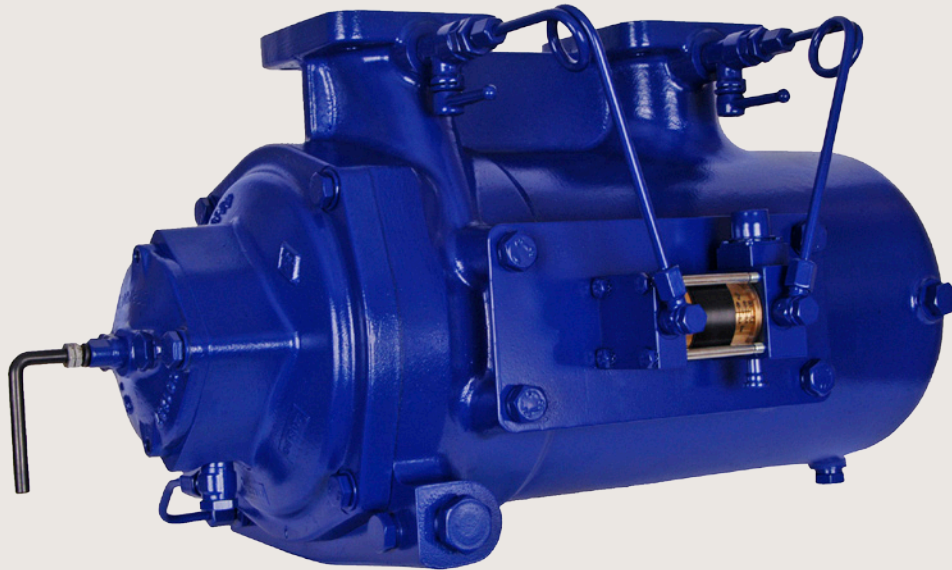




Lube oil filter – T-160 range

Continuously automatic backflushing lube oil filter



Lube oil filter T-160

Application

The automatic filter T-160 is designed specifically for full-flow filtration of lubricating oil used in engines that burn all types of fuels (distillate, Gas, DO, bio-fuels and HFO).

The T-160 is intended for protection of:

- the main lubrication system on small and medium speed engines
- servo or control oil systems on 2-stroke engines
- turbocharger lubrication systems

The T-160 requires minimal investment and yet delivers:

- highly reliable operation at minimal running costs
- true peace of mind

Unique features

- Robust disc-type filter elements
- Constant pressure drop across the filter
- Filtered oil drives the backflushing process
- Compact and simple design
- Suitable for cleaning backflushed oil in a centrifuge (Eliminator).

Key benefits

- **Simple design** – with minimum components facilitates maintenance and guarantees low operating costs.
- **Environmentally friendly** – no oil loss, extended lifetime of oil, no cartridge disposal.
- **Durable** – Robust design.
- **Easy maintenance** – Continuous backflushing significantly reduces adhesion of retained solids to filter surfaces, which results in:
 - No manual cleaning of 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.
- **Flexible installation:**
 - Backflush can be connected directly to centrifuge.
 - Use of filtered oil for the backflushing process eliminates the need for auxiliary power (no air or electricity).

Working principle

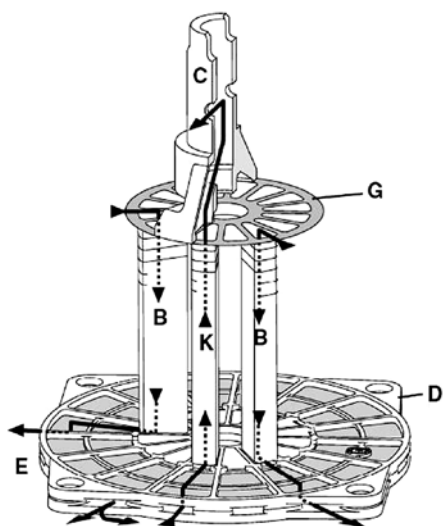
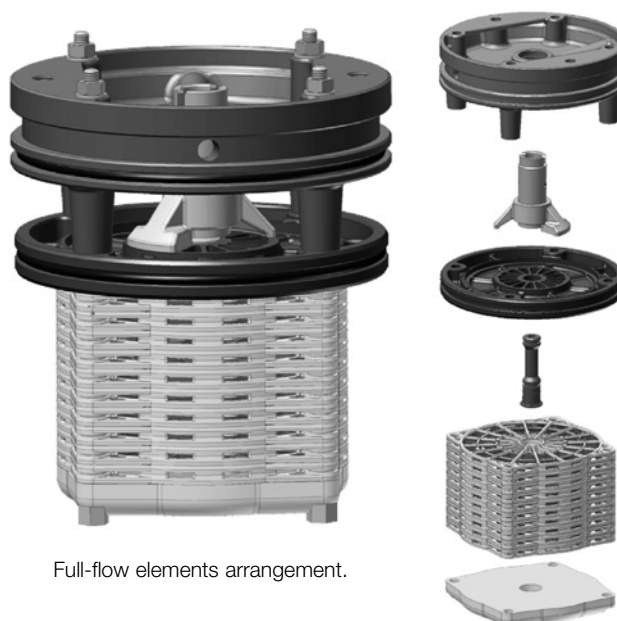
Overview

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 should remove any large foreign particles, such as pieces of rags that may have been left in the system after maintenance.

Once past the strainer, the oil then passes through the full-flow filter elements (where solids are trapped) and to the engine. A small part 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 led to the lube oil sump or to a centrifuge (Eliminator concept).

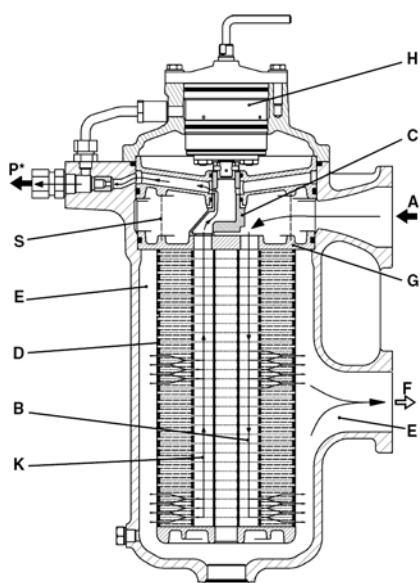


Filtering in the full-flow chamber

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 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. The 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).

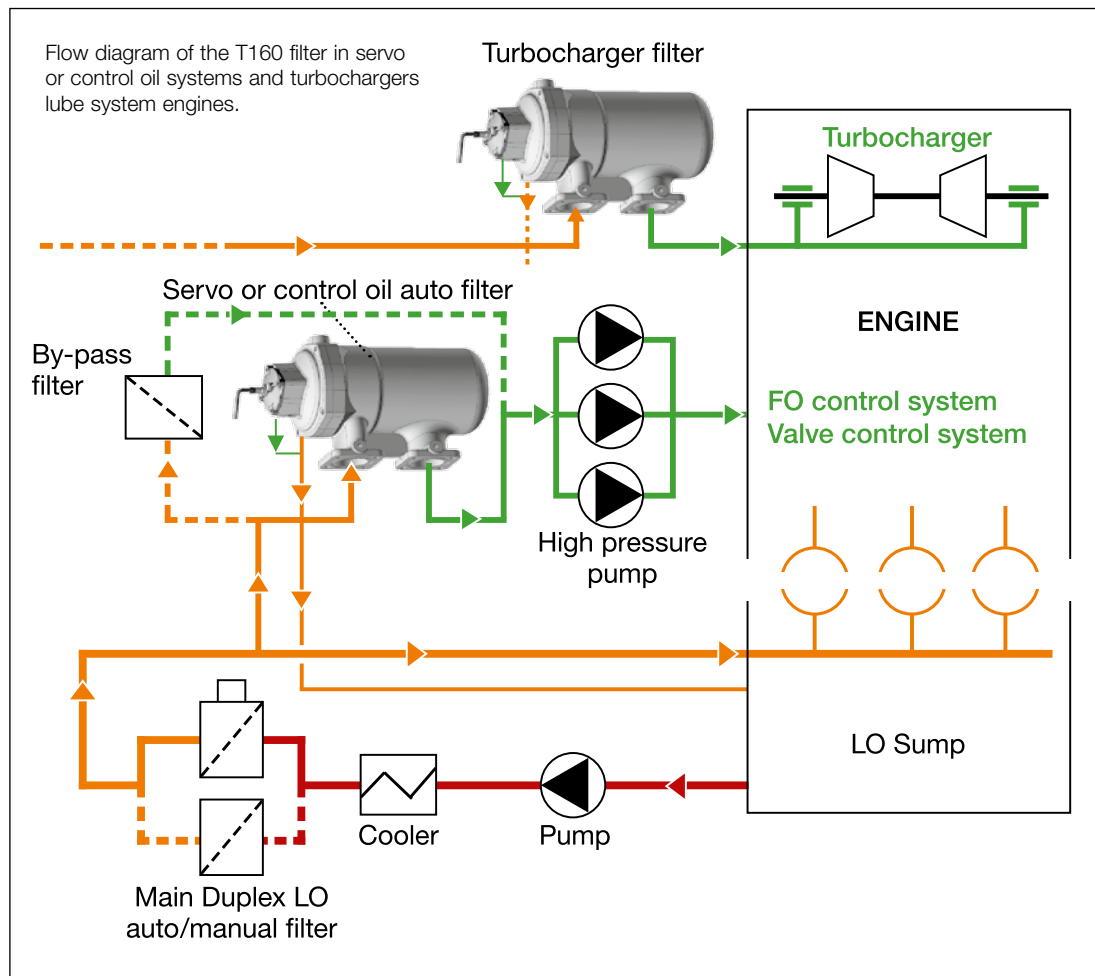
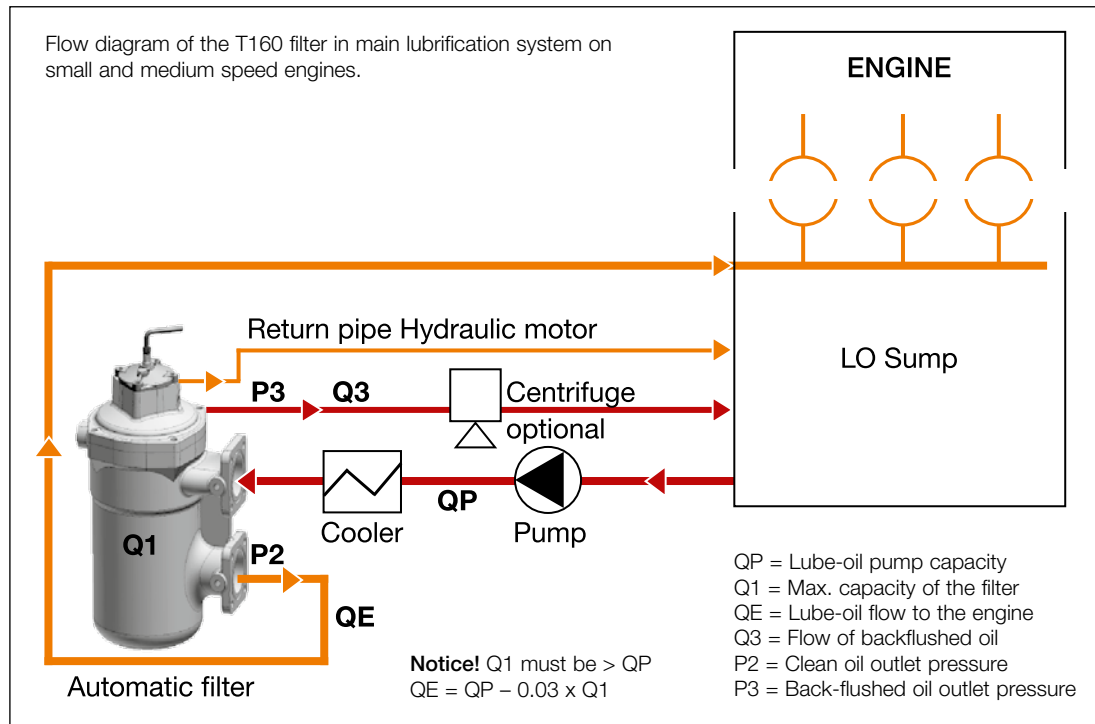
Backflushing in the full-flow chamber

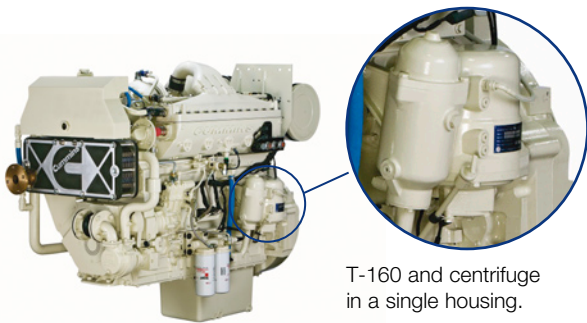
1. While the full-flow takes place in the filtering columns (B), solids are removed from the elements in column (K) by backflushing (from outside to inside of the column) using part of the filtered oil from the full-flow chamber (E).
2. The backflushed oil with removed solids flows through column (K) up into the distributor (C) and is recirculated to the lube oil sump from the backflushed oil outlet (P).



Engine protection

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





T-160 and centrifuge in a single housing.



T-160 and centrifuge as separate components.

T-160 full flow filter combined with centrifuge (Eliminator)

The T-160 lube oil filter is fully suitable for cleaning of back-flushed oil by centrifuge.

The two components can be installed separately or specially combined into a single configuration for mounting on an engine block.

The combined configuration:

- Eliminates full-flow and bypass cartridge filters, and all the costs associated with the cartridge filters: purchasing, transport, handling, stocking, administration, oil losses, disposal of used cartridges.
- Reduces maintenance costs.
 - The centrifuge requires cleaning up to 2500 hours.
 - The filter requires service during the normal engine service interval and overhaul; currently only a set of O-rings are required.
- Increased oil lifetime – the high efficiency of the centrifuge compared to cartridges keeps the lube oil cleaner, hence increases its operational life. Oil sample analyses performed by customers who are high-speed engine builders has shown that it is possible to double the lifetime of the lube oil.
- Environmentally-friendly solution – no oil loss, no cartridge disposal, reduced risk of oil spillage and the possibility to extend the operating life of the engine lube oil.

Other Alfa Laval filtration products

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

After-sales support

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

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 delivery of each 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

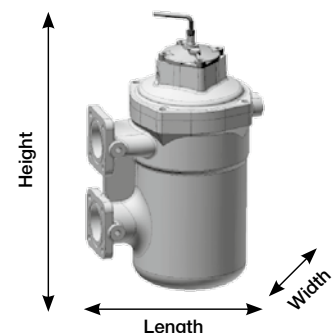
All Alfa Laval automatic oil filters are designed for installation in the engine room.

Standard equipment

Flanges according to DIN standards (JIS as option).
Pressure drop indicator with alarm switch (option)
Remote centrifuge with discs-stack (option)

MAIN TECHNICAL DATA

Flow capacity	up to 40 m ³ /h
Max inlet pressure	12 bar
Housing material	Aluminium as standard (cast iron available as well)
Filter mesh material	Stainless steel (AISI 316L)
Filter fineness	10 to 45 µm
Max. Temperature in the filter	100°C as standard. (125°C on request)
Overall dimensions	width 280 x height 590 x length 335 mm



How to contact Alfa Laval

Contact details for all countries are continually updated on our web site. Please visit www.alfalaval.com to access the information direct.