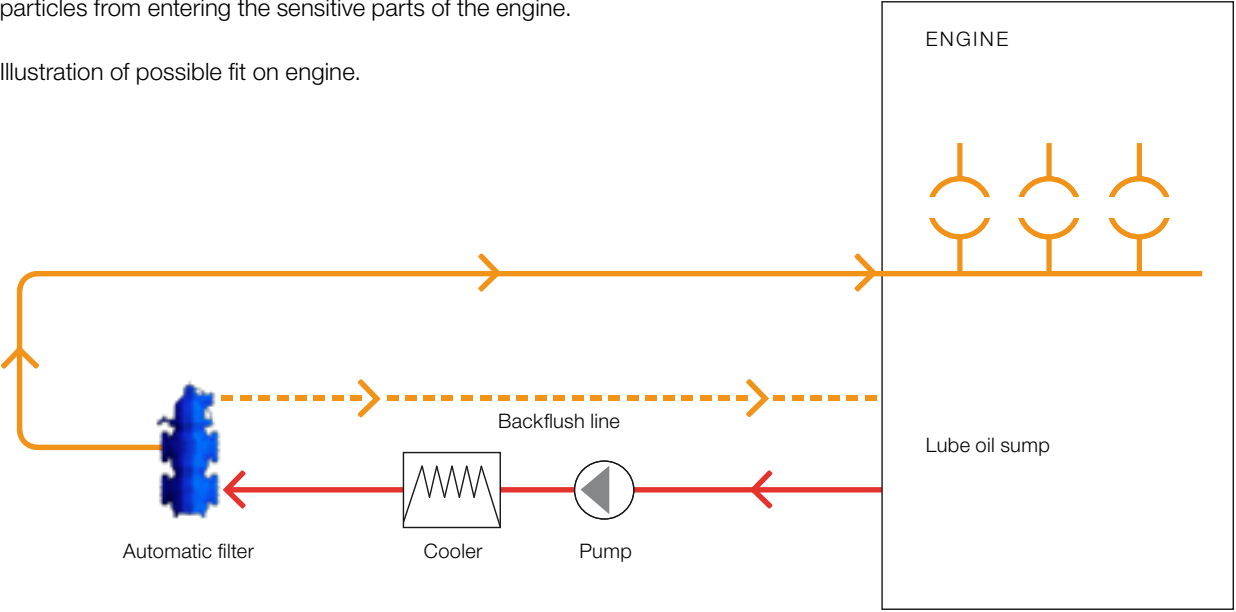
The solids concentrated in the diversion chamber are discharged.



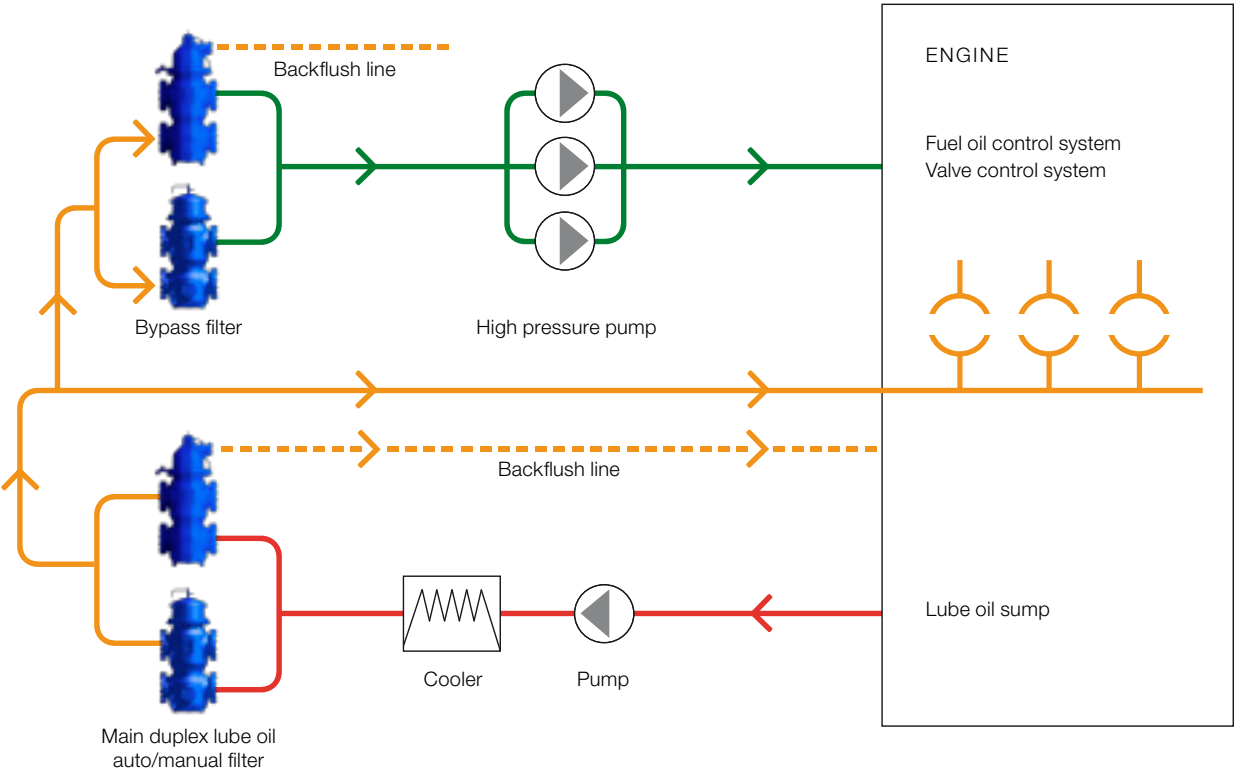
Engine protection

The filter is installed to receive the entire flow of lube oil, and as close to the engine as possible to prevent harmful solid particles from entering the sensitive parts of the engine.

Illustration of possible fit on engine.

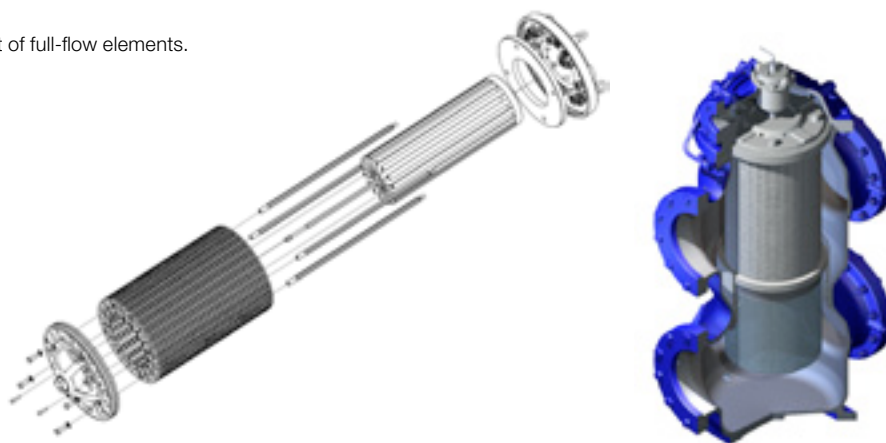


Flow diagram of the 350 filter in main lubrication system of crosshead and trunk piston engines.



Flow diagram of the 350 filter in the servo or control oil line of the main engines served by the lube oil system.

Arrangement of full-flow elements.



Other Alfa Laval filtration products

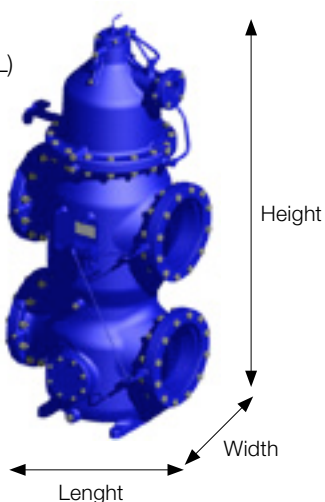
Alfa Laval manufactures filters for other engine room applications, such as automatic filters both with and without diversion chambers for lubricating oil and fuel oil, and manual and by-pass filters. Alfa Laval also manufactures centrifuges to fit self-cleaning filters.

Service and support

Replacement components and service are provided through a network of Alfa Laval subsidiaries and representatives worldwide, including Marine Service Centres in all major ports.

Main technical data

Overall dimensions (W x H x L)
720 x 1853 x 662 mm



Technical data

Flow capacity	Up to 1200 m ³ /h
Filter finess	10 to 45 µm (absolute)
Max. filter inlet pressure	12 bar
Max. temperature in the filter	100°C
Housing material	Nodular cast iron

Technical documentation

Complete documentation on the main components and the installation, operation and maintenance of the filter is contained in the Instruction Book that accompanies the delivery of every Alfa Laval filter. Your local Alfa Laval company will be able to provide more details on the application and sizing of Alfa Laval automatic filters.

Installation

All Alfa Laval automatic oil filters are designed for installation in the engine room.

Standard equipment

Flanges supplied according to DIN standards (JIS available as an option)
Pressure drop indicator with alarm switch