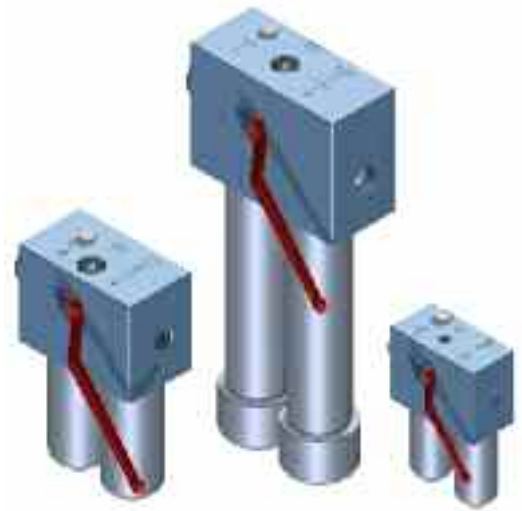


# FHD

**Maximum pressure 350 bar**  
**Flow rates to 345 l/min**



## Technical data

### Filter housing (Materials)

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

### Pressure

- Working pressure: 350 bar (35 MPa)
- Test pressure: 525 bar (52,5 MPa)
- Burst pressure: 1050 bar (105 MPa)
- Pulse 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  $\pm$ 10%
- Other opening pressures on request.

### $\Delta p$ Elements type

- Microfibre filter elements series R: 20 bar
- Microfibre filter elements series H: 210 bar (only for FHD 021)
- Microfibre filter elements series S: 210 bar (excluded FHD 021)
- Wire mesh filter elements series N: 20 bar
- Fluid flow through the filter element from OUT to IN

### Seals

- Standard NBR series A
- Optional FPM series V

### FHD FILTERS ARE PROVIDED FOR VERTICAL MOUNTING

### Weights (kg)

Length	1	2	3	4	5
• FHD021	-	6,66	7,15	8,15	-
• FHD051	13,41	13,78	14,19	14,66	-
• FHD326	36,35	39,48	10,77	-	-
• FHD333	-	64,48	66,77	69,25	-

### Volumes (dm<sup>3</sup>)

Length	1	2	3	4	5
• FHD021	-	0,06	0,12	0,22	-
• FHD051	0,22	0,31	0,41	0,53	-
• FHD326	0,88	1,60	2,37	-	-
• FHD333	-	1,75	2,52	3,35	-

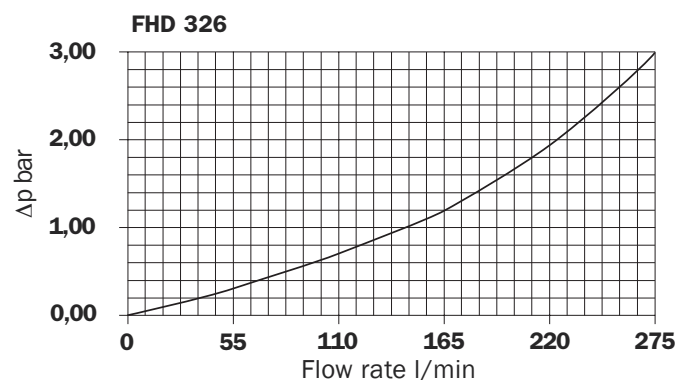
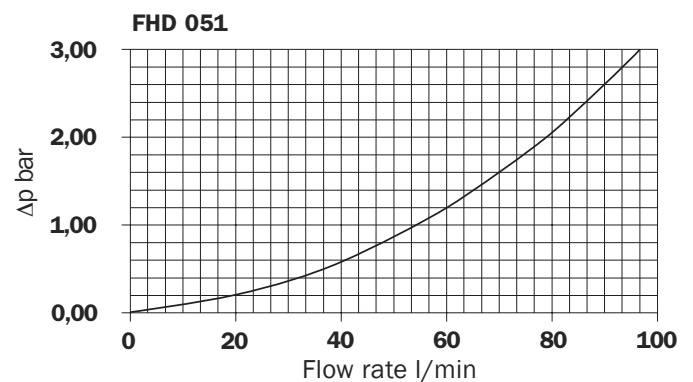
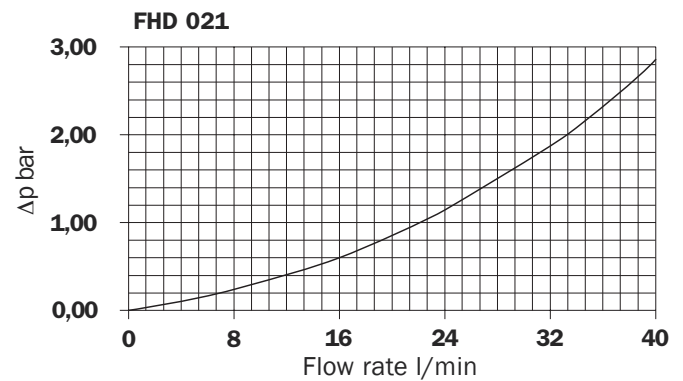
### Connections

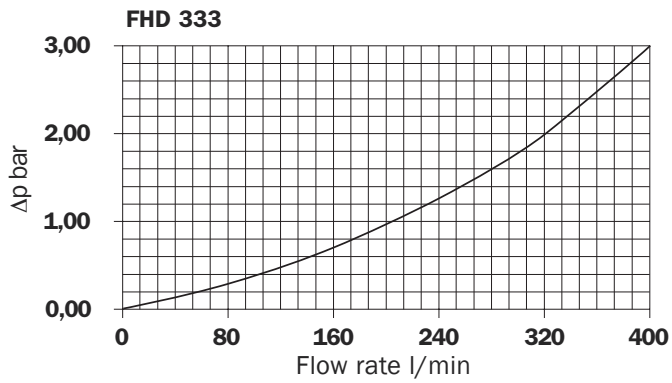
- FHD: In-line Inlet/Outlet 90°

### Filter housings $\Delta p$ pressure drop

The curves are plotted utilising mineral oil with density of 0,86 kg/dm<sup>3</sup> to ISO 3968.

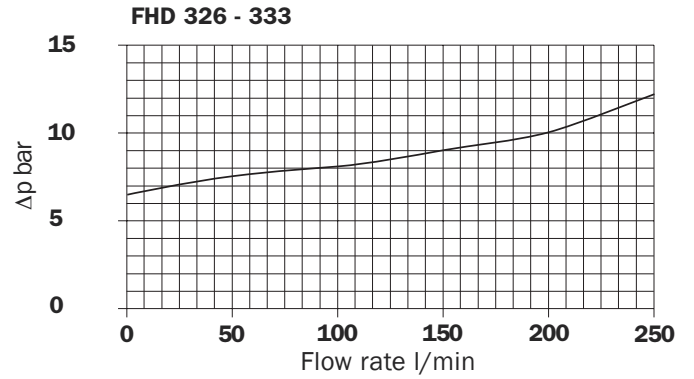
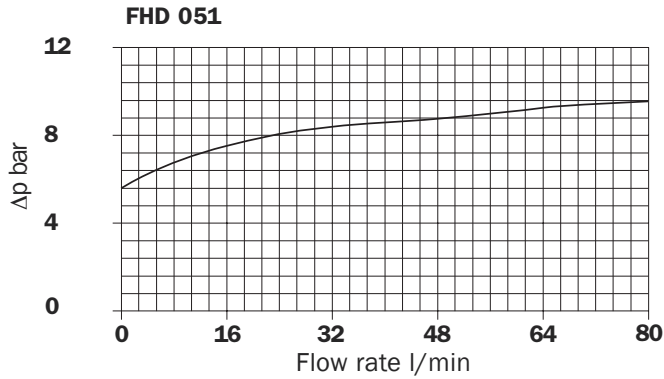
$\Delta p$  varies proportionally with density.





**Valves**

**Bypass valve pressure drop**



**Recommended maximum flow rate**

- Pressure drop of filter assembly 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>.

	Length	Filtration					
		A03	A06	A10	A16	A25	M25
<b>FHD 021</b>	2	7,5	10	18	20	25	30
	3	14	17	26	28	31	35
	4	16	19	27	29	32	35

**Serie H - Flow rate l/min**

	Length	Filtration					
		A03	A06	A10	A16	A25	M25
<b>FHD 051</b>	2	56	59	70	74	80	84
	3	63	65	74	76	81	85
	4	70	72	78	79	82	86
	5	76	77	81	82	84	87

**Serie R - Flow rate l/min**

	Length	Filtration				
		A03	A06	A10	A16	A25
<b>FHD 051</b>	2	52	55	67	71	78
	3	60	61	72	74	80
	4	67	69	76	77	81
	5	73	74	78	80	83

**Serie S - Flow rate l/min**

	Length	Filtration					
		A03	A06	A10	A16	A25	M25
<b>FHD 326</b>	1	141	149	188	201	215	234
	2	194	200	224	228	233	236
	3	212	220	233	236	238	239

**Serie R - Flow rate l/min**

	Length	Filtration				
		A03	A06	A10	A16	A25
<b>FHD 326</b>	1	128	133	172	175	206
	2	175	185	210	211	225
	3	197	208	223	224	232

**Serie S - Flow rate l/min**

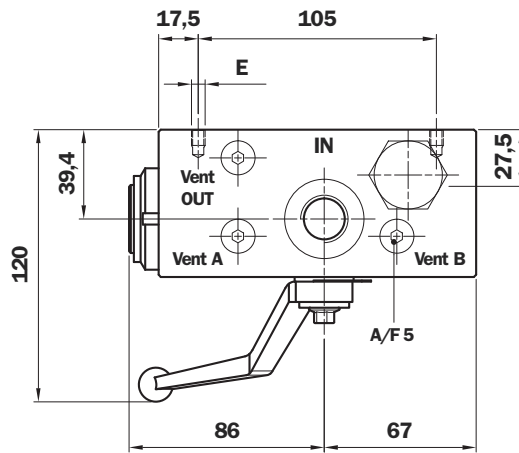
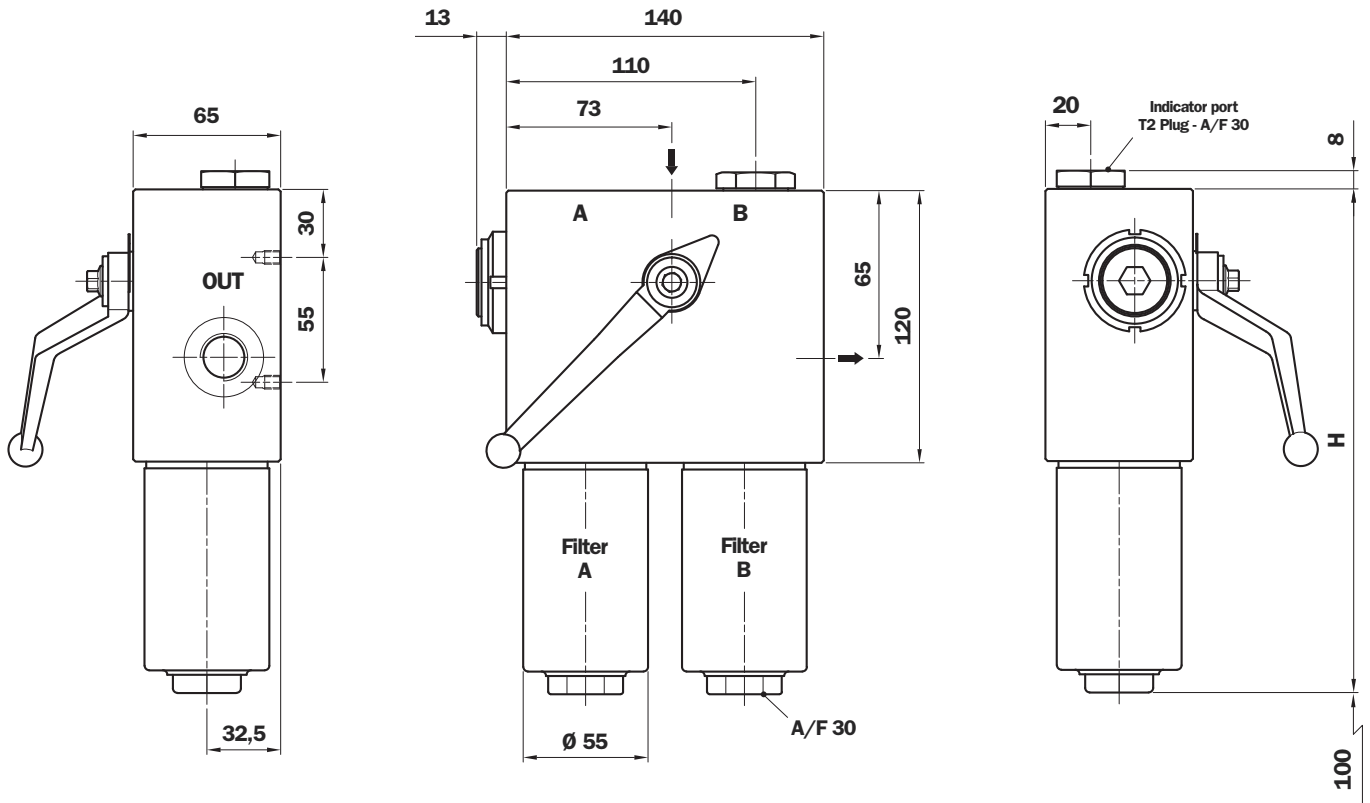
	Length	Filtration					
		A03	A06	A10	A16	A25	M25
<b>FHD 333</b>	2	254	265	311	318	332	338
	3	288	302	329	333	336	340
	4	302	311	331	336	342	345

**Serie R - Flow rate l/min**

	Length	Filtration				
		A03	A06	A10	A16	A25
<b>FHD 333</b>	2	220	238	282	285	312
	3	260	280	307	311	325
	4	279	289	310	312	327

**Serie S - Flow rate l/min**

# FHD 021



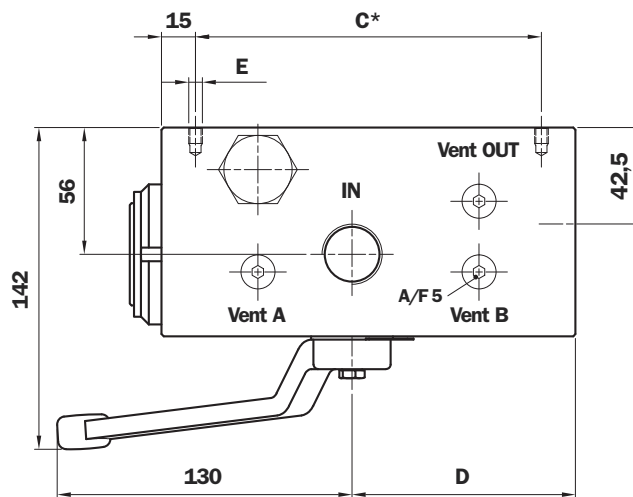
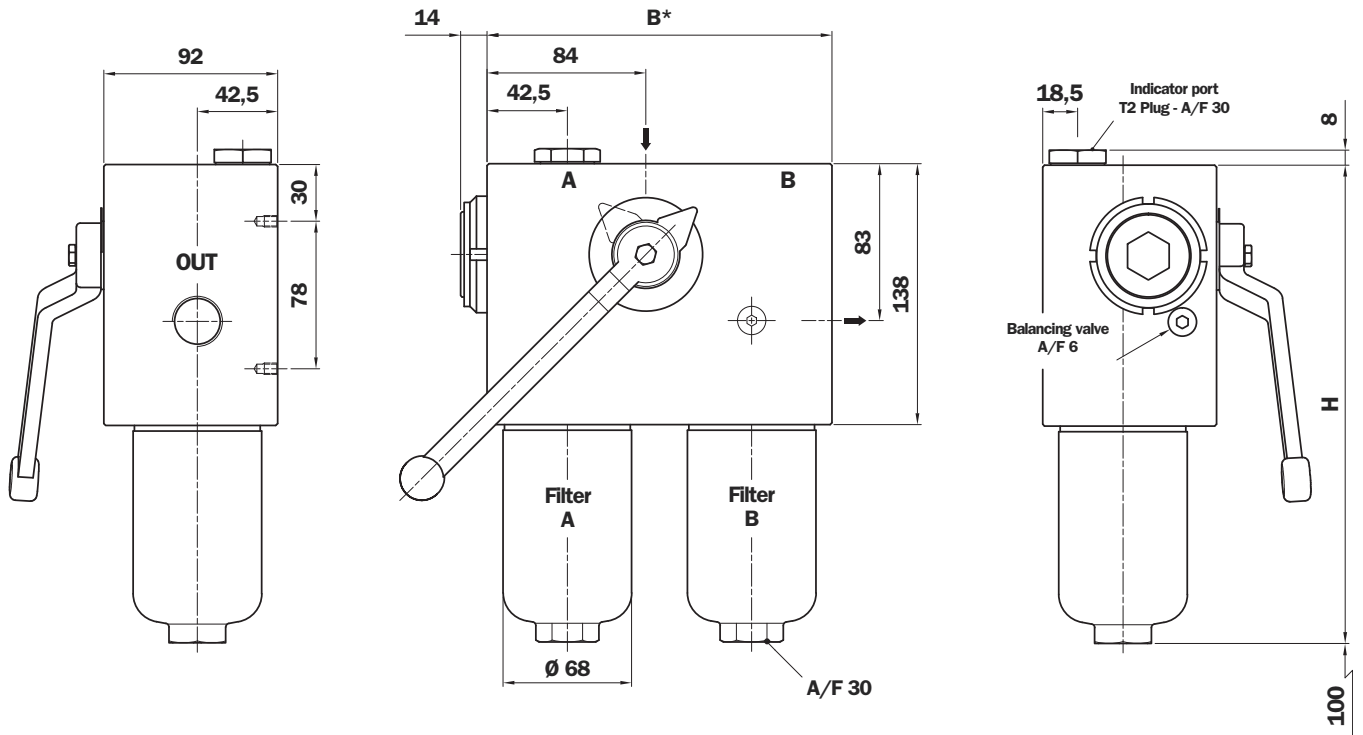
## FHD 021

Length Filter	H mm
2	172
3	222
4	272

## Thread connections

Type	Size	E Depth 7 mm
G1	G 1/2"	M6
G2	1/2" NPT	1/4" UNC
G3	SAE 8 - 3/4" - 16 UNF	1/4" UNC

# FHD 051



## FHD 051

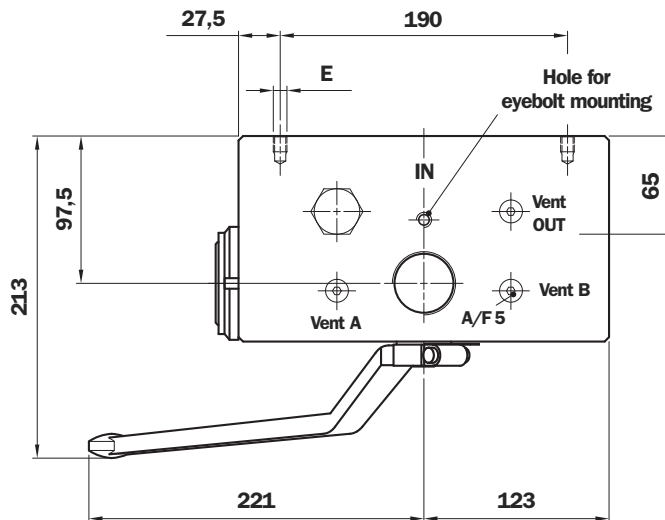
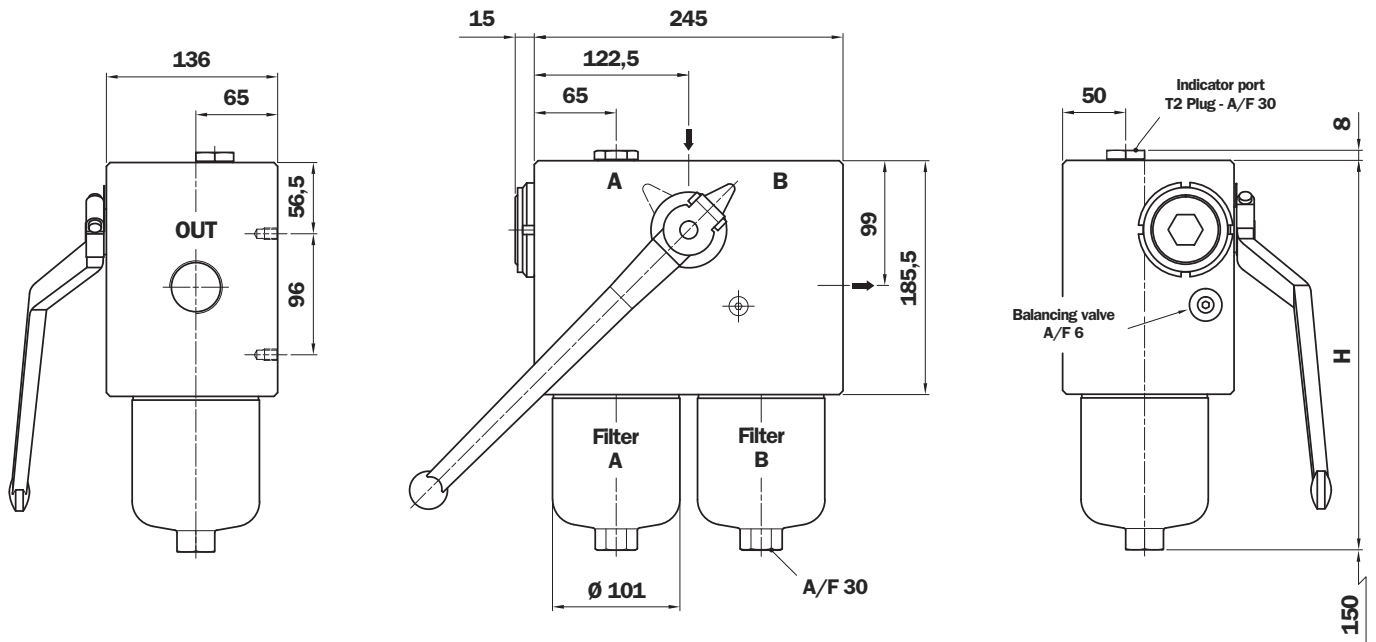
Length Filter	H mm
2	253
3	295
4	343
5	465

	B	C	D
With bypass	182,5	152,5	98,5
Without bypass	168	138	84

## Thread connections

Type	Size	E Depth 7 mm
G1	G 3/4"	M6
G2	3/4" NPT	1/4" UNC
G3	G 1/2"	M6
G4	1/2" NPT	1/4" UNC
G5	SAE 8-3/4" -16 UNF	1/4" UNC
G6	SAE 12-1 1/16" -12 UN	1/4" UNC

# FHD 326



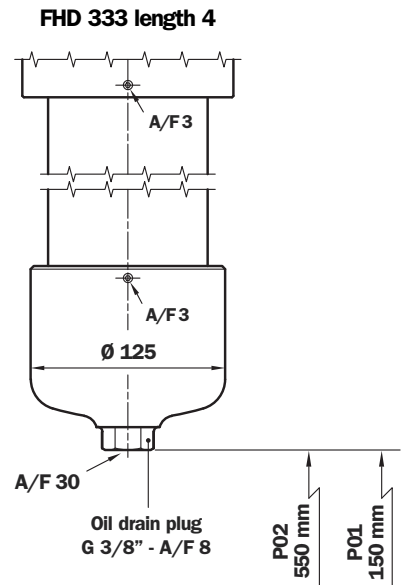
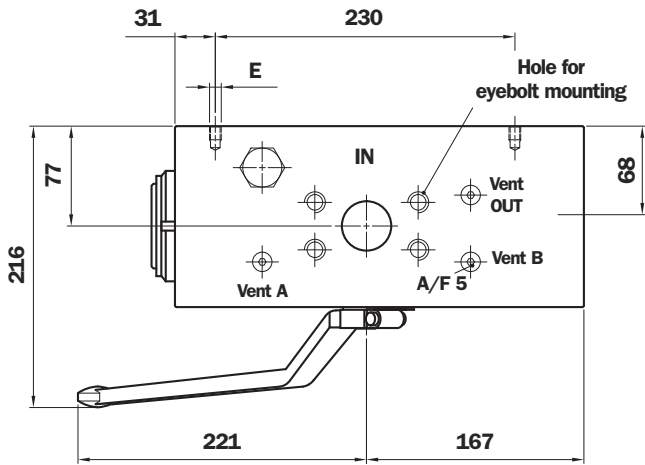
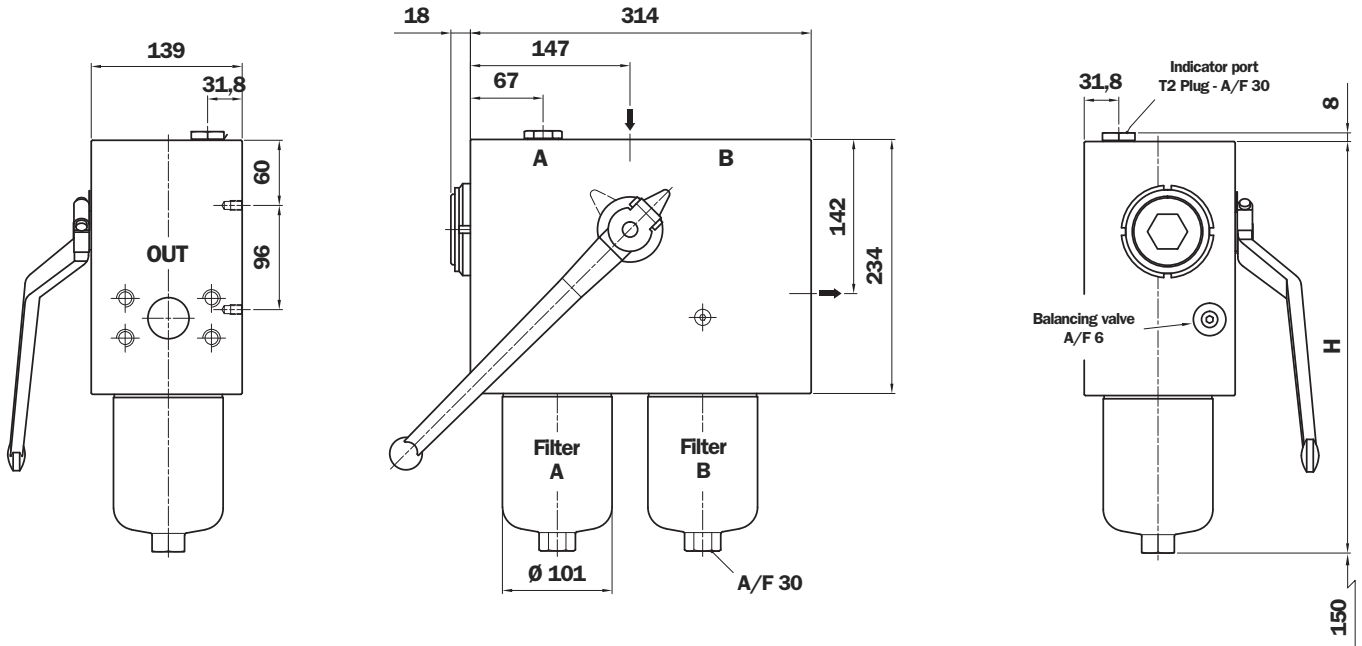
## FHD 326

Length Filter	H mm
1	309
2	432
3	564

## Thread connections

Type	Size	E Depth 11 mm
G1	G 1 1/4"	M10
G2	1 1/4" NPT	3/8" UNC
G3	SAE 20 - 1.5/8" - 12 UN	3/8" UNC

# FHD 333



**Style P01**  
Standard maintenance from head.

**Style P02**  
Maintenance option from housing base.

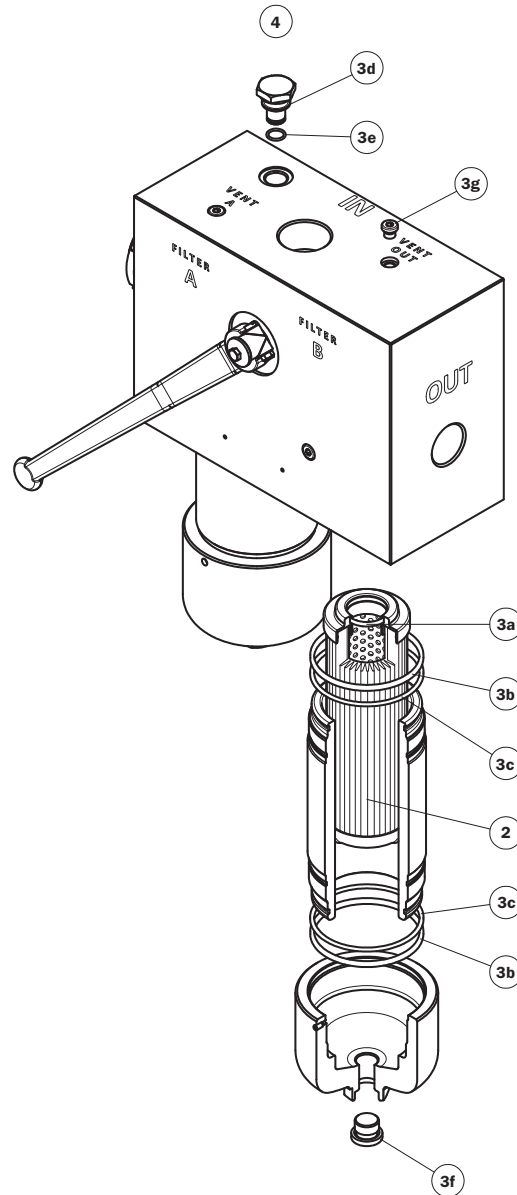
## FHD 333

Length Filter	H mm
2	479
3	612
4	765

## Flanged connections

Type	Size	E Depth 11 mm
F1	1 1/2" 6000 psi/M	M10
F2	1 1/2" 6000 psi/UNC	3/8" UNC





Item	Description	Q.ty	FILTER Series					
			FHD 021		FHD 051		FHD 326 - 333	
1	Filter assembly	1	See order table					
2	Filter element	1	See order table					
3	Seal Kit	1	NBR 02050511	FPM 02050512	NBR 02050420	FPM 02050421	NBR 02050377	FPM 02050378
3a	Filter element seal	2	O-R 121 Ø 15,88 x 2,62		O-R 3093 Ø 23,67 x 2,62		O-R 144 Ø 39,69 x 2,62	
3b	Bowl seal	2	O-R 3168 Ø 42,52 x 2,62		O-R 3225 Ø 56,82 x 2,62		4 pcs	O-R 3350 Ø 88,57 x 2,62
3c	Bowl anti-extrusion ring	2	Parbak 131 Ø 43,33 x 2,18		Parbak 139 Ø 56,03 x 2,18		4 pcs	Parbak 153 Ø 89,36 x 2,18
3d	Gasket	1	01030058 (HNBR)	01030046 (FPM)	01030058 (HNBR)	01030046 (FPM)	01030058 (HNBR)	01030046 (FPM)
3e	O-Ring indicator	1	O-R 2050 Ø 12,42 x 1,78		O-R 2050 Ø 12,42 x 1,78		O-R 2050 Ø 12,42 x 1,78	
3f	Drain plug	2	G 1/8" with bonded seal		G 1/4" with bonded seal		G 3/8" with bonded seal	
3g	Air vent	3	01029124 (HNBR)	01029094 (FPM)	01029124 (HNBR)	01029094 (FPM)	01029124 (HNBR)	01029094 (FPM)
4	Indicator connection plug	1	T2H	T2V	T2H	T2V	T2H	T2V



# Ordering information FHD 021 - 051

<b>Filter assembly</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8a</b>
<b>FHD</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"/>
<b>Example: FHD</b>	<b>051</b>	<b>4</b>	<b>S</b>	<b>A</b>	<b>G1</b>	<b>A10</b>	<b>S</b>	<b>P01</b>

<b>Filter element</b>	<b>1</b>	<b>2</b>	<b>6</b>	<b>4</b>	<b>7</b>	<b>8b</b>
<b>HP</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Example: HP</b>	<b>050</b>	<b>4</b>	<b>A10</b>	<b>A</b>	<b>S</b>	<b>P01</b>

## 1 - Style

Filter	Filter element
<b>021</b>	<b>011</b>
<b>051</b>	<b>050</b>

## 2 - Filter length

<b>021</b>	<b>2</b>	<b>3</b>	<b>4</b>	
<b>051</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>

## 3 - Valves

<b>S</b>	Without bypass
<b>B</b>	With bypass (only for FHD 051)

## 4 - Filter seals

<b>A</b>	NBR
<b>V</b>	FPM

## 5 - Connections

### Threaded FHD 021

Type	Size
<b>G1</b>	G 1/2"
<b>G2</b>	1/2" NPT
<b>G3</b>	SAE 8 - 3/4" - 16 UNF

### FHD 051

Type	Size
<b>G1</b>	G 3/4"
<b>G2</b>	3/4" NPT
<b>G3</b>	G 1/2"
<b>G4</b>	1/2" NPT
<b>G5</b>	SAE 8 - 3/4" - 16 UNF
<b>G6</b>	SAE 12 - 1 1/16" - 12 UN

## 6 - Filter element

<b>A03</b>	Inorganic microfibre 3 µm	} Absolute filtration Inorganic Microfibre βx (c) ≥ 1000
<b>A06</b>	Inorganic microfibre 6 µm	
<b>A10</b>	Inorganic microfibre 10 µm	
<b>A16</b>	Inorganic microfibre 16 µm	
<b>A25</b>	Inorganic microfibre 25 µm	
<b>M25</b>	Wire mesh 25 µm	} Nominal Filtration

## 7 - Max filter element differential pressure

<b>N</b>	Δp 20 bar (only for element M25)
<b>R</b>	Δp 20 bar (excluded FHD 021)
<b>H</b>	Δp 210 bar (only for FHD 021)
<b>S</b>	Δp 210 bar (excluded FHD 021)

## 8 - Option

### a - Filter

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

### b - Filter element

<b>P01</b>	MP Filtri standard
<b>Pxx</b>	Customer request

**For Clogging Indicator:**  
See page 318

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# Ordering information FHD 326 - 333

## Filter assembly FHD

	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8a</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"/>
<b>Example: FHD</b>	<b>333</b>	<b>4</b>	<b>S</b>	<b>A</b>	<b>G1</b>	<b>A10</b>	<b>S</b>	<b>P01</b>

## Filter element HP

	<b>1</b>	<b>2</b>	<b>6</b>	<b>4</b>	<b>7</b>	<b>8b</b>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Example: HP</b>	<b>320</b>	<b>4</b>	<b>A10</b>	<b>A</b>	<b>S</b>	<b>P01</b>

### 1 - Style

Filter	Filter element
<input type="checkbox"/> 326	<input type="checkbox"/> 320
<input type="checkbox"/> 333	<input type="checkbox"/> 320

### 2 - Filter length

<input type="checkbox"/> 326	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3
<input type="checkbox"/> 333	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4

### 3 - Valves

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

### 4 - Filter seals

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

### 5 - Connections

#### Threaded

#### FHD 326

Type	Size
G1	G 1 1/4"
G2	1 1/4" NPT
G3	SAE 20 - 1.5/8" - 12 UN

#### Flanged

#### FHD 333

Type	Size
F1	1 1/2" 6000 psi/M
F2	1 1/2" 6000 psi/UNC

### 6 - Filter element

<input type="checkbox"/> A03	Inorganic microfibre 3 µm	} Absolute filtration Inorganic Microfibre βx (c) ≥ 1000
<input type="checkbox"/> A06	Inorganic microfibre 6 µm	
<input type="checkbox"/> A10	Inorganic microfibre 10 µm	
<input type="checkbox"/> A16	Inorganic microfibre 16 µm	
<input type="checkbox"/> A25	Inorganic microfibre 25 µm	
<input type="checkbox"/> M25	Wire mesh 25 µm	} Nominal Filtration

### 7 - Max filter element differential pressure

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

### 8 - Option

#### 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

**For Clogging Indicator:**  
See page 318

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