SEPAR 2000

SEPAR FILTER

MOST COMPACT DESIGN
HIGH EFFICIENCY
LOW FLOW RESTRICTION
LONG LIFE FILTER ELEMENT
EASY INSTALLATION
SIMPLE MAINTENANCE

100 % solution to the problem of water and particulate in fuel.

THE WATER SEPARATOR AND FUEL FILTER FOR LIGHT DIESEL FUEL

SEPAR 2000 – WATER SEPARATOR AND FUEL FILTER

Willibrord Lösing Filtertechnik e. K. designed the next generation of SEPAR filters called the SEPAR 2000 series of fuel filters, as an effective system for the separation of water and particulate from fuel. Both water and particulate matter can result in high wear and tear of fuel pumps and injectors, resulting in reduced reliability and expensive engine repairs.

SEPAR 2000 – FUNCTION

The separation and filtration process takes place according to a unique and patented concept, which is applied throughout all of the range. The SEPAR 2000 series is outstanding due its small physical size in relation to the effective flow rate.

The SEPAR 2000 should be installed on the suction side of the fuel system, between the fuel feed tank and the engine mounted fuel lift pump.

Fuel enters the filter through either port A or B depending which is more convenient for installation. The inlet port not required should be sealed with the plug provided.

STAGE 1

From the inlet port, fuel flows through the interior vane system which imparts a circular motion to the fuel.

STAGE 2

Still in the circular motion fuel reaches the bowl section, where, due to this centrifugal motion, water droplets and heavier particles are forced to the wall of the bowl, eventually settling in the bottom of the bowl.

STAGE 3

In this stage the fuel has to pass the vane system positioned on the "outside" of the central housing. Due to the differing length of the vanes and the twofold rapid change of fuel flow direction, smaller water droplets and finer particles will settle on the vanes. These settlements will agglomerate and when heavy enough fall to the bottom of the bowl. Already at this point the major portion of any contaminates in the fuel have been separated.

STAGE 4

Just below the filter element the flow area of the filter is increased significantly thus reducing the fuel flow rate. This calming effect allows even smaller water droplets and particulate to fall out settling on the inner surfaces of the housing, forming larger droplets which eventually fall into the bottom of the bowl by gravity.

Due to the before described pre-separation process, the major portion of water and particulate present in the fuel will be in the bowl or on the inner surfaces of the filter, thus greatly extending the filter element life.

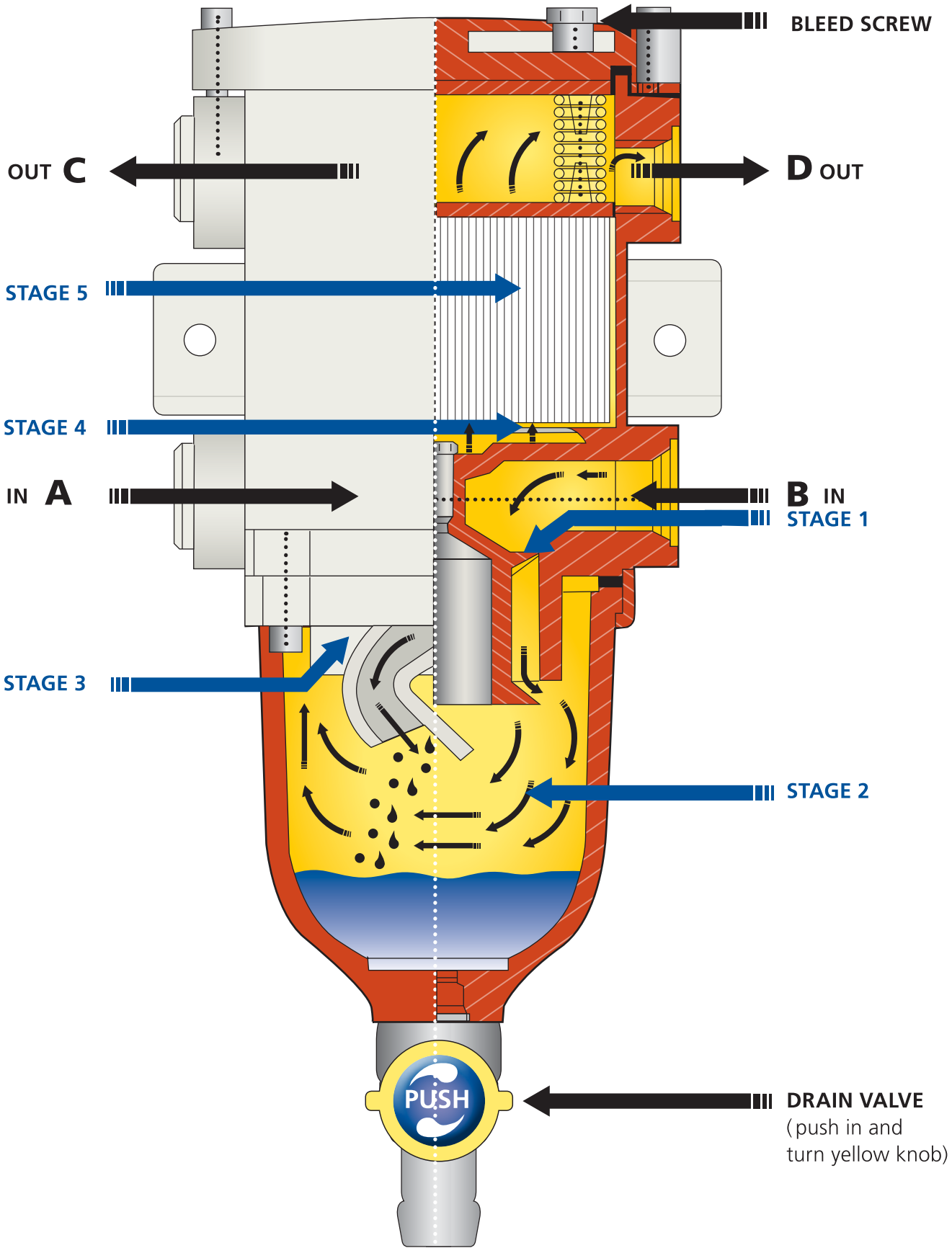
STAGE 5

The final filtration of the remaining water and particulate still contained in the fuel will be effected by a replaceable filter element. These filter elements are produced from a special filter media and are available in different pore sizes.

The clean fuel leaves the filter via outlet port C or D. The outlet port not required should be sealed with the plug provided.

SEPAR 2000 – FLOW DIAGRAM

SEPAR FILTER



SEPAR 2000 – INSTALLATION

The SEPAR 2000 can be easily installed. It should be installed on the suction side of the fuel system, between the fuel feed tank and the engine mounted fuel lift pump.

Install the SEPAR 2000 filter in an accessible position. (Any other primary filter should be removed from the suction line.)

The SEPAR 2000 housing has two inlet ports and two outlet ports to give options on installation position.

The ideal position for the filter is at the same height as the lift pump. However if the top of the fuel tank is above this position a "full flow" ball valve should be fitted before the filter so that the fuel flow can be shut off to allow filter maintenance.

In application where the fuel level is below the filter it is still advisable to install a "full flow" ball valve to prevent fuel draining back into the fuel tank. After filter installation on the fuel supply system prime the fuel system.

Avoid sharp 90-degree bends on the fuel system piping as these increase system pressure drop, as does any reduction in the internal diameter of fuel piping.

Please use only fittings with o-ring seals (contained in our program of accessories). Do not use hollow bored screws with copper rings as they are difficult to seal and result in a high pressure drop.

Please consider a clear space of min. 60 mm above the housing/filter lid to replace the filter element.

Only clean diesel fuel should be used to clean the clear bowls, certain cleaning materials can attack the polyamide material and have a detrimental effect.

SEPAR 2000 – BACK FLUSHING PROCESS

Switch off the engine. Open the bleed screw on top of the filter lid (note: if fuel tank is above the top of the SEPAR filter close the fuel feed valve if fitted) then open the drain valve fitted to the bowl.

The clean fuel between the filter lid and the clean side of the element will flush back through the filter element and "wash off" the collected water droplets and particles from the filter media.

At the same time fuel that is draining from the bowl is carrying contaminates out with it. Close the drain valve, open the fuel feed valve and close the bleed screw. Prime the fuel system. Now the engine can be re-started.

If the engine is not able to reach maximum number of revolutions repeat the process or the element requires to be replaced.

SEPAR 2000 – DELIVERY PROGRAM

DIESEL FUEL FILTER

Standard units	Description	Flow rates	Single units (thread in- and outlet)	Access for switch. units (pipe outer diameter)
SWK-2000/5	Clear bowl	5 l/min or 300 l/h	M 16 x 1,5	
SWK-2000/5/U	Clear bowl	5 l/min or 300 l/h		12 mm
SWK-2000/5/50	Clear bowl	5 l/min or 300 l/h	M 16 x 1,5	
SWK-2000/5/50/U	Clear bowl	5 l/min or 300 l/h		12 mm
SWK-2000/10	Clear bowl	10 l/min or 600 l/h	M 22 x 1,5	
SWK-2000/10/U	Clear bowl	10 l/min or 600 l/h		15 mm
SWK-2000/18	Clear bowl	18 l/min or 1080 l/h	M 26 x 1,5	
SWK-2000/18/U	Clear bowl	18 l/min or 1080 l/h		22 mm
SWK-2000/40/M	Metal bowl	40 l/min or 2400 l/h	M 33 x 2,0	
SWK-2000/40/UM	Metal bowl	40 l/min or 2400 l/h		35 mm
SWK-2000/40/2/M	Metal bowl	80 l/min or 4800 l/h	42 mm Pipe Ø	
SWK-2000/130/MK	Metal bowl, contacts	130 l/min or 7800 l/h	2" Pipe Ø	
SWK-2000/130/UMK	Metal bowl, contacts	130 l/min or 7800 l/h		2" Pipe Ø
SWK-2000/130/2/MK	Metal bowl, contacts	260 l/min or 15600 l/h	3" Pipe Ø	

AVAILABLE OPTIONS

U	=	Switchable filter
D	=	Clear bowl with heat shield (RINA-version)
K	=	Contacts for water level indication
M	=	Metal bowl
S	=	Potentialfree probe for water level indication
H	=	Heated filter 12 V or 24 V
WSA	=	Water sensor active for water level indication
VAC	=	Visual vacuum indicator

Sizing of the SEPAR 2000 filter:

The flow rate l/min of the filter has to be higher than the maximum capacity of engine mounted fuel pump. E. g. maximum flow rate of the fuel lift pump 8 l/min – corresponding filter SWK-2000/10 with a maximum flow rate of 10 l/min. It is advisable to use switchable filters for marine applications, especially when a vessel is fitted with only one propulsion engine. Other versions could be supplied on request. The SEPAR 2000 filter is available with different pore sizes of the filter media.

SEPAR 2000 – MAIN FEATURES

- Available with various flow rates from 1 to 260 l/min; thereby offering fuel filters for an engine performance range of 5 to 10,000 kW
- Compact size, various ports, simple installation
- High separation efficiency of water which is contained in the fuel (no water could be proven acc. to RWTÜV testing)
- Due to the back flushing extended service time of the filter elements
- The SEPAR 2000 filter protects the injection pump and injection nozzles
- Easy maintenance of the SEPAR 2000 filter

APPLICATION OF THE FILTER

- Automotive industry: trucks, busses, mobile cranes, municipality vehicles etc.
- Construction equipment, compressor sets, agricultural equipment, fork lift trucks etc.
- Marine propulsion
- Stationary engines: generators, welding and pumping installations etc.
- Mining applications, railway locomotives
- Special versions for certain applications are available

MARINE APPLICATIONS

- For this purpose switchable filters are available. A water level indication can be supplied optionally.

EXTREME TEMPERATURES

- For cold ambient temperatures SEPAR 2000 filters are available with an effective heating system.

BIODIESEL APPLICATIONS

- The standard SEPAR filters SWK-2000/5, -2000/5/50 and -2000/10 are resistant to biodiesel (Cannola). All other sizes are available with this facility by request.

TEST AND CERTIFICATES

- Rheinisch-Westfälischer TÜV
- Kraftfahrt-Bundesamt Flensburg
- German Technical Department for Army Ship and Marine Weapons
- Germanischer Lloyd Type Approval Certificate
- Lloyd Type Approval Certificate
- RINA
- ABS

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