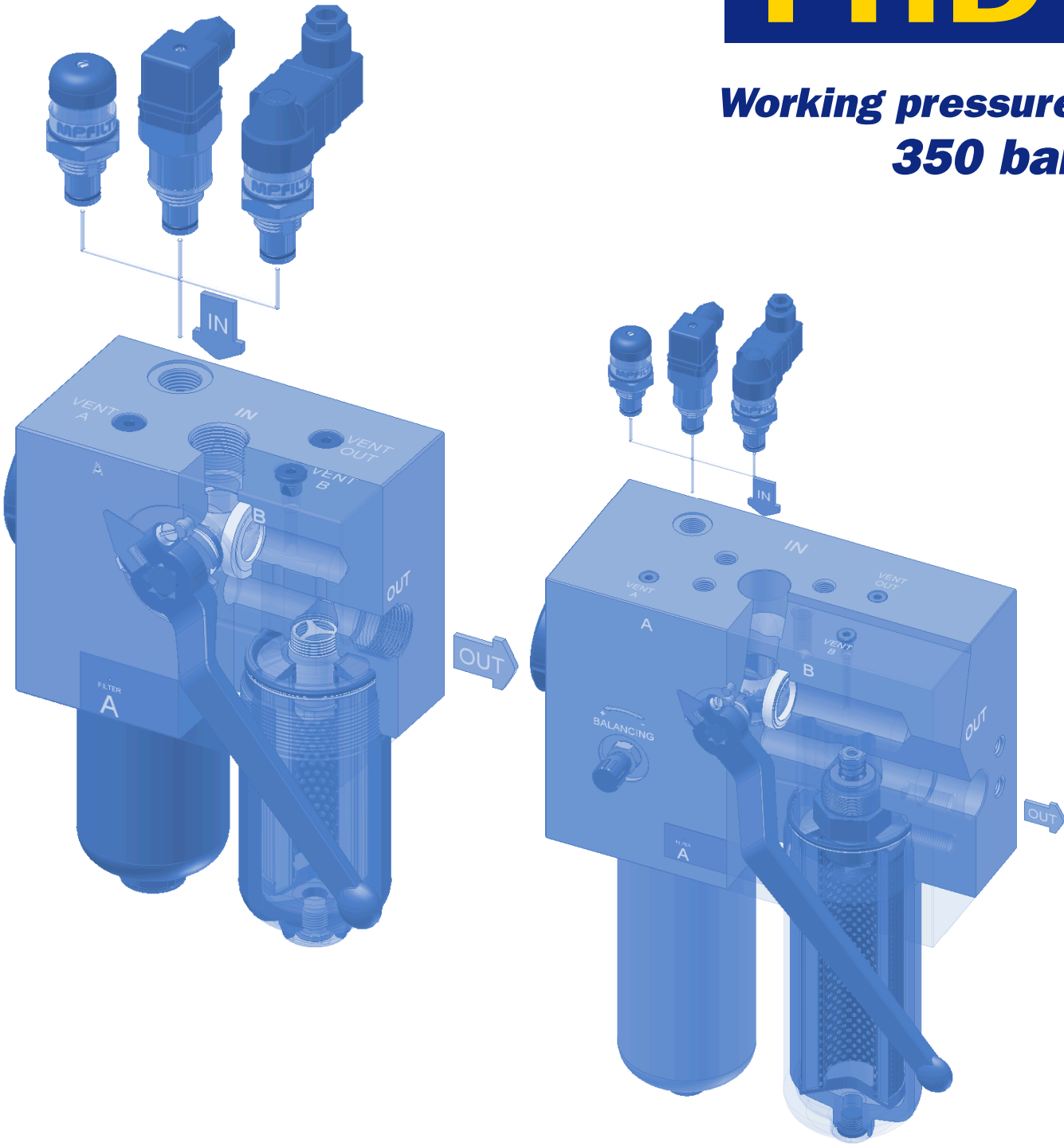


# FHD

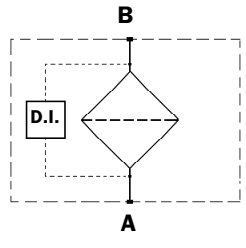


# SERIES FHD

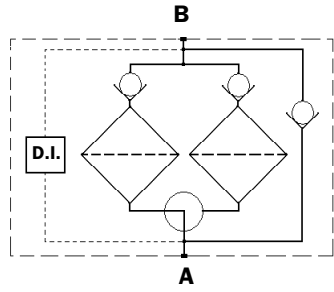
**Working pressure  
350 bar**



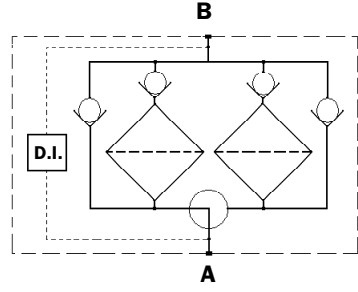
Style S



Style B  
Series FHD 051



Style B  
Series FHD 325/332



# Technical data

## Filter body (Materials)

- Head: Cast iron (chemical heat treatment)
- Housing: Steel (chemical heat treatment)
- Bypass valve: Steel

## Pressure

- Maximum operating pressure: 350 bar (35 MPa)
- Test pressure: 525 bar (52.5 MPa)
- Burst pressure: 1250 bar (125 MPa)
- Pulsed pressure fatigue test 1,000,000 cycles with pressure from 0 to 350 bar (35 MPa)

## Temperature

- From -25°C to + 110°C

## Bypass valve

- Opening pressure 6 bar ±10%
- Other opening pressures on request.

## Elements type Δp

- Elements in microfibre series R : 20 bar
- Elements in microfibre series S-H : 210 bar
- Elements in stainless steel mesh series N : 20 bar
- Oil flow from exterior to interior.

## Seals

- Standard Nitrile (NBR) series A
- Optional FPM series V

## Weights without filter elements (kg)

	Length 0	1	2	3	4	5
• FHD 020	5,9	6,8				
• FHD 050			15	16,2	17,5	20
• FHD 325		50	55	59,5		
• FHD 332		65	80	89	101	

## Filter internal volumes (dm³)

	Length 0	1	2	3	4	5
• FHD 020	0,31	0,51				
• FHD 050			1,05	1,25	1,46	1,82
• FHD 325		3,72	5,32	7,15		
• FHD 332		2,72	4,24	4,85	6,76	

## Connections

In-line Inlet/Outlet 90°

## Compatibility

- Bodies compatible with: Mineral oils to ISO 2943 - aqueous emulsions synthetic fluids, water glycol.
- Filter elements compatible with: Mineral oils to ISO 2943 - aqueous emulsions synthetic fluids, water glycol.
- Nitrile (NBR) seals series A, compatible with: Mineral oils to ISO 2943 - aqueous emulsions synthetic fluids, water glycol.
- V series FPM seals, compatible with: Synthetic fluids type HS-HFDR-HFDS-HFDU.

## Filter Element Area

Filter element in stainless steel mesh

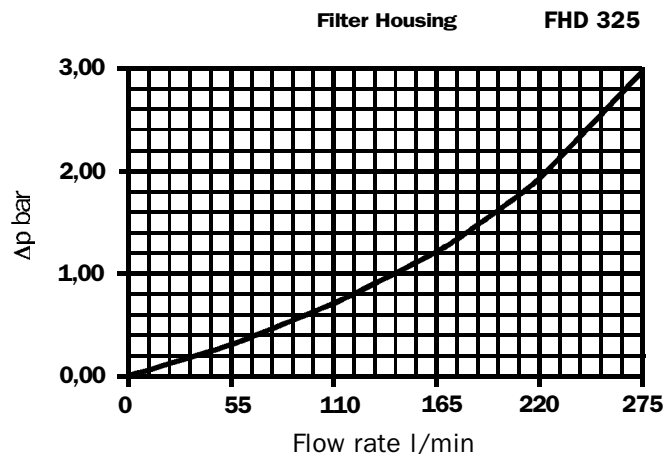
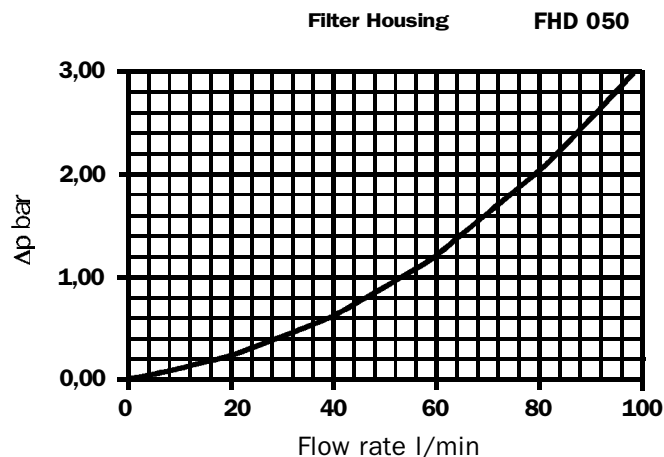
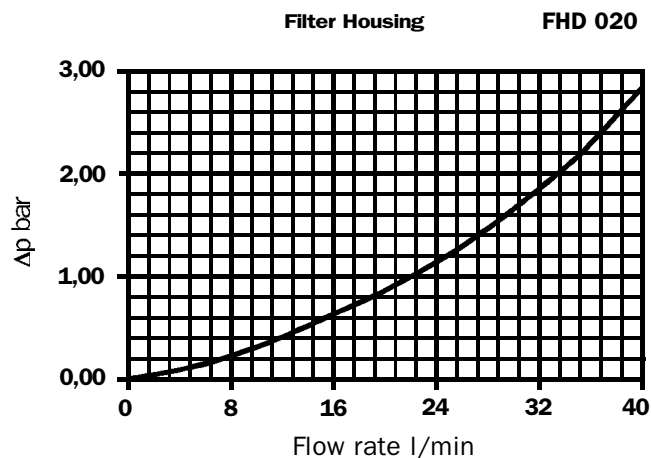
Type	Length					
	0	1	2	3	4	5
HP020		278				
HP050	-	450	700	1000	1300	2100
HP320	-	1650	3645	5970	8280	

Values expressed in cm<sup>2</sup>

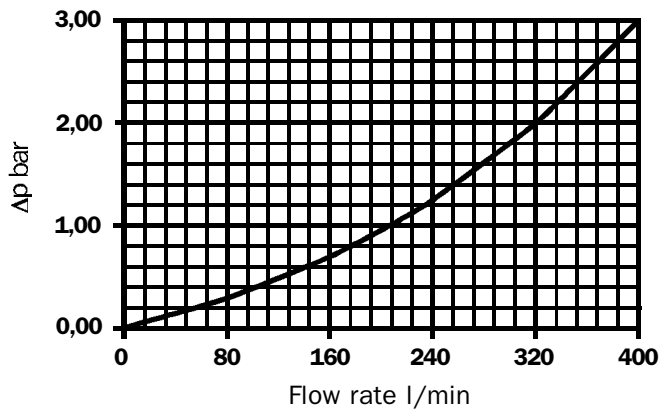
## Pressure drops Δp Housing

The curves are plotted using mineral oil with density of 0.86 kg/dm<sup>3</sup> to ISO 3968.

Δp varies proportional with density.



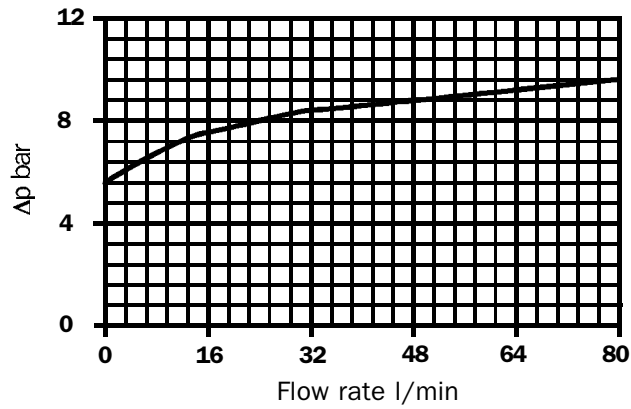
**Filter Housing FHD 332**



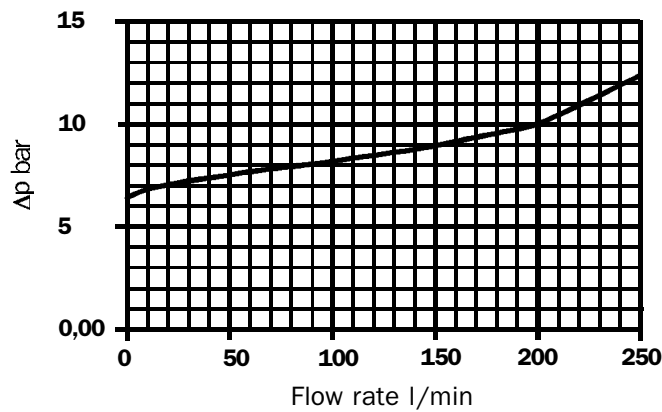
**Valves**

**Bypass valve pressure drop**

**FHD 050**



**FHD 325 - 332**



# FHD

## Recommended maximum flow rate

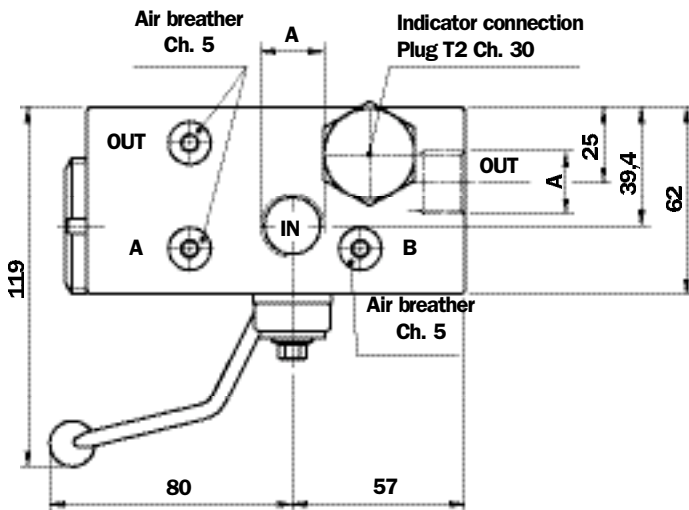
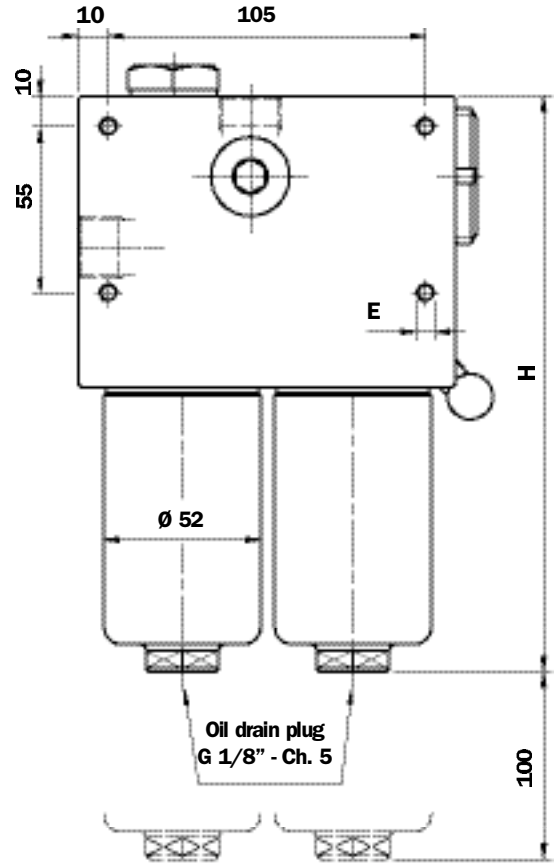
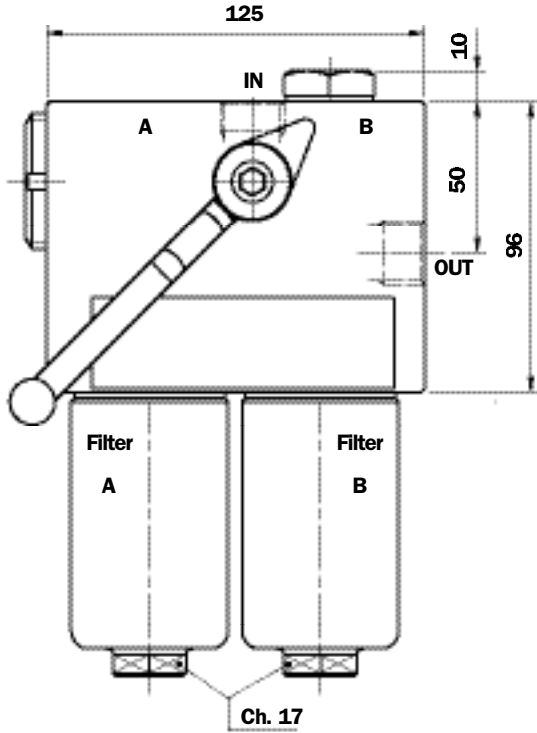
- Pressure drop of complete filter equal to  $\Delta p$  2.5 bar.
- Oil kinematic viscosity 30 mm<sup>2</sup>/s (cSt).
- Density 0.86 kg/dm<sup>3</sup>.

Filter element type	020	050		325		332		Filter Length
	Flow rate l/min Series H	Flow rate l/min Series R	Flow rate l/min Series S	Flow rate l/min Series R	Flow rate l/min Series S	Flow rate l/min Series R	Flow rate l/min Series S	
A03	9							0
A06	10							
A10	14							
A16	15							
A25	17							
M25*	25							
A03	17	50	40	145	130			1
A06	20	59	48	150	135			
A10	28	68	60	195	175			
A16	30	70	60	208	180			
A25	33	76	67	220	212			
M25*	35	82	-	240	-			
A03		57	52	200	180	265	225	2
A06		60	55	208	190	275	245	
A10		70	58	225	215	315	290	
A16		75	72	235	218	320	295	
A25		80	78	245	230	330	315	
M25		86	-	245	-	340	-	
A03		64	60	220	205	295	268	3
A06		65	62	225	212	308	288	
A10		74	72	240	228	325	310	
A16		77	75	245	230	330	315	
A25		82	80	250	235	335	325	
M25		86	-	250	-	340	-	
A03		70	67			308	285	4
A06		72	70			315	295	
A10		78	76			330	315	
A16		79	77			335	315	
A25		82	82			340	305	
M25		86* SERIE N	-			345	-	
A03		77	73					5
A06		78	75					
A10		82	79					
A16		83	80					
A25		85	85					
M25		88	-					

\* SERIES N

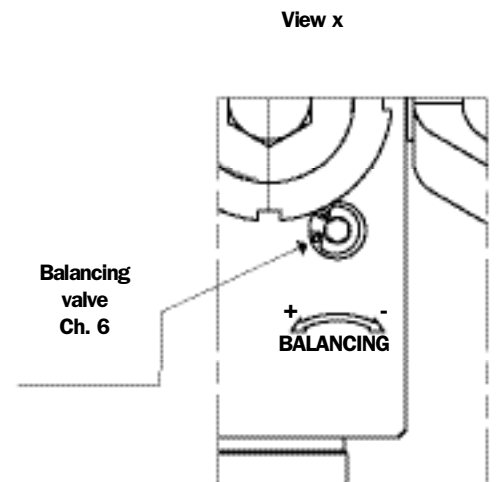
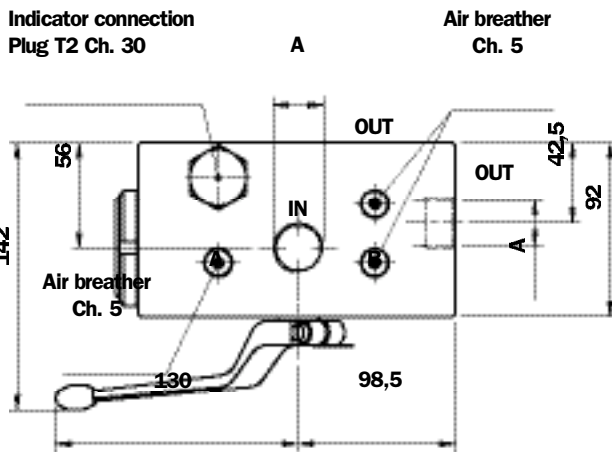
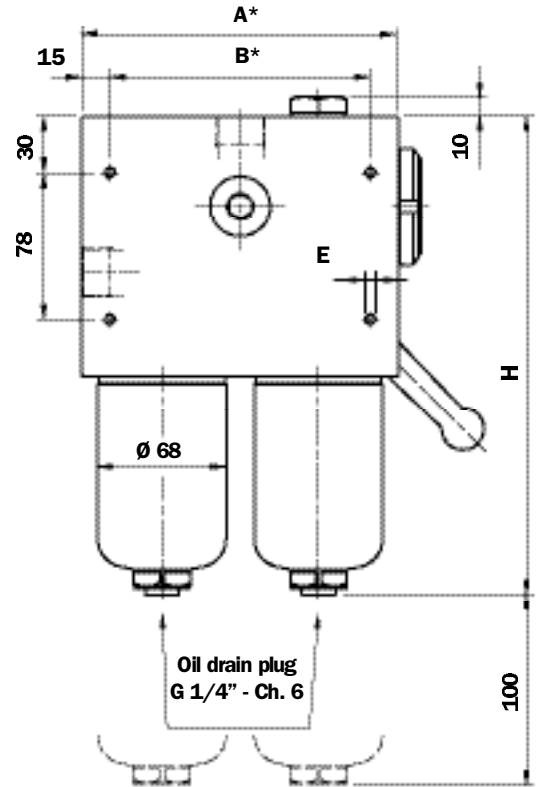
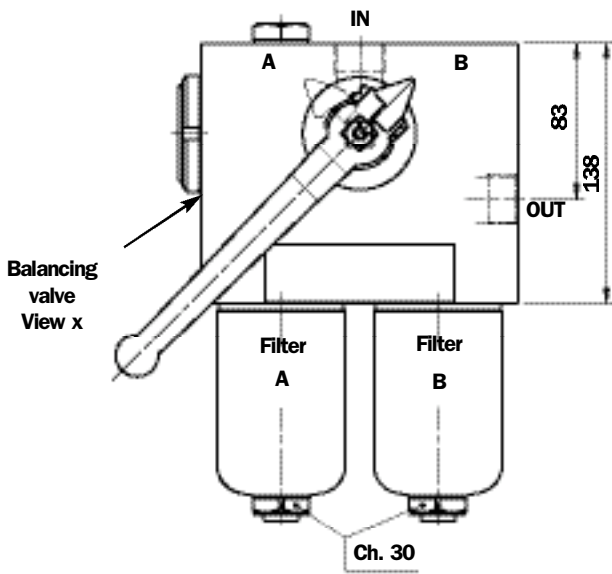
# Dimensions

## FHD 020



A Threaded Connections	E Depth 7 mm	Filter Length	H mm
G 1/2"	M6	0	144
1/2" NPT	1/4" UNC	1	194
SAE 8 (3/4"- 16 UNF)	1/4" UNC		

# FHD 051

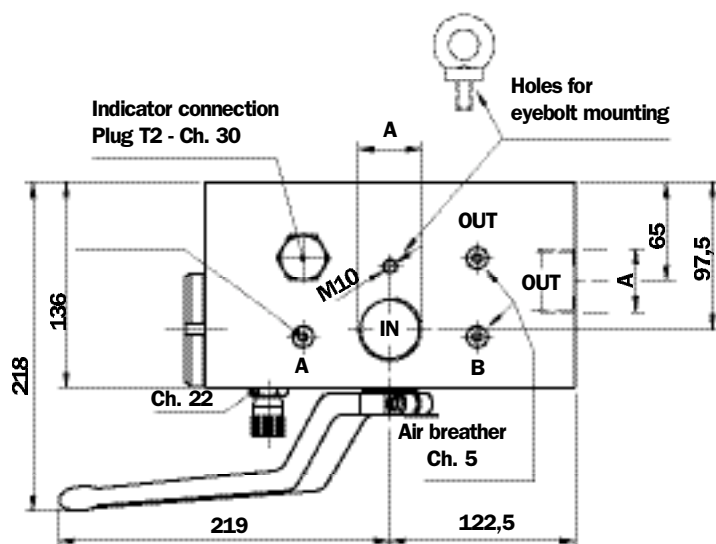
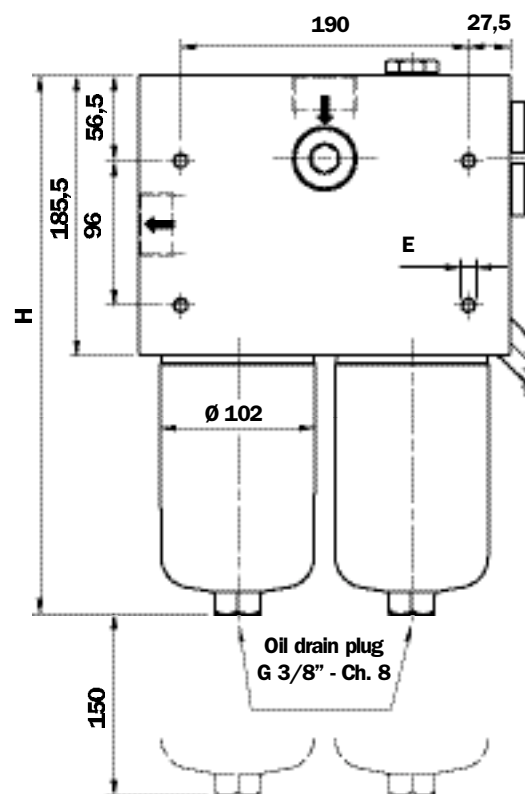
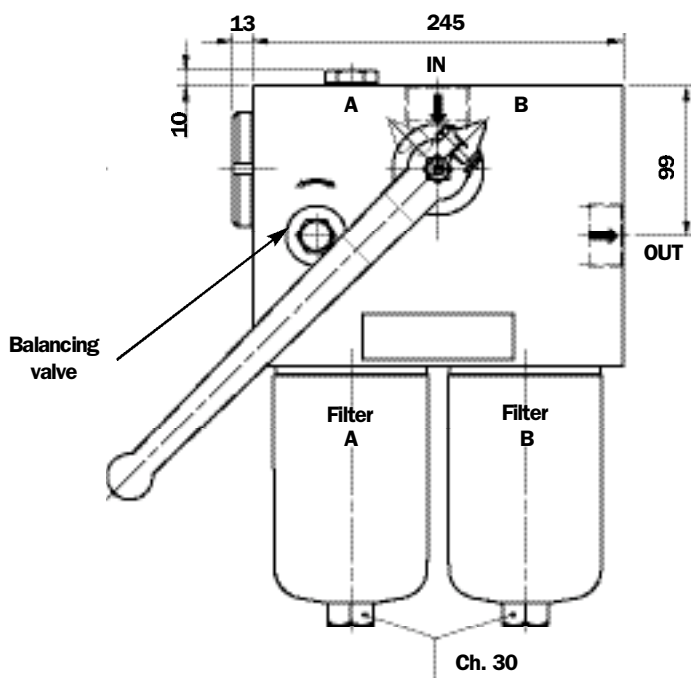


A Threaded Connections	E Depth 7 mm
G 1/2"	M6
G 3/4"	M6
1/2" NPT	1/4" UNC
3/4" NPT	1/4" UNC
SAE 8 (3/4" - 16 UNF)	1/4" UNC
SAE 12 (1 1/16" - 12 UN)	1/4" UNC

	A*	B*
With by-pass	182,5	152,5
No by-pass	168	138

Filter Length	H mm
2	253
3	295
4	343
5	465

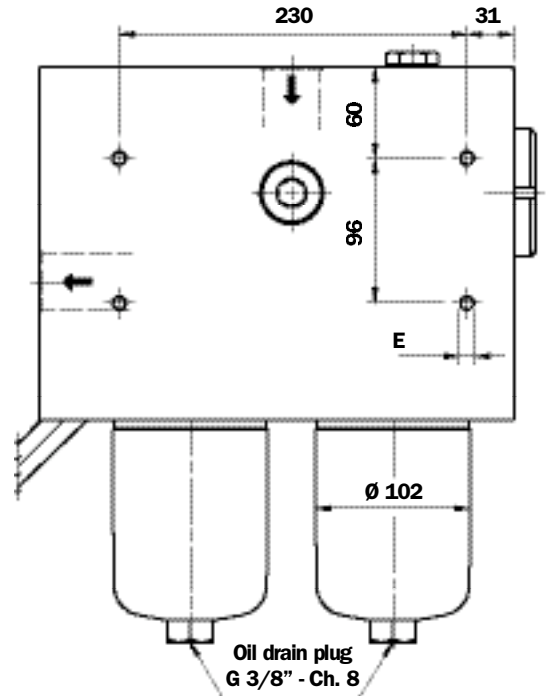
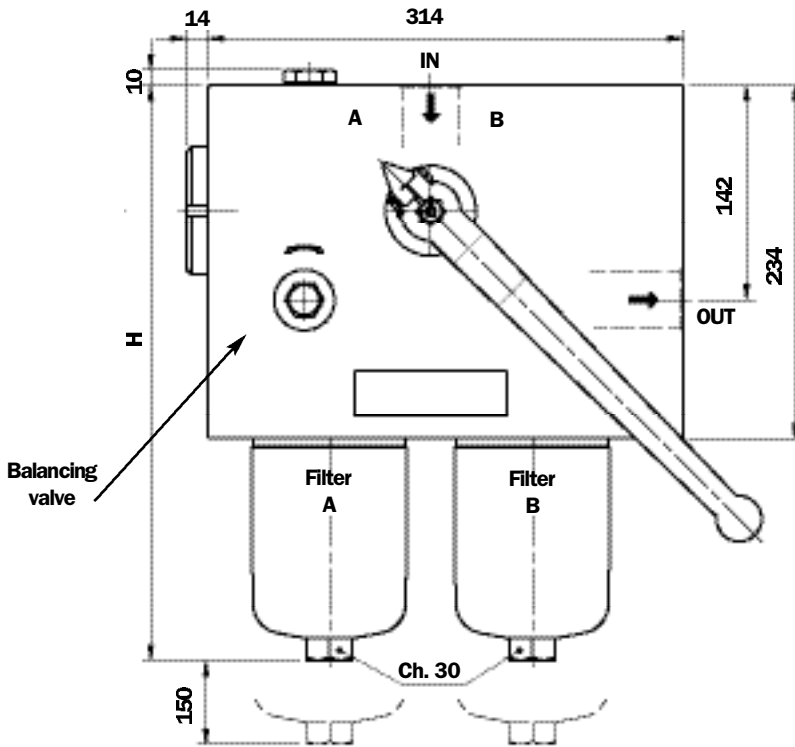
# FHD 325



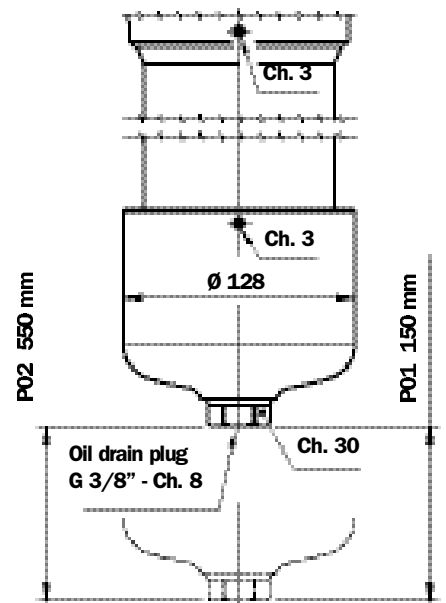
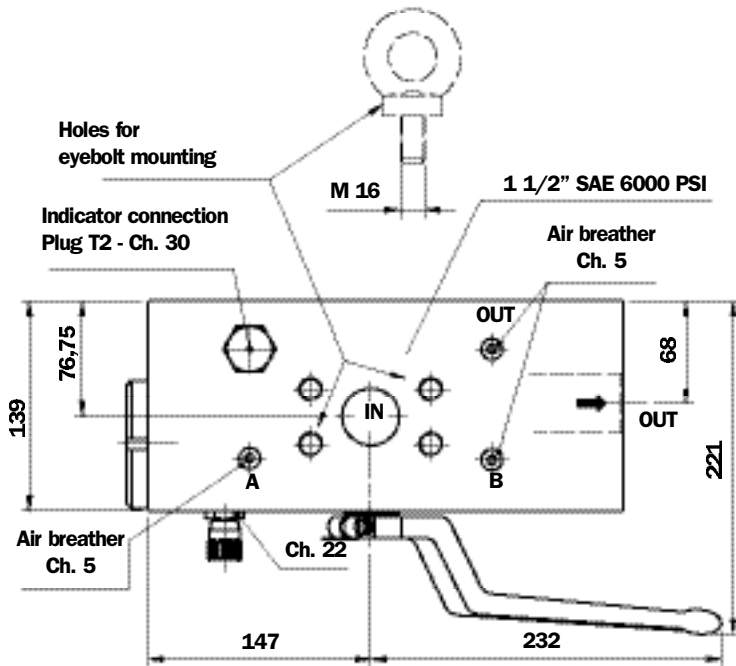
A	D	E	Filter Length	H
Threaded Connections		Depth 11 mm		mm
G 1 1/4"	M10	M10	1	308
1 1/4" NPT	3/8" UNC	3/8" UNC	2	431
SAE 20 (1 5/8" - 12 UN)	3/8" UNC	3/8" UNC	3	563



# FHD 332



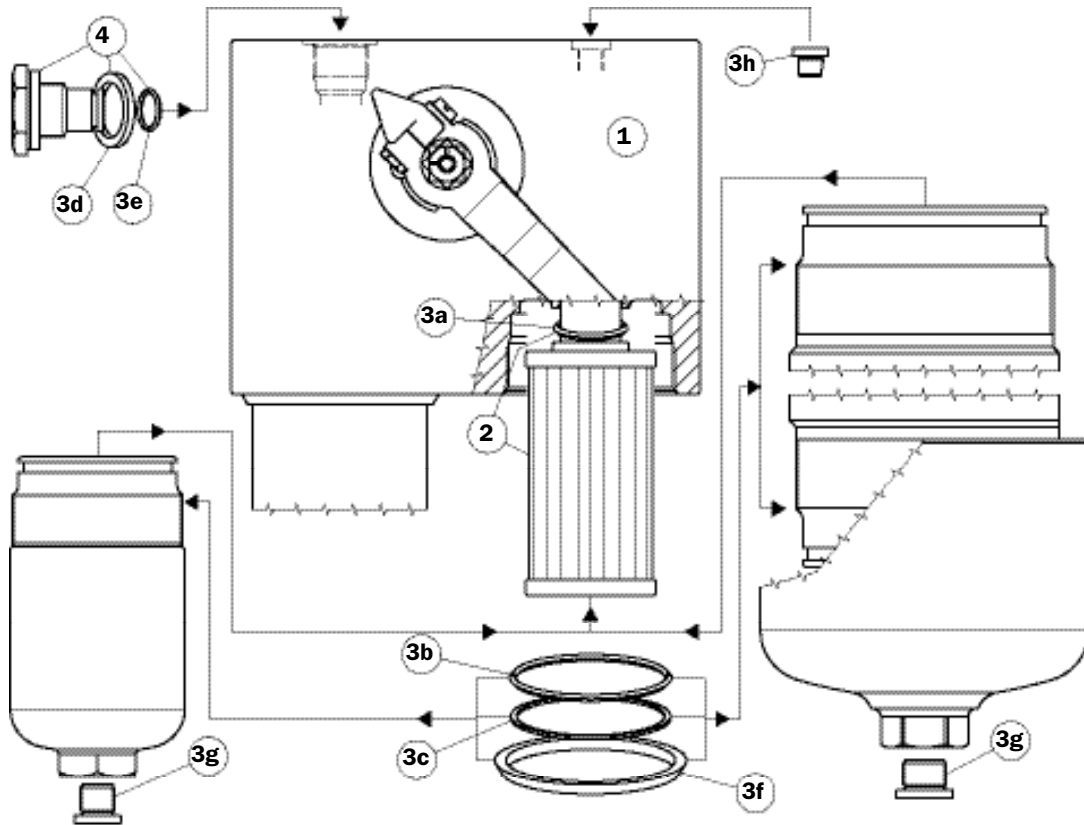
Only for FHD 332 length 4



Style P01 standard maintenance from head.  
Style P02 maintenance option from housing base.

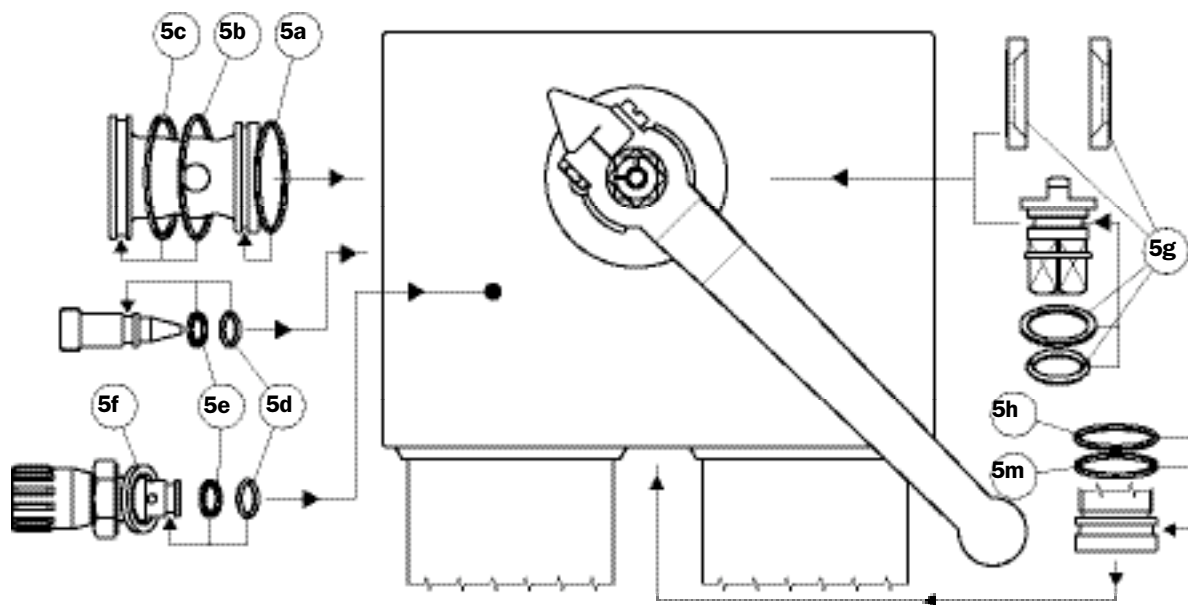
A Flanged connection	D	E Depth 11 mm	Filter Length	H mm
1 1/2" SAE 6000 PSI/M	M16	M10	2	480
1 1/2" SAE 6000 PSI/UNC	5/8" UNC	3/8" UNC	3	612
			4	767

# Spare parts FHD (for routine maintenance)



Pos.	Description	Qty.	FHD Series FILTER							
			020 0 - 1		051 2 - 3 - 4 - 5		325 1 - 2 - 3		332 2 - 3 - 4	
1	Complete filter	1	See order table							
2	Filter element	1	See order table							
3	Seals kit for routine maintenance	1	NBR 02050418	FPM 02050419	NBR 02050420	FPM 02050421	NBR 02050377		FPM 02050378	
3a	Filter element O-Ring	2	OR 3062 Ø 15,56 x 2,62		OR 3093 Ø 23,47 x 2,62		OR 144 Ø 39,69 x 3,53			
3b	O-Ring for housing	2	OR 3162 Ø 40,95 x 2,62		OR 3225 Ø 56,82 x 2,62		4 pz.	OR 3350 Ø 88,57 x 2,62		
3c	Anti-extrusion ring	2	Parbak 130 Ø 41,73 x 2,18		Parbak 139 Ø 56,03 x 2,18		4 pz.	Parbak 153 Ø 89,36 x 2,18		
3d	Bonded seal	1	G 1/2" - FPM							
3e	O-Ring	1	OR 2050 Ø 12,42 x 1,78 - FPM							
3f	Protective seal	2	-		-		01026510			
3g	Oil drain plug	2	G 1/8" with bonded seal		G 1/4" with bonded seal		G 3/8" with bonded seal			
3h	Air breather	3	01029094							
-	Indicators	1	See order table							
4	Indicator connection plug	1	T2							

## Spare parts FHD (for routine maintenance)



Pos.	Description	Qty.	FHD Series FILTER							
			020 0 - 1		051 2 - 3 - 4 - 5		325 1 - 2 - 3		332 2 - 3 - 4	
			NBR	FPM	NBR	FPM	NBR	FPM	NBR	FPM
<b>5</b>	Seals kit for valves maintenance	1	02050422	02050423	02050424	02050425	02050426	02050427	02050428	02050429
<b>5a</b>	O-Ring	1	OR 2081 Ø 20,35 x 1,78		OR 2131 Ø 33,05 x 1,78		OR 2155 Ø 39,45 x 1,78		OR 2200 Ø 50,52 x 1,78	
<b>5b</b>	O-Ring	1	OR 2093 Ø 23,52 x 1,78		OR 2150 Ø 37,82 x 1,78		OR 3162 Ø 40,95 x 2,62		OR 3200 Ø 50,47 x 2,62	
<b>5c</b>	Anti-extrusion ring	1	Parbak 021 Ø 24,26 x 1,35		Parbak 029 Ø 38,56 x 1,35		Parbak 130 Ø 41,73 x 2,18		Parbak 136 Ø 51,26 x 2,18	
<b>5d</b>	O-Ring	1	-		OR 2031 Ø 7,65 X 1,78		OR 2037 Ø 9,25 X 1,78			
<b>5e</b>	Anti-extrusion ring	1	-		01045083		01045090			
<b>5f</b>	Bonded seal	1	-		-		Ø 15			
<b>5g</b>	Ball element seal kit	1	02050376 (DN10)		02050360 (DN20)		02050361 (DN25)		02050362 (DN32)	
<b>5h</b>	O-Ring Bp	1	-		OR 2093 Ø 23,52 x 1,78		-		-	
<b>5m</b>	Anti-extrusion ring Bp	1	-		Parbak 021 Ø 24,26 x 1,35		-		-	

# Ordering information FHD

## Filter assembly

**FHD020/051**

Example: FHD 051

## Filter element

**HP 050**

Example: HP050

	1	2	3	4	5	6	7	8 a
<b>FHD020/051</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Example: FHD 051	051	4	S	A	G1	A10	S	P01
<b>Filter element</b>	<b>1</b>	<b>2</b>	<b>6</b>	<b>4</b>	<b>7</b>	<b>8 b</b>		
<b>HP 050</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Example: HP050	050	4	A10	A	S	P01		

### 1 - Size

Filter	Filter element
<input type="checkbox"/> 020	<input type="checkbox"/> 020
<input type="checkbox"/> 051	<input type="checkbox"/> 050

### 2 - Filter length

	FHD 020	FHD 051
<input type="checkbox"/> 0	X	-
<input type="checkbox"/> 1	X	-
<input type="checkbox"/> 2	-	X
<input type="checkbox"/> 3	-	X
<input type="checkbox"/> 4	-	X
<input type="checkbox"/> 5	-	X

### 3 - Bypass valve

<input type="checkbox"/> S	Without bypass
<input type="checkbox"/> B	With bypass (only for FHD 051)

### 4 - Seals

<input type="checkbox"/> A	NBR
<input type="checkbox"/> V	FPM

### 5 - Connections

	FHD 020	FHD 051
<input type="checkbox"/> G1	G 1/2"	G 3/4"
<input type="checkbox"/> G2	-	3/4" NPT
<input type="checkbox"/> G3	1/2" NPT	G 1/2"
<input type="checkbox"/> G4	SAE 8	1/2" NPT
<input type="checkbox"/> G5	-	SAE 8
<input type="checkbox"/> G6	-	SAE 12
<input type="checkbox"/> F1	-	-
<input type="checkbox"/> F2	-	-

### 6 - Filter element

<input type="checkbox"/> A03	Inorganic microfibre 3 µ	} βx (c) ≥ 1000 see page 9
<input type="checkbox"/> A06	Inorganic microfibre 6 µ	
<input type="checkbox"/> A10	Inorganic microfibre 10 µ	
<input type="checkbox"/> A16	Inorganic microfibre 16 µ	
<input type="checkbox"/> A25	Inorganic microfibre 25 µ	
<input type="checkbox"/> M25	Stainless steel mesh 25 µ (style N only)	

### 7 - Filter elements differential pressure

<input type="checkbox"/> R	20 bar only FHD 051	<input type="checkbox"/> N	20 bar (only for element M25)
<input type="checkbox"/> S	210 bar only FHD 051		
<input type="checkbox"/> H	210 bar only FHD 020		

### 8 - Options

#### a) Filter

<input type="checkbox"/> P01	MP Filtri standard
<input type="checkbox"/> P02	MP with replacement of the filter element from the cap (only for length 4)
<input type="checkbox"/> Pxx	Customer request

#### b) Filter element

<input type="checkbox"/> P01	MP Filtri standard
<input type="checkbox"/> Pxx	Customer request

DIFFERENTIAL INDICATORS (see page 15)

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# Ordering information FHD

## Filter assembly

### FHD 325/332

Example: FHD 332

## Filter element

### HP 320

Example: HP320

	1	2	3	4	5	6	7	8 a
<b>FHD 325/332</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Example: FHD 332	050	4	S	A	G1	A10	S	P01
<b>Filter element</b>	<b>2</b>	<b>6</b>	<b>4</b>	<b>7</b>	<b>8 b</b>			
<b>HP 320</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
Example: HP320	4	A10	A	S	P01			

### 1 - Size

325
332

### 2 - Filter length

	FHD 325	FHD 332
<input type="checkbox"/> 1	X	-
<input type="checkbox"/> 2	X	X
<input type="checkbox"/> 3	X	X
<input type="checkbox"/> 4	-	X

### 5 - Connections

	FHD 325	FHD 332
<input type="checkbox"/> G1	G 1 1/4"	-
<input type="checkbox"/> G2	-	-
<input type="checkbox"/> G3	1 1/4" NPT	-
<input type="checkbox"/> G4	SAE 20	-
<input type="checkbox"/> G5	-	-
<input type="checkbox"/> G6	-	-
<input type="checkbox"/> F1	-	1 1/2" SAE 6000 PSI/M
<input type="checkbox"/> F2	-	1 1/2" SAE 6000 PSI/UNC

### 3 - Bypass valve

<input type="checkbox"/> S	Without bypass
<input type="checkbox"/> B	With bypass

### 4 - Seals

<input type="checkbox"/> A	NBR
<input type="checkbox"/> V	FPM

### 6 - Filter element

<input type="checkbox"/> A03	Inorganic microfibre 3 µ	} βx (c) ≥ 1000 see page 9
<input type="checkbox"/> A06	Inorganic microfibre 6 µ	
<input type="checkbox"/> A10	Inorganic microfibre 10 µ	
<input type="checkbox"/> A16	Inorganic microfibre 16 µ	
<input type="checkbox"/> A25	Inorganic microfibre 25 µ	
<input type="checkbox"/> M25	Stainless steel mesh 25 µ (style N only)	

### 7 - Filter elements differential pressure

<input type="checkbox"/> R	20 bar	<input type="checkbox"/> N	20 bar (only for element M25)
<input type="checkbox"/> S	210 bar		

### 8 - Options

#### a) Filter

<input type="checkbox"/> P01	MP Filtri standard
<input type="checkbox"/> P02	MP with replacement of the filter element from the cap (only for length 4)
<input type="checkbox"/> Pxx	Customer request

#### b) Filter element

<input type="checkbox"/> P01	MP Filtri standard
<input type="checkbox"/> Pxx	Customer request

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