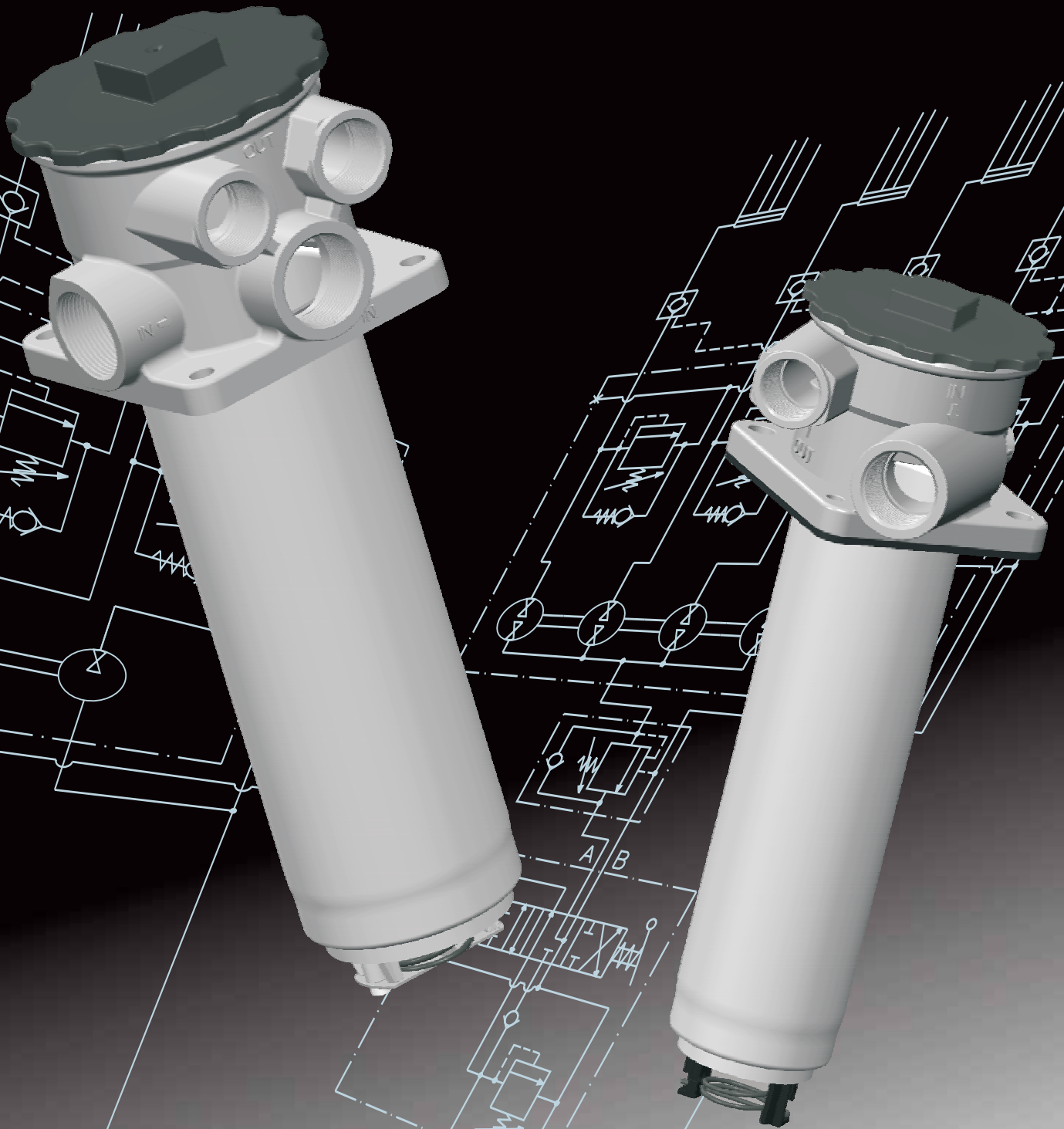


Tank mounted return and suction line filters

HF 525 series



THE IMPORTANCE OF AN EFFICIENT FILTRATION

The main cause of anomalies in hydraulic systems has to be attributed to the presence of contaminants in the fluid. The nature of the contaminant may be: gaseous, namely air mixed with the fluid; fluid, it depends on water penetrating the fluid; solid, therefore particles of various origins and dimensions.

Customers who operate equipments are always focused on obtaining the best possible performance, lower energy consumptions and greater respect for the environment.

These characteristics can be attained by using top quality components in the hydraulic system for generating and regulating the fluid power, which are also more sensitive to the presence of contaminants in the fluid.

Starting from these requirements, we understand how important and fundamental it is to prevent the presence of air and water from mixing in the fluid tank by using dedicated solutions.

It is also crucial to limit the presence of solid particles in the hydraulic circuit through a suitable filtering system, which is indispensable to maintain the project requirements of the system over time and to keep running costs low.

The correct choice of a filter and its optimum position in the hydraulic system requires the same care and experience needed to choose all the other components.

The use of filters with larger filtering surfaces reduces, at equal flow rates, the superficial contaminant load and therefore the filter's life is extended proportionally.

To maintain the maximum efficiency of the system, the filters must have a clogging indicator showing the differential pressure on the filtering cartridge and to immediately point out when the cartridge needs replacing in order to prevent the by-pass valve from opening.

The following factors should be analysed when choosing the ideal filter:

- The filtration degree required to protect the most sensitive component from contamination
- The points of the circuit in which the filters have to be installed
- The working pressure of the system
- The maximum flow rate and the type of fluid to be filtered
- The duty cycle
- The retention efficiency of the filtering cartridge
- The contaminant accumulation capacity of the filtering cartridge
- The working ambient temperature

Each filter used generates a pressure drop that increases continuously as time goes by. This pressure drop represents an efficiency index of the filter itself.

When the hydraulic system is about to be assembled, all the components must be perfectly clean and the fluid has to be added through a device complete with a filter.

During the test phase, it is advisable to run some work cycles at low pressure in order to create the best possible conditions for all the components.

TECHNICAL CHARACTERISTICS

The HF525 filter series are normally installed onto the tank and are used as the only solution to filter the oil flow coming from the open circuit return line and to supply with filtered oil, pressurized at 7.25 psi (0,5 bar), the closed circuit of the suction line.

The return line flow will always have to be greater than the required suction line flow; if this condition is not reached, in emergency situations, the filter can supply the closed circuit line by sucking and filtering oil directly from the tank through a special anti cavitation valve including an auxiliary filter with a 120 µm filtration degree.

For the correct filter operations, verify that the oil minimum level is always higher than the valve block put in the bowl lower end. The filter elements are made with specific materials for an easy waste disposal.

The HF525-30 filter is made with two parallel threads both for the return and suction lines.

It will be up to the end user to choose the best connection configuration considering the hydraulic system and the hoses orientation.

- Maximum working pressure 174 psi (12 bar)
- Internal by-pass set at 36 psi (2,5 bar)
- Anti-cavitation valve with filter element

MATERIALS

Cover	Reinforced nylon
Housing	Aluminum
Bowl	Aluminum
Seals	Buna - Viton
End cap	Elastomer
Inner tube	Zinc plated steel
Filter media	Micro-fibre glass

FLUID COMPATIBILITY

Conforming to ISO 2943 (Norm ISO 6743/4)

Oli mineral (1)	HH - HL - HM - HR - HV - HG
Water emulsion (1)	HFAE - HFAE
Syntetic fluid (2)	HS - HFDR - HFDU - HFDS

(1) With Buna seals

(2) With Viton seals

FLOW

Return flow max.	71 US gpm (270 l/min)
Suction flow max.	60% of the return flow is recommended

PRESSURE

Working pressure max.	174 psi (12 bar)
Testing pressure	261 psi (18 bar)
Burst pressure	348 psi (24 bar)
Element collapse pressure rating (conforming to ISO 2941)	145 psi (10 bar)

BY-PASS VALVE

By-pass setting	36 psi (2,5 bar)
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PRESSURIZED VALVE

Setting	7.25 psi (0,5 bar)
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OPERATING TEMPERATURE

With Buna seals	-22 ÷ 195 °F (-30 ÷ 90 °C)
With Viton seals	-4 ÷ 230 °F (-20 ÷ 110 °C)

DEGREE OF FILTRATION

Multi-pass test conforming to ISO 16889.

Contaminant ISO MTD.

Code	Degree of filtration	Ratio $\beta_{x(c)}$	Percentage of efficiency
FG010	10 µm	$\beta_{10(c)} \geq 200$	99,5 %
FG025	25 µm	$\beta_{25(c)} \geq 200$	99,5 %

INDICATORS (3)

Rear manometer

Visual indicator

Electrical indicator

(3) Characteristics and dimensions at page 7 and 8

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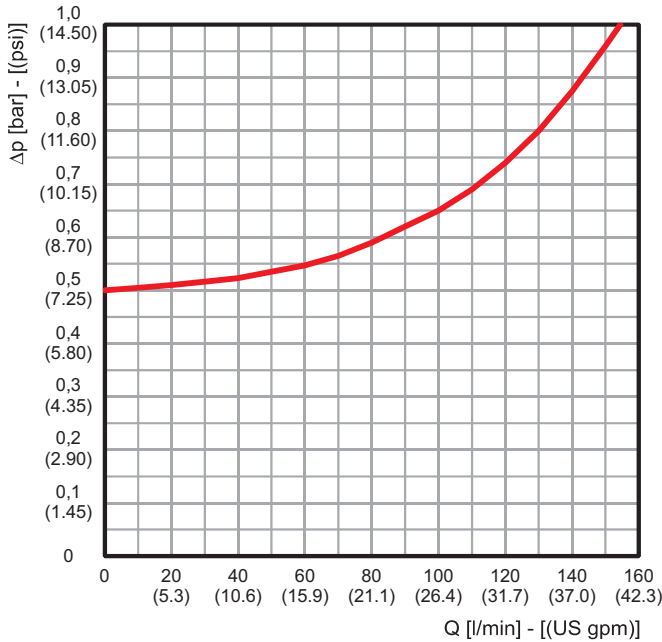
PRESSURE DROP CURVES HF525 SERIES

The curves are obtained in the following conditions:
 Mineral oil type ISO VG46
 Kinematic viscosity 120 SSU (30 cSt)
 Density 7.29 lb/gal (0,856 kg/dm³).

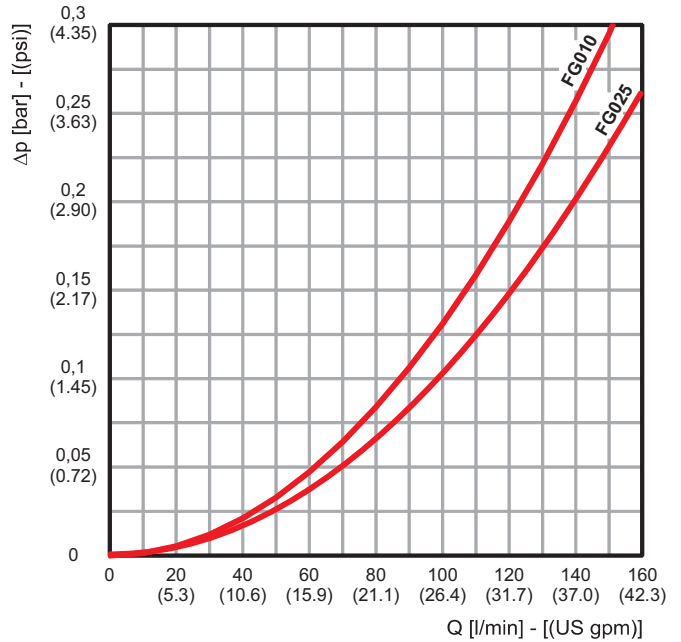
Return flow HF525-20-FG010 = 33 US gpm (125 l/min)
Return flow HF525-20-FG025 = 36 US gpm (135 l/min)

Return flow HF525-30-FG010 = 66 US gpm (250 l/min)
Return flow HF525-30-FG025 = 71 US gpm (270 l/min)

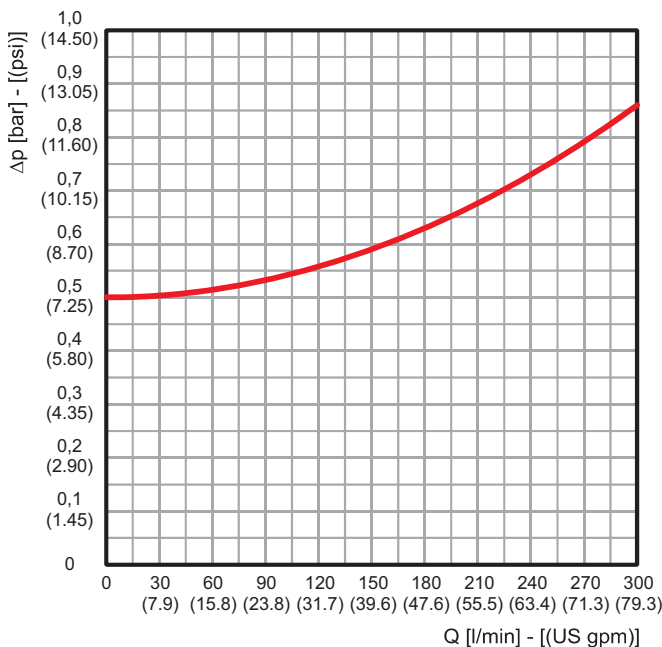
HOUSING HF 525-20



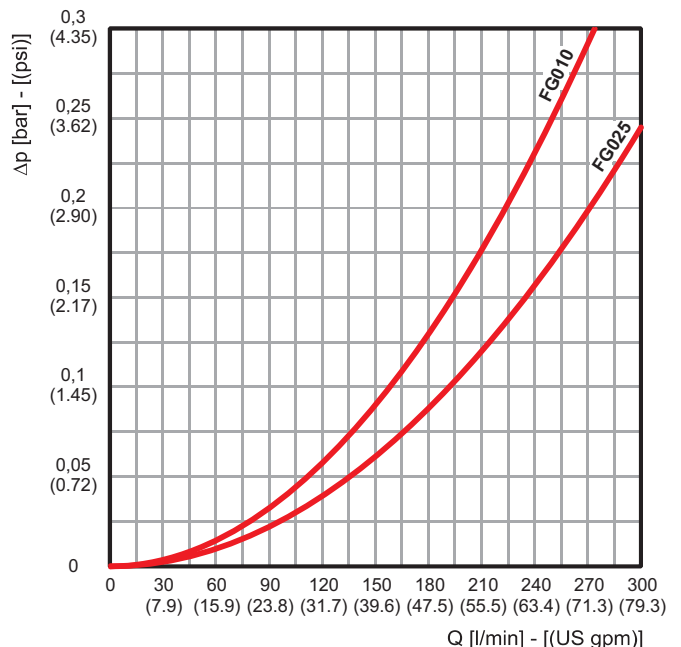
ELEMENT HF525-20



HOUSING HF525-30

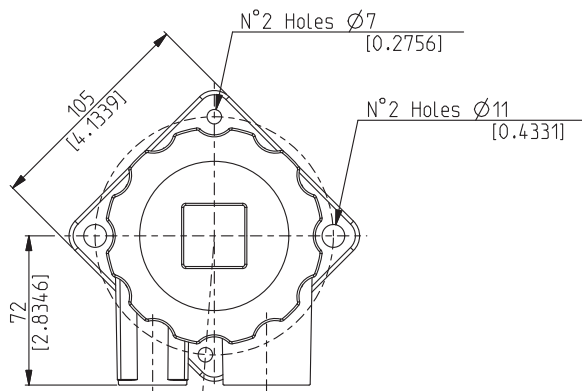
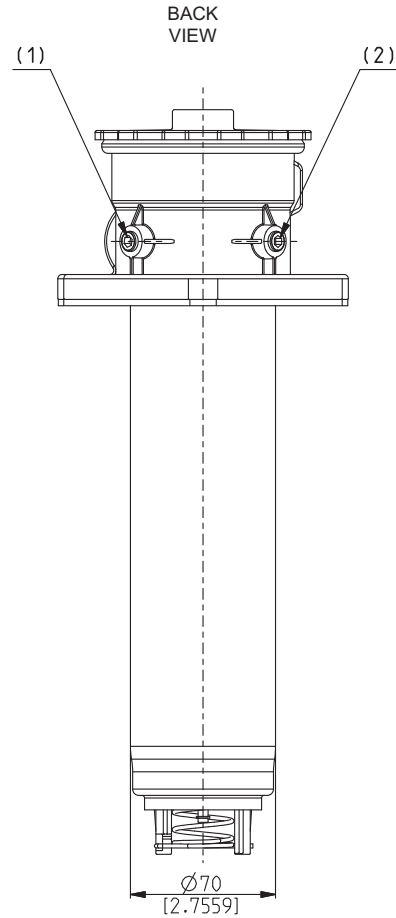
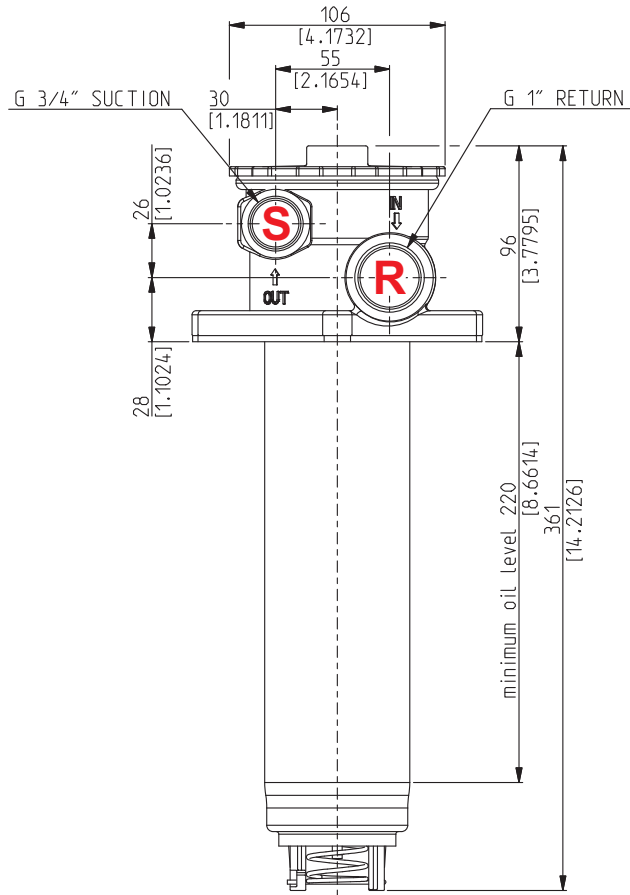


ELEMENT HF525-30

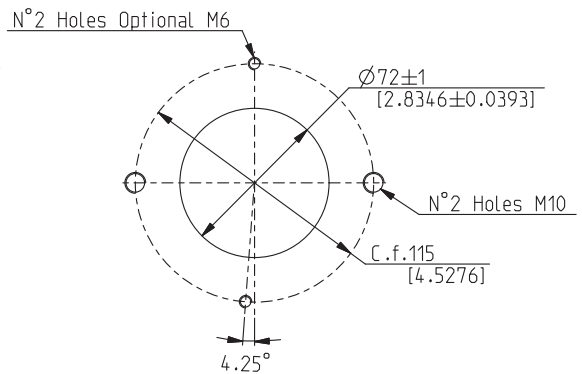


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HF525-20 DIMENSIONS



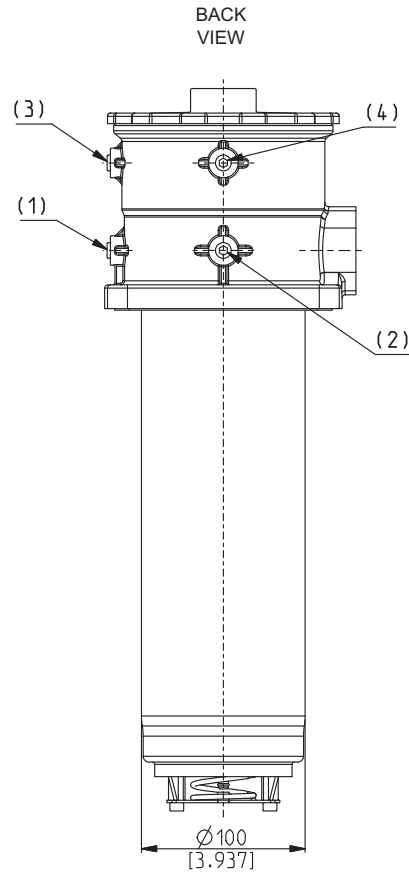
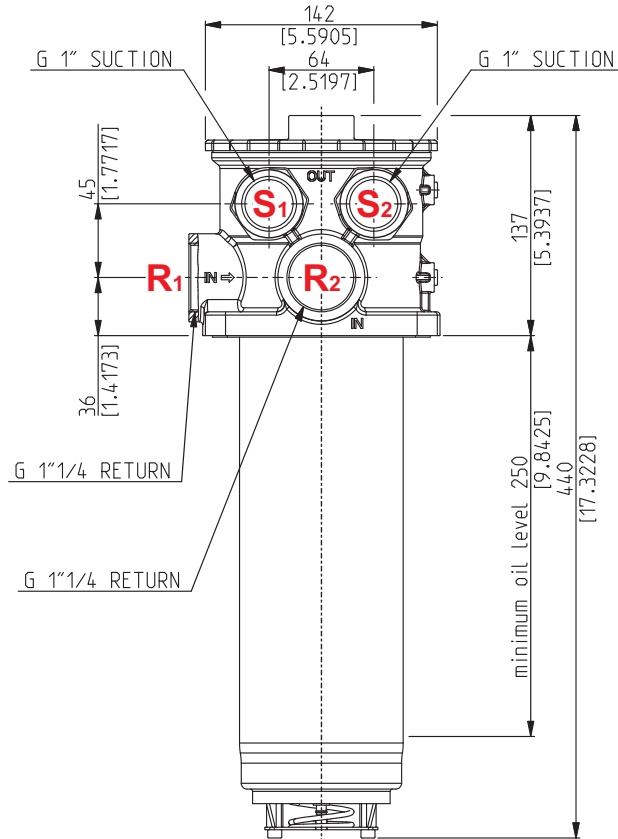
**RESERVOIR MOUNTING
HOLE DIMENSIONS**



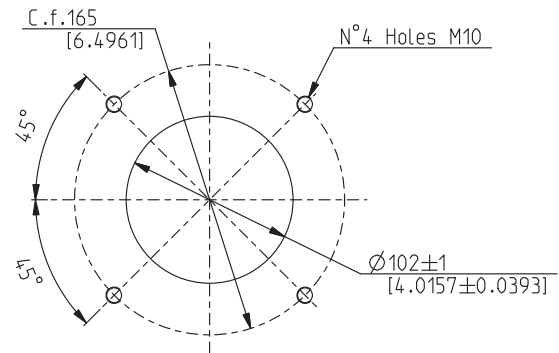
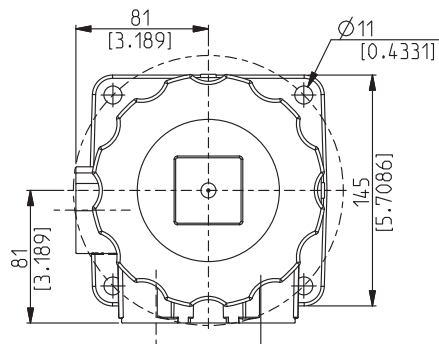
01/10.2014
ICAT_012_001_HF525

Filter type	Weight	(1)(2)(GAS-BSP) Indicators
	kg (lbs)	
HF 525-20.242	1,50 (3.31)	G 1/8

HF525-30 DIMENSIONS



RESERVOIR MOUNTING HOLE DIMENSIONS



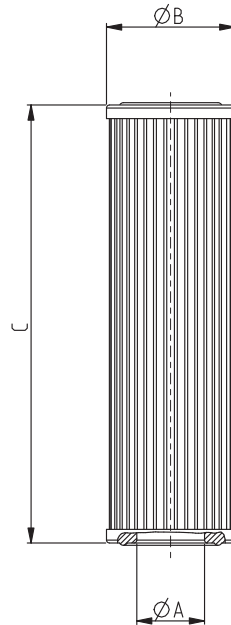
ICAT_012_002_HF525

01/10.2014

Filter type	Weight	(1)(2)(3)(4)(GAS-BSPP) Indicators
	kg (lbs)	
HF 525-30.292	3,40 (7.50)	G 1/8

SAE UN-UNF threads are available (consult our technical department).

ELEMENTS DIMENSIONS FOR HF525

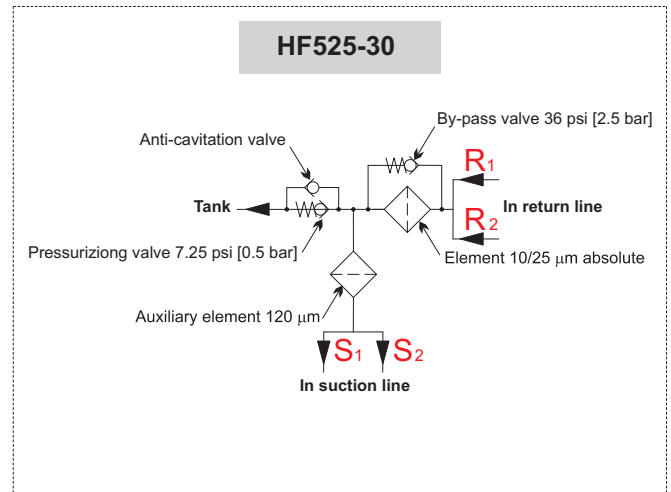
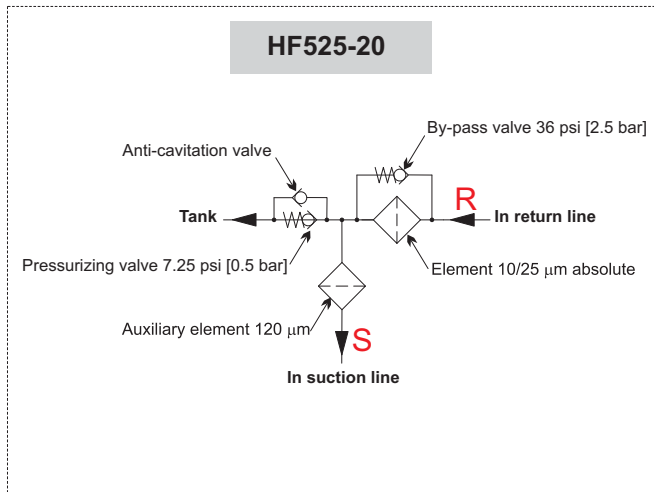


ICAT_012_003_HF525

Element type	Ø A	Ø B	C	Filtering surface type	Filtering surface FG
	mm (in)	mm (in)	mm (in)		cm ² (in ²)
HEK25-20.242	26 (1.0226)	52 (2.0472)	75 (2.9527)	AS	346 (53.6301)
HEK25-30.292	41 (1.6141)	99 (3.8976)	75 (2.9527)	AS	3705 (574.2761)

SIMBOLOGY

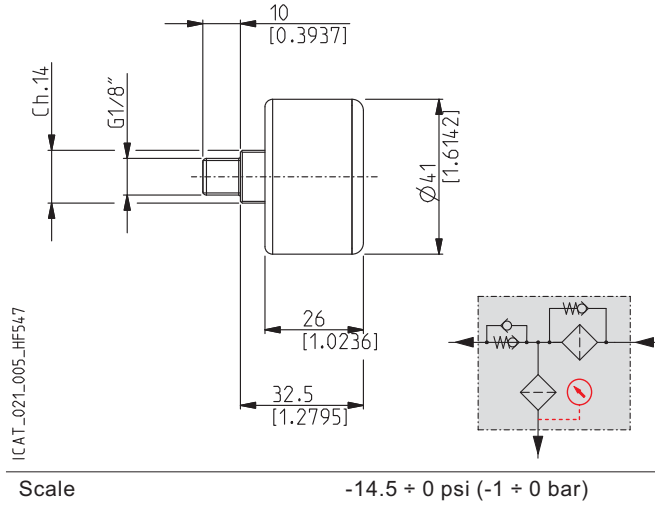
01/10.2014



INDICATORS FOR SUCTION LINE

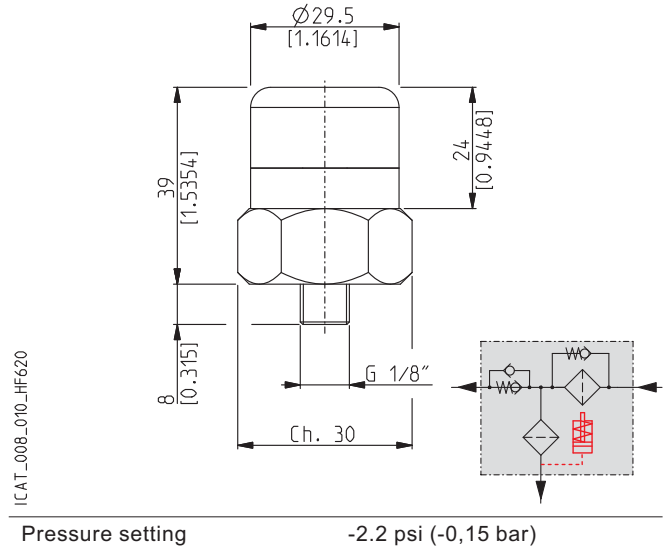
REAR MANOMETER

Code: **M1**



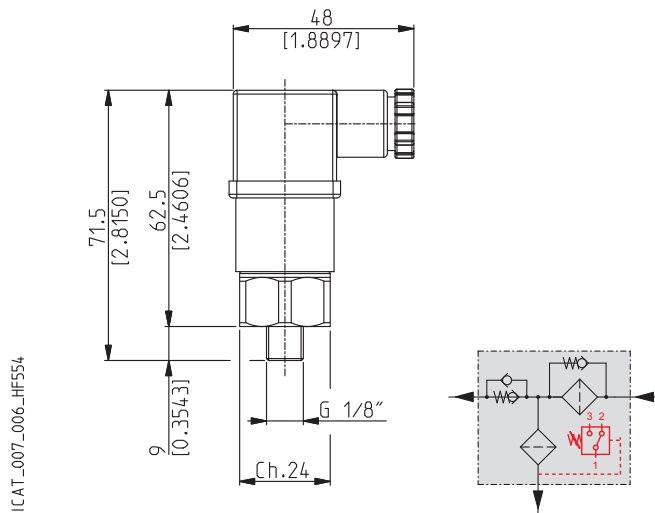
VISUAL INDICATOR

Code: **V**



ELECTRICAL INDICATOR

Code: **E**

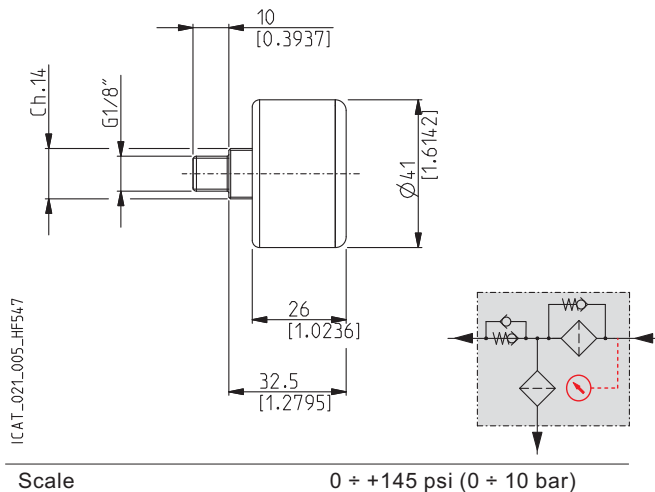


Pressure setting	-2.2 psi (-0,15 bar)
Max. working voltage	220 VCA 30 VCC
Max. working current	0,5 A (resistivity) 0,2 A (inductive)
Protection class	IP65
Contacts	N.O. and N.C.

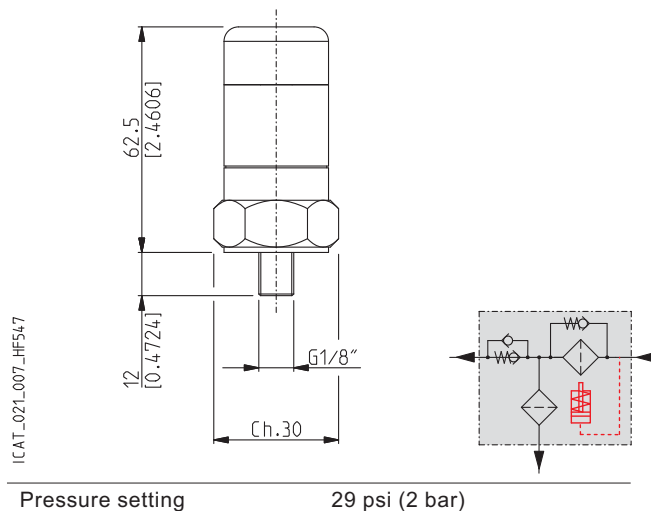
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INDICATORS FOR RETURN LINE

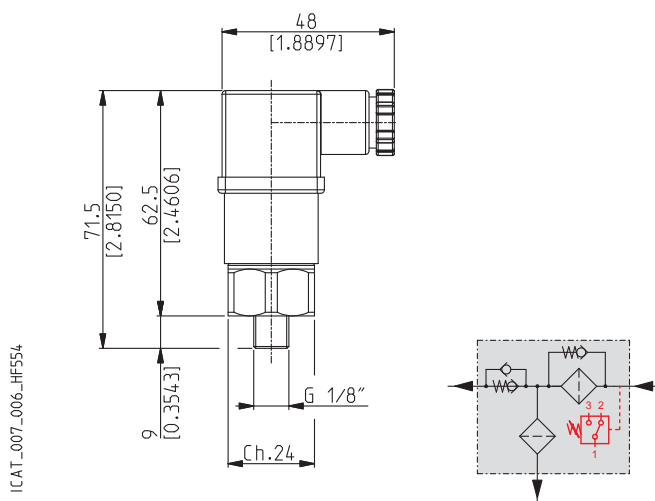
REAR MANOMETER

 Code: **M2**


VISUAL INDICATOR

 Code: **P**


ELECTRICAL INDICATOR

 Code: **S**


01/10.2014

Pressure setting	29 psi (2 bar)
Max. working voltage	220 VCA
	30 VCC
Max. working current	0,5 A (resistivity)
	0,2 A (inductive)
Protection class	IP65
Contacts	N.O. and N.C.

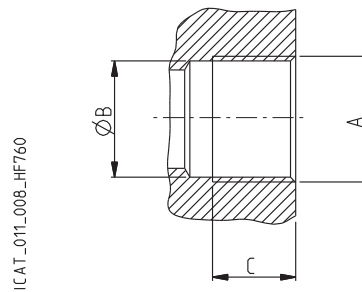
INLET PORTS

Filter type	PORTS TYPE		
	Nominal size	Gas BSPP	SAE ODT
HF 525-20	3/4"	GE	/
	1"	GF	/
HF 525-30	1"	GF	OF
	1" 1/4	GG	OG

GAS THREAD

BSPP

Cylindrical GAS thread (55°) in accordance with UNI - ISO 228

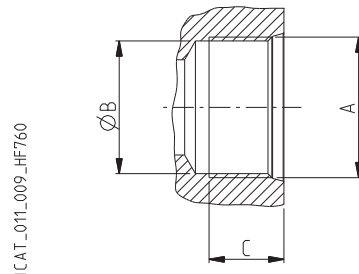


CODE	Nominal size	A	Ø B		C	Nm (lbf in)
			mm	(in)		
GE	3/4"	G 3/4	24,5	(0.9645)	20 (0.7873)	30 ^{+2,5} (266 ÷ 288)
GF	1"	G 1	30,5	(1.2007)	22 (0.8661)	50 ^{+2,5} (443 ÷ 465)
GG	1" 1/4	G 1 1/4	39	(1.5354)	24 (0.9448)	60 ⁺⁵ (531 ÷ 575)

SAE J514 THREAD

ODT

American thread UNC-UNF 60° in accordance with ANSI B 1.1



CODE	Nominal size	A	Ø B		C	Nm (lbf in)
			mm	(in)		
OF	1"	1 5/16" - 12 UNF - 2B	30,5	(1.2007)	20 (0.7873)	60 ⁺⁵ (531 ÷ 575)
OG	1" 1/4	1 5/8" - 12 UNF - 2B	39,1	(1.5393)	20 (0.7873)	70 ⁺⁵ (620 ÷ 664)

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ASSEMBLY AND REPLACING ELEMENT INSTRUCTIONS

MOUNTING

Once you have checked the integrity of the filter inside its package, proceed as follow:

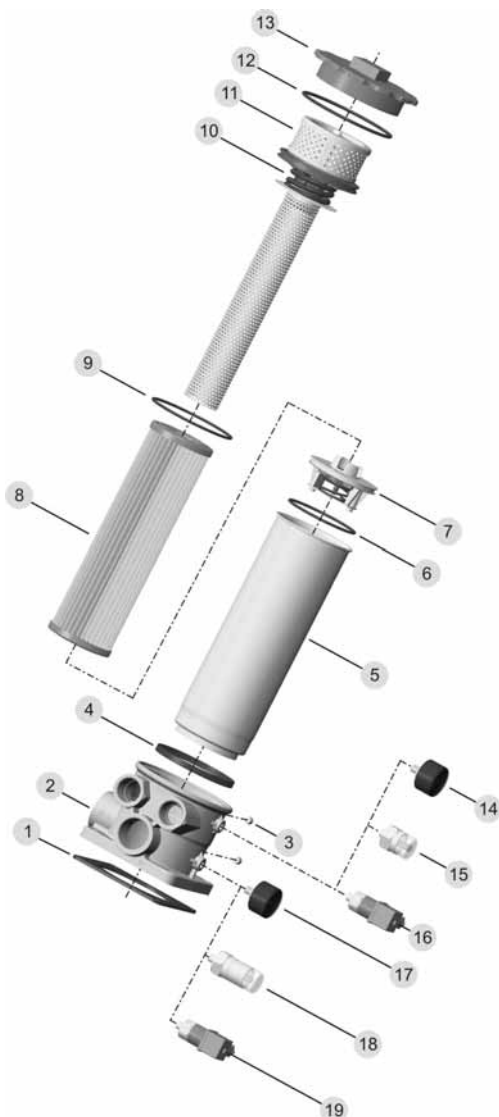
- A Take off the protection cap from the inlet port.
- B Secure the filter in the tank through the holes in the body's flange (pos.2).
- C Connect the piping of the return line to the inlet port using the tightening torque indicated on page 8.
- D Connect the piping of the suction line to the inlet port using the tightening torque indicated on page 8.
- E If the filter has a clogging indicator (pos.14 - 15 - 16 - 17-18-19), take off the plug (pos.4) and screw the indicator in the dedicated seat, then tighten to a tightening torque of 266 lbf in (30 Nm). If the indicator is electric, complete the required connections.
- F Perform the de-aeration of the closed circuit according to the manufacturer's instructions.
- G Start the circuit for a few minutes.
- H Make sure there are no leaks.

REPLACING ELEMENT

Once the working hour limit indicated in the maintenance instructions of the system is reached or when the clogging indicators point out the limit pressure drop created inside the filter, the element must be replaced. Pay attention to the drainage of hydraulic oil, therefore prepare suitable containers to collect it.

Proceed as follows:

- A Stop the system in "machine stopped" status.
- B Secure any shut-off valves on the hydraulic circuit.
- C Unscrew and take off the closing cap (pos.13).
- D Remove the central group (pos.10) where the exhausted filter element is inserted in (pos.8).
- E Remove the exhausted filter element (pos. 8) from the central group (pos.10).
- F Insert the new filter element (pos.8) until it rests on the central group (pos.10) of the metal base.
- G Insert the filter into the central group (pos.10) with the new filter element (pos.8).
- H Close the filter cover (pos.13) with a tightening torque of 177 lbf in (20 Nm) for HF525-20 and 354 lbf in (40 Nm) for HF525-30.
- I Check out that the O-rings (pos.6, 9, 12) are not damaged, otherwise replace them and consequently position the new ones correctly.
- L Re-open the possible valves previously closed.
- M Perform the de-aeration of the closed circuit according to the manufacturer's instructions.
- N Start the machine for a few minutes.
- O Make sure there are no leaks.



Pos.	Description	Pos.	Description
1	Filter body seal	11	Suction element
2	Filter body	12	Cover O-ring
3	Plug	13	Cover
4	Bowl seal	14	Suction line manometer
5	Bowl	15	Suction line visual indicator
6	Valve block O-ring	16	Suction line electrical indicator
7	Valve block	17	Return line manometer
8	Filtering element	18	Return line visual indicator
9	Central group O-ring	19	Return line electrical indicator
10	Central group		

Note:

The suction element (pos.11) is subject to contaminant that is able to clog it only in case of anti-cavitation valve opening. Due to this reason, the replacement frequency will be very high. For the element replacement contact our technical department.

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HOW TO ORDER A COMPLETE FILTER HF 525

1	2	3	4	5	6	7	8
9	10	11					

DA - G - VS

1	Filter type	CODE
	See table from pag. 3 to pag. 4	HF525..
2	Filtering surface	CODE
	Standard	AS
3	Degree of filtration	CODE
	10 [µm] Micro-fibre glass	FG010
	25 [µm] Micro-fibre glass	FG025
4	By-pass setting valve	CODE
	With By-pass setting valve 36 [psi] (2,5 [bar])	B25
5	Return inlet port	CODE
6	Suction inlet port	CODE
	GAS threads (BSPP)	
	G 3/4	GE
	G 1	GF
	G 1 1/4	GG
	SAE threads ODT (only HF525-30)	
	1"5/16-12UNF-2B [SAE16]	OF
	1"5/8-12UNF-2B [SAE20]	OG

7	Seals	CODE
	Buna	B
	Viton	V
8	Indicators arranged (*)	CODE
	Arranged on the return (1) (2)	XR
	Arranged on the suction (3) (4) (only HF525-30)	XS
9	Indicator's ports dimensions	CODE
	GAS Threads (BSPP)	
	G 1/8 with plug	DA
10	Indicators	CODE
	Without	G
	Suction line manometer	M1
	Return line manometer	M2
	Suction line visual indicator	V
	Return line visual indicator	P
	Suction line electrical indicator	E
	Return line electrical indicator	S
11	Anti-cavitation valve	CODE
	With valve	VS

- Standard
- On request

(*) The clogging indicators of the return line check the main cartridge clogging, while those in the suction line check the auxiliary one.

HOW TO ORDER A REPLACEMENT ELEMENT

1

 2

 3

 4

HEK25 - 20.242 - AS - FG010 - B

1	Element type	CODE
	See table pag. 5	HEK25..

2	Filtering surface	CODE
	Standard	AS

3	Degree of filtration	CODE
	10 [µm] Micro-fibre glass	FG010
	25 [µm] Micro-fibre glass	FG010

4	Seals	CODE
	Buna	B
	Viton	V

Standard
 On request

Building &
construction

Agriculture

Truck
Market

Material
Handling

Industrial



Full range of filters
for all hydraulic circuits

Suction filters

HF 410
HF 412
HF 431
HF 434
HF 437

Tank mounted return line filters

HF 502
HF 508
HF 547
HF 554
HF 570
HF 575
HF 578

Tank mounted return and suction line filters

HF 525

In line filters Spin-On

HF 620
HF 625
HF 650

In line medium and high pressure filters

HF 690
HF 705
HF 710
HF 725
HF 735
HF 745
HF 760
HF 761

Accessories

Filler breathers
Air filters
Level and temperature gauges
Pressure gauges
Pressure/vacuum gauges
Clogging indicators



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