

WASP Fuel Conditioner Range

Rev2401



INTRODUCTION

Model	Design	Primary Material	Flow rate	Port size
W-FLC-500	D-shaped	Aluminum	to 500 lit/hr	3/8" BSP
W-FLC-1000	D-shaped	Aluminum	to 1000 lit/hr	1/2" BSP
W-FLC-1500	D-shaped	Aluminum	to 1500 lit/hr	3/4" BSP
W-FLC-2500	D-shaped	Aluminum	to 3600 lit/hr	1" BSP
W-FLC-2502	Square	Aluminum	to 4000 lit/hr	1.5" BSP
W-FLC-3000	Bottle	Stainless Steel	to 4000 lit/hr	1" BSP
W-FLC-4000	Cross	Treated Steel	Up to 15,000 lit/hr	2" BSP
W-FLC-5020	Industrial	Stainless Steel	20,000l/h (20m3/h)	2" BSP female
W-FLC-5055	Industrial	Stainless Steel	55,000l/h (55m3/h)	3" BSP female
W-FLC-5085	Industrial	Stainless Steel	85,000l/h (85m3/h)	4" BSP female
W-FLC-5110	Industrial	Stainless Steel	110,000l/h (110m3/h)	6" BSP female
W-FLC-5140	Industrial	Stainless Steel	140,000l/h (140m3/h)	8" BSP female
W-FLC-5220	Industrial	Stainless Steel	220,000l/h (220m3/h)	10" BSP female
W-FLC-5310	Industrial	Stainless Steel	310,000l/h (310m3/h)	12" BSP female

The information contained in this catalogue is correct to the best of our knowledge; however always check with WASP PFS for the precise data relating to any given product.

Occasionally products are updated or have subtle re-designs. Given we produce a catalogue every year to eighteen months; it is not always possible to include these changes. Speaking to WASP PFS is always the easiest way to ensure you have the latest information. Alternately you can visit our web site at www.wasp-pfs.com

Note: The manufacturer reserves the right to change or amend specifications without notice.

All images, data, facts and figures shown in this document are for representation only and are subject to change.

The manufacturer reserves the right to change specifications without notice.

All information in this document is only for reference.

Reproduction in any form is not permitted without the prior written permission of WASP PFS.

E&OE

WASP PFS

WASP PFS have over 30 years worth of experience designing and building quality fuel filtering technologies. We are constantly testing and innovating new media as well as being ISO9001:2015 certified, which makes us the obvious choice for getting quality-built products and service. WASP PFS is a trading name of Separ UK Ltd.

APPLICATION NOTES

A breakdown can be mechanical, electrical or biological; how you prepare for each will dictate how your system performs over the coming years.

In any engine, it is common knowledge that oil and water should be checked and changed periodically. Likewise annual services maintain the performance and ensure issues are found before they can cause costly breakdowns.

Yet who prevents the biological attack? Some use biocides in their fuel, yet these are harmful to humans and must be handled with care, moreover whilst they can be efficient at killing live bacteria, they do not remove the causes of the issue and can also be harmful to the rubber gaskets/seals in the engine system; degrading them and causing leaks. Finally, such biocides can harm the fuel itself, causing sediment to form through oxidisation. However, there is a safe and clean alternative to such treatments.

In any diesel system (gas oil, MDO, fuel oil or any middle distillate fuel), a large proportion of the fuel pulled from the storage tank – be it in a generator, marine vessel, large vehicle, earthmoving equipment, railway locomotive etc. is used for cooling. This fuel is re-circulated around the engine and returned to the storage tank. This recirculation along with the use of a fuel filter/water separator is the key to the effectiveness of the W-FLC range.



The W-FLC should be installed in the fuel line before the main filter/water separator as in the example below.

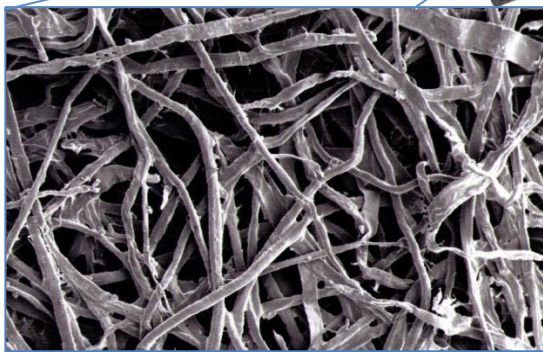
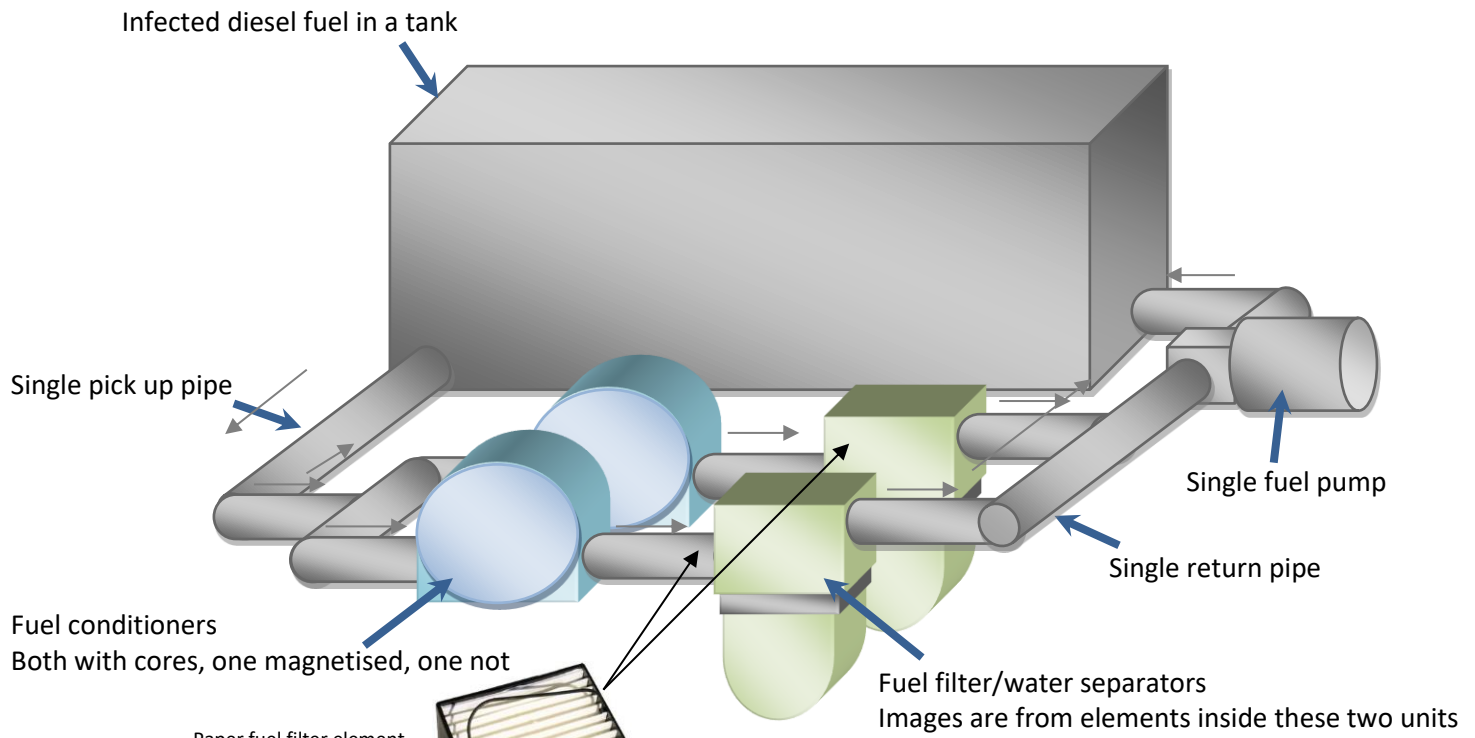
By installing in this way, the unit can literally condition the fuel in advance of its cleaning process. The effect of the W-FLC is to neutralise the live bacterial content of the fuel – stopping it from multiplying, and to increase the effectiveness of the water separator allowing it to trap more of the biomass; thus protecting the serviceable parts of the filter, and mean fewer replacement filter elements are needed.

W-FLC-500 unit installed with a SEPAR SWK2000/5M fuel filter/water separator

Electron microscope images of such filter elements highlight the efficiency of these devices. The two images (right) show filter elements magnified 90 times. The same contaminated fuel was passed through both at the same time using the same pump. Before one, was an active conditioning unit, before the other was an identical conditioning unit which was not active.

As can be seen, the active unit protected the filter element as more contaminate/biomass was simply drained from the unit via the water separation stage, the un-activated unit clogged its filter element rapidly. You can find more detail on this experiment on the following page.

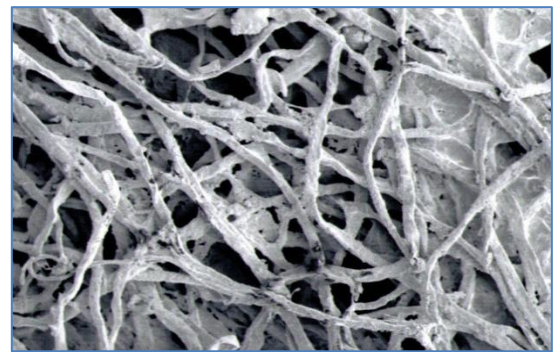
A WASP FLC device will protect your engine from fuel related breakdowns, neutralising bacterial content and aiding the effective removal of sludge and other biomass by your existing fuel filter/water separator.



Unused paper element at x90 magnification

Fuel was re-circulated through the system, equally through both conditioners and filters for 35 hours.

After that period the two fuel filter elements were removed and examined under an electron microscope.



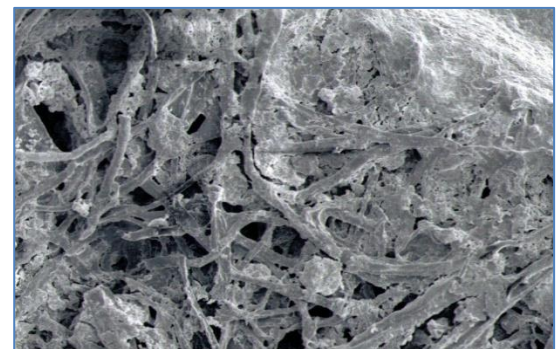
Used magnetised leg element at x270 magnification



Unused paper element at x270 magnification

To the left are clean elements for reference.

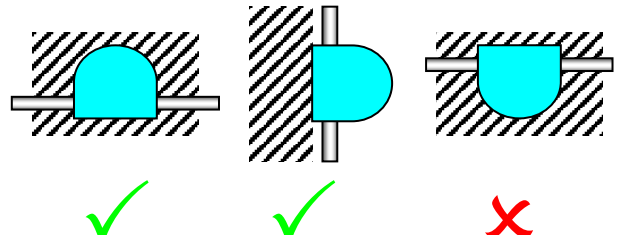
To the right are the filters after use, top right is the element from magnetised fuel conditioner leg.



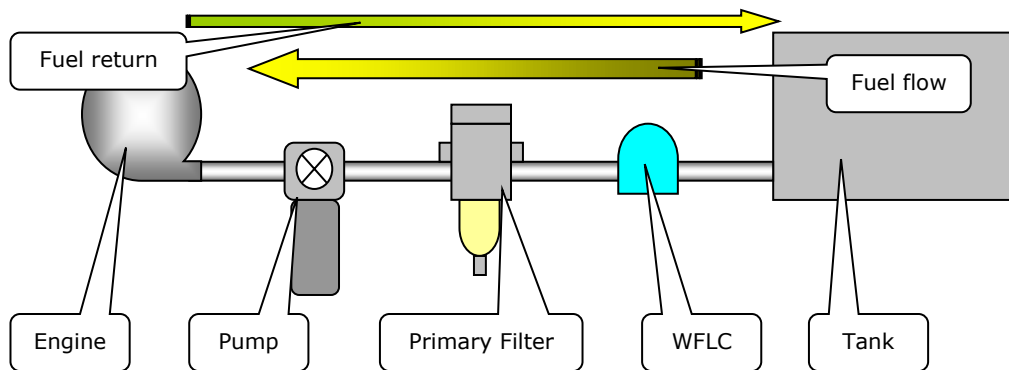
Used non-magnetised leg at x270 magnification

Fuel conditioning is vital for a clean running engine. Clean fuel means fewer emissions (smoke), more efficiency and fewer engine breakdowns. Follow this simple guide to ensure correct installation and you will find the WFLC enhances your fuel system and its reliability.

WASP FLC fuel conditioners are bidirectional, in other words there is no specific input and output port. Fuel can flow in either direction, so installation is straight forward enough, however the rounded section of the unit's body must always be pointing upwards or sideways. We prefer straight connections, and do not recommend 90° fittings.



The WASP FLC is designed to be installed on the suction side of the pump, just before the primary filter.



Take care when installing the WFLC, we recommend using a qualified engineer or company, however as long as the correct procedures are followed and the installer complies with all applicable safety procedures the installation process is simple and straightforward.

As the WFLC can be used for middle distillate fuel, and if working around diesel or similar, extinguish all naked flames or other sources of ignition and ensure adequate ventilation in the area of installation. We strongly recommend the use of safety glasses and fuel resistant gloves. DO NOT mount the WFLC near to navigational equipment or devices sensitive to magnetic fields.

Ensure the engine or pumps which could affect the unit are switched off and the fuel or liquid supply is isolated. Ideally full flow ball valves should be installed before and after the unit to allow for complete isolation for installation. Install the WFLC unit using fittings and pipe/hose line of appropriate diameter, material and quality as recommended by your engine or machine manufacturer. Apply fuel resistant sealant to all connectors, we do not recommend Teflon tape (PTFE or similar) as fuel can cause pieces of the Teflon tape to break off and flow into the fuel system. We recommend using a pliable, non-hardening, diesel fuel resistant paste or gasket forming sealant.

We recommend using a mounting bracket (non-ferrous) – do not use steel due to the magnetic properties of the WFLC. The units can be directly bolted to a surface assuming there are no vibrations to worry about. If in doubt, use anti-vibration mounts. Ensure all connections / fittings are tight, open any ball valves and use the air bleed on the primary filter or pump to bleed the system. Check for any leaks and remedy as appropriate; the WFLC has now been successfully installed.

Operation of D-shaped units

Fuel travels in and around the W-FLC in a helical manner. The liquid/fuel that emerges from the unit has been conditioned, live bacteria has been neutralised (no longer able to multiply), and other biomass contamination will now be passed to the prefilter's water separation stage, which will remove significantly more of this biomass than before, protecting your straining stage, and saving money in replacement elements. In a typical engine, a large proportion of the fuel is returned to the tank, this circulation of fuel means that by simply running your engine, you can keep your fuel tanks clean. For larger contaminants, we also recommend use of WASP FTR catalyst. This increases filterability by effectively dissolving biomass and sludge.

Service and Maintenance of D-Shaped units

The W-FLC allows the liquid/fuel to flow directly through, meaning it is self-cleaning and requires virtually no further maintenance after installation. Once installed, we recommend running your storage tank down to the lowest possible point before refilling. In systems with corroded steel tanks or ferrous contamination, periodic maintenance may be required due to the magnetic properties of the W-FLC. The unit will hold ferrous particles and prevent them from passing through filters & damaging pumps and injectors, however these must be manually removed as they can reduce the effectiveness of the unit.

Periodic inspection and removal may be required if such contamination is present.

Do not over-tighten when reassembling unit, leave a 1 to 2mm gap between the lid and body of the conditioner (see image).





W-FLC-500



FLOW RATE
500 lit/hr



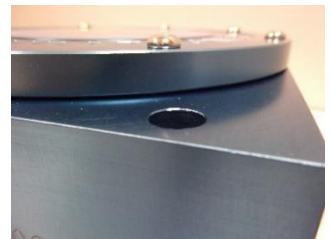
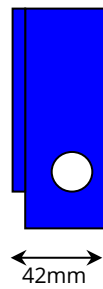
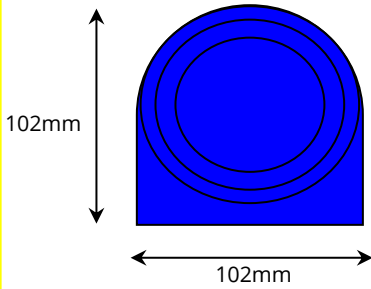
PORT SIZE
3/8" BSP-P



INSTALLATION
Suction side of filter



Model	W-FLC-500
Ports	3/8" BSP-P female
Power required	None
Dimensions	102x102x42 mm
Weight (approximate)	900g
Fuel flow rate (gravity fed)	500 lit/hr
Material	Marine Grade corrosion resistant 6061 Aluminum
Seals	Hydrogenated Nitrile Butadiene Rubber (HNBR)
Case	Anodizing Light Blue with two mounting holes at the bottom corners





W-FLC-1000 and W-FLC-1500



FLOW RATE
1000 lit/hr / 1500 lit/hr



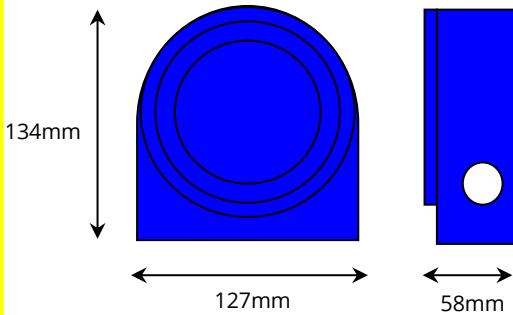
PORT SIZE
1/2" BSP-P / 3/4" BSP-P



INSTALLATION
Suction side of filter



Model	W-FLC-1000	W-FLC-1500
Ports	1/2" BSP-P female	3/4" BSP-P female
Power required	None	
Dimensions	127x134x58mm	127x134x58mm
Weight (approximate)	2500g	2500g
Fuel flow rate (gravity fed)	1000 lit/hr	1500 lit/hr
Material	Marine Grade corrosion resistant 6061 Aluminum	
Seals	Hydrogenated Nitrile Butadiene Rubber (HNBR)	
Case	Anodizing Light Blue with two mounting holes at the bottom corners	





W-FLC-2500



FLOW RATE
2500 lit/hr



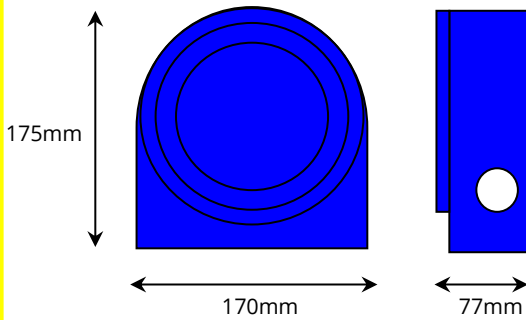
PORT SIZE
1" BSP-P



INSTALLATION
Suction side of filter

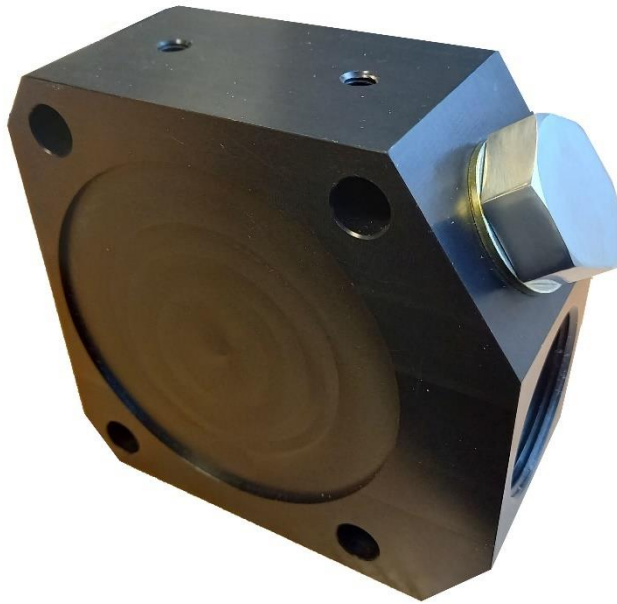


Model	W-FLC-2500
Ports	1" BSP-P female
Power required	None
Dimensions	175x170x77mm
Weight (approximate)	4500g
Fuel flow rate (gravity fed)	2500 lit/hr
Material	Marine Grade corrosion resistant 6061 Aluminum
Seals	Hydrogenated Nitrile Butadiene Rubber (HNBR)
Case	Anodizing Light Blue with two mounting holes at the bottom corners





W-FLC-2502



FLOW RATE
4000 lit/hr



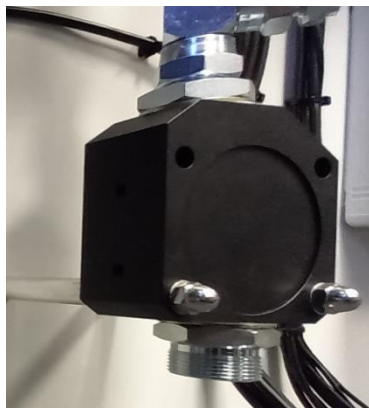
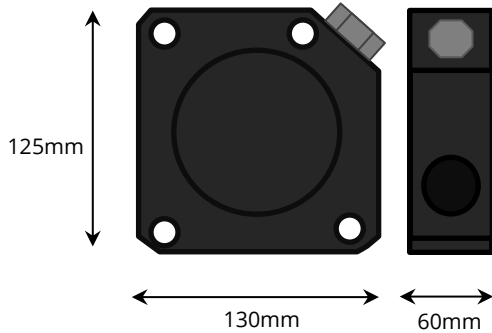
PORT SIZE
1.5" BSP-P



INSTALLATION
Suction side of filter



Model	W-FLC-2502
Ports	1.5" BSP-P female
Power required	None
Dimensions	125x130x60mm
Weight (approximate)	1200g
Fuel flow rate (gravity fed)	4000 lit/hr
Material	Marine Grade corrosion resistant 6061 Aluminum
Seals	Hydrogenated Nitrile Butadiene Rubber (HNBR)
Case	Anodizing black with four mounting holes in the corners



Cleaning and Maintenance

In general, this device should be maintenance-free. However we recommend periodic checking of the magnetic core. To do this, the operator should isolate this device from the fuel flow, and then using a spanner, unscrew the magnetic core. Wipe clean with a soft cloth and replace. Make sure the dowty/bonded seal is intact. Tighten to 6nm max.



W-FLC-3000



FLOW RATE
3500 lit/hr



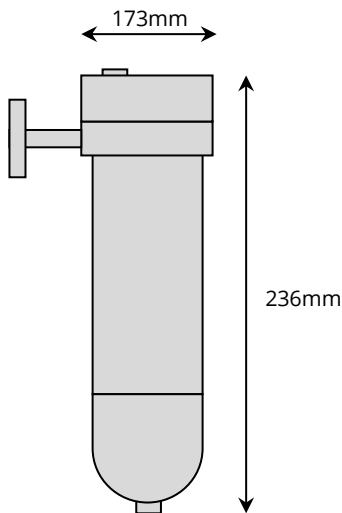
PORT SIZE
1" BSP-P



INSTALLATION
Suction or pressure side of filter



Model	W-FLC-3000
Ports	1" BSP-P female
Power required	None
Dimensions	236 (height) x 173 (dia) mm
Weight (approximate)	2500g
Fuel flow rate (gravity fed)	3500 lit/hr
Material	316 Stainless steel
Seals	Viton (R)
Case	Bright 316 Stainless steel with clamp for bowl/lid connection
Operating Pressure	+10bar max



Cleaning and Maintenance

In general, this device should be maintenance-free. However we recommend periodic checking of the magnetic core. To do this, the operator should isolate this device from the fuel flow, and then unscrew the lid clamp before removing the magnetic core. Wipe clean with a soft cloth, and replace. Make sure the lid gasket is intact. Tighten to 6nm max.



W-FLC-4000



FLOW RATE
15,000 lit/hr



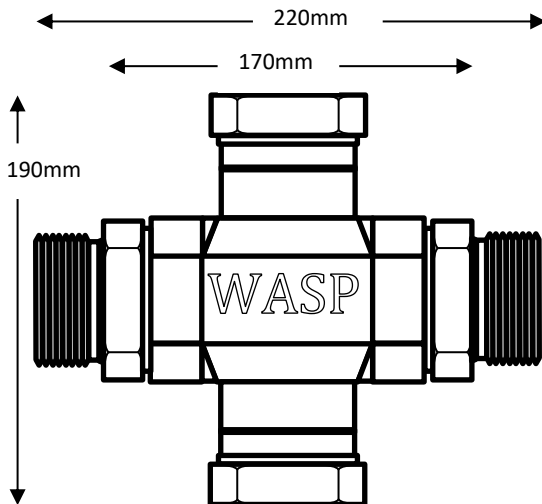
PORT SIZE
2" BSP-P



INSTALLATION
Suction or pressure side of filter



Model	W-FLC-4000
Ports, dimension A	2" BSP-P female or male
Cores	1
Magnetic Strength	9000 gauss Rare earth neodymium iron boron
Approx Flow (gravity fed)	< 15000 lit/hr
Dimensions	190mm (h) x 220 (w) x 80 (d)
Construction	304 Stainless Steel
Seals	HNBR
Magnet grade	N42SH – inspected and confirmed by hystergaph prior to use
Temperature	5° to 150°C
Operating pressure	+ 8 bar max



Cleaning and Maintenance

In general, this device should be maintenance-free. However we recommend periodic checking of the magnetic core. To do this, the operator should isolate this device from the fuel flow, and then using a spanner, unscrew the magnetic core. Wipe clean with a soft cloth and replace. Make sure the dowty/bonded seal is intact. Tighten to 6nm max.



W-FLC-5000 range



FLOW RATE
varies



PORT SIZE
varies

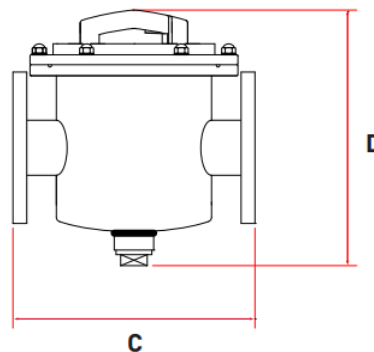
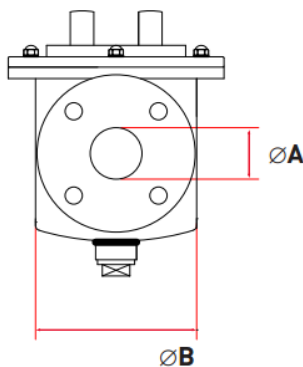


INSTALLATION
Suction or pressure side of filter



Model	W-FLC-5000 range
Ports	2"-12" BSP-P female
Power required	None
Material	316 Stainless steel
Seals	Viton (R)
Case	Bright 316 Stainless steel with clamp for bowl/lid connection
Magnetic Strength	9000 gauss rare earth neodymium iron boron
Temperature range	-5 to +120 centigrade
Operating Pressure	+12bar max
Magnet Grade	N42SH - inspected and confirmed by hystergaph prior to use on tube surface

Model	Ports (A)	Flange (option)	Filter Diameter (B) x Flange Spacing (C) x Height (D)	Cores	Flow
W-FLC-5020	2" BSP female	DN50/PN16	170 x 260 x 280 mm	5	20,000l/h (20m ³ /h)
W-FLC-5055	3" BSP female	DN80/PN16	220 x 360 x 335mm	7	55,000l/h (55m ³ /h)
W-FLC-5085	4" BSP female	DN100/PN16	220 x 360 x 335mm	7	85,000l/h (85m ³ /h)
W-FLC-5110	6" BSP female	DN150/PN16	325 x 470 x 420mm	9	110,000l/h (110m ³ /h)
W-FLC-5140	8" BSP female	DN200/PN16	325 x 525 x 460mm	9	140,000l/h (140m ³ /h)
W-FLC-5220	10" BSP female	DN250/PN16	406 x 760 x 600mm	16	220,000l/h (220m ³ /h)
W-FLC-5310	12" BSP female	DN300/PN16	406 x 760 x 675mm	16	310,000l/h (310m ³ /h)



WASP PFS - the market leaders in fuel filtration equipment.
We invent, design and manufacture customised fuel filtration equipment, including innovative fuel polishing systems and absolute polishing products.
Services include fuel testing, consultation and training.
For more information on the product range, please visit
our website: www.wasp-pfs.com
email: sales@wasp-pfs.com

WASP PFS - For all your fuel cleaning requirements.

If you require further information please contact
Technical Support at WASP on 01923 606 600
or email support@wasp-pfs.com.