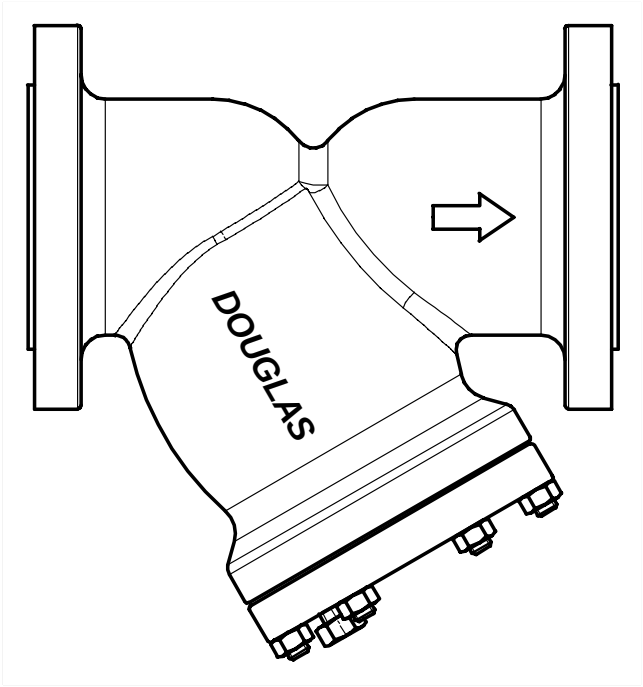
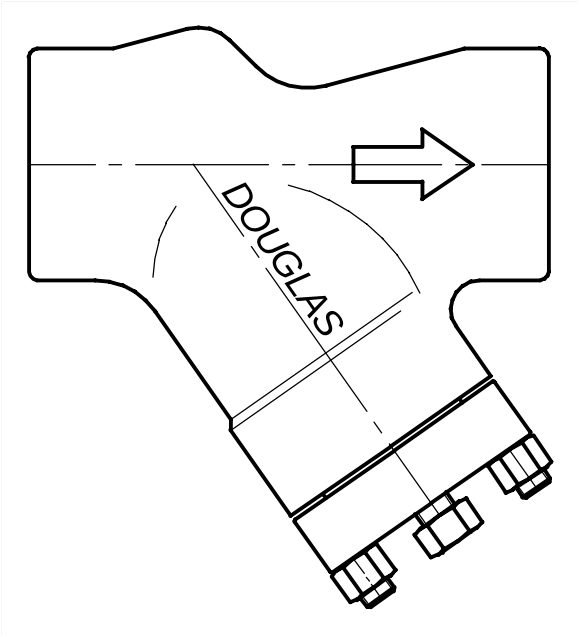
Y-FILTERS USE AND MAINTENANCE WORKBOOK



Cast Y-filters



Forged Y-filters

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1) DESCRIPTION

Y-filter is a component suitable for the mechanical removal (filtering) of impurities contained in the fluid going through it (liquid, gas). From the body inside, the fluid is conveyed into the cartridge (Pict. 1) realized with perforated sheet and/or net, where it is filtered and then carried back into the line. The filter body can be made by casting or forging and the body/cover coupling can be bolted or threaded. Picture 1 shows the standard configuration of Y-filters for the three models. The reference drawing will show the parts with list of materials and detailed dimensions.

Pos.	Description
1	Body
2	Filtering component
3	Cover (bolted or threaded)
4	Cover body gasket
5	Bleeding cap
6	Tie rods
7	Nuts

2) INSTALLATION

a) The connection to the main and secondary lines (ex. bleeding) can be made by socket or butt welding, flanging or threaded connection. The reference drawing shows the provisions concerning the connection type and size.

b) Make sure to connect the filter with the line according to the flow direction marked by an arrow on the body. The correct positions of the filter assembled on the line are shown in pict.2. Make sure that the bleeding is turned to the bottom part of the cover so as to allow, when required, the complete evacuation of the fluid from the filter. **The linkage of all filter connections with the different lines shall be executed and checked by a qualified staff so as to assure a correct alignment and resistance of the joint to pressure.** For large-sized filters, we suggest to place the body branch sideways so as to be able to remove the cover with suitable lifting means (see picture 2 c).

c) Check that the space occupied by the filter assembled on the line allows the removal of the cover and the cartridge for the maintenance. The reference drawings show the observance distance.

d) For large-sized filters, arrange things so that you can use suitable lifting devices for the handling and positioning of the component on the line. Refer to the enclosed drawing for the filter weight.

e) Check that the plate data *(paragraph 5)* on the filter body fit the working and test conditions of the line where the component will be assembled. Make also sure that the characteristics of the line fluid and the external environment are compatible with the filter materials. The reference drawing shows the manufacture materials and parts list. For information, see table no. 4D081038-E. When in doubt about the compatibility of the line fluid with the filter material, apply to the supplier in order to keep compliance with the EC mark.

f) Check that the line on which the filter will be placed is independently supported and able to absorb any thermal expansion and vibration so as not to surcharge the component and its connections.

g) Provide for the possibility to disconnect the filter from the line for the maintenance. With the bypass solution, the maintenance can be executed without insulating the plant part where the filter is positioned.

3) STARTING

After assembling the filter, take the line to the working conditions slowly. This operation shall be made by degrees (avoid ram strokes) so that the rises in pressure, temperature and delivery don't prejudice the component and line integrity. When starting a new plant you should clean the filtering component. During the starting phase, check the absence of leaks between the joints of body/cover and connections/line.

4) MAINTENANCE

The maintenance consists in disassembling the cover and taking the filter cartridge away in order to clean the cartridge from impurities. It is not possible to state how many times you have to execute this operation, as it depends on many factors (working conditions of the line, fluid type and consistency, degree and quantity of impurities to be stopped, etc.). Anyhow, the progressive clogging of the cartridge will cause a greater loss of charge produced by the filter. Consequently, the maintenance shall be executed when the loss of charge becomes incompatible with the working conditions of the line or when the maximum pressure that can be stood by the filter cartridge is exceeded. The connection of the filter with differential pressure detectors would allow to monitor this situation. Upon request, the filter can be provided with housings for the aforesaid detectors.

During the maintenance, check the external and internal side of the filter body; after a proper cleaning, check its integrity and, in particular, any corrosive phenomena that shall be removed.

Anyhow, the check and maintenance of the filter shall be executed at least once a year by a qualified staff, recording the date. First of all, make sure that the inner pressure of the filter is completely dissipated and the body temperature falls within ambient values. Make also sure of the fluid typology so as to provide yourself with suitable personal protection devices during the operations.

Below you can find the maintenance steps (see reference drawing)

a) Cut off the filter from the line pressure. Make sure that the inner pressure of the filter body is completely discharged and the component temperature falls within ambient values.
b) Bleed the line. Unscrew the bleeding cap (5) or open the drainage valve (if any) and drain any residual fluid from the inside of the filter body, then disconnect the draining line (if any).
c) For the model with bolted body/cover, unscrew the nuts (7) and remove the cover (3). For the model with threaded body/cover, unscrew the cover (3).
d) Take away the gasket (4) and the filtering component (2).
e) Clean the filtering component (2) from the impurities and check its integrity (in case of breaks or deformations of its surface, it is necessary to change it).
f) Clean and check the inside of the filter body. Put in a new gasket (4).
g) Put in the filtering component (2) and the cover (3) and pay attention to position it correctly inside the body housing (1) and the cover housing (3) (see picture 1).
h) Tighten the nuts with the torque mentioned in table no.4D081039-E referred to the nominal diameter and material of tie rods. The diameter and material of tie rods are mentioned in the corresponding reference drawing. The tightening shall be carried out in three stages: 50, 80 and 100% of the torque stated.
i) Screw down the bleeding cap (5) or connect again the drainage with the draining line.
j) Put slowly the line under pressure and check the seal between body and cover (see *paragraph 3*).
k) Record the date of the operations executed.

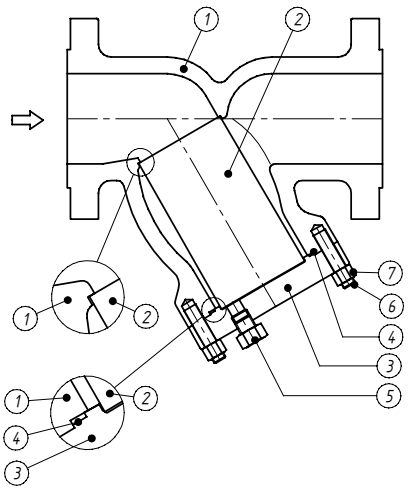
5) PLATE DATA

The value of these data is mentioned on the component plates and the corresponding reference drawings.

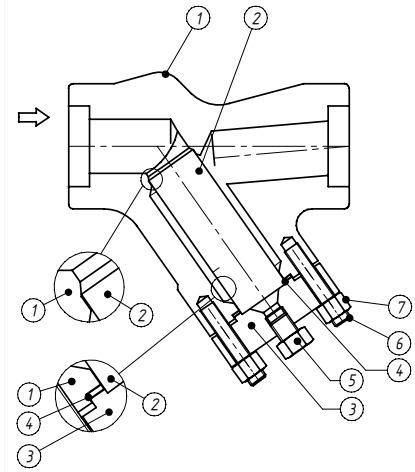
PS (bar)	Maximum allowable pressure inside the filter body at a temperature of 37°C.
PT (bar)	Hydraulic test pressure.
TS (bar)	Minimum and maximum allowable temperature for the filter.
ND	Nominal diameter at the filter mouth.
Class	Filter rating according to ASME B16.34 standard. It is the maximum allowable pressure inside the filter body depending on the reference temperature and material.
Fluid group	Fluid group (stated in the PED directive) the filter has been designed for. (1)
Body/scr..	Mark of the material of the filter cartridge and body.
Screen per.	Information about the filter cartridge perforation. This value represents the minimum size of the impurities that can be stopped by the filter.
Man. yea..	Year of manufacture.
S. N.	Serial number.
Mark	Identifying mark required by the customer. If, for lack of space, the identifying mark cannot be put in the relevant space, it'll be marked on a plate fastened onto the filter.
CE	EC mark with identifying number of the authorized institution (1)
(1) These data are added only when the EC certification is required.	

6) DRAWBACKS / CORRECTIONS

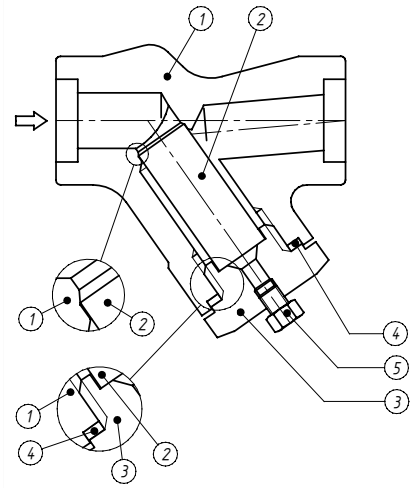
DRAWBACK	**EFFECT**	**CORRECTION**
Leakage from body/cover coupling	Fluid leakage from the coupling	Check the tightening torque in accordance with instructions of *paragraph 4*. If the drawback persists, put in a new gasket according to *paragraph 4*.
Filter cartridge clogging	Excessive loss of charge produced by the filter	Clean the filter cartridge; see *paragraph 4*.
Broken or deformed, out-of-seat filter cartridge.	No filtration	Replace the filter cartridge; see *paragraph 4*.



Cast Y-filter
Bolted body cover



Forged Y-filter
Bolted body cover



Forged Y-filter
Threaded body cover

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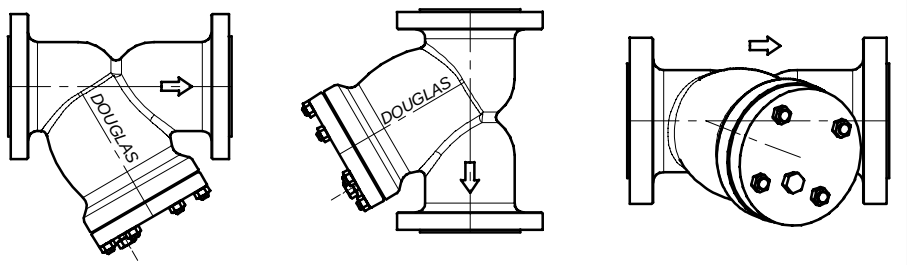

Cast Y-filter
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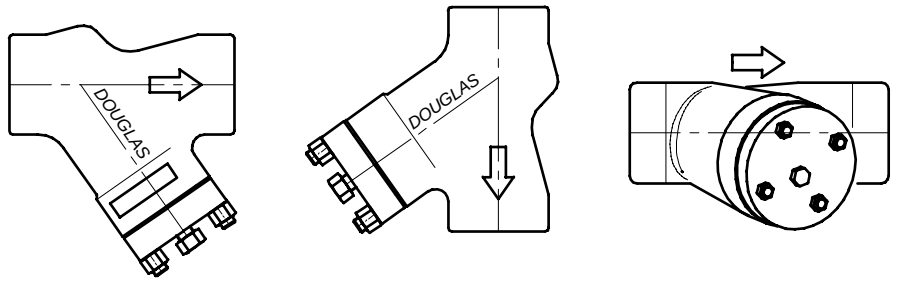

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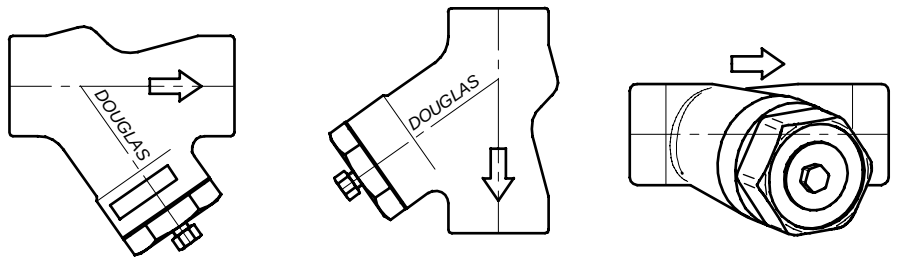
Bolted body cover



Forged Y-filter
Threaded body cover

(a) ***(b)*** ***(c)***

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