

HYDRAULICKÉ SYSTÉMY



UKŁADY HYDRAULICZNE



ГИДРАВЛИЧЕСКИЕ СИСТЕМЫ

FPG-MDS

PRESSURE FILTERS

MATERIALS

Head: Aluminium alloy

Bowl: Steel Bypass valve: Steel

Seals: NBR Nitrile (FKM - on request fluoroelastomer)

Indicator housing: Brass

PRESSURE

Max working: 5 MPa (50 bar) Collapse, differential for the filter element (ISO 2941): 1 MPa (10 bar)

BYPASS VALVE

Setting: 350 kPa (3,5 bar) ±10%

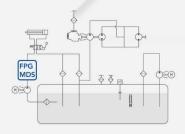
WORKING TEMPERATURE

From -25° to +110° C

COMPATIBILITY (ISO 2943)

Full with fluids: HH-HL-HM-HV-HTG (according to ISO 6743/4) For fluids different than the above mentioned, please contact our Customer Service.

HYDRAULIC DIAGRAM





Is this datasheet the latest release? Please check on our website.



ORDERING AND OPTION CHART

SIZE & LENGTH 20	F P	G	COMPLETE FILTER FAMILY					FILTER ELEMENT FAMILY	Е	Р	G
B B B B B B B B B B			SIZE & LENGTH	20	21	22	31	SIZE & LENGTH			
PORT SIZE 06 = 3/4"		В	PORT TYPE								
06 = 3/4* 08 = 1* 08 = 1* 08 = 08 08 = 08 08 = 1* 10 = 1* 1/14 12 = 1* 1/2 BYPASS VALVE W = without SEALS N = NBR Nitrile F = FKM Fluoroelastomer F = F F F F F FILTER MEDIA FA = fibreglass 5 μm(c) β>1.000 FA = FA FA FA FB = fibreglass 7 μm(c) β>1.000 FB = FB FB FB FB FB FC = fibreglass 16 μm(c) β>1.000 FC FC = FC FC FC FC FC = fibreglass 12 μm(c) β>1.000 FC = FC FC FC FC = fibreglass 10 μm(c) β>1.000 FC = FC FC FC FC = fibreglass 10 μm(c) β>1.000 FC = fC FC FC FC = fC FC = fibreglass 20 μm(c) β>1.000 FC = fC FC FC FC = fC FC = fibreglass 20 μm(c) β>1.000 FC = fC FC FC FC = fC FC = fibreglass 20 μm(c) β>1.000 FC = fC FC FC = f		-	B = BSP thread	В	В	В	В				
08 = 1* 10 = 1* 1/4 12 = 1* 1/2 12 = 1* 1/2 12 = 1* 1/2 13 = 1* 1/4 14 = 10 15 ENFASS VALVE W = without W W W W D = 350 kPa (3,5 bar) D D D D D SEALS N = NBR Nitrile N N N N N F = FKM Fluoroelastomer F F F F F FILTER MEDIA FA = fibreglass 5 μm(c) β>1.000 FA FA FA FA FB = fibreglass 5 μm(c) β>1.000 FB FB FB FB FB FC = fibreglass 12 μm(c) β>1.000 FC FS = fibreglass 12 μm(c) β>1.000 FC FS = fibreglass 12 μm(c) β>1.000 FC FS = fibreglass 30 μm(c) β>1.000 FC FS = fibreglass 30 μm(c) β>1.000 FC FS = fibreglass 10 μm(c) β>1			PORT SIZE								
10 = 1" 1/4 12 = 1" 1/2	-		06 = 3/4"	06	06	06	±.				
12 = 1*1/2 BYPASS VALVE W W W W W W W W D D			08 = 1"	08	08	08	_				
BYPASS VALVE			10 = 1" 1/4	-	-	1=1	10				
W = without			12 = 1" 1/2	_	7_	:=:	12				
D = 350 kPa (3,5 bar) D D D D D SEALS			BYPASS VALVE								
SEALS N = NBR Nitrile			W = without	W	W	W	W	N 7			
$N = NBR \ Nitrile$ $F = FKM \ Fluoroelastomer$ $F = F F F F F$ $FILTER \ MEDIA$ $FA = \text{fibreglass } 5 \ \mu m(c) \ \beta > 1.000$ $FA = FA FA FA FA$ $FB = \text{fibreglass } 7 \ \mu m(c) \ \beta > 1.000$ $FB = FB FB FB$ $FC = \text{fibreglass } 12 \ \mu m(c) \ \beta > 1.000$ $FC = FC FC FC$ $FS = \text{fibreglass } 12 \ \mu m(c) \ \beta > 1.000$ $FD = FD FD FD$ $FD = \text{fibreglass } 12 \ \mu m(c) \ \beta > 1.000$ $FD = FD FD FD$ $FD = \text{fibreglass } 21 \ \mu m(c) \ \beta > 1.000$ $FD = FD FD FD$ $FD = \text{fibreglass } 30 \ \mu m(c) \ \beta > 1.000$ $FE = FE FE FE$ $CC = \text{impregnated cellulose } 10 \ \mu m \ \beta > 2$ $CC CC CC CC$ $CD = \text{impregnated cellulose } 10 \ \mu m \ \beta > 2$ $CD CD CD$ $MC = \text{metal wire mesh } 10 \ \mu m$ $MC MC MC$ $MD = \text{metal wire mesh } 10 \ \mu m$ $ME = \text{metal wire mesh } 60 \ \mu m$ $ME ME ME ME$ $MF = \text{metal wire mesh } 90 \ \mu m$ $CLOGGING \ INDICATOR**$ $00 = \text{no indicator port}$ $00 = 0 \text{no indicator port}$ $00 = 0 \text{no indicator fol with } LED$ $TD = \text{indicator } 6D \ \text{with } LED$ $TD = \text{indicator } 6D \ \text{with } LED$ $TD = \text{indicator port } \text{indicator } \text{indicator port}$ $ACCESSORIES$ $W = \text{No indicator port side } A \text{ see dwg}$ $DC = \text{Indicator port side } A \text{ see dwg}$ $DC = \text{Indicator port side } A \text{ see dwg}$ $DC = \text{Indicator port side } B \text{ see dwg}$ $DC = \text{Indicator port side } B \text{ see dwg}$ $DC = \text{Indicator port side } B \text{ see dwg}$ $CC = \text{Indicator port side } B \text{ see dwg}$ $CC = \text{Indicator port side } C \text{ see dwg}$ $CC = \text{Indicator port side } C \text{ see dwg}$ $CC = \text{Indicator port side } C \text{ see dwg}$ $CC = \text{Indicator port side } C \text{ see dwg}$ $CC = \text{Indicator port side } C \text{ see dwg}$ $CC = \text{Indicator port side } C \text{ see dwg}$ $CC = \text{Indicator port side } C \text{ see dwg}$ $CC = \text{Indicator port side } C \text{ see dwg}$ $CC = \text{Indicator port side } C \text{ see dwg}$ $CC = \text{Indicator port side } C \text{ see dwg}$ $CC = \text{Indicator port side } C \text{ see dwg}$ $CC = \text{Indicator port side } C \text{ see dwg}$			D = 350 kPa (3,5 bar)	D	D	D	D				
F = FKM Fluoroelastomer			SEALS					SEALS			
FILTER MEDIA			N = NBR Nitrile	N	N	N	N				
FA = fibreglass 5 μm(c) β>1.000 FB = fibreglass 7 μm(c) β>1.000 FB = fibreglass 12 μm(c) β>1.000 FC = fibreglass 16 μm(c) β>1.000 FC = fC = fC = fC FS = fibreglass 16 μm(c) β>1.000 FD = fD = fD = fD FD = fD = fD FD = fD = fD FD = fD FD = fD = fD FD = fD = fD FD = fD FD = fD FD = fD = fD FD =			F = FKM Fluoroelastomer	F	F	F	F				
FB = fibreglass 7 μm(c) β>1.000			FILTER MEDIA					FILTER MEDIA			
FC = fibreglass 12 μm(c) β>1.000 FC FC FC FC FS = fibreglass 16 μm(c) β>1.000 FS FS FS FS FS FD = fibreglass 21 μm(c) β>1.000 FD FD FD FD FD FD FE = fibreglass 30 μm(c) β>1.000 FE FE FE FE CC = impregnated cellulose 10 μm β>2 CC CC CC CD = impregnated cellulose 25 μm β>2 CD MC = metal wire mesh 10 μm MC MC MC MD = metal wire mesh 90 μm ME metal wire mesh 90 μm ME metal wire mesh 90 μm MF MF MF CLOGGING INDICATOR** 00 = no indicator port 00 = no indicator port 00 = electrical differential 250 kPa (2,5 bar) 5D = locicator 6D with LED 7D = no fibreglass 21 μm(c) β>1.000 FE FC F			FA = fibreglass 5 μm(c) β>1.000	FA	FA	FA	FA				
$FS = \text{fibreglass } 16 \ \mu\text{m(c)} \ \beta > 1.000 \qquad \qquad FS \qquad FS \qquad FS \qquad FS \qquad FS \qquad FS \qquad FS$			FB = fibreglass 7 μm(c) β>1.000	FB	FB	FB	FB				
FD = fibreglass 21 μm(c) β>1.000 FE = fibreglass 30 μm(c) β>1.000 FE = fibreglass 30 μm(c) β>1.000 FE FE FE FE FE CC = impregnated cellulose 10 μm β>2 CC CC CC CC CD = impregnated cellulose 25 μm β>2 CD CD CD CD CD MC = metal wire mesh 10 μm MC MC MC MC MD = metal wire mesh 30 μm MD MD MD MD MD ME = metal wire mesh 60 μm MF MF MF MF MF CLOGGING INDICATOR** 00 = no indicator port 00 = no indicator port 00 = no indicator port 00 = electrical differential 250 kPa (2,5 bar) 6D = electrical differential 250 kPa (2,5 bar) FD = indicator 6D with LED TD = indicator port TC = elect. diff. 250 kPa (2,5 bar) with thermostat 30°C TC = indicator port W W W W A = Indicator port side A (see dwg) B B B B C = Indicator port side C (see dwg) CC C C C C C C C C C C C C C C C C C C			FC = fibreglass 12 μ m(c) β >1.000	FC	FC	FC	FC				
FE = fibreglass 30 μm(c) β>1.000			FS = fibreglass 16 μ m(c) β >1.000	FS	FS	FS	FS				
CC = impregnated cellulose 10 μ m β >2			FD = fibreglass 21 μm(c) β>1.000	FD	FD	FD	FD				
CD = impregnated cellulose 25 µm β>2 CD CD CD CD MC = metal wire mesh 10 µm MC MC MC MC MD = metal wire mesh 30 µm MD MD MD MD ME = metal wire mesh 60 µm MF = metal wire mesh 90 µm CLOGGING INDICATOR** 00 = no indicator port 00 00 00 00 03 = port, plugged 03 03 03 5D = visual differential 250 kPa (2,5 bar) 6D = electrical differential 250 kPa (2,5 bar) 6D = electrical differential 250 kPa (2,5 bar) TD = indicator 6D with LED TD = indicator 6D with LED TD = indicator 6D with LED TO = lectrical differential 250 kPa (2,5 bar) with thermostat 30°C ACCESSORIES W = No indicator port W W W W A = Indicator port side A (see dwg) B B B C = Indicator port side C (see dwg) C C C C X ACCESSORIES			FE = fibreglass 30 μm(c) β>1.000	FE	FE	FE	FE				
MC = metal wire mesh 10 µm			CC = impregnated cellulose 10 μm β>2	CC	CC	CC	CC				
MD = metal wire mesh 30 µm ME = metal wire mesh 60 µm ME ME ME ME ME MF = metal wire mesh 90 µm MF MF MF MF CLOGGING INDICATOR** 00 = no indicator port 00 = no indicator fort 00 = no indicator fort 00 = no indicator fort 00 = no indicator port 00 = no indicat			CD = impregnated cellulose 25 μm β>2	CD	CD	CD	CD				
ME = metal wire mesh 60 μm ME ME ME ME MF = metal wire mesh 90 μm MF MF MF MF CLOGGING INDICATOR** 00 = no indicator port 00 00 00 00 03 = port, plugged 03 03 03 03 5D = visual differential 250 kPa (2,5 bar) 5D 5D 5D 5D 6D = electrical differential 250 kPa (2,5 bar) 6D 6D 6D 6D 6D 7D = indicator 6D with LED 7D AD AD AD			MC = metal wire mesh 10 μm	MC	MC	MC	MC				
MF = metal wire mesh 90 µm CLOGGING INDICATOR** 00 = no indicator port 00 00 00 00 03 = port, plugged 03 03 03 03 5D = visual differential 250 kPa (2,5 bar) 6D = electrical differential 250 kPa (2,5 bar) 6D = electrical differential 250 kPa (2,5 bar) 7D = indicator 6D with LED 7D 7D 7D 7D 7D T6 = elect. diff. 250 kPa (2,5 bar) with thermostat 30°C ACCESSORIES W = No indicator port W W W W A = Indicator port side A (see dwg) B B B C = Indicator port side C (see dwg) C C C X ACCESSORIES			MD = metal wire mesh 30 μm	MD	MD	MD	MD				
CLOGGING INDICATOR** 00 = no indicator port 00 00 00 00 03 = port, plugged 03 03 03 03 5D = visual differential 250 kPa (2,5 bar) 5D 5D 5D 6D = electrical differential 250 kPa (2,5 bar) 6D 6D 6D 6D 7D = indicator 6D with LED 7D 7D 7D 7D T6 = elect. diff. 250 kPa (2,5 bar) with thermostat 30°C T6 T6 T6 ACCESSORIES W = No indicator port W W W A = Indicator port side A (see dwg) A A A B = Indicator port side B (see dwg) B B B C = Indicator port side C (see dwg) C C C			ME = metal wire mesh 60 μm	ME	ME	ME	ME				
00 = no indicator port 00 00 00 00 03 = port, plugged 03 03 03 03 5D = visual differential 250 kPa (2,5 bar) 5D 5D 5D 5D 6D = electrical differential 250 kPa (2,5 bar) 6D 6D 6D 6D 6D 7D = indicator 6D with LED 7D 7D 7D 7D 7D 7D T6 = elect. diff. 250 kPa (2,5 bar) with thermostat 30°C T6 T6 T6 T6 ACCESSORIES W = No indicator port W W W W A = Indicator port side A (see dwg) A A A A B = Indicator port side B (see dwg) C C C C X ACCESSORIES			MF = metal wire mesh 90 μm	MF	MF	MF	MF				
03 = port, plugged 03 03 03 03 5D = visual differential 250 kPa (2,5 bar) 5D 5D 5D 5D 6D = electrical differential 250 kPa (2,5 bar) 6D 6D 6D 6D 6D 7D = indicator 6D with LED 7D 7D 7D 7D 7D 7D T6 = elect. diff. 250 kPa (2,5 bar) with thermostat 30°C T6 T6 T6 T6 ACCESSORIES W = No indicator port W W W W A = Indicator port side A (see dwg) A A A A B = Indicator port side B (see dwg) B B B B C = Indicator port side C (see dwg) C C C C			CLOGGING INDICATOR**								
5D = visual differential 250 kPa (2,5 bar) 6D = electrical differential 250 kPa (2,5 bar) 6D = of D			00 = no indicator port	00	00	00	00				
6D = electrical differential 250 kPa (2,5 bar) 7D = indicator 6D with LED 7D = lect. diff. 250 kPa (2,5 bar) with thermostat 30°C T6 = elect. diff. 250 kPa (2,5 bar) with thermostat 30°C ACCESSORIES W = No indicator port W W W W A = Indicator port side A (see dwg) A A A A B = Indicator port side B (see dwg) C C C X ACCESSORIES			03 = port, plugged	03	03	03	03				
7D = indicator 6D with LED 7D 7D 7D 7D T6 = elect. diff. 250 kPa (2,5 bar) with thermostat 30°C ACCESSORIES W = No indicator port W W W W A = Indicator port side A (see dwg) B B B B C = Indicator port side C (see dwg) C C C X ACCESSORIES			5D = visual differential 250 kPa (2,5 bar)	5D	5D	5D	5D				
T6 = elect. diff. 250 kPa (2,5 bar) with thermostat 30°C ACCESSORIES W = No indicator port W W W W A = Indicator port side A (see dwg) B = Indicator port side B (see dwg) C = Indicator port side C (see dwg) C = C C C X ACCESSORIES			6D = electrical differential 250 kPa (2,5 bar)	6D	6D	6D	6D				
ACCESSORIES W = No indicator port W W W W A = Indicator port side A (see dwg) A A A A A B = Indicator port side B (see dwg) B B B C = Indicator port side C (see dwg) C C C X ACCESSORIES			7D = indicator 6D with LED	7D	7D	7D	7D				
W = No indicator port A = Indicator port side A (see dwg) B = Indicator port side B (see dwg) C = Indicator port side C (see dwg) C = C C X ACCESSORIES			T6 = elect. diff. 250 kPa (2,5 bar) with thermostat 30°C	T6	T6	T6	T6				
A = Indicator port side A (see dwg) B = Indicator port side B (see dwg) C = Indicator port side C (see dwg) C C C X ACCESSORIES			ACCESSORIES					7			
B = Indicator port side B (see dwg) B B B B C = Indicator port side C (see dwg) C C C X ACCESSORIES			W = No indicator port	W	W	W	W				
C = Indicator port side C (see dwg) C C C X ACCESSORIES			A = Indicator port side A (see dwg)	А	Α	Α	Α				
X ACCESSORIES			B = Indicator port side B (see dwg)	В	В	В	В				
				С	С	С	С				
X = no accessory available X X X X		X	ACCESSORIES				1	7			
			X = no accessory available	X	X	X	X				

SPARE PARTS ELEMENTS





ORDERING AND OPTION CHART

M D	S	COMPLETE FILTER FAMILY					FILTER ELEMENT FAMILY	С	D	S
		SIZE & LENGTH	205	210	220	310	SIZE & LENGTH			
		FILTER MEDIA					FILTER MEDIA			
		FT = fibreglass 5 μm(c) β>1.000	FT	FT	FT	FT			_	1
		FC = fibreglass 7 μ m(c) β >1.000	FC	FC	FC	FC				
		FD = fibreglass 12 μ m(c) β >1.000	FD	FD	FD	FD				
		FS = fibreglass 16 μ m(c) β >1.000	FS	FS	FS	FS				
		FV = fibreglass 21 μ m(c) β >1.000	FV	FV	FV	FV				
		CD = impregnated cellulose 10 μm β>2	CD	CD	CD	CD				
		CV = impregnated cellulose 25 μm β>2	CV	CV	CV	CV				
		MV =metal wire mesh 30 μm	MV	MV	MV	MV				
		MS = metal wire mesh 60 μm	MS	MS	MS	MS				
		MN =metal wire mesh 90 μm	MN	MN	MN	MN				
		SEALS				1	SEALS			
	-	1 = NBR Nitrile	1	1	1	1				
		2 = FKM Fluoroelastomer	2	2	2	2				
		BYPASS VALVE				1				
		S = without	S	S	S	S				
		D = 350 kPa (3,5 bar)	D	D	D	D				
		PORT TYPE								
		B = BSP thread	В	В	В	В				
		PORT SIZE								
		4 = 3/4"	4	4	4	-				
		5 = 1"	5	5	5	+				
		6 = 1" 1/4	-/-	-	-	6				
		7 = 1" 1/2	181	-	-	7				
		CLOGGING INDICATOR**								
		00 = no indicator port	00	00	00	00				
		03 = port, plugged	03	03	03	03				
		5D = visual differential 250 kPa (2,5 bar)	5D	5D	5D	5D				
		6D = electrical differential 250 kPa (2,5 bar)	6D	6D	6D	6D				
		7D = indicator 6D with LED	7D	7D	7D	7D				
		T6 = elect. diff. 250 kPa (2,5 bar) with thermostat 30°C	Т6	Т6	Т6	Т6				
		ACCESSORIES					_			
	-	S = No indicator port	S	S	S	S				
		A = Indicator port side A (see dwg)	Α	Α	Α	А				
		B = Indicator port side A (see dwg)	В	В	В	В				
		C = Indicator port side A (see dwg)	С	С	С	С				
	X	ACCESSORIES								
		X = no accessory available	Χ	X	X	X				

SPARE SEAL KIT

NOTES

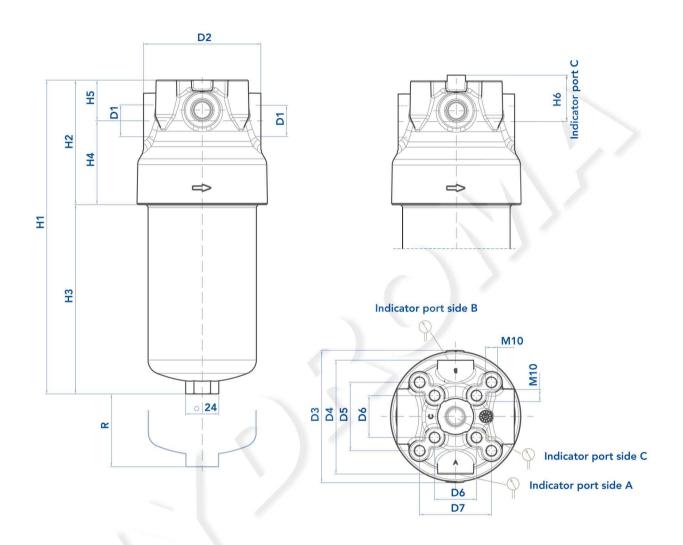
	NBR	FKM
FPG20 MDS205	521.0117.2	521.0118.2
FPG21 MDS210	521.0117.2	521.0118.2
FPG22 MDS220	521.0117.2	521.0118.2
FPG31 MDS310	521.0119.2	521.0120.2

^{**} When the filter is ordered with FKM seals, the first digit of the indicator code is a letter

⁽please see Clogging Indicator Chapter for further details)

FPG-MDS PRESSURE FILTERS

INSTALLATION DRAWING



FILTER HOUSING

	D1	D2	D3	D4	D5	D6	D7	H1	H2	НЗ	H4	H5*	H6*	R	Kg
FPG20 MDS205	3/4" - 1"	98	110,5	95	57	35	60	202	104	98	70	34	39	70	2,00
FPG21 MDS210	3/4" - 1"	98	110,5	95	57	35	60	262	104	158	70	34	39	70	2,25
FPG22 MDS220	3/4" - 1"	98	110,5	95	57	35	60	342	104	238	70	34	39	70	2,80
FPG31 MDS31	1"1/4 - 1"1/2	122	126	114	70	48	70	341	121	220	77	39	44	70	3,50

^{*} with clogging indicatro option W, A and B, please condider H5; with clogging indicator option C, please consider H6.

MAINTENANCE

The best time to change your filter element is just before it reaches its maximum dirt-holding capacity. For this reason, we recommend to monitor the pressure of the hydraulic oil flowing through the filter with a clogging indicator. When it is time to change the filter element, switch off the system before opening the filter housing and make sure there is no pressure in the filter. Unscrew the bowl and remove the dirty filter element. Replace it with an original UFI element, verifying the

part number on the filter label or on the catalogue. Clean the bowl; check the gaskets conditions and replace if necessary. Insert the clean element into his seat, handling with care and cleanliness. Screw the housing until it stops, with a tightening torque of 50 Nm \pm 5/0. We recommend the stocking of a spare UFI filter element for timely replacement when required.



FILTER ELEMENT

A B C Kg Media F+ Media F+ Media F+ Media N EPG20 CD5205 78 30 100 0,20 1.300 1.500 1.000 EPG21 CD5210 78 30 160 0,30 2.200 2.550 1.700							AREA (cm²)	
CDS205	A	В	В	C	Kg	Media F+	Media F+	Media M+
	78	30	30	100	0,20	1.300	1.500	1.000
	78	30	30	160	0,30	2.200	2.550	1.700
EPG22 CDS220 78 30 240 0,45 3.300 3.900 2.600	78	30	30 2	240	0,45	3.300	3.900	2.600
EPG31 CDS310 92 40 215 0,45 4.700 5.100 3.500	92	40	40 2	215	0,45	4.700	5.100	3.500

The used filter elements cannot be cleaned and are classified as "Dangerous waste material". They must be disposed according to local laws by authorized Companies.

Verify that the Company you choose has the expertise and authorization to dispose this type of waste material.

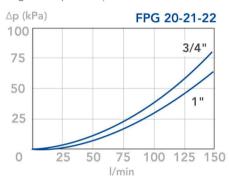


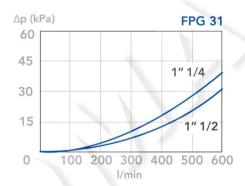
PRESSURE DROP CURVES (ΔP)

The "Assembly Pressure Drop (Δp) " is obtained by adding the pressure drop values of the Filter Housing and of the Clean Filter Element corresponding to the considered Flow Rate and it must be

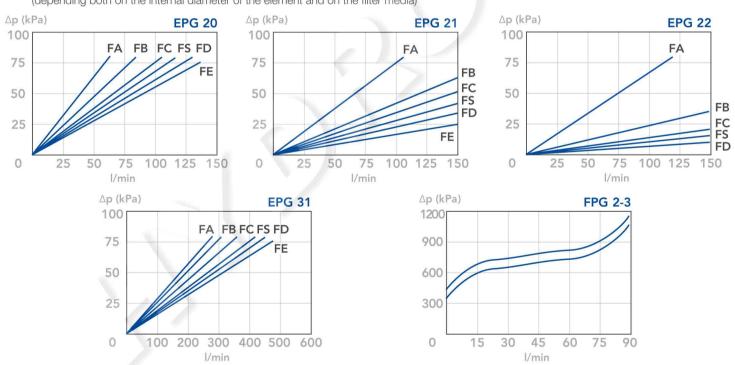
lower than 120 kPa (1,2 bar) and should never exceed 1/3 of the bypass valve setting.

FILTER HOUSING PRESSURE DROP (mainly depending on the port size)





CLEAN FILTER ELEMENT PRESSURE DROP WITH F+ AND C+MEDIA (depending both on the internal diameter of the element and on the filter media)



BYPASS VALVE PRESSURE DROP

When selecting the filter size, these curves must be taken into account if it is foreseen that any flow peak is to be absorbed by the bypass valve, it also must be of proper configuration to avoid pressure peaks. The valve pressure drop is directly proportional to fluid specific gravity.

N.B.

All the curves have been obtained with mineral oil having a kinematic viscosity 30 cSt and specific gravity 0,86 kg/dm3; for fluids with different features, please consider the factors described in the first part of this catalogue. All the curves

are obtained from test done at the UFI HYDRAULIC DIVISION Laboratory, according to the specification ISO 3968. In case of discrepancy, please check the contamination level, viscosity and features of the fluid in use.