

# FHM series

Maximum working pressure up to 32 MPa (320 bar) - Flow rate up to 450 l/min



# FILTER SIZING

## INDEX

	Page
CALCULATION	23
CORRECTIVE FACTOR	24

**THE CORRECT FILTER SIZING HAVE TO BE BASED ON THE TOTAL PRESSURE DROP DEPENDING BY THE APPLICATION.**

FOR EXAMPLE, THE MAXIMUM TOTAL PRESSURE DROP ALLOWED BY A NEW AND CLEAN RETURN FILTER HAVE TO BE IN THE RANGE 0.4 ÷ 0.6 bar.

The pressure drop calculation is performed by adding together the value of the housing with the value of the filter element. The pressure drop  $\Delta p_c$  of the housing is proportional to the fluid density ( $\text{kg}/\text{dm}^3$ ); all the graphs in the catalogue are referred to mineral oil with density of  $0.86 \text{ kg}/\text{dm}^3$ .

The filter element pressure drop  $\Delta p_e$  is proportional to its viscosity ( $\text{mm}^2/\text{s}$ ), the corrective factor Y have to be used in case of an oil viscosity different than  $30 \text{ mm}^2/\text{s}$  (cSt).

**Sizing data for single filter element, head at top**

$\Delta p_c$  = Filter housing pressure drop [bar]

$\Delta p_e$  = Filter element pressure drop [bar]

Y = Corrective factor Y (see correspondent table), depending on the filter type, on the filter element size, on the filter element length and on the filter media

Q = flow rate (l/min)

V1 reference oil viscosity =  $30 \text{ mm}^2/\text{s}$  (cSt)

V2 = operating oil viscosity in  $\text{mm}^2/\text{s}$  (cSt)

**Filter element pressure drop calculation with an oil viscosity different than  $30 \text{ mm}^2/\text{s}$  (cSt)**

$\Delta p_e = Y : 1000 \times Q \times (V2:V1)$

$\Delta p_{Tot.} = \Delta p_c + \Delta p_e$

**Verification formula**

$\Delta p_{Tot.} \leq \Delta p_{max \text{ allowed}}$

**Maximum total pressure drop ( $\Delta p_{max}$ ) allowed by a new and clean filter**

Application	Range (bar)
Suction filters	0.08 ÷ 0.10
Return filters	0.4 ÷ 0.6
	0.4 ÷ 0.6 return lines
	0.3 ÷ 0.5 lubrication lines
Low & Medium Pressure filters	0.3 ÷ 0.4 off-line in power systems
	0.1 ÷ 0.3 off-line in test benches
	0.4 ÷ 0.6 over-boost
High Pressure filters	0.8 ÷ 1.5
Stainless Steel filters	0.8 ÷ 1.5

**Generic filter calculation example**

Application data:

Tank top return filter

Pressure Pmax = 10 bar

Flow rate Q = 120 l/min

Viscosity V2 =  $46 \text{ mm}^2/\text{s}$  (cSt)

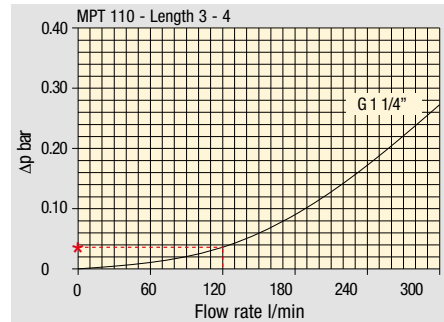
Oil density =  $0.86 \text{ kg}/\text{dm}^3$

Required filtration efficiency =  $25 \mu\text{m}$  with absolute filtration

With bypass valve and G 1 1/4" inlet connection

Calculation:

$\Delta p_c = 0.03 \text{ bar}$  (see graphic below)



Filter housings  $\Delta p$  pressure drop. The curves are plotted using mineral oil with density of  $0.86 \text{ kg}/\text{dm}^3$  in compliance with ISO 3968.  $\Delta p$  varies proportionally with density.

$\Delta p_e = (2.00 : 1000) \times 120 \times (46 : 30) = 0.37 \text{ bar}$

Filter element	Absolute filtration H Series					Nominal filtration N Series		
	A03	A06	A10	A16	A25	P10	P25	M25 M60 M90
Type								
Return filters								
MF 020	74.00	50.08	20.00	16.00	9.00	6.43	5.51	4.40
	2	29.20	24.12	8.00	7.22	5.00	3.33	2.85
	3	22.00	19.00	6.56	5.33	4.33	1.68	1.44
MF 030	74.00	50.08	20.00	16.00	9.00	6.43	5.51	3.40
MFX 030	1	28.20	24.40	8.67	8.17	6.88	4.62	3.96
	2	17.33	12.50	6.86	5.70	4.00	3.05	2.47
	3	10.25	9.00	3.65	3.33	2.50	1.63	1.32
	4	6.10	5.40	2.30	2.20	2.00	1.19	0.96

$\Delta p_{Tot.} = 0.03 + 0.37 = 0.4 \text{ bar}$

The selection is correct because the total pressure drop value is inside the admissible range for top tank return filters.

In case the allowed max total pressure drop is not verified, it is necessary to repeat the calculation changing the filter length/size.

# FILTER SIZING Corrective factor

Corrective factor Y to be used for the filter element pressure drop calculation. The values depend to the filter size and length and to the filter media.  
Reference oil viscosity 30 mm<sup>2</sup>/s

## Return filters

Filter element	Absolute filtration H Series					Nominal filtration N Series			
	Type	A03	A06	A10	A16	A25	P10	P25	M25 M60 M90
MF 020	1	74.00	50.08	20.00	16.00	9.00	6.43	5.51	4.40
	2	29.20	24.12	8.00	7.22	5.00	3.33	2.85	2.00
	3	22.00	19.00	6.56	5.33	4.33	1.68	1.44	1.30
MF 030 MFX 030	1	74.00	50.08	20.00	16.00	9.00	6.43	5.51	3.40
MF 100 MFX 100	1	28.20	24.40	8.67	8.17	6.88	4.62	3.96	1.25
	2	17.33	12.50	6.86	5.70	4.00	3.05	2.47	1.10
	3	10.25	9.00	3.65	3.33	2.50	1.63	1.32	0.96
	4	6.10	5.40	2.30	2.20	2.00	1.19	0.96	0.82
MF 180 MFX 180	1	3.67	3.05	1.64	1.56	1.24	1.18	1.06	0.26
	2	1.69	1.37	0.68	0.54	0.51	0.43	0.39	0.12
MF 190 MFX 190	2	1.69	1.37	0.60	0.49	0.44	0.35	0.31	0.11
MF 400 MFX 400	1	3.20	2.75	1.39	1.33	1.06	0.96	0.87	0.22
	2	2.00	1.87	0.88	0.85	0.55	0.49	0.45	0.13
	3	1.90	1.60	0.63	0.51	0.49	0.39	0.35	0.11
MF 750 MFX 750	1	1.08	0.84	0.49	0.36	0.26	0.21	0.19	0.06
MLX 250	2	3.00	3.04	1.46	1.25	1.17	-	-	M25 0.20
MLX 660	2	1.29	1.26	0.52	0.44	0.38	-	-	M25 0.10
CU 025		78.00	48.00	28.00	24.00	9.33	9.33	8.51	1.25
CU 040		25.88	20.88	10.44	10.00	3.78	3.78	3.30	1.25
CU 100		15.20	14.53	5.14	4.95	2.00	2.00	0.17	1.10
CU 250		3.25	2.55	1.55	1.35	0.71	0.71	0.59	0.25
CU 630		1.96	1.68	0.85	0.72	0.42	0.42	0.36	0.09
CU 850		1.06	0.84	0.42	0.33	0.17	0.17	0.13	0.04
MR 100	1	19.00	17.00	6.90	6.30	4.60	2.94	2.52	1.60
	2	11.70	10.80	4.40	4.30	3.00	2.94	2.52	1.37
	3	7.80	6.87	3.70	3.10	2.70	2.14	1.84	1.34
	4	5.50	4.97	2.60	2.40	2.18	1.72	1.47	1.34
	5	4.20	3.84	2.36	2.15	1.90	1.60	1.37	1.34
MR 250	1	5.35	4.85	2.32	1.92	1.50	1.38	1.20	0.15
	2	4.00	3.28	1.44	1.10	1.07	0.96	0.83	0.13
	3	2.60	2.20	1.08	1.00	0.86	0.77	0.64	0.12
	4	1.84	1.56	0.68	0.56	0.44	0.37	0.23	0.11
MR 630	1	3.10	2.48	1.32	1.14	0.92	0.83	0.73	0.09
	2	2.06	1.92	0.82	0.76	0.38	0.33	0.27	0.08
	3	1.48	1.30	0.60	0.56	0.26	0.22	0.17	0.08
	4	1.30	1.20	0.48	0.40	0.25	0.21	0.16	0.08
	5	0.74	0.65	0.30	0.28	0.13	0.10	0.08	0.04
MR 850	1	0.60	0.43	0.34	0.25	0.13	0.12	0.09	0.03
	2	0.37	0.26	0.23	0.21	0.11	0.08	0.07	0.03
	3	0.27	0.18	0.17	0.17	0.05	0.04	0.04	0.02
	4	0.23	0.16	0.13	0.12	0.04	0.03	0.03	0.02

## Return / Suction filters

Filter element	Absolute filtration								
	Type	A10	A16	A25					
RSX 116	1	5.12	4.33	3.85					
	2	2.22	1.87	1.22					
RSX 165	1	2.06	1.75	1.46					
	2	1.24	1.05	0.96					
	3	0.94	0.86	0.61					
Filter element	Absolute filtration N Series								
	Type	A03	A06	A10	A16	A25	P10	P25	M25 M60 M90
CU 110	1	16.25	15.16	8.75	8.14	5.87	2.86	2.65	0.14
	2	12.62	10.44	6.11	6.02	4.16	1.60	1.49	0.12
	3	8.57	7.95	5.07	4.07	2.40	1.24	1.15	0.11
	4	5.76	4.05	2.80	2.36	1.14	0.91	0.85	0.05

## Low & Medium pressure filters

Filter element	Absolute filtration N-W Series					Nominal filtration N Series			
	Type	A03	A06	A10	A16	A25	P10	P25	M25
CU 110	1	16.25	15.16	8.75	8.14	5.87	2.86	2.65	0.14
	2	12.62	10.44	6.11	6.02	4.15	1.60	1.49	0.12
	3	8.57	7.95	5.07	4.07	2.40	1.24	1.15	0.11
	4	5.76	4.05	2.80	2.36	1.14	0.91	0.85	0.05
CU 210	1	5.30	4.80	2.00	1.66	1.32	0.56	0.43	0.12
	2	3.44	2.95	1.24	1.09	0.70	0.42	0.35	0.09
	3	2.40	1.70	0.94	0.84	0.54	0.33	0.23	0.05
DN	016	7.95	7.20	3.00	2.49	1.98	0.84	0.65	0.18
	025	5.00	4.53	1.89	1.57	1.25	0.53	0.41	0.11
	040	3.13	2.66	1.12	0.98	0.63	0.38	0.32	0.08
CU 400	2	3.13	2.55	1.46	1.22	0.78	0.75	0.64	0.19
	3	2.15	1.70	0.94	0.78	0.50	0.40	0.34	0.10
	4	1.60	1.28	0.71	0.61	0.40	0.34	0.27	0.08
	5	1.00	0.83	0.47	0.34	0.20	0.24	0.19	0.06
	6	0.82	0.58	0.30	0.27	0.17	0.22	0.18	0.05
	CU 900	1	0.86	0.63	0.32	0.30	0.21	-	-
CU 950	2	1.03	0.80	0.59	0.40	0.26	-	-	0.05
	3	0.44	0.40	0.27	0.18	0.15	-	-	0.02
MR 630	7	0.88	0.78	0.36	0.34	0.16	0.12	0.96	0.47

**Corrective factor Y to be used for the filter element pressure drop calculation. The values depend to the filter size and length and to the filter media.**  
Reference oil viscosity 30 mm<sup>2</sup>/s

## High pressure filters

Filter element		Absolute filtration N - R Series					Nominal filtration N Series
Type		A03	A06	A10	A16	A25	M25
HP 011	1	332.71	250.07	184.32	152.36	128.36	-
	2	220.28	165.56	74.08	59.13	37.05	-
	3	123.24	92.68	41.48	33.08	20.72	-
	4	77.76	58.52	28.37	22.67	16.17	-
HP 039	2	70.66	53.20	25.77	20.57	14.67	4.90
	3	36.57	32.28	18.00	13.38	8.00	2.90
	4	26.57	23.27	12.46	8.80	5.58	2.20
HP 050	1	31.75	30.30	13.16	12.3	7.29	1.60
	2	24.25	21.26	11.70	9.09	4.90	1.40
	3	17.37	16.25	8.90	7.18	3.63	1.25
	4	12.12	10.75	6.10	5.75	3.08	1.07
	5	7.00	6.56	3.60	3.10	2.25	0.80
HP 065	1	58.50	43.46	23.16	19.66	10.71	1.28
	2	42.60	25.64	16.22	13.88	7.32	1.11
	3	20.50	15.88	8.18	6.81	3.91	0.58
HP 135	1	20.33	18.80	9.71	8.66	4.78	2.78
	2	11.14	10.16	6.60	6.38	2.22	1.11
	3	6.48	6.33	3.38	3.16	2.14	1.01
HP 150	1	17.53	15.91	7.48	6.96	5.94	1.07
	2	8.60	8.37	3.54	3.38	3.15	0.58
	3	6.53	5.90	2.93	2.79	2.12	0.49
HP 320	1	10.88	9.73	5.02	3.73	2.54	1.04
	2	4.40	3.83	1.75	1.48	0.88	0.71
	3	2.75	2.11	1.05	0.87	0.77	0.61
	4	2.12	1.77	0.98	0.78	0.55	0.47
HP 500	1	4.44	3.67	2.30	2.10	1.65	0.15
	2	3.37	2.77	1.78	1.68	1.24	0.10
	3	2.22	1.98	1.11	1.09	0.75	0.08
	4	1.81	1.33	0.93	0.86	0.68	0.05
	5	1.33	1.15	0.77	0.68	0.48	0.04

Filter element		Absolute filtration N Series					Nominal filtration N Series
Type		A03	A06	A10	A16	A25	M25
HF 320	1	3.65	2.95	2.80	1.80	0.90	0.38
	2	2.03	1.73	1.61	1.35	0.85	0.36
	3	1.84	1.42	1.32	1.22	0.80	0.35

## Suction filters

Filter element	Nominal filtration N Series	
Type	P10	P25
SF 250	65	21

## Stainless steel high pressure filters

Filter element		Absolute filtration N Series				
Type		A03	A06	A10	A16	A25
HP 011	1	332.71	250.07	184.32	152.36	128.36
	2	220.28	165.56	74.08	59.13	37.05
	3	123.24	92.68	41.48	33.08	20.72
	4	77.76	58.52	28.37	22.67	16.17
HP 039	2	70.66	53.20	25.77	20.57	14.67
	3	36.57	32.28	18.00	13.38	8.00
	4	26.57	23.27	12.46	8.80	5.58
HP 050	1	31.75	30.30	13.16	12.3	7.29
	2	24.25	21.26	11.70	9.09	4.90
	3	17.37	16.25	8.90	7.18	3.63
	4	12.12	10.75	6.10	5.75	3.08
	5	7.00	6.56	3.60	3.10	2.25
HP 135	1	20.33	18.80	9.71	8.66	4.78
	2	11.14	10.16	6.60	6.38	2.22
	3	6.48	6.33	3.38	3.16	2.14

Filter element		Absolute filtration H - U Series				
Type		A03	A06	A10	A16	A25
HP 011	1	424.58	319.74	235.17	194.44	163.78
	2	281.06	211.25	94.53	75.45	47.26
	3	130.14	97.50	43.63	34.82	21.81
	4	109.39	82.25	36.79	29.37	18.40
HP 039	2	70.66	53.20	25.77	20.57	14.67
	3	36.57	32.28	18.00	13.38	8.00
	4	26.57	23.27	12.46	8.80	5.58
HP 050	1	47.33	34.25	21.50	20.50	14.71
	2	29.10	25.95	14.04	10.90	5.88
	3	20.85	19.50	10.68	8.61	4.36
	4	14.55	12.90	7.32	6.90	3.69
	5	9.86	9.34	6.40	4.80	2.50
HP 135	1	29.16	25.33	13.00	12.47	5.92
	2	14.28	11.04	7.86	7.60	4.44
	3	8.96	7.46	4.89	4.16	3.07

# FILTER SIZING Selection Software

**Step 1** Select "FILTERS"



**Step 2** Choose filter group (Return Filter, Pressure Filter, etc.)



**Step 3** Choose filter type (MPF, MPT, etc.) in function of the max working pressure and the max flow rate



**Step 4** Push "PROCEED"



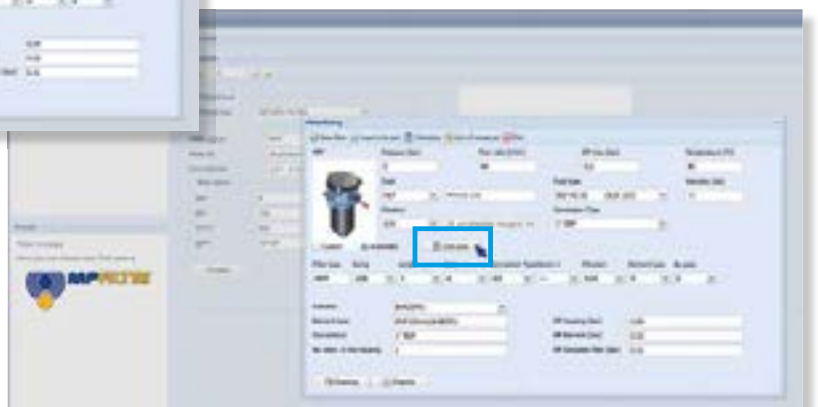
**Step 5**

Insert all application data to calculate the filter size following the sequence:

- working pressure
- working flow rate
- working pressure drop
- working temperature
- fluid material and fluid type
- filtration media
- connection type

**Step 6**

Push "CALCULATE" to have result; in case of any mistake, the system will advice which parameter is out of range to allow to modify/adjust the selection



**Step 7**

Download PDF Datasheet "Report.aspx" pushing the button "Drawing"

# FHM series

Maximum working pressure up to 32 MPa (320 bar) - Flow rate up to 450 l/min





## Description

## Technical data

### High Pressure filters

#### Manifold

**Maximum working pressure up to 32 MPa (320 bar)**

**Flow rate up to 450 l/min**

FHM is a range of high pressure filter for protection of sensitive components in high pressure hydraulic systems in the mobile machines.

They are directly connected to the top of the manifold, through the proper flanged interface.

#### Available features:

Available features:

- Manifold connections up to Ø30 mm, for a maximum flow rate of 450 l/min
- ISO 4401 CETOP 3 and CETOP 5 interface, for direct mounting on the CETOP valves
- Fine filtration rating, to get a good cleanliness level into the system
- Bypass valve, to relieve excessive pressure drop across the filter media
- Check valve, to protect the system against reverse flow
- Low collapse filter element "N", for use with filters provided with bypass valve
- High collapse filter element "H", for use with filters not provided with bypass valve
- High collapse filter element with external support "S", for filter element protection against the back pressure caused by the check valve in filters not provided with the bypass valve
- Visual, electrical and electronic differential clogging indicators

#### Common applications:

Delivery lines, in any high pressure industrial equipment

#### Filter housing materials

- Head:
  - Phosphatized cast iron (FHM 006 ÷ 010)
  - Phosphatized steel (FHM 050 ÷ 500)
- Housing: Phosphatized steel
- Bypass valve: Steel
- Check valve: Steel

#### Pressure

- Test pressure: 48 MPa (480 bar)
- Burst pressure: 96 MPa (960 bar)
- Pulse pressure fatigue test: 1 000 000 cycles with pressure from 0 to 32 MPa (320 bar)

#### Bypass valve

- Opening pressure 600 kPa (6 bar) ±10%
- Other opening pressures on request.

#### Δp element type

- Microfibre filter elements - series N: 20 bar (not available for FHM 006, FHM 007 and FHM 010)
- Microfibre filter elements - series H: 210 bar (not available for FHM 050 and FHM 500)
- Microfibre filter elements - series S: 210 bar (only for FHM 050 and FHM 500)
- Wire mesh filter elements - series H: 210 bar (only for FHM 006, FHM 007 and FHM 010)
- Fluid flow through the filter element from OUT to IN.

#### Seals

- Standard NBR series A
- Optional FPM series V

#### Temperature

From -25 °C to +110 °C

#### Connections

Manifold mounting

#### Note

FHM filters are provided for vertical mounting

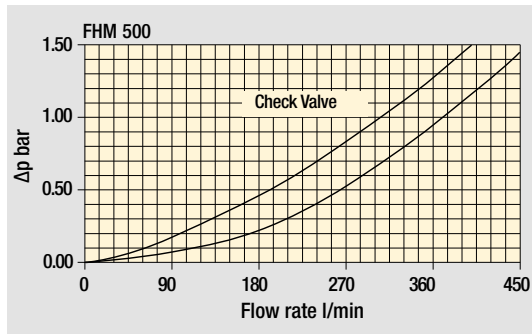
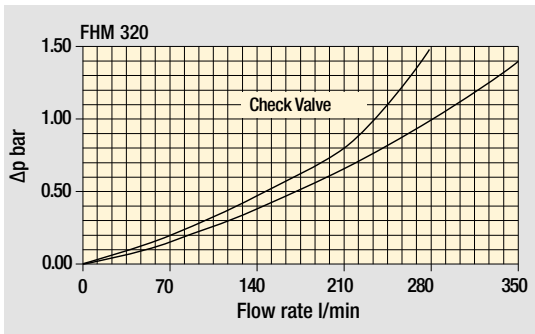
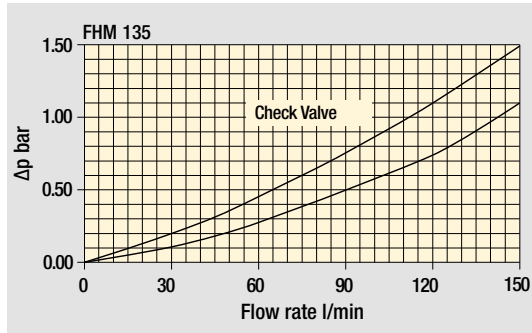
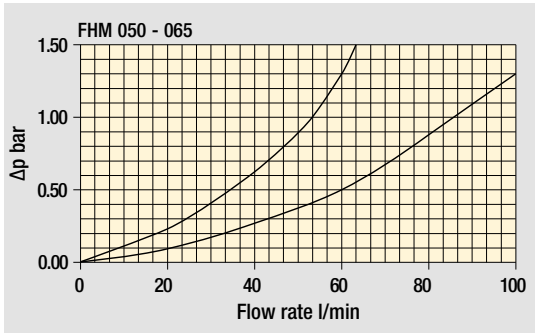
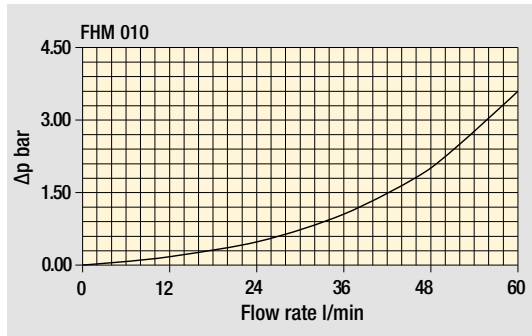
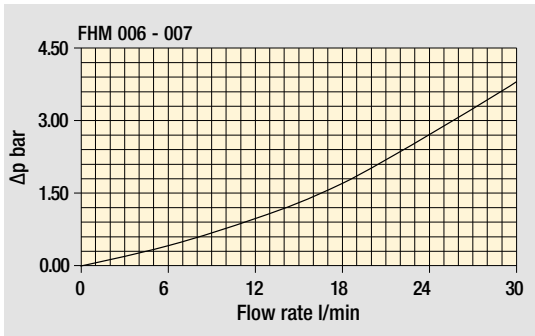


## Weights [kg] and volumes [dm<sup>3</sup>]

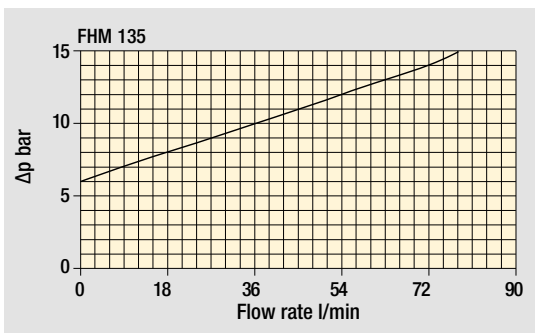
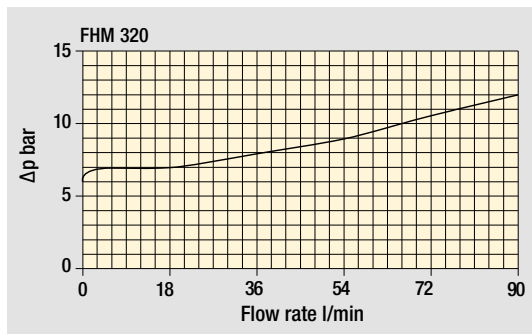
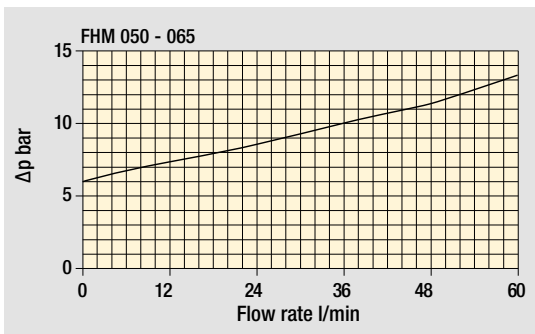
Filter series	Weights [kg]					Volumes [dm <sup>3</sup> ]						
	Length	1	2	3	4	5	Length	1	2	3	4	5
<b>FHM 006</b>		2.17	-	-	-	-		0.12	-	-	-	-
<b>FHM 007</b>		-	4.74	5.95	-	-		-	0.30	0.50	-	-
<b>FHM 010</b>		-	4.74	5.95	-	-		-	0.30	0.50	-	-
<b>FHM 050</b>		5.31	5.68	6.09	6.56	7.74		0.29	0.38	0.48	0.60	0.89
<b>FHM 065</b>		5.47	5.83	7.04	-	-		0.27	0.34	0.56	-	-
<b>FHM 135</b>		8.78	10.38	11.43	-	-		0.49	0.82	1.03	-	-
<b>FHM 320</b>		19.80	21.93	24.22	26.70	-		1.04	1.76	2.53	3.36	-
<b>FHM 500</b>		35.00	39.17	42.69	54.70	60.50		1.63	2.35	2.96	5.11	6.44



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



### Bypass valve pressure drop



The curves are plotted using mineral oil with density of 0.86 kg/dm<sup>3</sup> in compliance with ISO 3968.  $\Delta p$  varies proportionally with density.

# FHM GENERAL INFORMATION

Flow rates [l/min]

Filter series	Length	Filter element design - H Series					
		A03	A06	A10	A16	A25	M25
<b>FHM 006</b>	<b>1</b>	9	10	13	14	15	16
	<b>2</b>	13	13	15	16	16	16
<b>FHM 007</b>	<b>3</b>	15	15	16	16	17	17
	<b>2</b>	23	25	32	34	37	38
<b>FHM 010</b>	<b>3</b>	31	33	37	38	39	40

Filter series	Length	Filter element design - N Series						Filter element design - S Series				
		A03	A06	A10	A16	A25	M25	A03	A06	A10	A16	A25
<b>FHM 050</b>	<b>1</b>	38	37	65	67	81	101	28	36	50	52	62
	<b>2</b>	46	50	69	75	89	102	41	44	63	71	85
	<b>3</b>	57	59	76	81	93	103	51	53	71	77	90
	<b>4</b>	68	71	84	86	95	103	62	66	81	82	93
	<b>5</b>	82	83	93	95	98	105	73	75	83	89	97

Filter series	Length	Filter element design - N Series						Filter element design - H Series				
		A03	A06	A10	A16	A25	M25	A03	A06	A10	A16	A25
<b>FHM 065</b>	<b>1</b>	23	30	48	53	71	102	22	23	43	50	67
	<b>2</b>	30	45	59	64	81	103	30	34	56	62	76
	<b>3</b>	52	60	78	82	92	105	51	58	77	81	91
<b>FHM 135</b>	<b>1</b>	61	65	99	104	131	149	46	51	83	86	122
	<b>2</b>	91	96	118	119	155	167	79	92	109	111	134
	<b>3</b>	118	119	144	146	156	168	103	112	130	137	146
<b>FHM 320</b>	<b>1</b>	112	121	187	217	252	312	97	102	156	162	228
	<b>2</b>	200	214	281	293	320	328	161	181	237	241	282
	<b>3</b>	245	267	312	320	325	333	207	233	275	280	306
	<b>4</b>	267	281	315	325	336	341	232	247	279	283	309

Filter series	Length	Filter element design - N Series						Filter element design - S Series				
		A03	A06	A10	A16	A25	M25	A03	A06	A10	A16	A25
<b>FHM 500</b>	<b>1</b>	211	232	281	289	309	394	126	135	208	210	261
	<b>2</b>	242	262	303	308	330	397	187	206	258	266	285
	<b>3</b>	284	294	336	338	357	399	226	230	285	290	315
	<b>4</b>	302	325	346	350	361	401	251	273	314	315	341
	<b>5</b>	325	334	356	361	373	401	296	301	335	338	360

## Maximum flow rate for a complete pressure filter with a pressure drop $\Delta p = 1.5$ bar.

The reference fluid has a kinematic viscosity of 30 mm<sup>2</sup>/s (cSt) and a density of 0.86 kg/dm<sup>3</sup>.

For different pressure drop or fluid viscosity we recommend to use our selection software available on [www.mpfiltri.com](http://www.mpfiltri.com).

Please, contact our Sales Department for further additional information.

## Hydraulic symbols

Filter series	Style S	Style B	Style T	Style D
<b>FHM 006</b>	•			
<b>FHM 007</b>	•			
<b>FHM 010</b>	•			
<b>FHM 050</b>	•	•	•	•
<b>FHM 065</b>	•	•	•	•
<b>FHM 135</b>	•	•	•	•
<b>FHM 320</b>	•	•	•	•
<b>FHM 500</b>	•	•	•	•

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## Designation & Ordering code

### COMPLETE FILTER

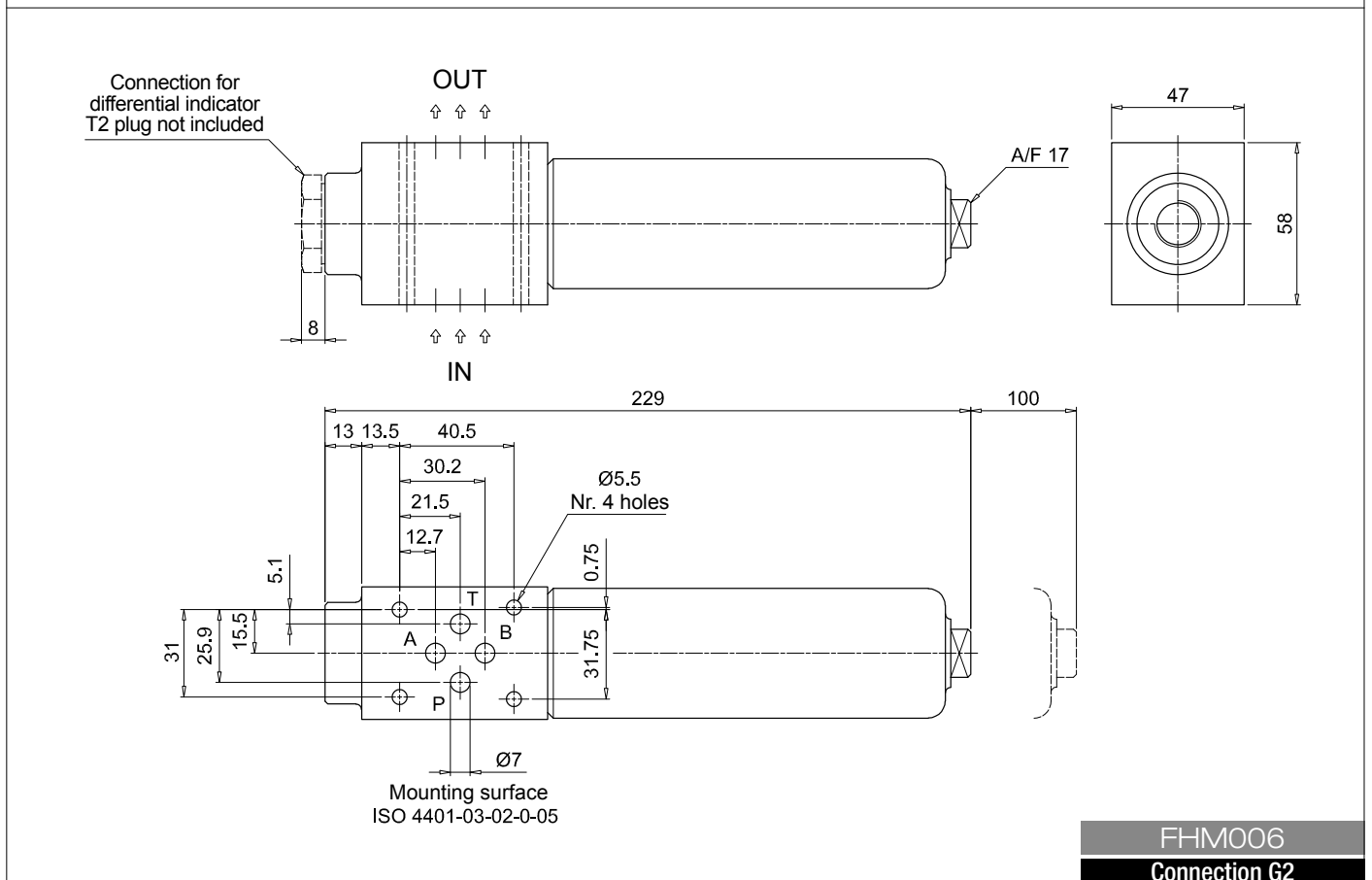
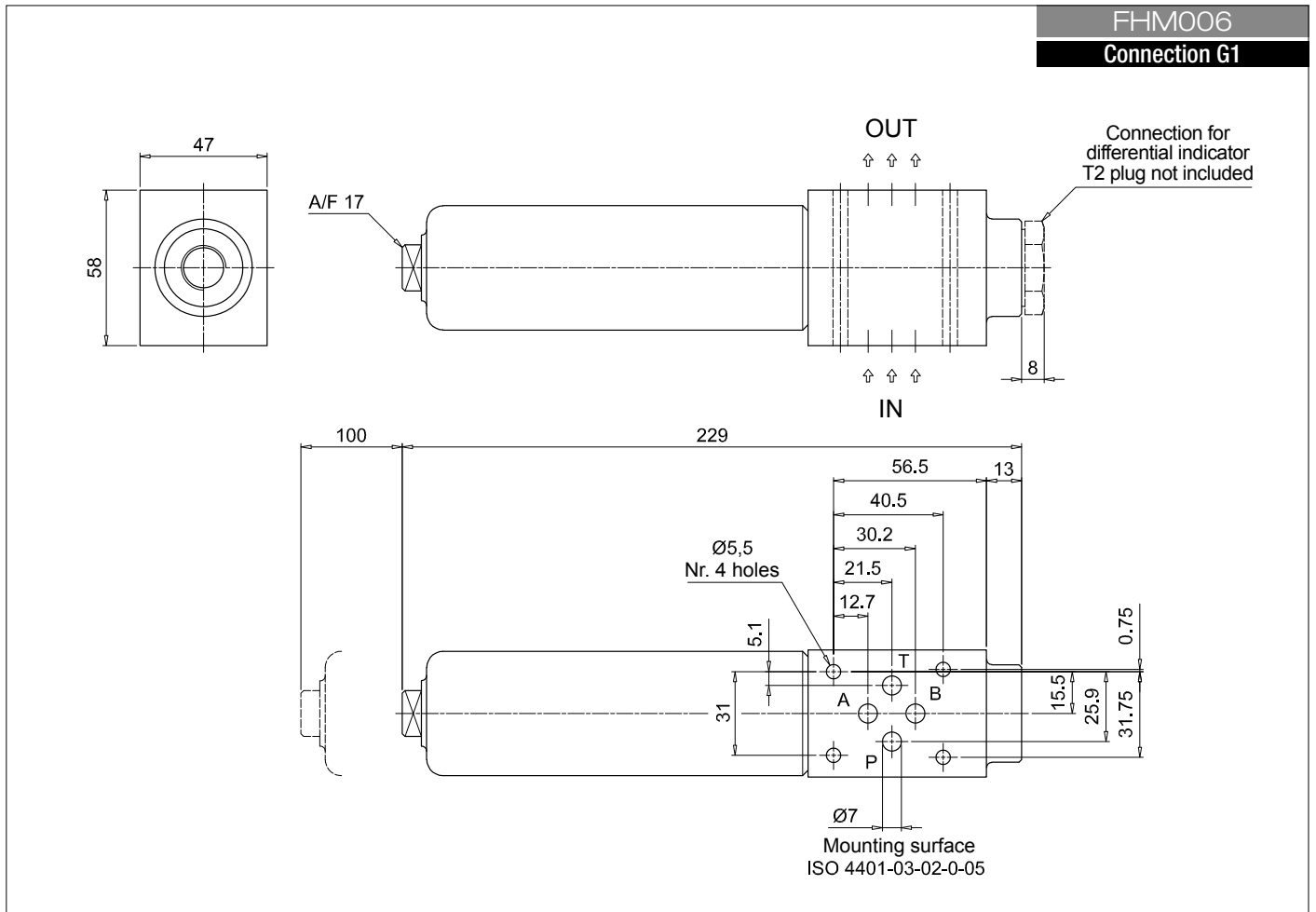
Series and size				Configuration example: <b>FHM010</b>   <b>2</b>   <b>S</b>   <b>V</b>   <b>G1</b>   <b>A03</b>   <b>H</b>   <b>P01</b>						
<b>FHM006</b>   <b>FHM007</b>   <b>FHM010</b>										
Length	FHM006	FHM007	FHM010							
1	•									
2		•	•							
3		•	•							
Valves										
<b>S</b> Without bypass										
Seals										
<b>A</b> NBR										
<b>V</b> FPM										
Connections										
<b>G1</b> Manifold side "A"										
<b>G2</b> Manifold side "B"										
Filtration rating (filter media)										
<b>A03</b> Inorganic microfiber 3 µm			<b>A16</b> Inorganic microfiber 16 µm							
<b>A06</b> Inorganic microfiber 6 µm			<b>A25</b> Inorganic microfiber 25 µm							
<b>A10</b> Inorganic microfiber 10 µm			<b>M25</b> Wire mesh 25 µm							
						Element Δp				
						<b>H</b> 210 bar				
						Execution				
						<b>P01</b> MP Filtri standard				
						<b>Pxx</b> Customized				

### FILTER ELEMENT

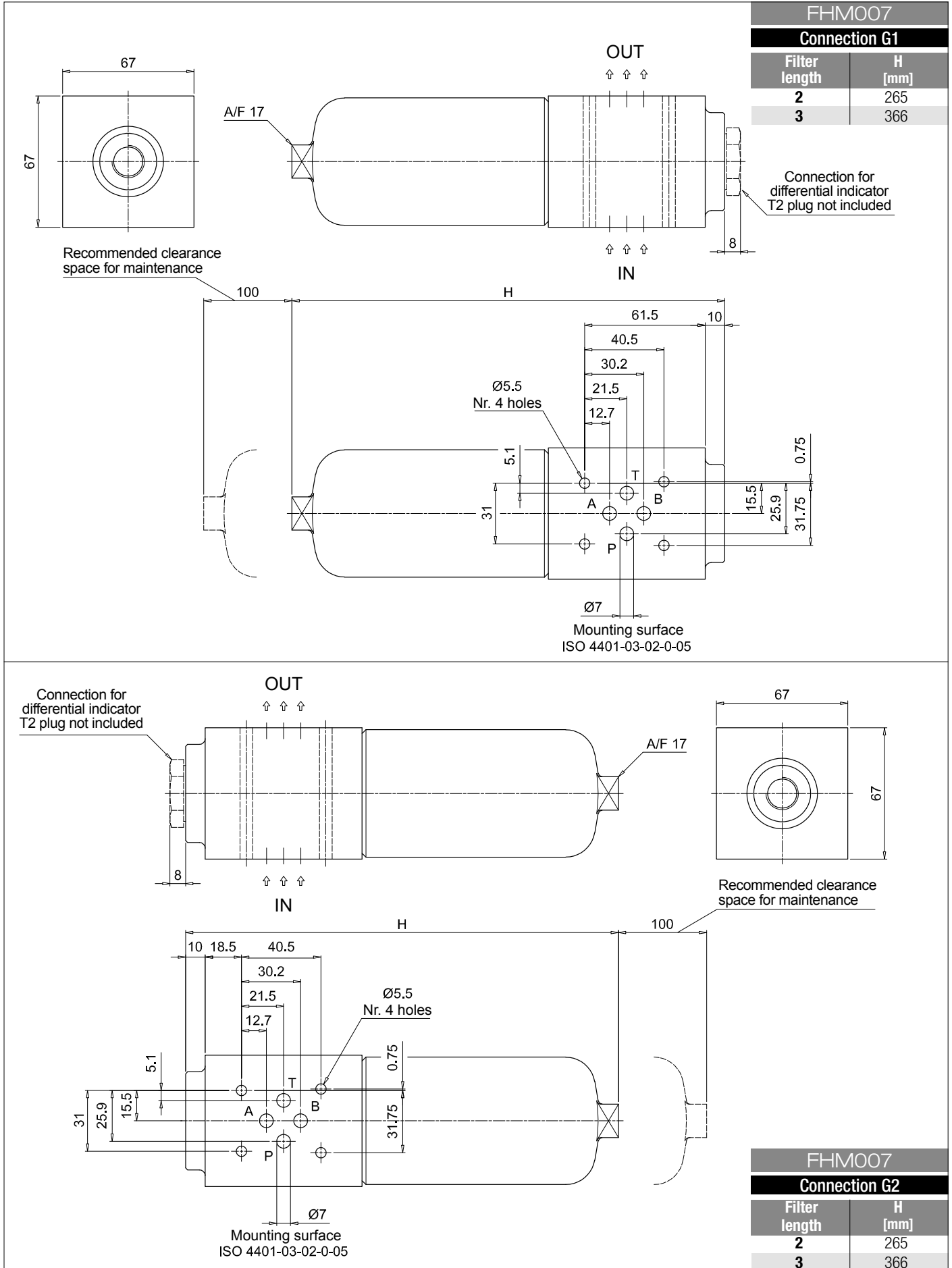
Element series and size				Configuration example: <b>HP065</b>   <b>2</b>   <b>A03</b>   <b>A</b>   <b>H</b>   <b>P01</b>						
<b>HP011</b>   <b>HP065</b>										
Element length	FHM006	FHM007	FHM010							
2		•	•							
3	•	•	•							
Filtration rating (filter media)										
<b>A03</b> Inorganic microfiber 3 µm			<b>A16</b> Inorganic microfiber 16 µm							
<b>A06</b> Inorganic microfiber 6 µm			<b>A25</b> Inorganic microfiber 25 µm							
<b>A10</b> Inorganic microfiber 10 µm			<b>M25</b> Wire mesh 25 µm							
						Seals				
						<b>A</b> NBR				
						<b>V</b> FPM				
						Element Δp				
						<b>H</b> 210 bar				
						Execution				
						<b>P01</b> MP Filtri standard				
						<b>Pxx</b> Customized				

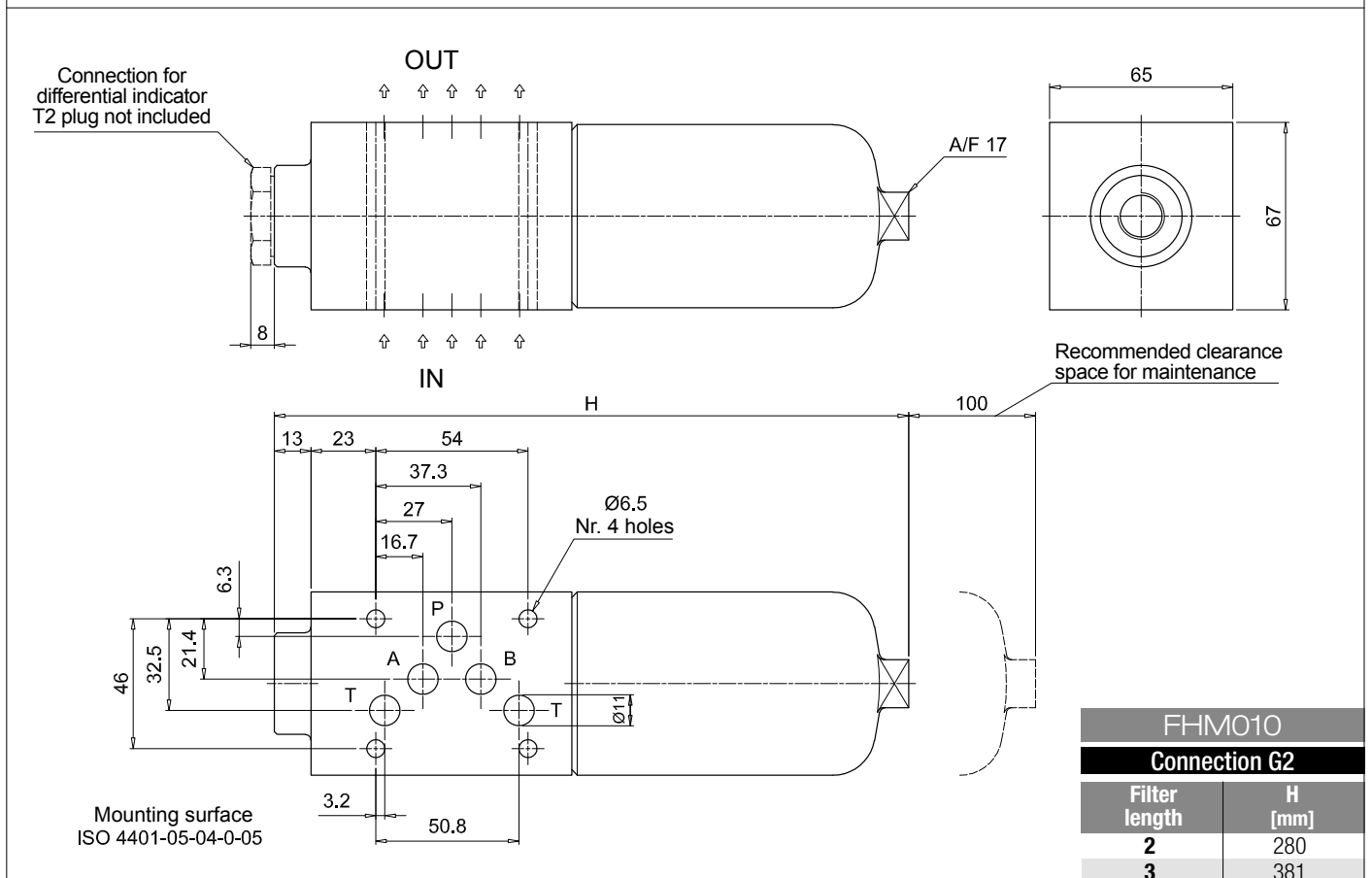
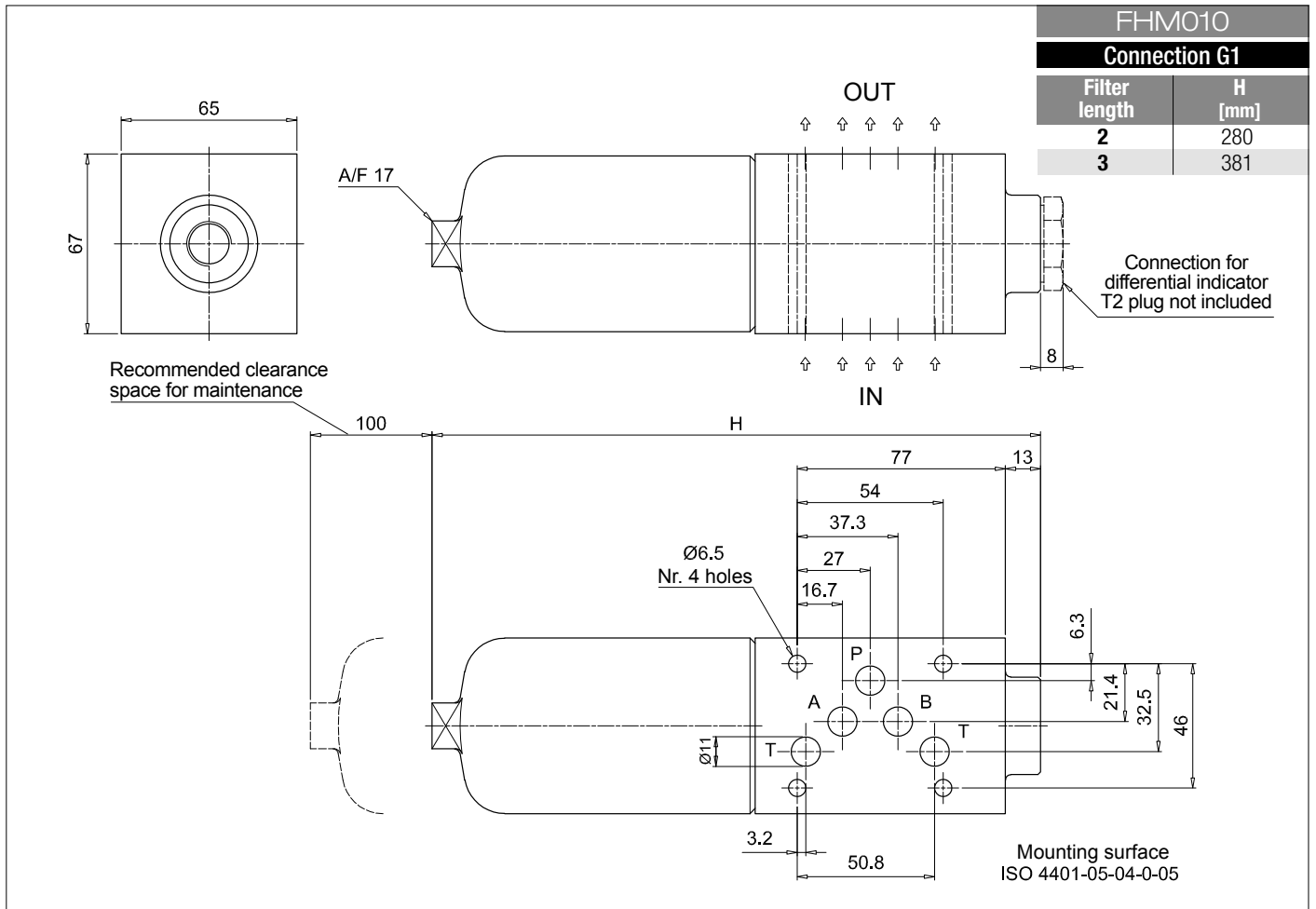
### ACCESSORIES

Additional features	page		page
<b>Differential indicators</b>			
<b>DEA</b> Electrical differential indicator	563	<b>DLE</b> Electrical / visual differential indicator	566
<b>DEH</b> Hazardous area electronic differential indicator	563-564	<b>DTA</b> Electronic differential indicator	567
<b>DEM</b> Electrical differential indicator	564-565	<b>DVA</b> Visual differential indicator	567
<b>DLA</b> Electrical / visual differential indicator	565-566	<b>DVM</b> Visual differential indicator	567
<b>T2</b> Plug	568		



## Dimensions







# FHM FHM050 - FHM065 - FHM135

Designation & Ordering code

## COMPLETE FILTER

Series and size				Configuration example: FHM135 3 S A F1 A10 H P01							
FHM050   FHM065   FHM135											
Length	FHM050	FHM065	FHM135								
1	•	•	•								
2	•	•	•								
3	•	•	•								
4	•										
5	•										
Valves											
S	Without bypass										
B	With bypass 6 bar										
T	With check valve, without bypass										
D	With check valve, with bypass 6 bar										
Seals											
A	NBR										
V	FPM										
Connections											
F1	Manifold										
Filtration rating (filter media)											
A03	Inorganic microfiber	3 µm	A16	Inorganic microfiber	16 µm						
A06	Inorganic microfiber	6 µm	A25	Inorganic microfiber	25 µm						
A10	Inorganic microfiber	10 µm	M25	Wire mesh	25 µm						

		Valves: FHM050				FHM065-135				Execution	
Element	Δp	S	B	T	D	S	B	T	D		
N	20 bar		•		•		•		•	P01	MP Filtri standard
H	210 bar						•		•	Pxx	Customized
S	210 bar	•			•						

## FILTER ELEMENT

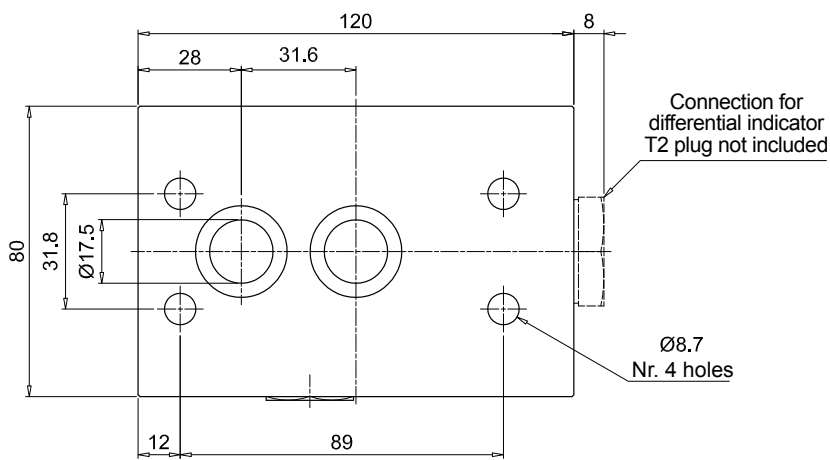
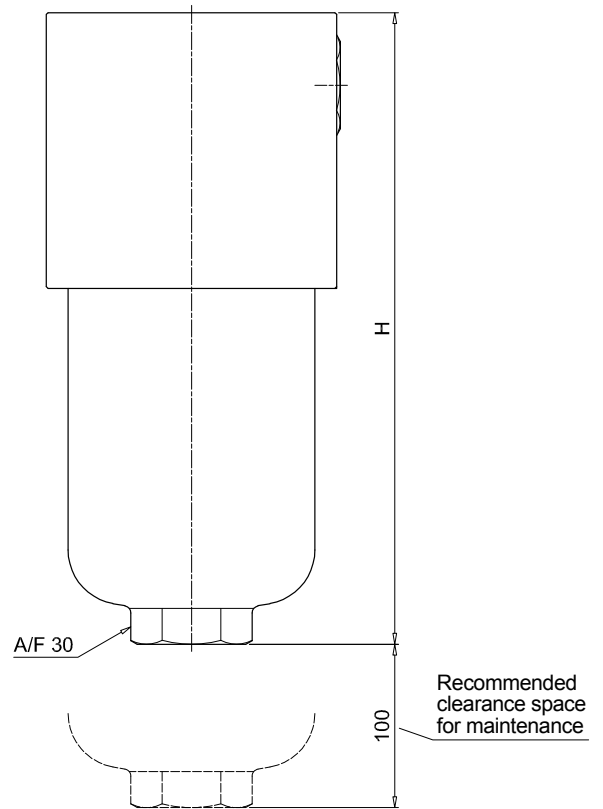
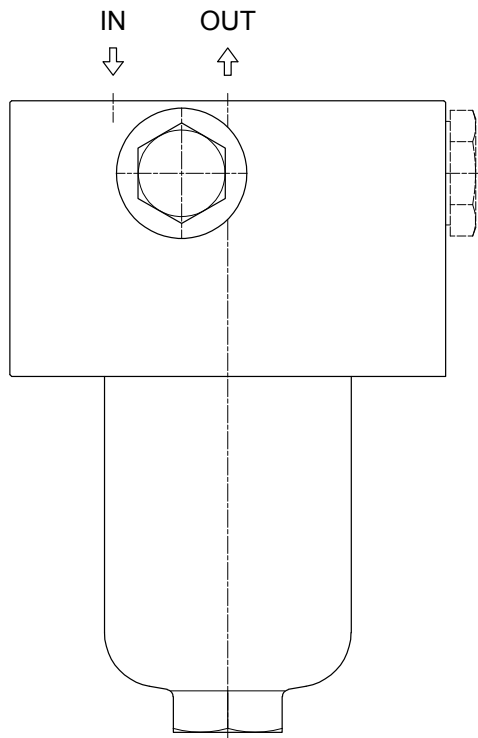
Element series and size				Configuration example: HP135 3 A10 A H P01						
HP050   HP065   HP135										
Element length	HP050	HP065	HP135							
1	•	•	•							
2	•	•	•							
3	•	•	•							
4	•									
5	•									
Filtration rating (filter media)										
A03	Inorganic microfiber	3 µm	A16	Inorganic microfiber	16 µm					
A06	Inorganic microfiber	6 µm	A25	Inorganic microfiber	25 µm					
A10	Inorganic microfiber	10 µm	M25	Wire mesh	25 µm					

Seals		Element Δp			Execution			
		HP050	HP065	HP135				
A	NBR	N	20 bar	•	•	•	P01	MP Filtri standard
V	FPM	H	210 bar		•	•	Pxx	Customized
		S	210 bar	•				

## ACCESSORIES

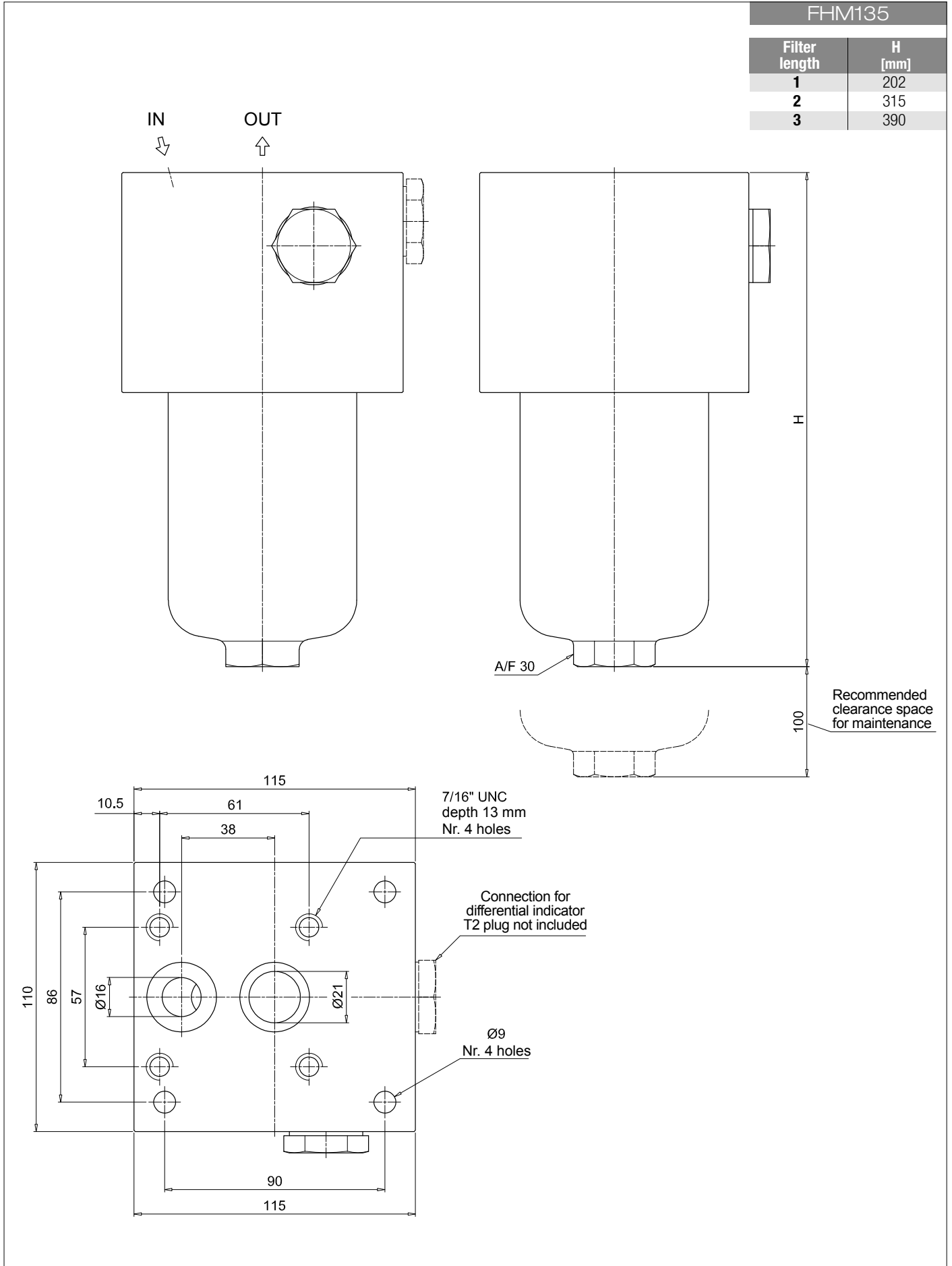
Differential indicators		page			page
DEA	Electrical differential indicator	563	DLE	Electrical / visual differential indicator	566
DEH	Hazardous area electronic differential indicator	563-564	DTA	Electronic differential indicator	567
DEM	Electrical differential indicator	564-565	DVA	Visual differential indicator	567
DLA	Electrical / visual differential indicator	565-566	DVM	Visual differential indicator	567
Additional features		page			
T2	Plug	568			

FHM050		FHM065	
Filter length	H [mm]	Filter length	H [mm]
1	154	1	162
2	191	2	193
3	233	3	295
4	281		
5	403		



# FHM FHM050 - FHM065 - FHM135

## Dimensions





# FHM FHM320 - FHM500

## Designation & Ordering code

### COMPLETE FILTER

Series and size **FHM320 | FHM500** Configuration example: **FHM320** **4** **D** **A** **F1** **A06** **N** **P01**

Length	FHM320	FHM500
1	•	•
2	•	•
3	•	•
4	•	•
5		•

Valves	
<b>S</b>	Without bypass
<b>B</b>	With bypass 6 bar
<b>T</b>	With check valve, without bypass
<b>D</b>	With check valve, with bypass 6 bar

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

Connections	
<b>F1</b>	Manifold

Filtration rating (filter media)			
<b>A03</b>	Inorganic microfiber	3 µm	
<b>A06</b>	Inorganic microfiber	6 µm	
<b>A10</b>	Inorganic microfiber	10 µm	
<b>A16</b>	Inorganic microfiber	16 µm	
<b>A25</b>	Inorganic microfiber	25 µm	
<b>M25</b>	Wire mesh	25 µm	

Element Δp		Valves: FHM320				FHM500			
		S	B	T	D	S	B	T	D
<b>N</b>	20 bar		•		•		•		•
<b>H</b>	210 bar	•		•					
<b>S</b>	210 bar					•		•	

Execution	Filter length				
	1	2	3	4	5
<b>P01</b>	•	•	•	•	•
<b>P02</b>				•	•
<b>Pxx</b>					

### FILTER ELEMENT

Element series and size **HP320 | HP500** Configuration example: **HP320** **4** **A06** **A** **N** **P01**

Element length	HP320	HP500
1	•	•
2	•	•
3	•	•
4	•	•
5		•

Filtration rating (filter media)			
<b>A03</b>	Inorganic microfiber	3 µm	
<b>A06</b>	Inorganic microfiber	6 µm	
<b>A10</b>	Inorganic microfiber	10 µm	
<b>A16</b>	Inorganic microfiber	16 µm	
<b>A25</b>	Inorganic microfiber	25 µm	
<b>M25</b>	Wire mesh	25 µm	

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

Element Δp		
	HP320	HP500
<b>N</b>	•	•
<b>H</b>	•	
<b>S</b>		•

Execution	
<b>P01</b>	MP Filtri standard
<b>Pxx</b>	Customized

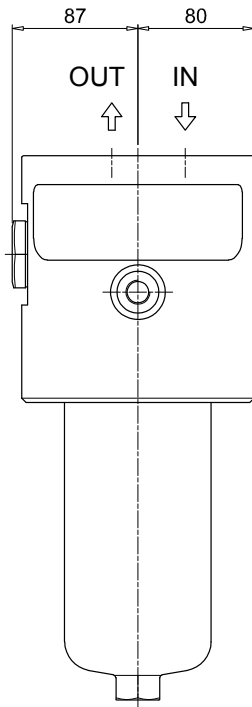
### ACCESSORIES

Differential indicators	page		page
<b>DEA</b> Electrical differential indicator	563	<b>DLE</b> Electrical / visual differential indicator	566
<b>DEH</b> Hazardous area electronic differential indicator	563-564	<b>DTA</b> Electronic differential indicator	567
<b>DEM</b> Electrical differential indicator	564-565	<b>DVA</b> Visual differential indicator	567
<b>DLA</b> Electrical / visual differential indicator	565-566	<b>DVM</b> Visual differential indicator	567

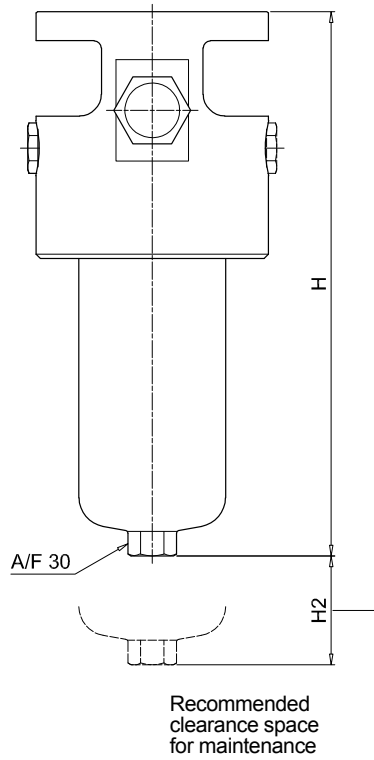
Additional features	page
<b>T2</b> Plug	568

### FHM320

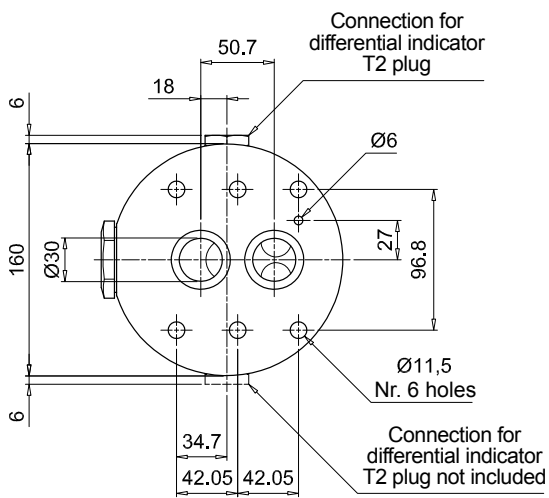
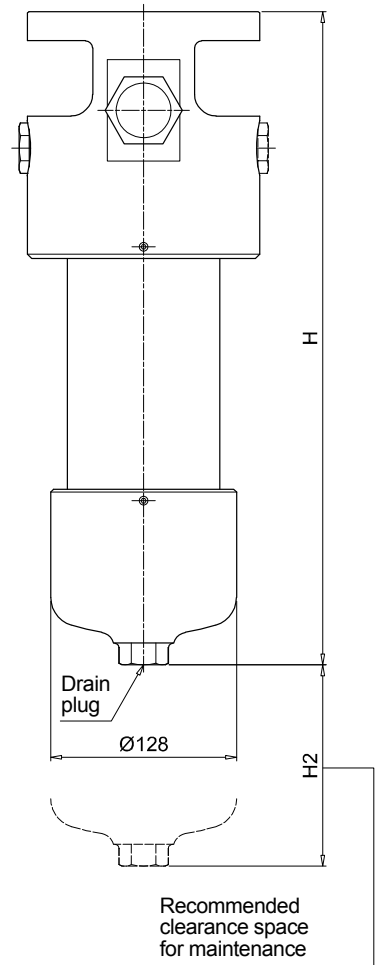
Filter length	H [mm]	H2 [mm]	
		Execution P01	Execution P02
1	293	150	-
2	416	150	-
3	548	150	-
4	702	150	550



Length 1 - 2 - 3



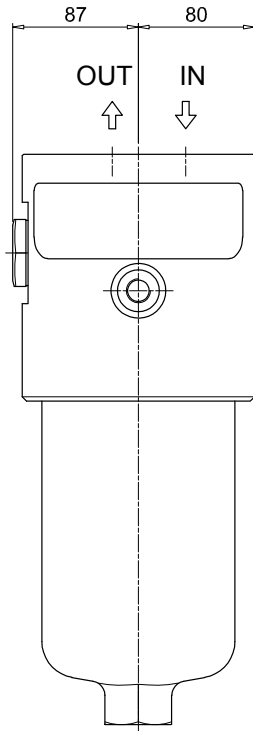
Length 4



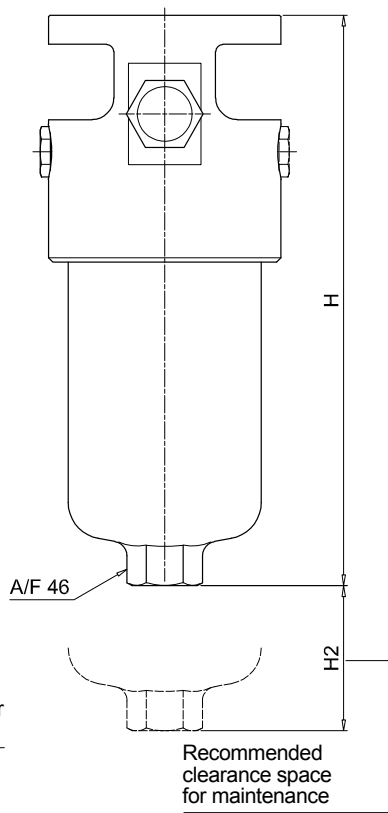
## Dimensions

### FHM500

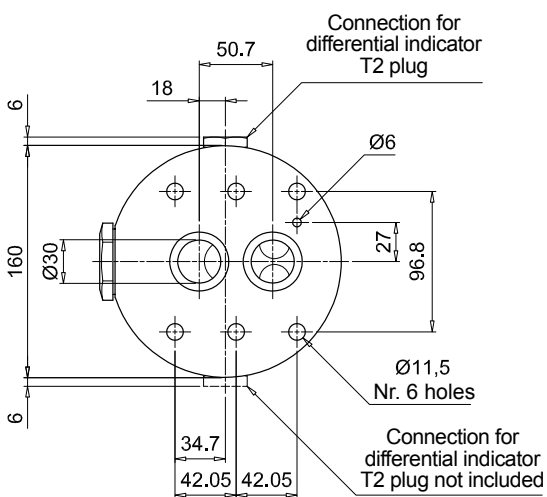
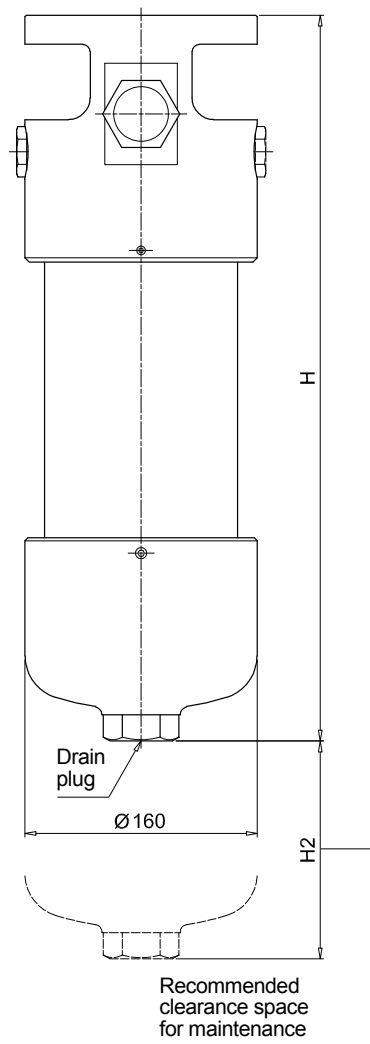
Filter length	H [mm]	H2 [mm]	
		Execution P01	Execution P02
<b>1</b>	355	150	-
<b>2</b>	445	150	-
<b>3</b>	521	150	-
<b>4</b>	679	150	480
<b>5</b>	845	150	650



**Length 1 - 2 - 3**

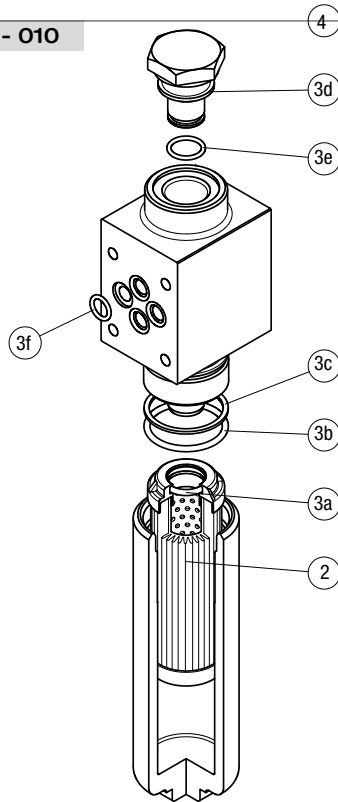


**Length 4 - 5**



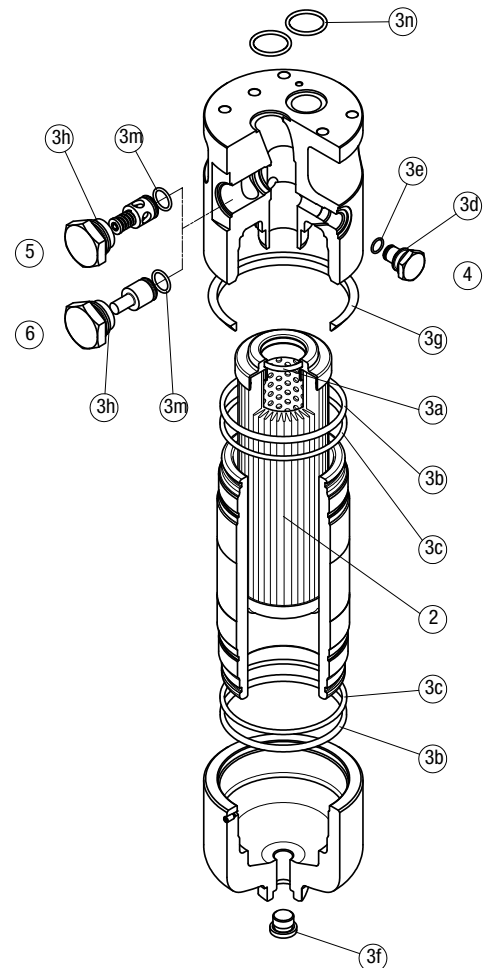


## FHM 006 - 007 - 010



Item:	Q.ty: 1 pc.	Q.ty: 1 pc.		Q.ty: 1 pc.	
Filter series	Filter element	Seal Kit code number		Indicator connection plug	
FHM 006	See order table	NBR	FPM	NBR	FPM
FHM 006	See order table	02050324	02050325		
FHM 007	See order table	02050600	02050601	T2H	T2V
FHM 010	See order table	02050320	02050321		

## FHM 050 - 065 - 135 - 320 - 500



Item:	Q.ty: 1 pc.	Q.ty: 1 pc.		Q.ty: 1 pc.		Q.ty: 1 pc.		Q.ty: 1 pc.	
Filter series	Filter element	Seal Kit code number		Indicator connection plug		Bypass assembly		Non-bypass assembly	
FHM 050	See order table	NBR	FPM	NBR	FPM	NBR	FPM	NBR	FPM
FHM 050	See order table	02050410	02050411			02001400	02001401	02001402	02001403
FHM 065	See order table	02050268	02050279			02001400	02001401	02001402	02001403
FHM 135	See order table	02050271	02050282	T2H	T2V	02001404	02001405	02001406	02001407
FHM 320	See order table	02050275	02050286			02001408	02001409	02001410	02001411
FHM 500	See order table	02050332	02050333			02001408	02001409	02001410	02001411