

## **FLR-U5 SERIES**

In line medium pressure filters

In line filters for operating pressure up to 30 bar. Flow rate up to 2600 l/min.



tested according to NFPA T3.10.5.1, ISO 10771, **HOUSING** ISO 3968

PRESSURE: Max operating: 30 bar

Fatigue rating: 106 cycles 0÷30 bar

> Burst: 90 bar

**CONNECTIONS:** 3" - 4" SAE 3000 FLANGE

MATERIALS: Head: anodized aluminium

> Bowl: anodized aluminium Body: anticorodal aluminium Seal: NBR (FKM on request)

**BYPASS VALVE:** inbuilt in the filter element

> no bypass 1 bar 3 bar 4 bar 6 bar

tested according to ISO 11170, 2941, 2942, 2943, **ELEMENT** 3724, 3968, 16889, 16908, 23181

FILTER MEDIA: Fibreglass: G01 - G03 - G06 - G10

G15 - G25 - G40 - GW03 - GW10

AW40

**COLLAPSE** 10 bar

PRESSURE:

**TEMPERATURE** with NBR seal

from -30 °C to +100 °C **RANGE:** 

> with FKM seal (OPTION) from -25 °C to + 120 °C

**FLUID** Full with HH-HL-HM-HV

HETG-HEES (acc. to ISO 6743/4). COMPATIBILITY:

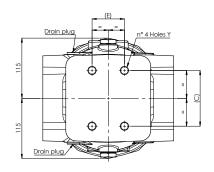
For use with other fluid please contact Filtrec Customer Service

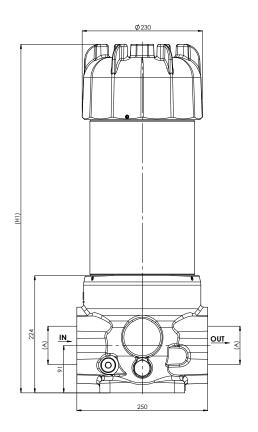
(info@filtrec.it).

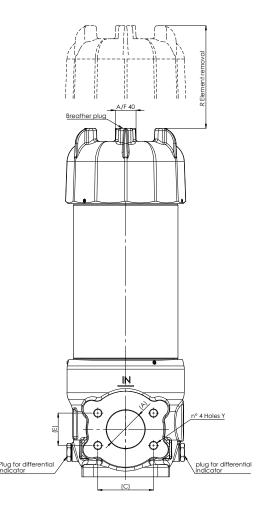


# **OVERALL DIMENSIONS**

## **A** Version



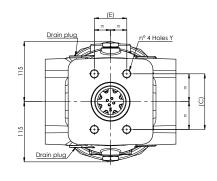


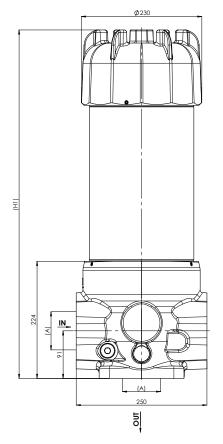


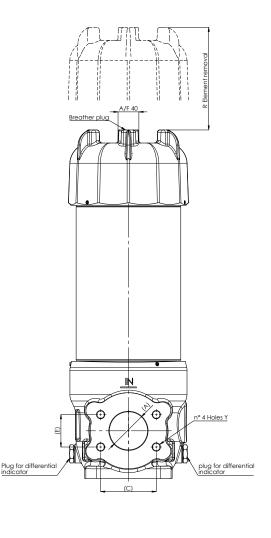


# **OVERALL DIMENSIONS**

## **B** Version







## **NOMINAL SIZE**

MODEL	PORT SIZE A	Υ	Α	С	E	H1	R	BODY WEIGHT
FLR-U562	FLANGE 3" SAE 3000-M		Ø73	106,38	61,93	718	460	29 Kg
FLK-0302	FLANGE 4" SAE 3000-M	M16 x 24	Ø99	130,18	77,77			27 Kg
FLR-U564	FLANGE 3" SAE 3000-M	M10 x 24	Ø73	106,38	61,93	1156	900	25 V ~
	FLANGE 4" SAE 3000-M		Ø99	130,18	77,77	1130	900	35 Kg



## **ORDERING INFORMATION**

12. OPTION

1. FILTER MEDIA 1. SoluteBeta 1. SoluteBet														
FILTER SERIES   FLR	1.	2	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	. 12.	
FILTER SERIES   FLR							6	F10M	Α	2	000	Α	0	
FILTER ELEMENT SERIES   U5	SPARE ELEMEN	T U	15	62	G10	В	6							
FILTER ELEMENT SERIES   U5														
FILTER SIZE	1. FILTER SERIE	ES				FLR								
1. FILTER MEDIA 1. SoluteBeta 2. SoluteBet	2. FILTER ELEM	NENT S	SERIE	S		U5								
1. FILTER MEDIA 1. SoluteBeta 1. SoluteBet	3. FILTER SIZE					62								
Description														
SoluteBeta   G01   glassfiber B <sub>Aumici</sub> ≥ 1.000     G03   glassfiber B <sub>Sumici</sub> ≥ 1.000     G10   glassfiber B <sub>Sumici</sub> ≥ 1.000     G10   glassfiber B <sub>12umici</sub> ≥ 1.000     G15   glassfiber B <sub>12umici</sub> ≥ 1.000     G25   glassfiber B <sub>12umici</sub> ≥ 1.000     G40   glassfiber B <sub>12umici</sub> ≥ 1.000 + water absorbent     G25   glassfiber B <sub>12umici</sub> ≥ 1.000 + water absorbent     G40   glassfiber B <sub>12umici</sub> ≥ 1.000 + water absorbent     G40   glassfiber B <sub>12umici</sub> ≥ 1.000 + water absorbent     G40   glassfiber B <sub>12umici</sub> ≥ 1.000 + water absorbent     G40   glassfiber B <sub>12umici</sub> ≥ 1.000 + water absorbent     G40   glassfiber B <sub>12umici</sub> ≥ 1.000 + water absorbent     G40   glassfiber B <sub>12umici</sub> ≥ 1.000 + water absorbent     G40   glassfiber B <sub>12umici</sub> ≥ 1.000 + water absorbent     G40   glassfiber B <sub>12umici</sub> ≥ 1.000 + water absorbent     G40   glassfiber B <sub>12umici</sub> ≥ 1.000 + water absorbent     G40   glassfiber B <sub>12umici</sub> ≥ 1.000 + water absorbent     G40   glassfiber B <sub>12umici</sub> ≥ 1.000 + water absorbent     G40   glassfiber B <sub>12umici</sub> ≥ 1.000 + water absorbent     G40   glassfiber B <sub>12umici</sub> ≥ 1.000 + water absorbent     G40   glassfiber B <sub>12umici</sub> ≥ 1.000 + water absorbent     G40   glassfiber B <sub>12umici</sub> ≥ 1.000 + water absorbent     G40   glassfiber B <sub>12umici</sub> ≥ 1.000 + water absorbent     G40   glassfiber B <sub>12umici</sub> ≥ 1.000 + water absorbent     G40   glassfiber B <sub>12umici</sub> ≥ 1.000 + water absorbent     G40   glassfiber B <sub>12umici</sub> ≥ 1.000 + water absorbent     G40   glassfiber B <sub>12umici</sub> ≥ 1.000 + water absorbent     G40   glassfiber B <sub>12umici</sub> ≥ 1.000 + water absorbent     G40   glassfiber B <sub>12umici</sub> ≥ 1.000 + water absorbent     G40   glassfiber B <sub>12umici</sub> ≥ 1.000 + water absorbent     G40   glassfiber B <sub>12umici</sub> ≥ 1.000 + water absorbent     G40   glassfiber B <sub>12umici</sub> ≥ 1.000 + water absorbent     G40   glassfiber B <sub>12umici</sub> ≥ 1.000 + water absorbent     G40   glassfiber B <sub>12umici</sub> ≥ 1.000 + water absor	4 FILTER MED	IΔ												
Section   Se		1/~							> 1 000	n				
Go6   glassfiber β <sub>Tumicl</sub> ≥ 1.000		CAPA	CITY											
G10 glassfiber β <sub>12micl</sub> ≥ 1.000 G15 glassfiber β <sub>12micl</sub> ≥ 1.000 G25 glassfiber β <sub>22micl</sub> ≥ 1.000 G40 glassfiber β <sub>35micl</sub> ≥ 1.000 GW03 glassfiber β <sub>35micl</sub> ≥ 1.000 + water absorbent GW10 glassfiber β <sub>12micl</sub> ≥ 1.000 + water absorbent AW40 water absorbent only  SEALS  B NBR  V FKM  D BYPASS VALVE  0 no bypass or no element 1 1 bar 3 3 bar 4 4 bar 6 6 bar  MAIN PORT  F10M 3" SAE 3000 FLANGE F12M 4" SAE 3000 FLANGE F12M 4" SAE 3000 FLANGE  D PORTS LAYOUT  A straight: horizontal inlet - horizontal outlet B corner: horizontal inlet - vertical outlet  1 indicator seat on both sides: left metal plug, right plastic cap 2 indicator seat on both sides with metal plug  preferred option 0. COMPULSORY FIELD  000 filtrec standard	FILTER ELEME	NT												
G15 glassfiber B <sub>12umici</sub> ≥ 1.000 G25 glassfiber B <sub>12umici</sub> ≥ 1.000 G40 glassfiber B <sub>35umici</sub> ≥ 1.000 GW03 glassfiber B <sub>35umici</sub> ≥ 1.000 + water absorbent GW10 glassfiber B <sub>12umici</sub> ≥ 1.000 + water absorbent AW40 water absorbent only  SEALS  B NBR V FKM  B NPASS VALVE 0 no bypass or no element 1 bar 3 3 bar 4 4 bar 6 6 bar  MAIN PORT F10M 3" SAE 3000 FLANGE F12M 4" SAE 3000 FLANGE F12M 4" SAE 3000 FLANGE  SPORTS LAYOUT A straight: horizontal inlet - horizontal outlet built indicator seat on both sides: left metal plug, right plastic cap indicator seat on both sides with metal plug preferred option  0. COMPULSORY FIELD  000 filtrec standard														
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GW10 glassfiber β <sub>12μm(cl</sub> ≥ 1.000 + water absorbent AW40 water absorbent only  B NBR  V FKM  D BYPASS VALVE  O no bypass or no element  1 1 bar  3 3 bar  4 4 bar  6 6 bar  C MAIN PORT  F10M 3" SAE 3000 FLANGE F12M 4" SAE 3000 FLANGE  F12M 4" SAE 3000 FLANGE  D PORTS LAYOUT  A straight: horizontal inlet - horizontal outlet  B corner: horizontal inlet - vertical outlet  I indicator seat on both sides: left metal plug, right plastic cap  2 indicator seat on both sides with metal plug  preferred option  0. COMPULSORY FIELD  0. COMPULSORY FIELD  0. INDICATOR PORT OPTION					(	G40	glass	fiber ß <sub>35µm(c</sub>	<sub>:)</sub> ≥1.00	00				
AW40 water absorbent only  B NBR  V FKM  D BYPASS VALVE  O no bypass or no element  1 1 bar  3 3 bar  4 4 bar  6 6 bar  MAIN PORT  F10M 3" SAE 3000 FLANGE  F12M 4" SAE 3000 FLANGE  F12M 4" SAE 3000 FLANGE  D PORTS LAYOUT  A straight: horizontal inlet - horizontal outlet  B corner: horizontal inlet - vertical outlet  I indicator seat on both sides: left metal plug, right plastic cap  2 indicator seat on both sides with metal plug  preferred option  0. COMPULSORY FIELD  000 filtrec standard					G	W03	glasst	glassfiber $\beta_{5\mu m(c)} \ge 1.000 + water absorbent$						
B NBR  V FKM  D. BYPASS VALVE  O no bypass or no element  1 1 bar  3 3 bar  4 4 bar  6 6 bar  T. MAIN PORT  F10M 3" SAE 3000 FLANGE  F12M 4" SAE 3000 FLANGE  F12M 4" SAE 3000 FLANGE  D. PORTS LAYOUT  A straight: horizontal inlet - horizontal outlet  B corner: horizontal inlet - vertical outlet  1 indicator seat on both sides: left metal plug, right plastic cap  2 indicator seat on both sides with metal plug  preferred option  0. COMPULSORY FIELD  000 filtrec standard						W10	glass							
V FKM  V FKM  O no bypass or no element  built into the filter element  1 1 bar  3 3 bar  4 4 bar  6 6 bar  C. MAIN PORT  F10M 3" SAE 3000 FLANGE  F12M 4" SAE 3000 FLANGE  F12M 4" SAE 3000 FLANGE  D. PORTS LAYOUT  A straight: horizontal inlet - horizontal outlet  B corner: horizontal inlet - vertical outlet  I indicator seat on both sides: left metal plug, right plastic cap  2 indicator seat on both sides with metal plug  preferred option  0. COMPULSORY FIELD  000 filtrec standard					Α	W40	water	absorben	only					
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4 4 bar 6 6 6 bar  F10M 3" SAE 3000 FLANGE  F12M 4" SAE 3000 FLANGE  A straight: horizontal inlet - horizontal outlet B corner: horizontal inlet - vertical outlet  Indicator seat on both sides: left metal plug, right plastic cap  indicator seat on both sides with metal plug  preferred option  0. COMPULSORY FIELD  000 filtrec standard	nbuilt into the filte	er eleme	ent			1								
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F10M 3" SAE 3000 FLANGE  F12M 4" SAE 3000 FLANGE  A straight: horizontal inlet - horizontal outlet  B corner: horizontal inlet - vertical outlet  1 indicator seat on both sides: left metal plug, right plastic cap  2 indicator seat on both sides with metal plug  preferred option  0. COMPULSORY FIELD  000 filtrec standard						4	4 bar							
F12M 4" SAE 3000 FLANGE  A straight: horizontal inlet - horizontal outlet  B corner: horizontal inlet - vertical outlet  Indicator seat on both sides: left metal plug, right plastic cap  2 indicator seat on both sides with metal plug  preferred option  0. COMPULSORY FIELD  O00 filtrec standard						6	6 bar							
F12M 4" SAE 3000 FLANGE  A straight: horizontal inlet - horizontal outlet  B corner: horizontal inlet - vertical outlet  1 indicator seat on both sides: left metal plug, right plastic cap  2 indicator seat on both sides with metal plug  preferred option  0. COMPULSORY FIELD  000 filtrec standard	7. MAIN PORT	-			F	10M	3" SA	E 3000 FL	ANGE					
B corner: horizontal inlet - vertical outlet  1 indicator seat on both sides: left metal plug, right plastic cap  2 indicator seat on both sides with metal plug preferred option  0. COMPULSORY FIELD  000 filtrec standard														
B corner: horizontal inlet - vertical outlet  1 indicator seat on both sides: left metal plug, right plastic cap  2 indicator seat on both sides with metal plug preferred option  0. COMPULSORY FIELD 000 filtrec standard	8. PORTS LAYO	DUT				Α	straia	ht: horizor	ıtal inlet	t - horizo	ntal outle	et		
2. INDICATOR PORT OPTION  2 indicator seat on both sides with metal plug preferred option  0. COMPULSORY FIELD  000 filtrec standard						В								
2 indicator seat on both sides with metal plug preferred option  0. COMPULSORY FIELD 000 filtrec standard						1	indica	itor seat on	both sic	les:				
0. COMPULSORY FIELD 000 filtrec standard	9. INDICATOR	PORT	Т ОРТ	ION			left m	etal plug, ri	ght plas	tic cap				
and the standard						2	indico	tor seat on	both sic	les with n	netal plug	р	referred option	
1 CORROSION PROTECTION A gnodized	10. COMPULS	ORY I	FIELD	)		000	filtrec	standard						
1. CONNOCION A UNIONIZED	11. CORROSIO	ON PF	ROTE	CTION		Α	anod	ized						

0

1

no option

150-200 LPM

internal tube for low flow rate



## **ORDERING INFORMATION**

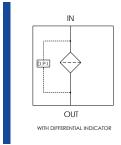
## **ACCESSORIES**

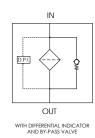
The accessories must be ordered separately

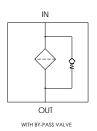
INDICATOR	VX2 (VY2)	differential visual 2,7bar	
(Y and F) digit for FKM seal option	EX2 (EY2)	differential electric 2,7bar	
*LC24=Led connector For other options see clogging indicators	EX2L (EY2L)	differential electric 2,7bar + LC24*	
catalogue	VEXF2	differential visual and electric 2,7 bar	
	VX5 (VY5)	differential visual 5bar	
	EX5 (EY5)	differential electric 5bar	
	EX5L (EY5L)	differential electric 5bar + LC24*	
	VEXF5	differential visual and electric 5bar	
	VX8 (VY8)	differential visual 8bar	
	EX8 (EY8)	differential electric 8bar	recommended for
	EX8L (EY8L)	differential electric 8bar + LC24*	no by-pass option
	VEXF8	differential visual and electric 8 bar	
	LC24	LED connector for pressure switch	
PLUG	P01	metal plug for indicator port - NBR	
	PF1	metal plug for indicator port - FKM	



### **HYDRAULIC SYMBOLS**







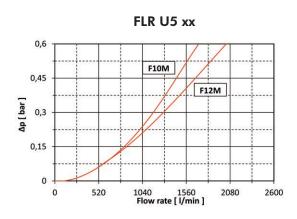
## PRESSURE DROP ( $\Delta p$ ) INFORMATION FOR FILTER SIZING

The total Delta P through a filter assembly is given from Housing  $\Delta p$  + Element  $\Delta p$ .

This ideally should not exceed 1,0 bar and should never exceed 1/3 of the set value of the by-pass valve. N.B. All the reported data have been obtained at our laboratory, according to specification ISO3968 with mineral oil having 32 cSt viscosity and density 0,875 Kg/dm<sup>3</sup>.

### **HOUSING PRESSURE DROP**

The housing  $\Delta p$  is given by the curve of the considered model and port, in correspondence of the flow rate value.





### **ELEMENT PRESSURE DROP**

The element  $\Delta p$  (bar) is given by the flow rate (l/min) multiplied by the factor in the table here below corresponding to the selected media and divided by 1000.

If the oil has a viscosity Vx different than 32 cSt a corrective factor Vx/32 must be applied.

1000 l/min with U564G10B and oil viscosity 46 cSt:  $(1000 \times 0.09) / 1000 \times (46 / 32) = 0.13$  bar

	G01	G03	G06	G10	G15	G25	G40	GW03	GW10	AW40
U562	0,97	0,4	0,32	0,19	0,17	0,11	0,07	1,15	0,55	0,22
U564	0,45	0,19	0,15	0,09	0,08	0,06	0,03	0,58	0,28	0,11

### **EXAMPLE OF TOTAL** $\Delta$ **p CALCULATION**

FLRU5G10B0F10MA1000A0 with 1000 I/min and oil 46 cSt:

Housing  $\Delta p$  + element  $\Delta p$  = 0,22 bar + (1000 x 0.09 / 1000 x (46 / 32) bar = 0,35 bar

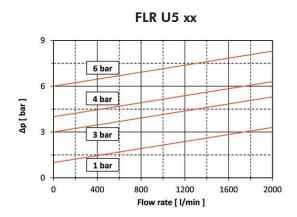
### GW03, GW10 AND AW40 QUICK SIZE TABLE

	suggested flow rate [l/min]	GW03 and GW10 water capacity* [l]	AW40 water capacity* [l]
U562	75	1.31	1.50
U564	152	2.65	3.03

<sup>\*</sup> at final  $\Delta p = 3$  bar

### **BYPASS VALVE PRESSURE DROP**

The bypass valve  $\Delta p$  is given by the curve of the considered model and setting, in correspondence of the flow rate value.



N.B. All the reported data have been obtained at our laboratory, according to specification ISO3968 with mineral oil having 32 cSt viscosity and density 0,875 Kg/dm³.



#### **USER TIPS**



### INDICATOR TIGHTENING TORQUE

50 Nm

### **SPARE SEAL KIT PART NUMBER (5)**

	NBR	FKM
FLR	06.021.00389	06.021.00390

### **BOWL/BODY TIGHTENING TORQUE**

screw up filter bowl/body till end

### DRAIN/VENT TIGHTENING TORQUE

50 Nm

### WARNING



Make sure that Personal Protective Equipment (PPE) is worn during installation and maintenance operation.

### **DISPOSAL OF FILTER ELEMENT**



⚠ The used filter elements and the filter parts dirty of oil are classified as "Dangerous waste material": they must be disposed according to the local laws authorized Companies.

#### **INSTALLATION**



- The IN and OUT ports must be connected to the **1**. hoses in the correct flow direction (an arrow shows on the filter head (1).
  - The filter housing should be preferably mounted with the bowl (6) upward.
  - 3. Secure to the frame the filter head (1) using the fixing holes (3).
  - Verify that no tension is present on the filter after
  - Enough space must be available for filter element replacement.
  - The visual clogging indicator must be in a easily viewable position.
  - When a electrical indicator is used, make sure that it is properly wired.



- Never run the system with no filter element fitted.
- Keep in stock a spare FILTREC filter element for timely replacement when required.
- 10. Filter housing should be earthed.

#### **OPERATION**



- 1. The filter must work within the operating conditions of pressure, temperature and compatibility given in the first page of this data sheet.
- The filter element must be replaced as soon as the clogging indicator signals at working temperature (in cold start conditions, oil temperature lower than 30°C, a false alarm can be given due to oil viscosity).
- If no clogging indicator is mounted, replace the element according to the system manufacturer's recommendations.

### **MAINTENANCE**



- Make sure that the system is switched off and there is no residual pressure in the filter.
- 2. Loosen vent screw (8).
- Remove drain plug (9) in housing bottom and drain oil.
- Unscrew the 3 grub screws (12) of the filter bowl (6). 4
- Unscrew filter bowl counter-clockwise.
- Lift out filter element (4).
- Check seal on filter bowl (5). We recommend replacement in any case.
- Make sure that the order number on the spare element corresponds to the order number of the filter name-plate. To ensure no contamination occurs during the exchange of the element, first open the plastic bag, then push the element over the spigot in the filter head. Now remove plastic bag.
- Push the element carefully over the spigot and tighten the 3 grub screws (12) of the filter bowl (6).
- Tighten drain plug (9) in housing bottom.
- Tight vent screw (8).
  - 12. The used filter elements can not be cleaned and re-use.

