# Hydraulic Filtration
## FACT SHEET

### ! The Importance of Hydraulic Filtration

**Mobile Hydraulics**: Hydraulic, or fluid power, systems can be found on many pieces of equipment. Trucks and buses may have Hydraulic power steering, transmission and other relatively simple systems whilst agricultural, construction, marine & mining applications tend to have more complex ones.
The Hydraulic system takes rotational power from the engine, by way of a hydraulic pump, to create fluid power. This is used to operate various devices such as Hydraulic rams and motors elsewhere on the equipment.

**Industrial Hydraulics:** variety of hydraulic applications as found in paper and steel mills and other process industries.

These systems contain precision machined components which are very sensitive to wear from abrasive particles and need to be protected. Contaminants can enter the system from a number of sources:

- Built in from manufacture of the system and its components
- Quality/cleanliness of the hydraulic fluid used and the filling process
- Operational ingress where rams and cylinders are exposed to dusty atmospheres and missing or ineffective tank breathers
- System generated wear particles

### ! Prevention is better than cure !

Contamination control is best achieved through exclusion. This means that keeping the dust and water out in the first place is preferable to simply relying on filtration to manage it. This is a maintenance issue with housekeeping and cleanliness being vital. As seals, wipers and surfaces wear or become damaged, more dirt is ingested by the system. Therefore worn parts need to be replaced as soon as they are found. Breather filters need to be serviced and changed and any filling equipment used for topping up the fluid must be clean before use.

Once contamination has been introduced into the system it must be removed by the various filters installed in the system. The performance attributes of these filters varies according to their location within the system.

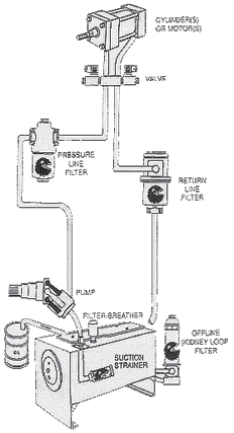
- **Suction Filters** - located at the inlet of the main pump and provide relatively coarse protection. There is a risk of pump cavitation if this filter plugs or is too restrictive.
- **Return Line Filters** - these low pressure filters capture debris from the system's working components through the oil on its way back to the reservoir.
- **Pressure Filters** - located after the main pump but before the sensitive components such as spool valves, to ensure their protection. These filters have to handle the full system pressure.
- **Off Line Filters** - whilst not providing direct protection of the system or its components, remote mounted filters and 'filter carts' can be used as additional filtration to clean up the hydraulic fluid after a specific event or where large amounts of contaminant are concerned.

! It should be stressed that the accurate replacement of a filter is crucial to its effectiveness. Good filtration reduces unplanned downtime which can cost the operator substantial amounts in terms of both the cost of repairs and the loss of use of the equipment or process.

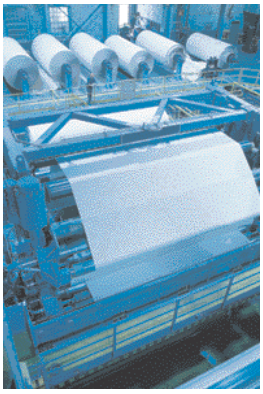
### The Fleetguard Product Solution

Our range of replacement Hydraulic Filters covers the broad variety of products found in the marketplace. We also have four families of general purpose mix and match spin-on filter heads and filters covering different flow and pressure requirements in a range of filtration efficiencies.

Filter Locations




Typical Application



Paper Mill

The Solution

Fleetguard Hydraulic Filters

# Check your knowledge about Hydraulic Filtration

## 1 What are the four primary sources of contamination within a hydraulic system ?

a) Built in, fluid cleanliness & filling process, operational ingress from ram seals & missing/ineffective tank breathers and system generated
b) Pressure, suction, return and off line
c) Pump, ram, motor and spool valve

## 2 What are the four types of filter commonly found on a hydraulic system?

a) Built in, fluid cleanliness, operational ingress and wear particles
b) Power steering, transmission, ram and motor
c Suction, return line, pressure and off line

## 3 What does good filtration achieve?

a) Low pressure, damaged seals & wipers, pump cavitation and worn spool valves
b) Reduces both unplanned downtime and operating costs
c) Hydraulic systems on trucks & buses, agricultural, construction and mining equipment

**Answers:**
**1** a
**2** c
**3** b

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