

# MPH series

Maximum working pressure up to 1 MPa (10 bar) - Flow rate up to 3500 l/min



## Description

## Technical data

### Return filter

**Maximum working pressure up to 1 MPa (10 bar)**

**Flow rate up to 3500 l/min**

MPH is a range of return filters for protection of the reservoir against the system contamination.

They are directly fixed to the reservoir, in immersed or semi-immersed position.

The use of the diffuser is recommended, to place the filter output always immersed into the fluid to avoid aeration or foam generation into the reservoir.

The filtration from inside to outside allows a cleaner filter element replacement, the dirty remains into the filter element.

### Available features:

- Female threaded connections up to 1 1/2" and flanged connections up to 4", for a maximum flow rate of 3500 l/min
- Multiple connections, to connect several return lines or drains
- Fine filtration rating, to get a good cleanliness level into the reservoir
- Bypass valve, to relieve excessive pressure drop across the filter media
- Magnetic filter, to hold the ferrous particles
- 2, 3, 4 or 8 fixing holes for installation, to suit a variety of reservoir surfaces
- Flat Seal to suit a variety of reservoir surfaces
- Oil dipstick, to easily check the level of the fluid into the reservoir (separate item)
- Diffuser, to reduce the risk of aeration, foaming and noise
- Filler plug, to fill cleaned fluid into the tank without an additional plug
- Integrated breather filter, to clean the air that moves into the reservoir as result of the oil level fluctuation (MPH110/114)
- Integrated breather filter with pressurization valve, to clean the air that moves into the reservoir as result of the oil level fluctuation and to guarantee the pressurization into the reservoir (MPH110/114)
- Visual, electrical and electronic clogging indicators

### Common applications:

Heavy duty industrial equipment

### Filter housing materials

- Head
  - Aluminium: MPH 110-114-116-120-250
  - Anodized Aluminium: MPH 630-850
  - Painted Aluminium: MPH 660
- Cover
  - Polyamide: MPH 110-114-116-120
  - Aluminium: MPH 250
  - Anodized Aluminium: MPH 630
  - Painted Aluminium: MPH 660
  - Steel: MPH 850
- Insert assembly
  - Polyamide: MPH 110-114-116-120
  - Aluminium: MPH 250-630-660-850
- Diffuser: Stainless Steel
- Valve: Phosphatized Steel

### Bypass valve

- Opening pressure 175 kPa (1.75 bar)±10%
- Opening pressure 250 kPa (2.5 bar) ±10%, except for MPH 850

### Δp element type

- Microfibre filter elements - series MR: 10 bar
- Fluid flow through the filter element from IN to OUT

### Seals

- Standard NBR series A
- Optional FPM series V

### Temperature

From -25 °C to +110 °C

### Note

MPH 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>MPH 110</b>	1.60	1.70	1.80	2.20	2.60		1.60	1.70	1.80	2.20	2.60	
<b>MPH 114</b>	1.60	1.70	1.80	2.20	2.60		1.60	1.70	1.80	2.20	2.60	
<b>MPH 116</b>	1.60	1.70	1.80	2.20	2.60		1.60	1.70	1.80	2.20	2.60	
<b>MPH 120</b>	1.60	1.70	1.80	2.20	2.60		1.60	1.70	1.80	2.20	2.60	
<b>MPH 250</b>	3.60	3.90	4.20	5.60	-		4.40	4.40	5.40	8.00	-	
<b>MPH 630</b>	6.50	7.00	7.40	8.50	10.50		7.30	9.00	11.00	13.00	19.20	
<b>MPH 660</b>	-	-	-	11.50	14.00		-	-	-	14.60	21.00	
<b>MPH 850</b>	32.00	35.00	38.00	42.00	-		13.00	16.50	21.00	25.00	-	

Flow rates [l/min]

Filter series	Length	A03	A06	A10	A16	A25	M25 M60 M90	P10	P25
<b>MPH 110-114 116-120</b>	1	26	29	72	79	107	282	164	190
	2	43	46	112	114	161	318	164	190
	3	64	72	132	156	178	324	219	251
	4	90	99	184	198	216	324	266	302
	5	117	128	201	219	244	324	282	318
<b>MPH 250</b>	1	93	102	210	251	315	1093	339	383
	2	124	151	327	412	421	1122	460	514
	3	189	221	418	445	500	1137	544	616
	4	261	304	592	670	766	1166	832	923
<b>MPH 630</b>	1	160	200	369	423	518	1894	565	632
	2	240	257	571	611	1045	1929	1137	1285
	3	330	374	745	788	1308	1938	1416	1577
	4	374	403	887	1010	1348	1956	1448	1612
	5	625	698	1210	1257	1723	2121	1839	1929
<b>MPH 660</b>	4	370	399	903	1042	1460	2376	1596	1830
	5	624	699	1282	1343	1997	2663	2182	2331
<b>MPH 850</b>	1	775	1041	1246	1568	2242	3311	2371	2625
	2	1176	1522	1682	1747	2449	3378	2684	2886
	3	1490	1914	1995	2014	3035	3405	3144	3220
	4	1668	2088	2305	2363	3169	3517	3272	3378

**Maximum flow rate for a complete return filter with a pressure drop  $\Delta p = 0.5$  bar.**

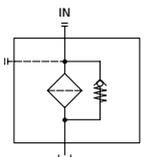
The reference fluid has a kinematic viscosity of 30 mm<sup>2</sup>/s (cSt) and a density of 0.86 kg/dm<sup>3</sup>.

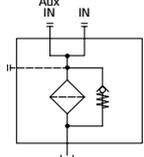
For different pressure drop or fluid viscosity we recommend to use our selection software available on [www.mpfiltri.com](http://www.mpfiltri.com).

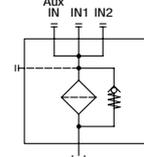
You can also calculate the right size using the formulas present on the FILTER SIZING paragraph at the beginning of the full catalogue or at the beginning of the filter family brochure. Please, contact our Sales Department for further additional information.

## Hydraulic symbols

Filter series	Style 1 connection	Style 2 connections	Style 3 connections
<b>MPH 110</b>	-	•	-
<b>MPH 114</b>	•	-	-
<b>MPH 116</b>	•	-	-
<b>MPH 120</b>	-	-	•
<b>MPH 250</b>	•	•	-
<b>MPH 630</b>	•	•	-
<b>MPH 660</b>	•	-	-
<b>MPH 850</b>	-	•	-



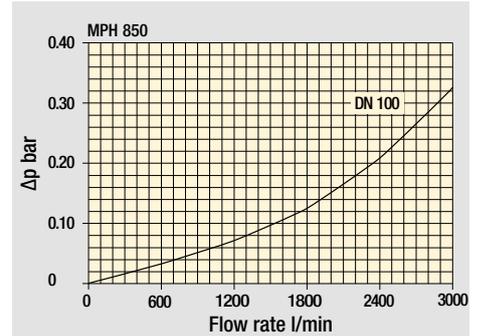
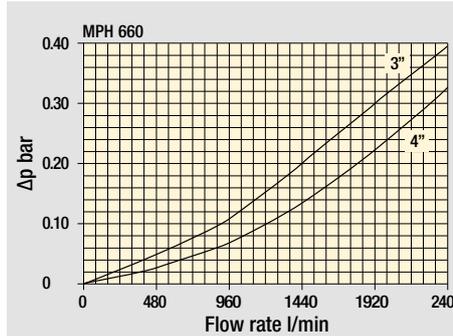
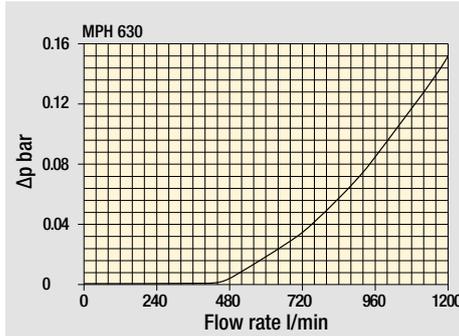
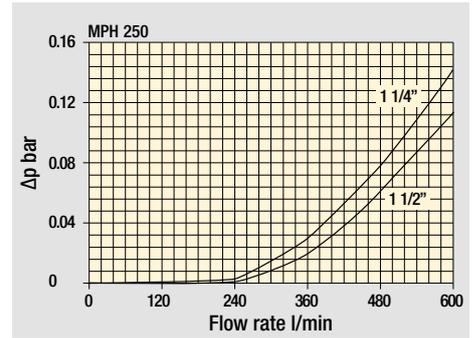
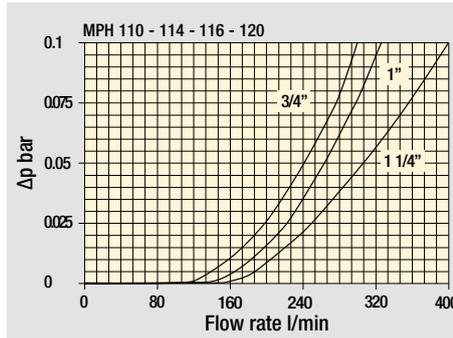




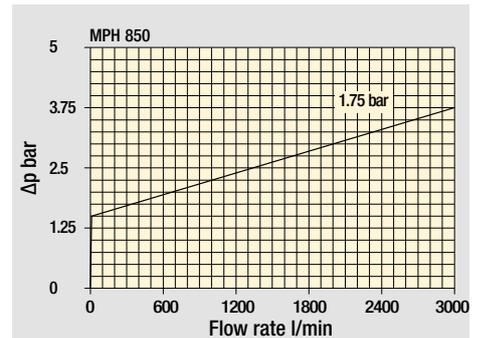
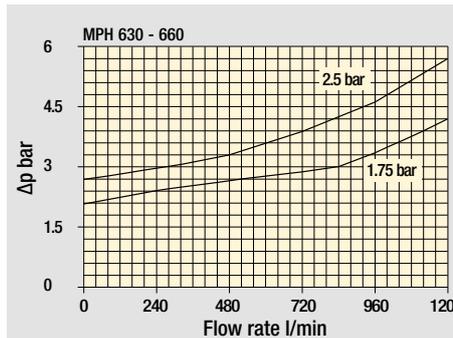
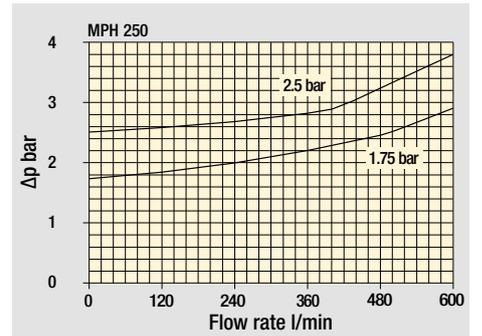
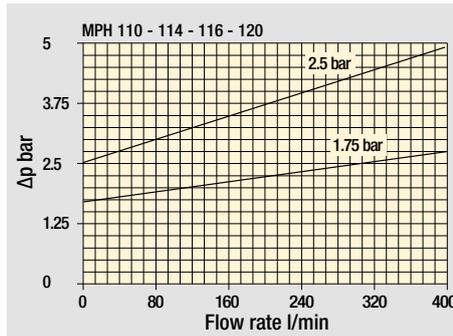
# MPH GENERAL INFORMATION

## Pressure drop

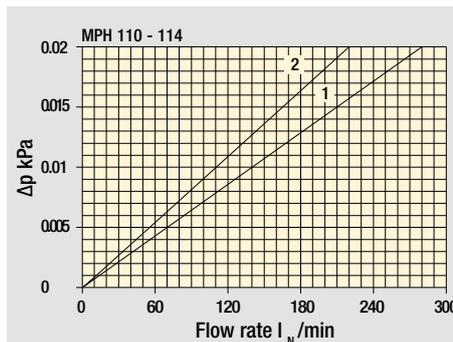
### Filter housings $\Delta p$ pressure drop



### Bypass valve pressure drop



### Air breather pressure drop



- 1  C With air breather 10  $\mu$ m
- 2  D With anti-splash and SAP50 10  $\mu$ m

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.



## Designation & Ordering code

### COMPLETE FILTER

Configuration example: **MPH110** | **1** | **S** | **D** | **S** | **A** | **G1** | **1** | **A10** | **P01**

**Series and size**  
**MPH110**

**Length**  
**1** | **2** | **3** | **4** | **5**

**Bypass valve**  
**S** Without bypass | **C** 1.75 bar | **E** 2.5 bar

**Diffuser and magnetic filter**  
**D** With diffuser, with magnetic filter  
**F** With diffuser, without magnetic filter  
**O** Without diffuser, with magnetic filter  
**E** Without diffuser, without magnetic filter

**Air breather**  
**S** Without air breather  
**C** With air breather 10 µm  
**D** With anti-splash and air breather SAP050 10 µm  
**P** With anti-splash and air breather SAP050 10 µm pressurization 0.5 bar

Seals and treatments	Filtration rating		
	Axx	Mxx	Pxx
<b>A</b> NBR	•	•	•
<b>V</b> FPM	•	•	•
<b>W</b> NBR head anodized	•	•	-
<b>Z</b> FPM head anodized	•	•	-

Main Connections	Aux size 1	Aux size 2	Main Connections	Aux size 1	Aux size 2		
<b>G1</b> G 3/4"	G 3/8"	G 1/2"	<b>G7</b> SAE 12 - 1 1/16" - 12 UN	SAE 6 - 9/16" - 18 UNF	SAE 8 - 3/4" - 16 UNF		
<b>G2</b> G 1"			<b>G8</b> SAE 16 - 1 5/16" - 12 UN				
<b>G3</b> G 1 1/4"			<b>G9</b> SAE 20 - 1 5/8" - 12 UN				
<b>G4</b> 3/4" NPT			3/8" NPT	1/2" NPT			
<b>G5</b> 1" NPT							
<b>G6</b> 1 1/4" NPT							

**Aux connection** - see previous table  
**0** Not machined | **1** Aux size 1 | **2** Aux size 2

**Filtration rating (filter media)**

<b>A03</b> Inorganic microfiber 3 µm	<b>M25</b> Wire mesh 25 µm
<b>A06</b> Inorganic microfiber 6 µm	<b>M60</b> Wire mesh 60 µm
<b>A10</b> Inorganic microfiber 10 µm	<b>M90</b> Wire mesh 90 µm
<b>A16</b> Inorganic microfiber 16 µm	<b>P10</b> Resin impregnated paper 10 µm
<b>A25</b> Inorganic microfiber 25 µm	<b>P25</b> Resin impregnated paper 25 µm

**Execution**  
**P01** MP Filtri standard  
**Pxx** Customized

### FILTER ELEMENT

Configuration example: **MR100** | **1** | **A10** | **A** | **P01**

**Element series and size**  
**MR100**

**Element length**  
**1** | **2** | **3** | **4** | **5**

**Filtration rating (filter media)**

<b>A03</b> Inorganic microfiber 3 µm	<b>M25</b> Wire mesh 25 µm
<b>A06</b> Inorganic microfiber 6 µm	<b>M60</b> Wire mesh 60 µm
<b>A10</b> Inorganic microfiber 10 µm	<b>M90</b> Wire mesh 90 µm
<b>A16</b> Inorganic microfiber 16 µm	<b>P10</b> Resin impregnated paper 10 µm
<b>A25</b> Inorganic microfiber 25 µm	<b>P25</b> Resin impregnated paper 25 µm

**Seals**  
**A** NBR  
**V** FPM

**Execution**  
**P01** MP Filtri standard  
**Pxx** Customized

### CLOGGING INDICATORS

See page 720-721

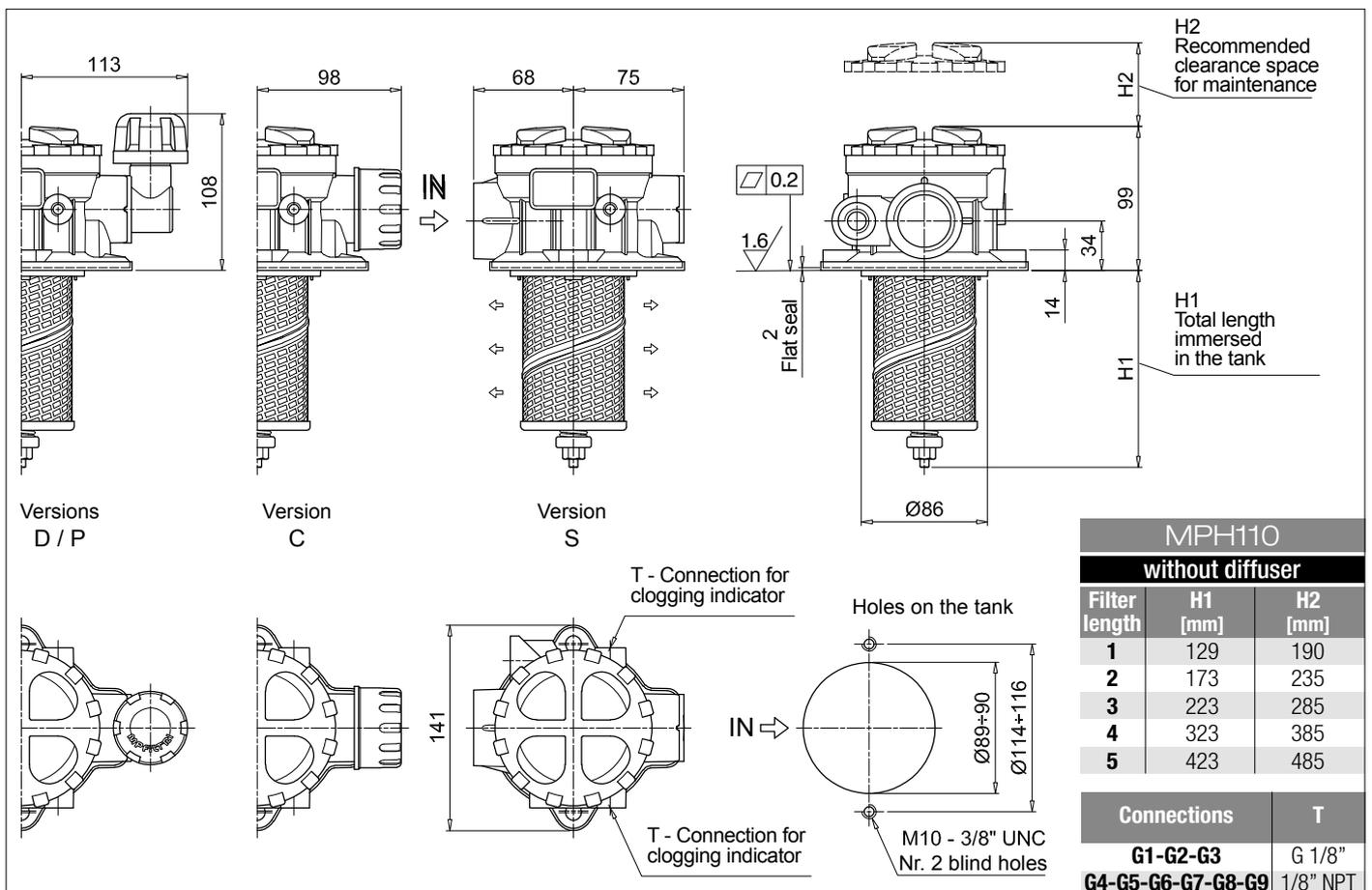
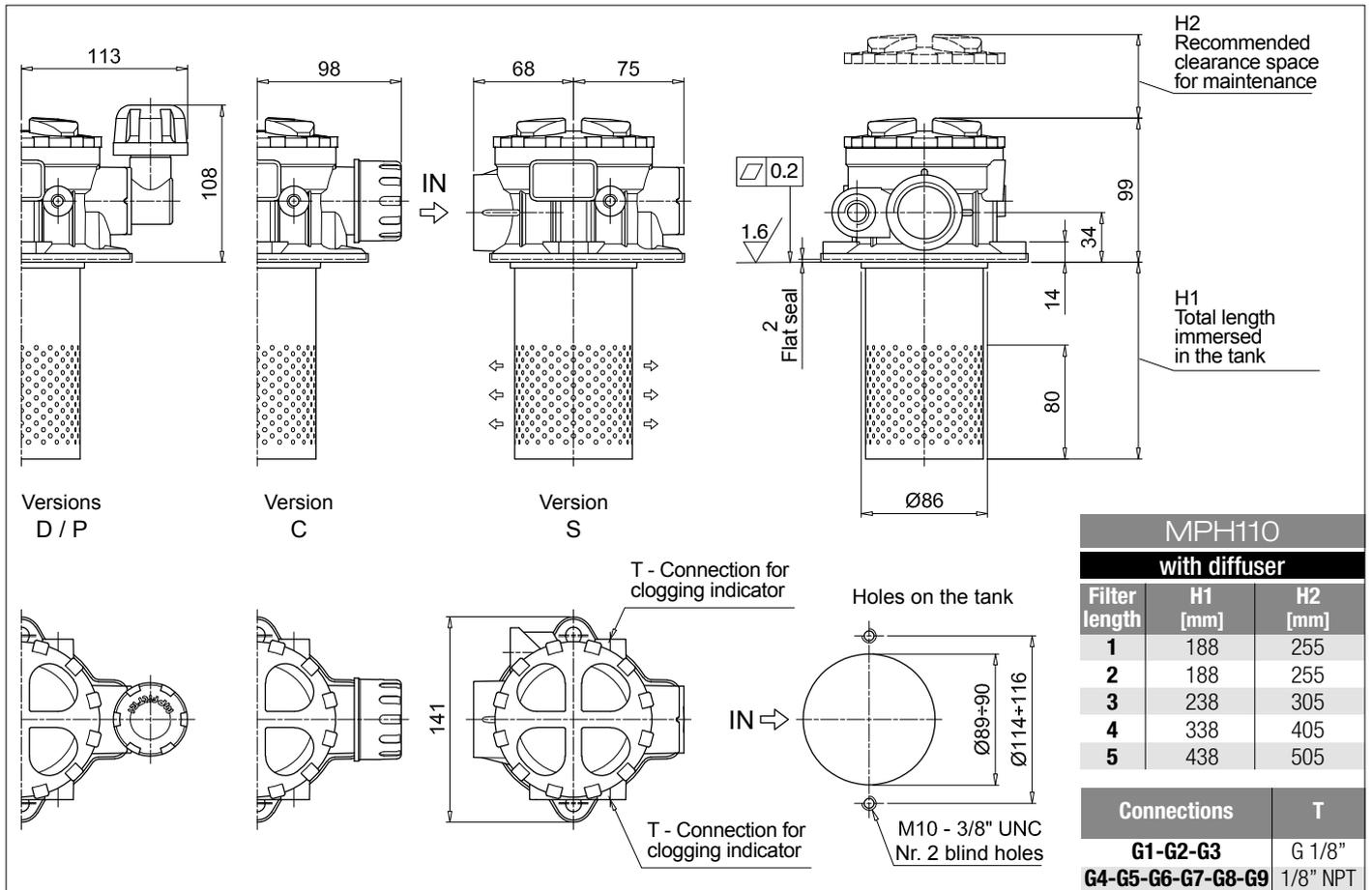
**BVA** Axial pressure gauge  
**BVR** Radial pressure gauge  
**BVP** Visual pressure indicator with automatic reset  
**BVQ** Visual pressure indicator with manual reset

**BEA** Electrical pressure indicator  
**BEM** Electrical pressure indicator  
**BLA** Electrical / visual pressure indicator

### ADDITIONAL FEATURES

See page 268

**DPT** Dipstick



## Designation & Ordering code

### COMPLETE FILTER

Configuration example: **MPH114** | **3** | **C** | **E** | **C** | **Z** | **G6** | **M60** | **P01**

**Series and size**  
**MPH114**

**Length**  
**1** | **2** | **3** | **4** | **5** |

**Bypass valve**  
**S** Without bypass | **C** 1.75 bar | **E** 2.5 bar

**Diffuser and magnetic filter**  
**D** With diffuser, with magnetic filter  
**F** With diffuser, without magnetic filter  
**O** Without diffuser, with magnetic filter  
**E** Without diffuser, without magnetic filter

**Air breather**  
**S** Without air breather  
**C** With air breather 10 µm  
**D** With anti-splash and air breather SAP050 10 µm  
**P** With anti-splash and air breather SAP050 10 µm pressurization 0.5 bar

Seals and treatments	Filtration rating		
	Axx	Mxx	Pxx
<b>A</b> NBR	•	•	•
<b>V</b> FPM	•	•	•
<b>W</b> NBR head anodized	•	•	-
<b>Z</b> FPM head anodized	•	•	-

**Connections**

<b>G1</b> G 3/4"	<b>G6</b> 1 1/4" NPT
<b>G2</b> G 1"	<b>G7</b> SAE 12 - 1 1/16" - 12 UN
<b>G3</b> G 1 1/4"	<b>G8</b> SAE 16 - 1 5/16" - 12 UN
<b>G4</b> 3/4" NPT	<b>G9</b> SAE 20 - 1 5/8" - 12 UN
<b>G5</b> 1" NPT	

**Filtration rating (filter media)**

<b>A03</b> Inorganic microfiber 3 µm	<b>M25</b> Wire mesh 25 µm
<b>A06</b> Inorganic microfiber 6 µm	<b>M60</b> Wire mesh 60 µm
<b>A10</b> Inorganic microfiber 10 µm	<b>M90</b> Wire mesh 90 µm
<b>A16</b> Inorganic microfiber 16 µm	<b>P10</b> Resin impregnated paper 10 µm
<b>A25</b> Inorganic microfiber 25 µm	<b>P25</b> Resin impregnated paper 25 µm

**Execution**  
**P01** MP Filtri standard  
**Pxx** Customized

### FILTER ELEMENT

Configuration example: **MR100** | **3** | **M60** | **V** | **P01**

**Element series and size**  
**MR100**

**Element length**  
**1** | **2** | **3** | **4** | **5** |

**Filtration rating (filter media)**

<b>A03</b> Inorganic microfiber 3 µm	<b>M25</b> Wire mesh 25 µm
<b>A06</b> Inorganic microfiber 6 µm	<b>M60</b> Wire mesh 60 µm
<b>A10</b> Inorganic microfiber 10 µm	<b>M90</b> Wire mesh 90 µm
<b>A16</b> Inorganic microfiber 16 µm	<b>P10</b> Resin impregnated paper 10 µm
<b>A25</b> Inorganic microfiber 25 µm	<b>P25</b> Resin impregnated paper 25 µm

**Seals**  
**A** NBR  
**V** FPM

**Execution**  
**P01** MP Filtri standard  
**Pxx** Customized

### CLOGGING INDICATORS

See page 720-721

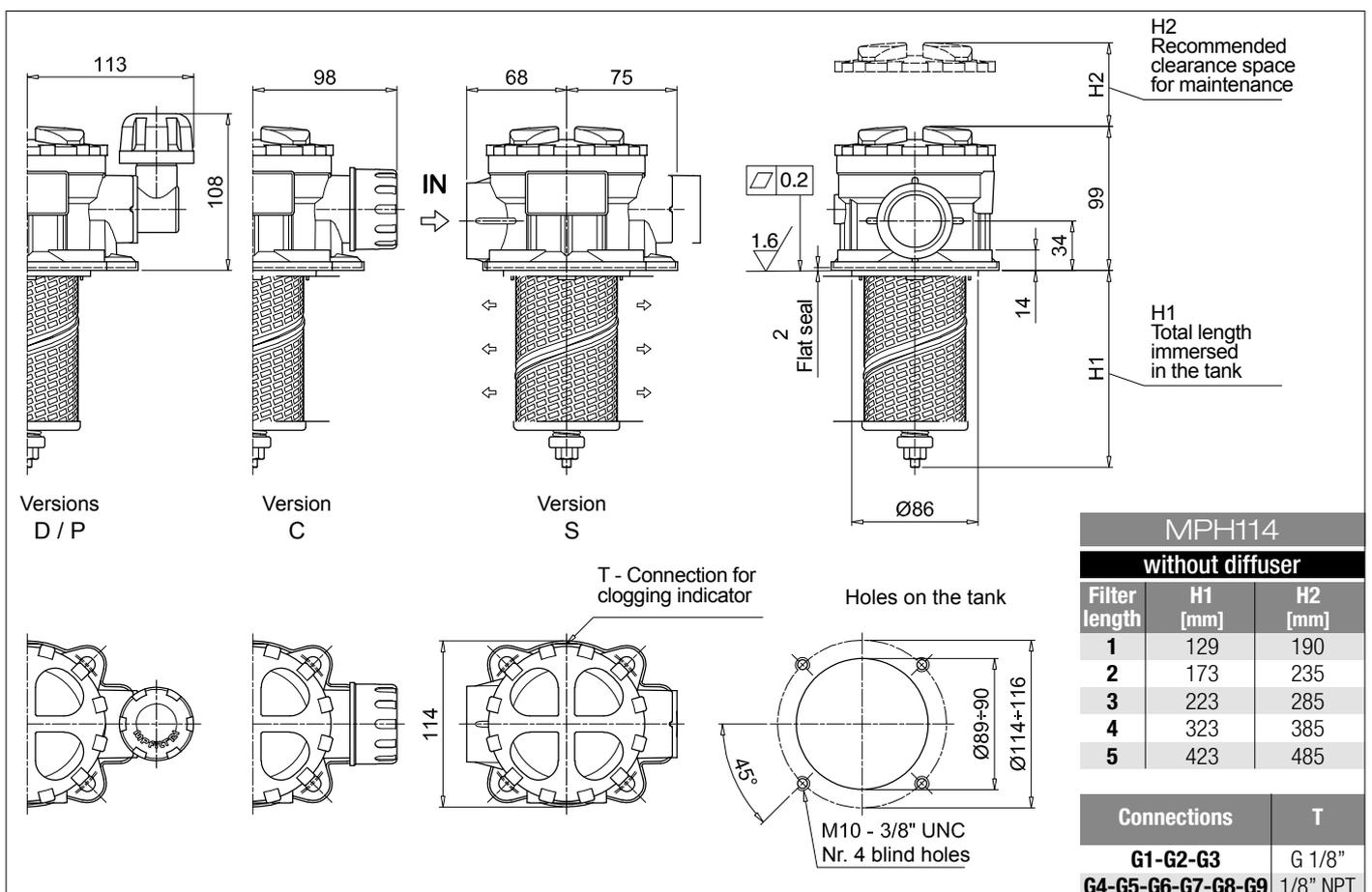
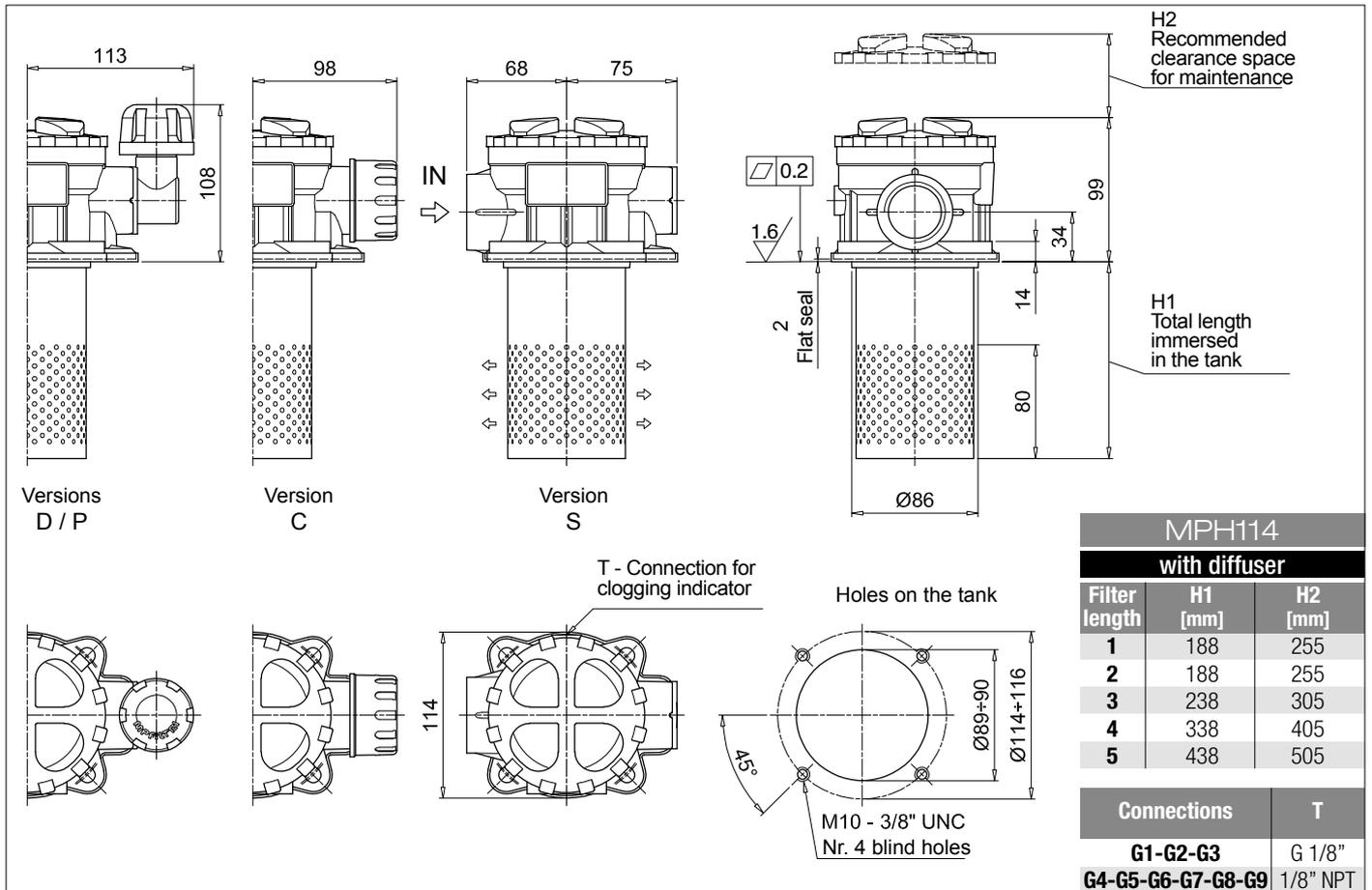
**BVA** Axial pressure gauge  
**BVR** Radial pressure gauge  
**BVP** Visual pressure indicator with automatic reset  
**BVQ** Visual pressure indicator with manual reset

**BEA** Electrical pressure indicator  
**BEM** Electrical pressure indicator  
**BLA** Electrical / visual pressure indicator

### ADDITIONAL FEATURES

See page 268

**DPT** Dipstick



## Designation & Ordering code

### COMPLETE FILTER

Series and size **MPH116** Configuration example: **MPH116** | **5** | **S** | **D** | **S** | **A** | **G1** | **A10** | **P01**

**Length**  
**1** | **2** | **3** | **4** | **5** |

**Bypass valve**  
**S** Without bypass | **C** 1.75 bar | **E** 2.5 bar

**Diffuser and magnetic filter**  
**D** With diffuser, with magnetic filter  
**F** With diffuser, without magnetic filter  
**O** Without diffuser, with magnetic filter  
**E** Without diffuser, without magnetic filter

**Air breather**  
**S** Without air breather

Seals and treatments	Filtration rating		
	Axx	Mxx	Pxx
<b>A</b> NBR	•	•	•
<b>V</b> FPM	•	•	•
<b>W</b> NBR head anodized	•	•	-
<b>Z</b> FPM head anodized	•	•	-

Flat seal on the head on request

Connections	
<b>G1</b> G 3/4"	<b>G6</b> 1 1/4" NPT
<b>G2</b> G 1"	<b>G7</b> SAE 12 - 1 1/16" - 12 UN
<b>G3</b> G 1 1/4"	<b>G8</b> SAE 16 - 1 5/16" - 12 UN
<b>G4</b> 3/4" NPT	<b>G9</b> SAE 20 - 1 5/8" - 12 UN
<b>G5</b> 1" NPT	

Filtration rating (filter media)	
<b>A03</b> Inorganic microfiber 3 µm	<b>M25</b> Wire mesh 25 µm
<b>A06</b> Inorganic microfiber 6 µm	<b>M60</b> Wire mesh 60 µm
<b>A10</b> Inorganic microfiber 10 µm	<b>M90</b> Wire mesh 90 µm
<b>A16</b> Inorganic microfiber 16 µm	<b>P10</b> Resin impregnated paper 10 µm
<b>A25</b> Inorganic microfiber 25 µm	<b>P25</b> Resin impregnated paper 25 µm

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

### FILTER ELEMENT

Element series and size **MR100** Configuration example: **MR100** | **5** | **A10** | **A** | **P01**

**Element length**  
**1** | **2** | **3** | **4** | **5** |

Filtration rating (filter media)	
<b>A03</b> Inorganic microfiber 3 µm	<b>M25</b> Wire mesh 25 µm
<b>A06</b> Inorganic microfiber 6 µm	<b>M60</b> Wire mesh 60 µm
<b>A10</b> Inorganic microfiber 10 µm	<b>M90</b> Wire mesh 90 µm
<b>A16</b> Inorganic microfiber 16 µm	<b>P10</b> Resin impregnated paper 10 µm
<b>A25</b> Inorganic microfiber 25 µm	<b>P25</b> Resin impregnated paper 25 µm

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

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

### CLOGGING INDICATORS

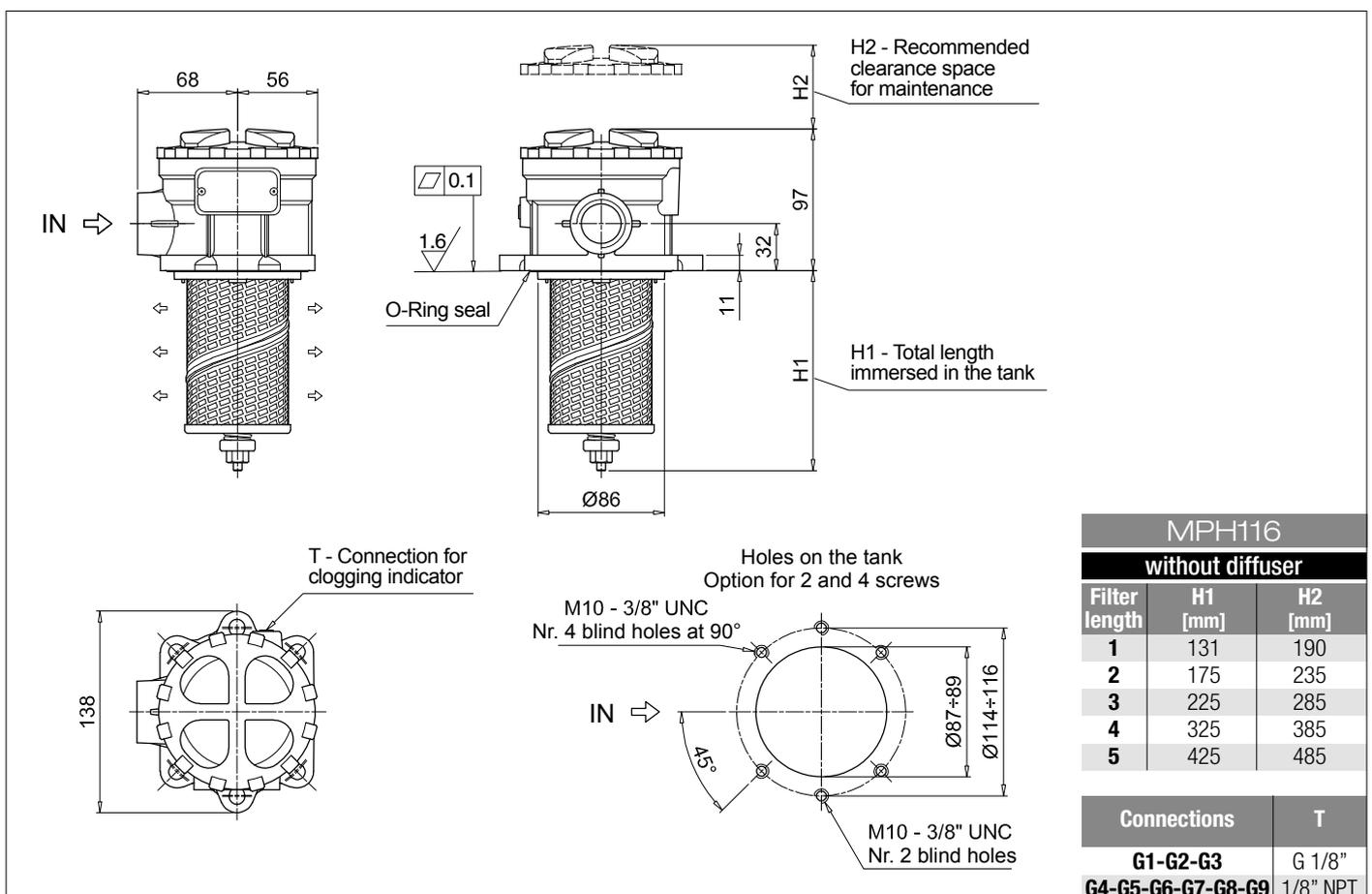
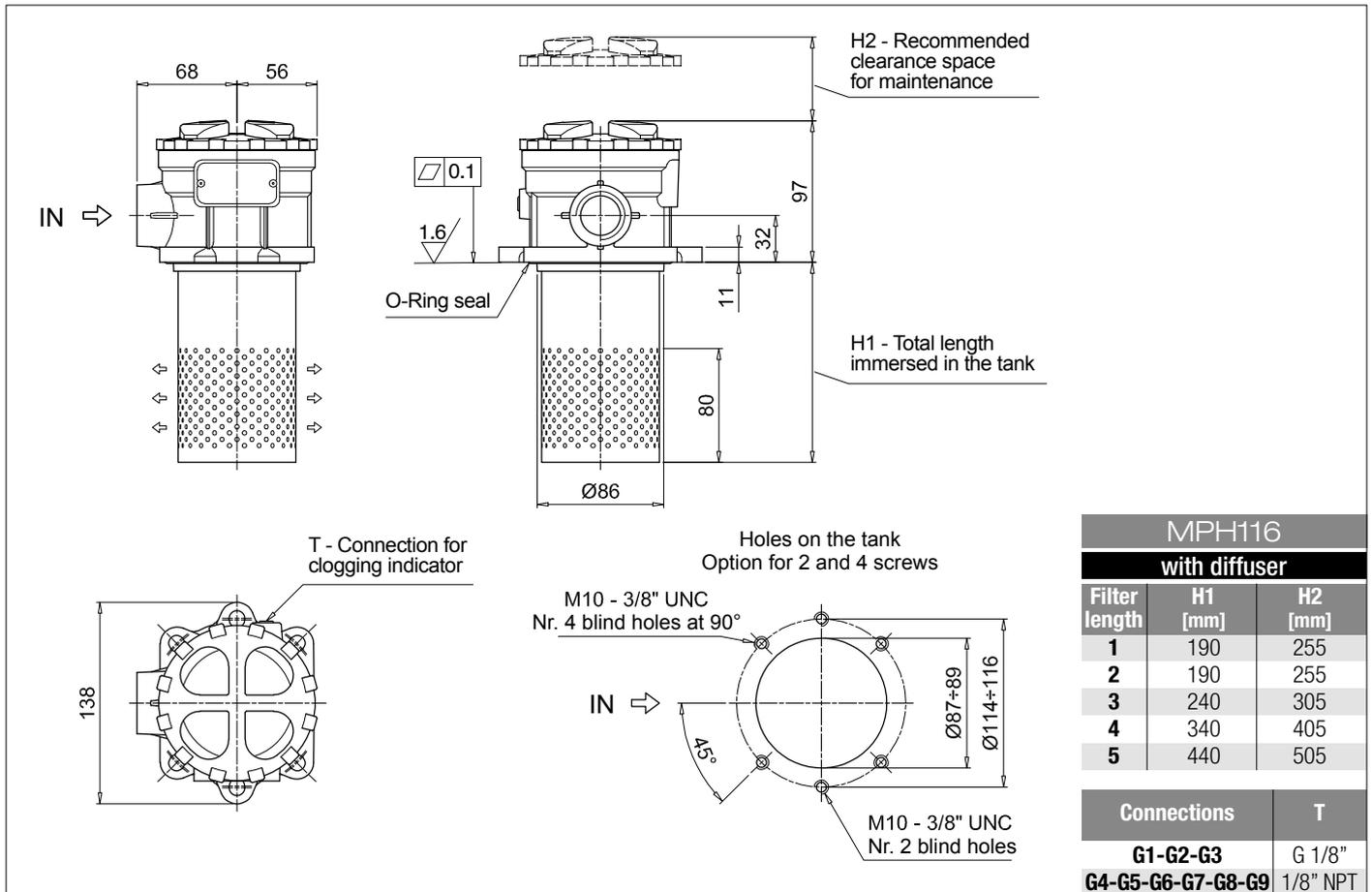
See page 720-721

<b>BVA</b> Axial pressure gauge	<b>BEA</b> Electrical pressure indicator
<b>BVR</b> Radial pressure gauge	<b>BEM</b> Electrical pressure indicator
<b>BVP</b> Visual pressure indicator with automatic reset	<b>BLA</b> Electrical / visual pressure indicator
<b>BVQ</b> Visual pressure indicator with manual reset	

### ADDITIONAL FEATURES

See page 268

**DPT** Dipstick



## Designation & Ordering code

### COMPLETE FILTER

Series and size **MPH120** Configuration example: **MPH120** | **1** | **S** | **D** | **A** | **G1** | **1** | **A10** | **P01**

Length: **1** | **2** | **3** | **4** | **5**

Bypass valve: **S** Without bypass | **C** 1.75 bar | **E** 2.5 bar

Diffuser and magnetic filter: **D** With diffuser, with magnetic filter | **F** With diffuser, without magnetic filter | **O** Without diffuser, with magnetic filter | **E** Without diffuser, without magnetic filter

Seals and treatments	Filtration rating		
	Axx	Mxx	Pxx
<b>A</b> NBR	•	•	•
<b>V</b> FPM	•	•	•
<b>W</b> NBR head anodized	•	•	-
<b>Z</b> FPM head anodized	•	•	-

Main Connections	Rear connections	Aux size 1	Aux size 2
<b>G1</b> G 3/4"	G 3/4"	G 3/8"	G 1/2"
<b>G2</b> G 1"	G 1"		
<b>G3</b> G 1 1/4"	G 3/4"		
<b>G4</b> 3/4" NPT	3/4" NPT	3/8" NPT	1/2" NPT
<b>G5</b> 1" NPT	1" NPT		
<b>G6</b> 1 1/4" NPT	3/4" NPT	SAE 6 - 9/16" - 18 UNF	SAE 8 - 3/4" - 16 UNF
<b>G7</b> SAE 12 - 1 1/16" - 12 UN	SAE 12 - 1 1/16" - 12 UN		
<b>G8</b> SAE 16 - 1 5/16" - 12 UN	SAE 16 - 1 5/16" - 12 UN		
<b>G9</b> SAE 20 - 1 5/8" - 12 UN	SAE 12 - 1 1/16" - 12 UN		

Aux connection - see previous table: **0** Not machined | **1** Aux size 1 | **2** Aux size 2

Filtration rating (filter media)	
<b>A03</b> Inorganic microfiber 3 µm	<b>M25</b> Wire mesh 25 µm
<b>A06</b> Inorganic microfiber 6 µm	<b>M60</b> Wire mesh 60 µm
<b>A10</b> Inorganic microfiber 10 µm	<b>M90</b> Wire mesh 90 µm
<b>A16</b> Inorganic microfiber 16 µm	<b>P10</b> Resin impregnated paper 10 µm
<b>A25</b> Inorganic microfiber 25 µm	<b>P25</b> Resin impregnated paper 25 µm

Execution: **P01** MP Filtri standard | **Pxx** Customized

### FILTER ELEMENT

Element series and size **MR100** Configuration example: **MR100** | **1** | **A10** | **A** | **P01**

Element length: **1** | **2** | **3** | **4** | **5**

Filtration rating (filter media)	
<b>A03</b> Inorganic microfiber 3 µm	<b>M25</b> Wire mesh 25 µm
<b>A06</b> Inorganic microfiber 6 µm	<b>M60</b> Wire mesh 60 µm
<b>A10</b> Inorganic microfiber 10 µm	<b>M90</b> Wire mesh 90 µm
<b>A16</b> Inorganic microfiber 16 µm	<b>P10</b> Resin impregnated paper 10 µm
<b>A25</b> Inorganic microfiber 25 µm	<b>P25</b> Resin impregnated paper 25 µm

Seals: **A** NBR | **V** FPM

Execution: **P01** MP Filtri standard | **Pxx** Customized

### CLOGGING INDICATORS

See page 720-721

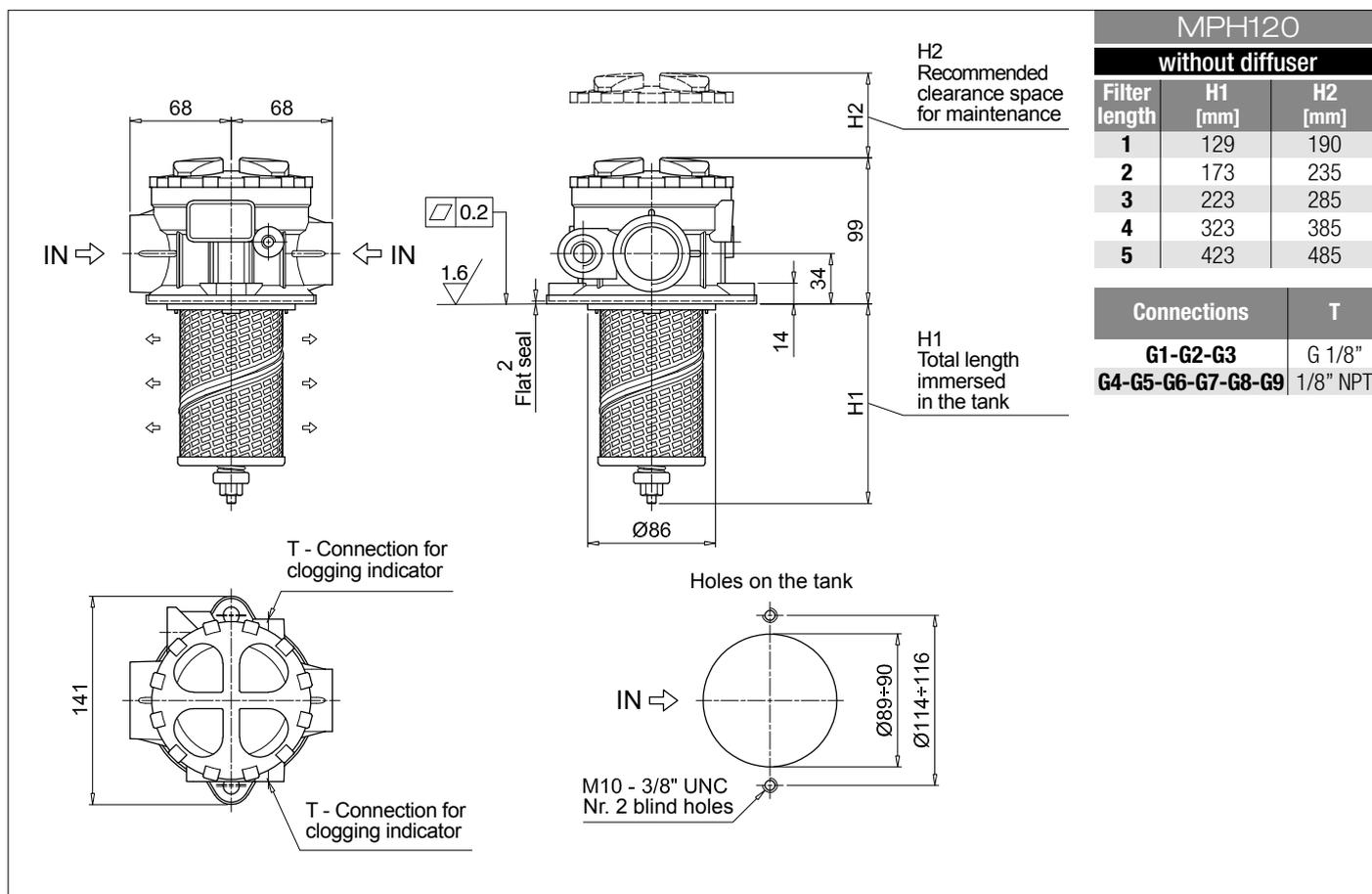
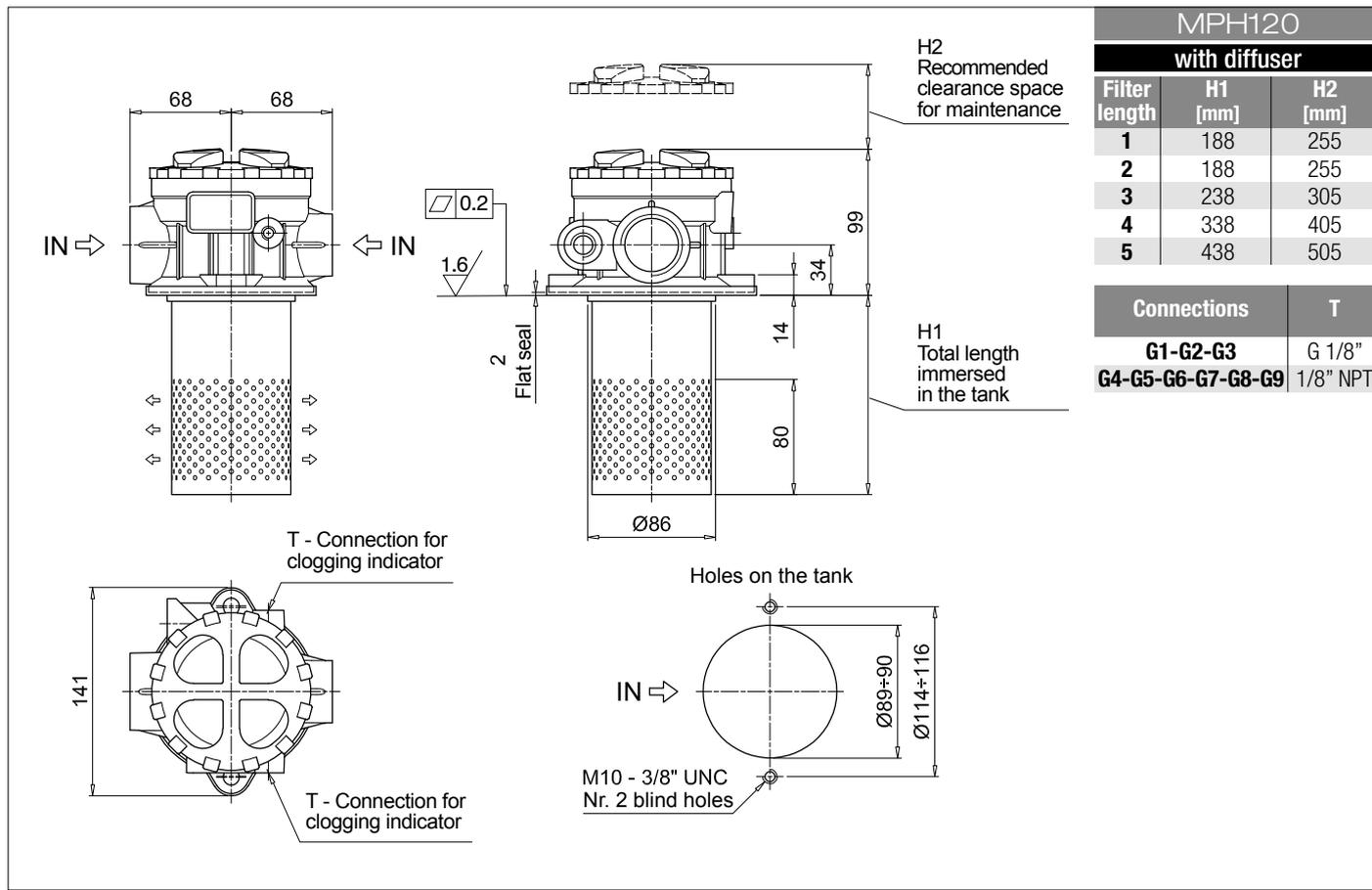
**BVA** Axial pressure gauge  
**BVR** Radial pressure gauge  
**BVP** Visual pressure indicator with automatic reset  
**BVQ** Visual pressure indicator with manual reset

**BEA** Electrical pressure indicator  
**BEM** Electrical pressure indicator  
**BLA** Electrical / visual pressure indicator

### ADDITIONAL FEATURES

See page 268

**DPT** Dipstick



## Designation & Ordering code

### COMPLETE FILTER

Series and size **MPH250** Configuration example: **MPH250** | **1** | **C** | **D** | **S** | **A** | **G1** | **A10** | **P01**

Length **1** | **2** | **3** | **4**

Bypass valve  
**S** Without bypass | **C** 1.75 bar | **E** 2.5 bar

Diffuser and magnetic filter  
**D** With diffuser, with magnetic filter  
**F** With diffuser, without magnetic filter  
**O** Without diffuser, with magnetic filter  
**E** Without diffuser, without magnetic filter

Air breather  
**S** Without air breather

Seals and treatments	Filtration rating		
	Axx	Mxx	Pxx
<b>A</b> NBR	•	•	•
<b>V</b> FPM	•	•	•
<b>W</b> NBR head anodized	•	•	-
<b>Z</b> FPM head anodized	•	•	-

Main Connections	Rear connections
<b>G1</b> G 1 1/2"	-
<b>G2</b> G 1 1/2"	G 1 1/4"
<b>G4</b> 1 1/2" NPT	-
<b>G5</b> 1 1/2" NPT	1 1/4" NPT
<b>G7</b> SAE 24 - 1 7/8" - 12 UN	-
<b>G8</b> SAE 24 - 1 7/8" - 12 UN	SAE 20 - 1 5/8" - 12 UN
<b>F1</b> 1 1/2" SAE 3000 psi/M	-
<b>F2</b> 1 1/2" SAE 3000 psi/M	1 1/4" SAE 3000 psi/M
<b>F3</b> 1 1/2" SAE 3000 psi/UNC	-
<b>F4</b> 1 1/2" SAE 3000 psi/UNC	1 1/4" SAE 3000 psi/UNC

Filtration rating (filter media)	
<b>A03</b> Inorganic microfiber 3 µm	<b>M25</b> Wire mesh 25 µm
<b>A06</b> Inorganic microfiber 6 µm	<b>M60</b> Wire mesh 60 µm
<b>A10</b> Inorganic microfiber 10 µm	<b>M90</b> Wire mesh 90 µm
<b>A16</b> Inorganic microfiber 16 µm	<b>P10</b> Resin impregnated paper 10 µm
<b>A25</b> Inorganic microfiber 25 µm	<b>P25</b> Resin impregnated paper 25 µm

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

### FILTER ELEMENT

Element series and size **MR250** Configuration example: **MR250** | **1** | **A10** | **A** | **P01**

Element length **1** | **2** | **3** | **4**

Filtration rating (filter media)	
<b>A03</b> Inorganic microfiber 3 µm	<b>M25</b> Wire mesh 25 µm
<b>A06</b> Inorganic microfiber 6 µm	<b>M60</b> Wire mesh 60 µm
<b>A10</b> Inorganic microfiber 10 µm	<b>M90</b> Wire mesh 90 µm
<b>A16</b> Inorganic microfiber 16 µm	<b>P10</b> Resin impregnated paper 10 µm
<b>A25</b> Inorganic microfiber 25 µm	<b>P25</b> Resin impregnated paper 25 µm

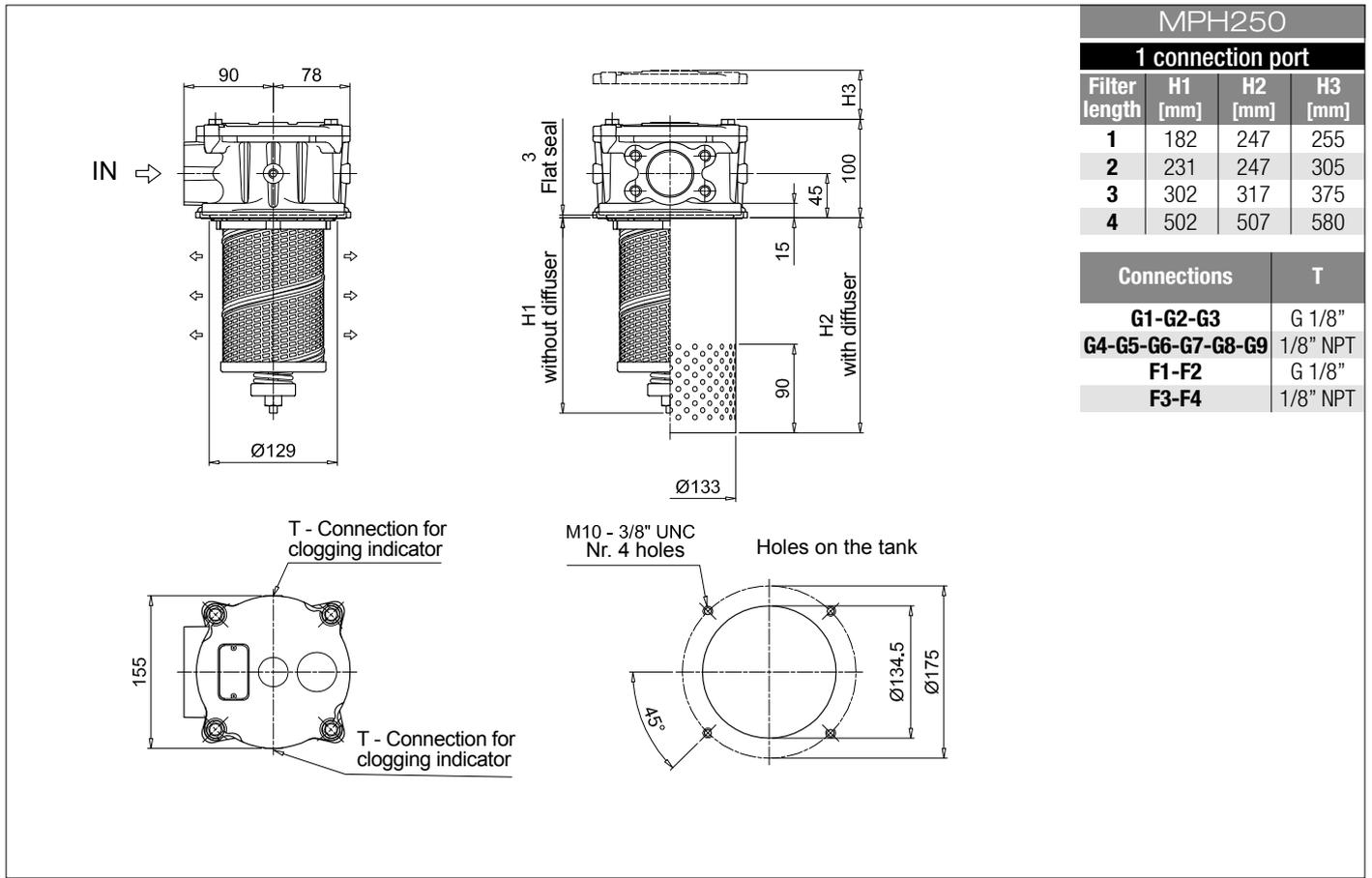
Seals	Execution
<b>A</b> NBR	<b>P01</b> MP Filtri standard
<b>V</b> FPM	<b>Pxx</b> Customized

### CLOGGING INDICATORS

See page 720-721

**BVA** Axial pressure gauge  
**BVR** Radial pressure gauge  
**BVP** Visual pressure indicator with automatic reset  
**BVQ** Visual pressure indicator with manual reset

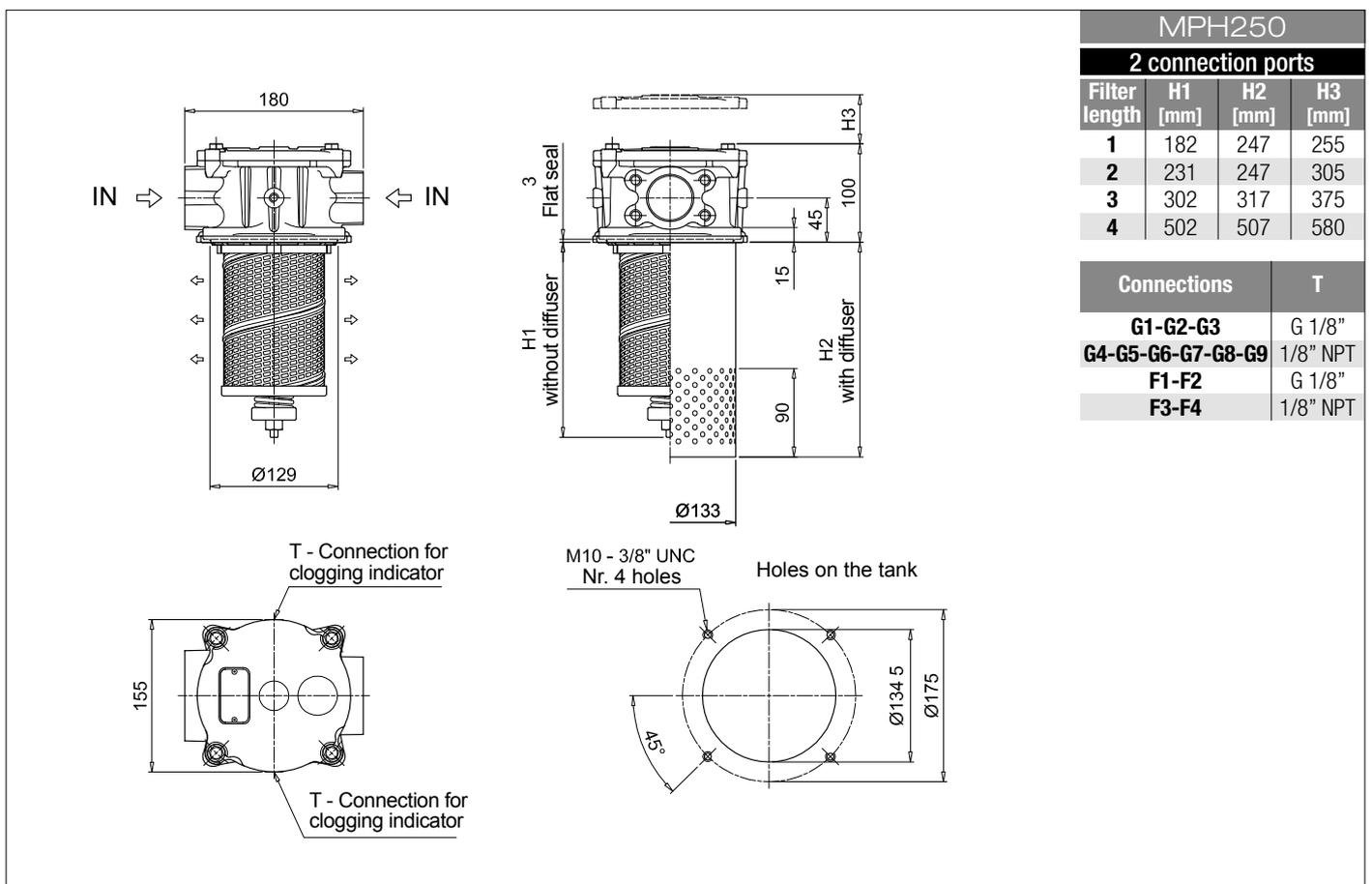
**BEA** Electrical pressure indicator  
**BEM** Electrical pressure indicator  
**BLA** Electrical / visual pressure indicator



MPH250			
1 connection port			
Filter length	H1 [mm]	H2 [mm]	H3 [mm]
1	182	247	255
2	231	247	305
3	302	317	375
4	502	507	580

Connections	T
<b>G1-G2-G3</b>	G 1/8"
<b>G4-G5-G6-G7-G8-G9</b>	1/8" NPT
<b>F1-F2</b>	G 1/8"
<b>F3-F4</b>	1/8" NPT



MPH250			
2 connection ports			
Filter length	H1 [mm]	H2 [mm]	H3 [mm]
1	182	247	255
2	231	247	305
3	302	317	375
4	502	507	580

Connections	T
<b>G1-G2-G3</b>	G 1/8"
<b>G4-G5-G6-G7-G8-G9</b>	1/8" NPT
<b>F1-F2</b>	G 1/8"
<b>F3-F4</b>	1/8" NPT

## Designation & Ordering code

### COMPLETE FILTER

Configuration example: **MPH630** | **1** | **S** | **E** | **S** | **W** | **F1** | **M25** | **P01**

**Series and size**  
**MPH630**

**Length**  
**1** | **2** | **3** | **4** | **5**

**Bypass valve**  
**S** Without bypass | **C** 1.75 bar | **E** 2.5 bar

**Diffuser and magnetic filter**  
**D** With diffuser, with magnetic filter  
**F** With diffuser, without magnetic filter  
**O** Without diffuser, with magnetic filter  
**E** Without diffuser, without magnetic filter

**Air breather**  
**S** Without air breather

Seals and treatments	Filtration rating		
	Axx	Mxx	Pxx
<b>A</b> NBR	•	•	•
<b>V</b> FPM	•	•	•
<b>W</b> NBR head anodized	•	•	-
<b>Z</b> FPM head anodized	•	•	-

Main Connections	Rear connections
<b>F1</b> 2 1/2" SAE 3000 psi/M	-
<b>F2</b> 2 1/2" SAE 3000 psi/M	2" SAE 3000 psi/M
<b>F3</b> 2 1/2" SAE 3000 psi/UNC	-
<b>F4</b> 2 1/2" SAE 3000 psi/UNC	2" SAE 3000 psi/UNC

Filtration rating (filter media)	
<b>A03</b> Inorganic microfiber 3 µm	<b>M25</b> Wire mesh 25 µm
<b>A06</b> Inorganic microfiber 6 µm	<b>M60</b> Wire mesh 60 µm
<b>A10</b> Inorganic microfiber 10 µm	<b>M90</b> Wire mesh 90 µm
<b>A16</b> Inorganic microfiber 16 µm	<b>P10</b> Resin impregnated paper 10 µm
<b>A25</b> Inorganic microfiber 25 µm	<b>P25</b> Resin impregnated paper 25 µm

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

### FILTER ELEMENT

Configuration example: **MR630** | **1** | **M25** | **A** | **P01**

**Element series and size**  
**MR630**

**Element length**  
**1** | **2** | **3** | **4** | **5**

Filtration rating (filter media)	
<b>A03</b> Inorganic microfiber 3 µm	<b>M25</b> Wire mesh 25 µm
<b>A06</b> Inorganic microfiber 6 µm	<b>M60</b> Wire mesh 60 µm
<b>A10</b> Inorganic microfiber 10 µm	<b>M90</b> Wire mesh 90 µm
<b>A16</b> Inorganic microfiber 16 µm	<b>P10</b> Resin impregnated paper 10 µm
<b>A25</b> Inorganic microfiber 25 µm	<b>P25</b> Resin impregnated paper 25 µm

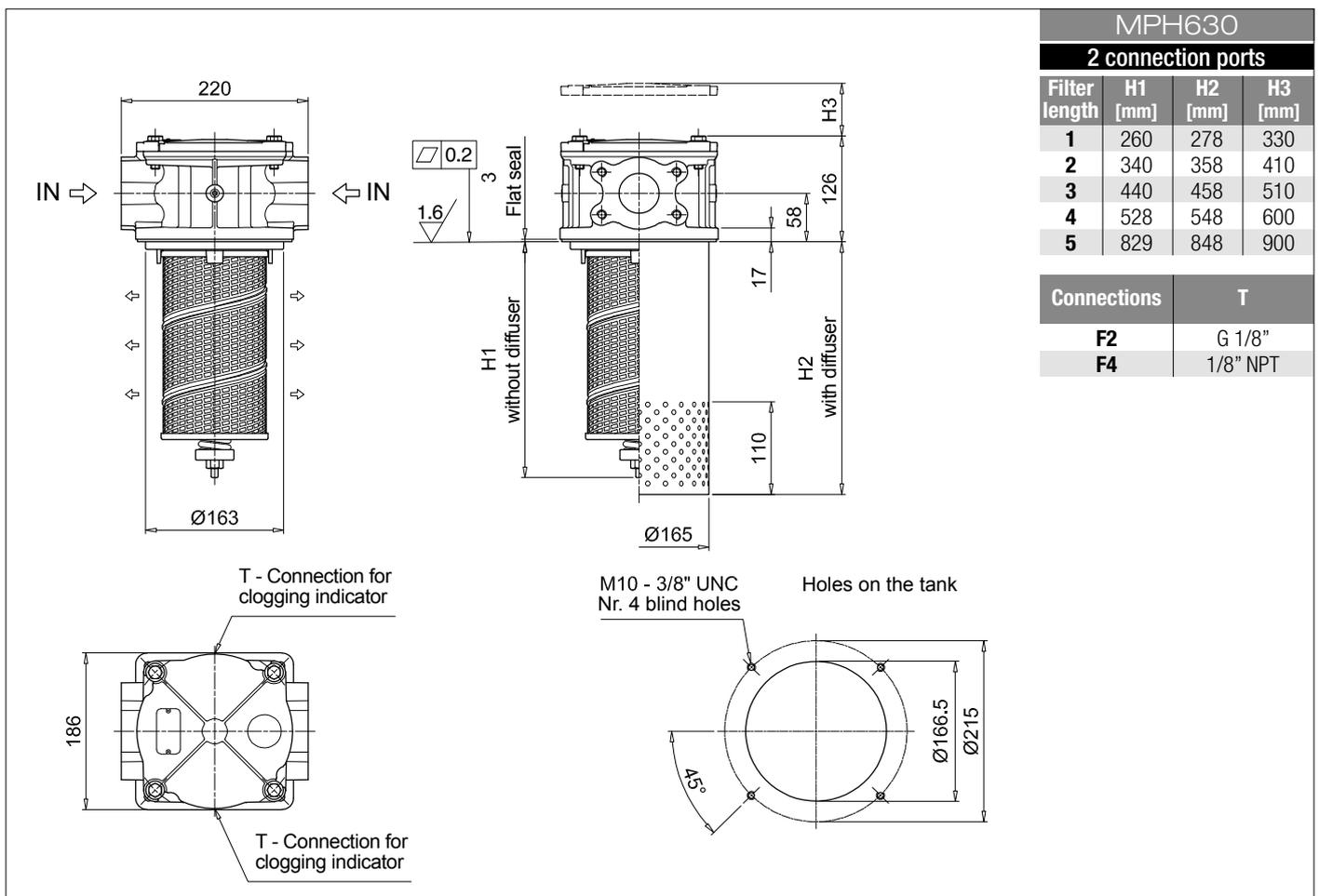
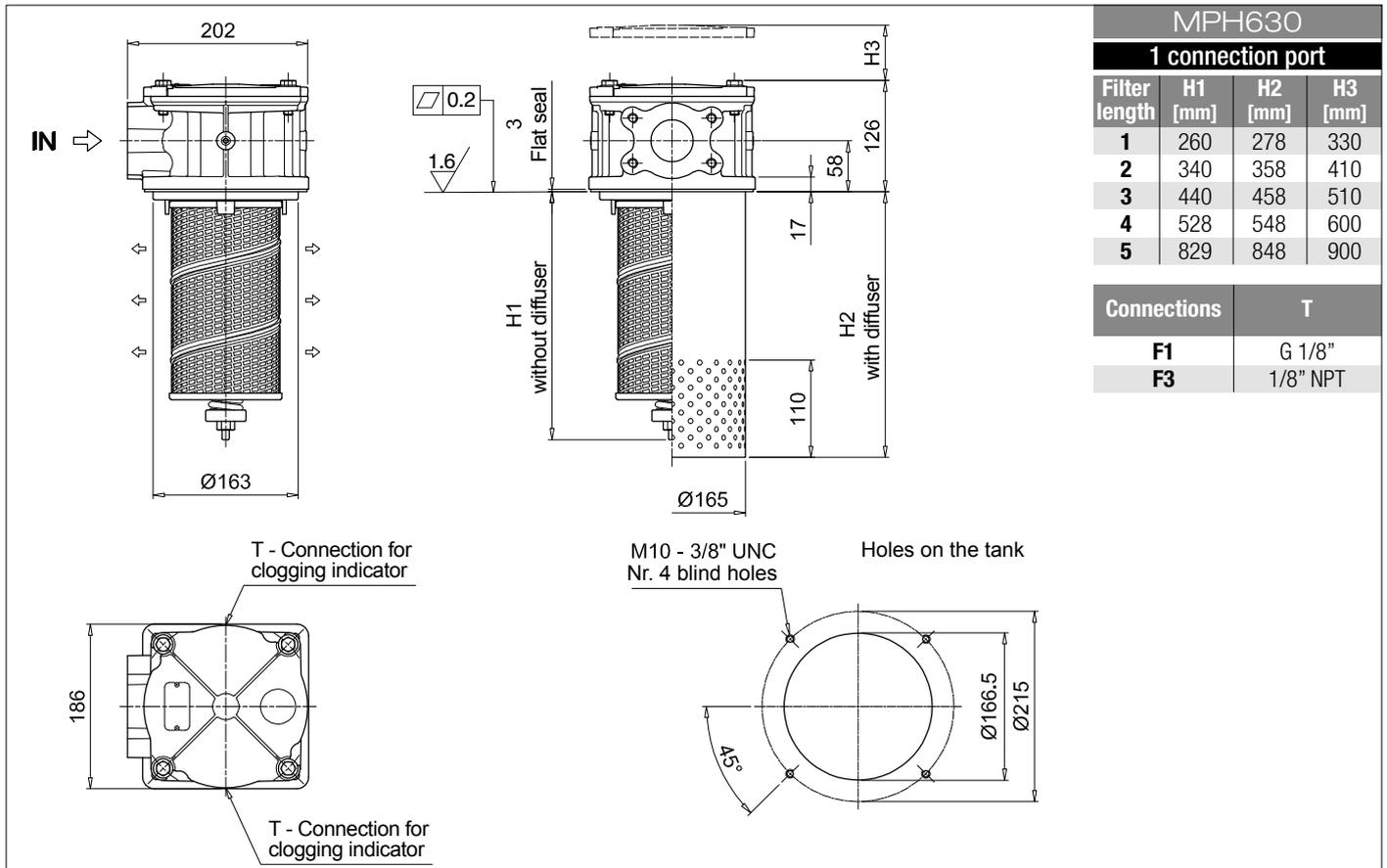
Seals	Execution
<b>A</b> NBR	<b>P01</b> MP Filtri standard
<b>V</b> FPM	<b>Pxx</b> Customized

### CLOGGING INDICATORS

See page 720-721

**BVA** Axial pressure gauge  
**BVR** Radial pressure gauge  
**BVP** Visual pressure indicator with automatic reset  
**BVQ** Visual pressure indicator with manual reset

**BEA** Electrical pressure indicator  
**BEM** Electrical pressure indicator  
**BLA** Electrical / visual pressure indicator



## Designation & Ordering code

### COMPLETE FILTER

Configuration example: **MPH660** | **4** | **C** | **D** | **S** | **A** | **F2** | **A10** | **P01**

**Series and size**  
**MPH660**

**Length**  
**4** | **5**

**Bypass valve**  
**S** Without bypass | **C** 1.75 bar | **E** 2.5 bar

**Diffuser and magnetic filter**  
**D** With diffuser, with magnetic filter  
**F** With diffuser, without magnetic filter  
**O** Without diffuser, with magnetic filter  
**E** Without diffuser, without magnetic filter

**Air breather**  
**S** Without air breather

Seals and treatments	Filtration rating		
	Axx	Mxx	Pxx
<b>A</b> NBR	•	•	•
<b>V</b> FPM	•	•	•
<b>W</b> NBR head anodized	•	•	-
<b>Z</b> FPM head anodized	•	•	-

**Main Connections**  
**F1** 3" SAE 3000 psi/M  
**F2** 4" SAE 3000 psi/M

Filtration rating (filter media)	
<b>A03</b> Inorganic microfiber 3 µm	<b>M25</b> Wire mesh 25 µm
<b>A06</b> Inorganic microfiber 6 µm	<b>M60</b> Wire mesh 60 µm
<b>A10</b> Inorganic microfiber 10 µm	<b>M90</b> Wire mesh 90 µm
<b>A16</b> Inorganic microfiber 16 µm	<b>P10</b> Resin impregnated paper 10 µm
<b>A25</b> Inorganic microfiber 25 µm	<b>P25</b> Resin impregnated paper 25 µm

**Execution**  
**P01** MP Filtri standard  
**Pxx** Customized

### FILTER ELEMENT

Configuration example: **MR630** | **5** | **M25** | **A** | **P01**

**Element series and size**  
**MR630**

**Element length**  
**4** | **5**

Filtration rating (filter media)	
<b>A03</b> Inorganic microfiber 3 µm	<b>M25</b> Wire mesh 25 µm
<b>A06</b> Inorganic microfiber 6 µm	<b>M60</b> Wire mesh 60 µm
<b>A10</b> Inorganic microfiber 10 µm	<b>M90</b> Wire mesh 90 µm
<b>A16</b> Inorganic microfiber 16 µm	<b>P10</b> Resin impregnated paper 10 µm
<b>A25</b> Inorganic microfiber 25 µm	<b>P25</b> Resin impregnated paper 25 µm

**Seals**  
**A** NBR  
**V** FPM

**Execution**  
**P01** MP Filtri standard  
**Pxx** Customized

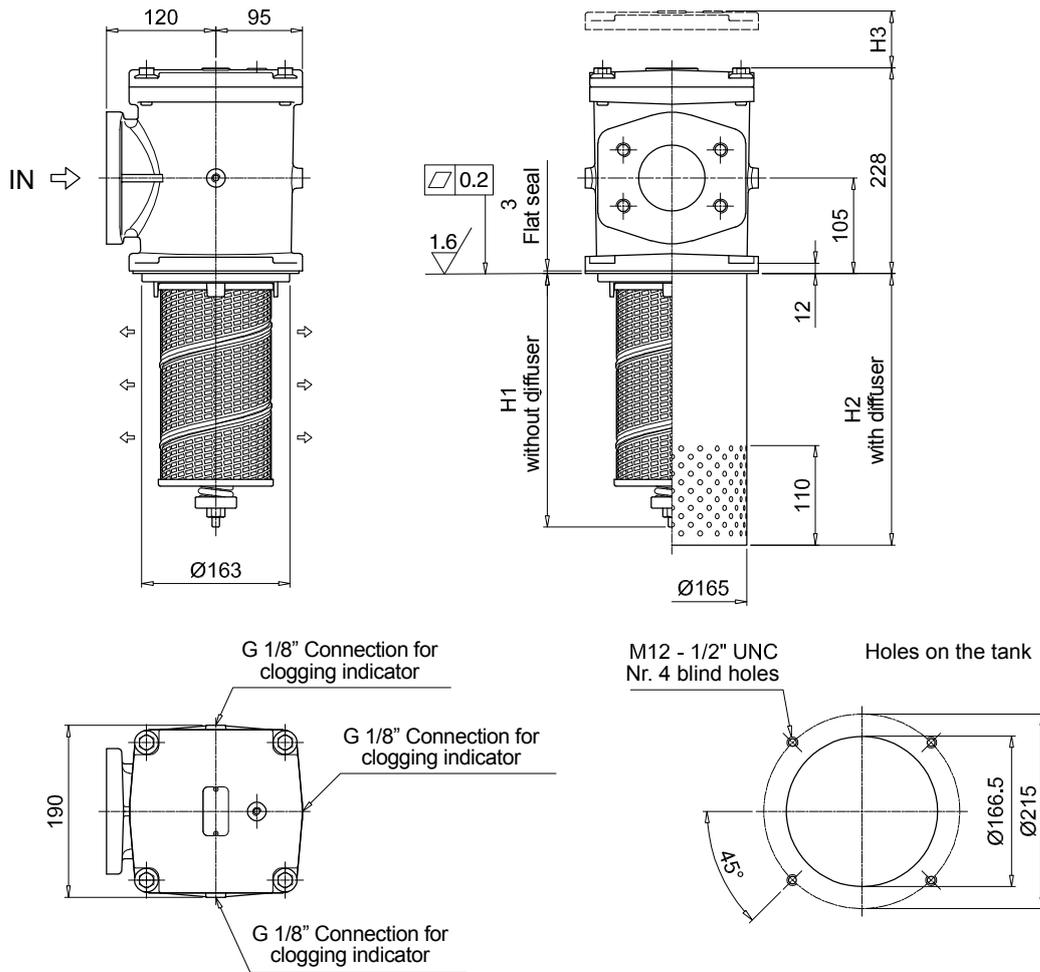
### CLOGGING INDICATORS

See page 720-721

**BVA** Axial pressure gauge  
**BVR** Radial pressure gauge  
**BVP** Visual pressure indicator with automatic reset  
**BVQ** Visual pressure indicator with manual reset

**BEA** Electrical pressure indicator  
**BEM** Electrical pressure indicator  
**BLA** Electrical / visual pressure indicator

MPH660			
Filter length	H1 [mm]	H2 [mm]	H3 [mm]
4	538	548	610
5	838	848	910



## Designation & Ordering code

### COMPLETE FILTER

Configuration example: **MPH850** | **1** | **C** | **D** | **S** | **A** | **F1** | **A10** | **P01**

**Series and size**  
**MPH850**

**Length**  
**1** | **2** | **3** | **4**

**Bypass valve**  
**S** Without bypass | **C** 1.75 bar

**Diffuser and magnetic filter**  
**D** With diffuser, with magnetic filter  
**F** With diffuser, without magnetic filter  
**O** Without diffuser, with magnetic filter  
**E** Without diffuser, without magnetic filter

**Air breather**  
**S** Without air breather

Seals and treatments	Filtration rating		
	Axx	Mxx	Pxx
<b>A</b> NBR	•	•	•
<b>V</b> FPM	•	•	•
<b>W</b> NBR head anodized	•	•	-
<b>Z</b> FPM head anodized	•	•	-

Main Connections	Rear connections
<b>F1</b> UNI 2223 DN 100 PN 10/16	3" SAE 3000 psi/M
<b>F2</b> UNI 2223 DN 100 PN 10/16	3" SAE 3000 psi/UNC
<b>F5</b> Not machined	3" SAE 3000 psi/M
<b>F6</b> Not machined	3" SAE 3000 psi/UNC
<b>F7</b> 4" SAE 3000 psi/M	3" SAE 3000 psi/M
<b>F8</b> 4" SAE 3000 psi/UNC	3" SAE 3000 psi/UNC

Filtration rating (filter media)	
<b>A03</b> Inorganic microfiber 3 µm	<b>M25</b> Wire mesh 25 µm
<b>A06</b> Inorganic microfiber 6 µm	<b>M60</b> Wire mesh 60 µm
<b>A10</b> Inorganic microfiber 10 µm	<b>M90</b> Wire mesh 90 µm
<b>A16</b> Inorganic microfiber 16 µm	<b>P10</b> Resin impregnated paper 10 µm
<b>A25</b> Inorganic microfiber 25 µm	<b>P25</b> Resin impregnated paper 25 µm

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

### FILTER ELEMENT

Configuration example: **MR850** | **1** | **A10** | **A** | **P01**

**Element series and size**  
**MR850**

**Element length**  
**1** | **2** | **3** | **4**

Filtration rating (filter media)	
<b>A03</b> Inorganic microfiber 3 µm	<b>M25</b> Wire mesh 25 µm
<b>A06</b> Inorganic microfiber 6 µm	<b>M60</b> Wire mesh 60 µm
<b>A10</b> Inorganic microfiber 10 µm	<b>M90</b> Wire mesh 90 µm
<b>A16</b> Inorganic microfiber 16 µm	<b>P10</b> Resin impregnated paper 10 µm
<b>A25</b> Inorganic microfiber 25 µm	<b>P25</b> Resin impregnated paper 25 µm

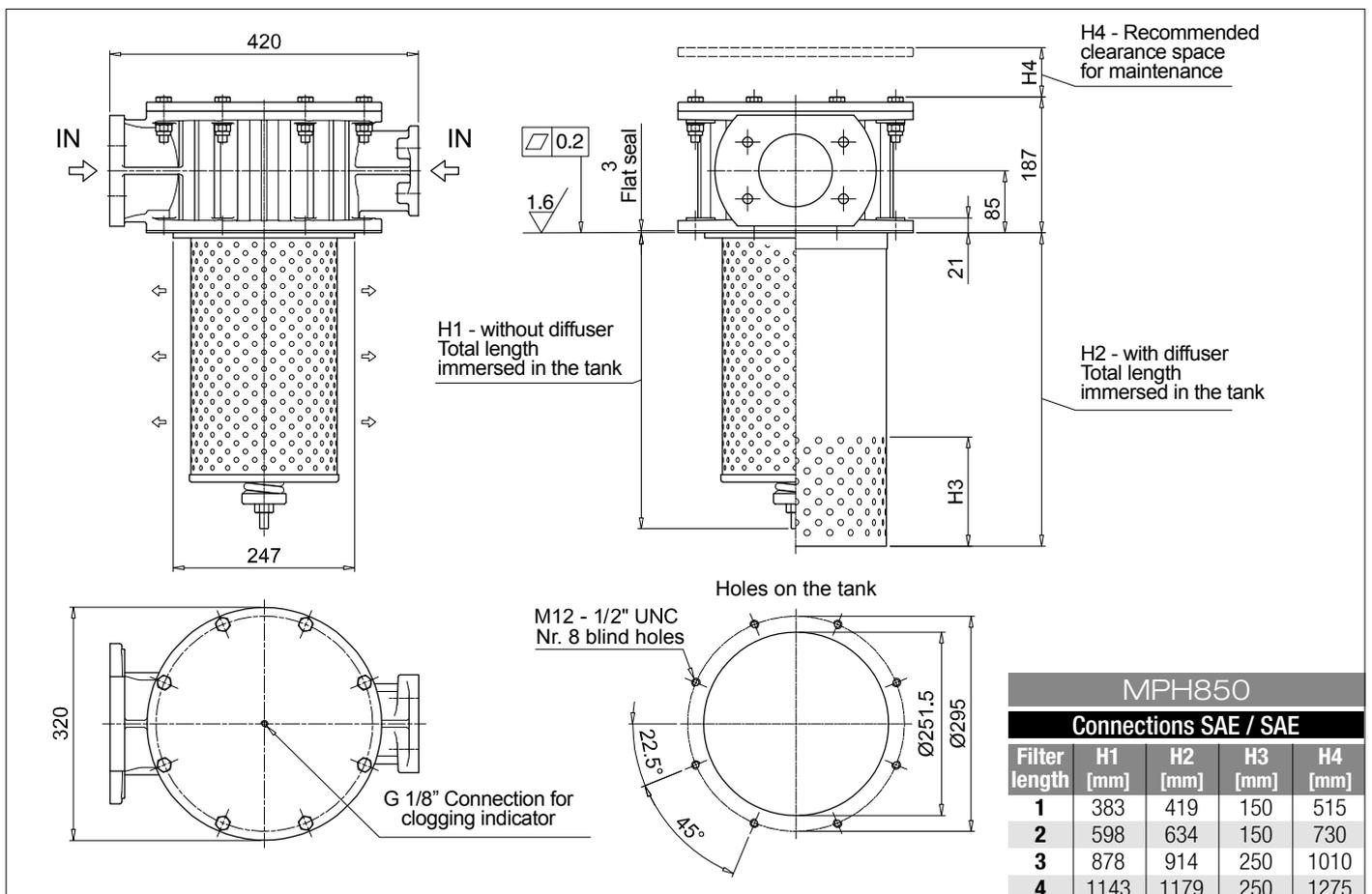
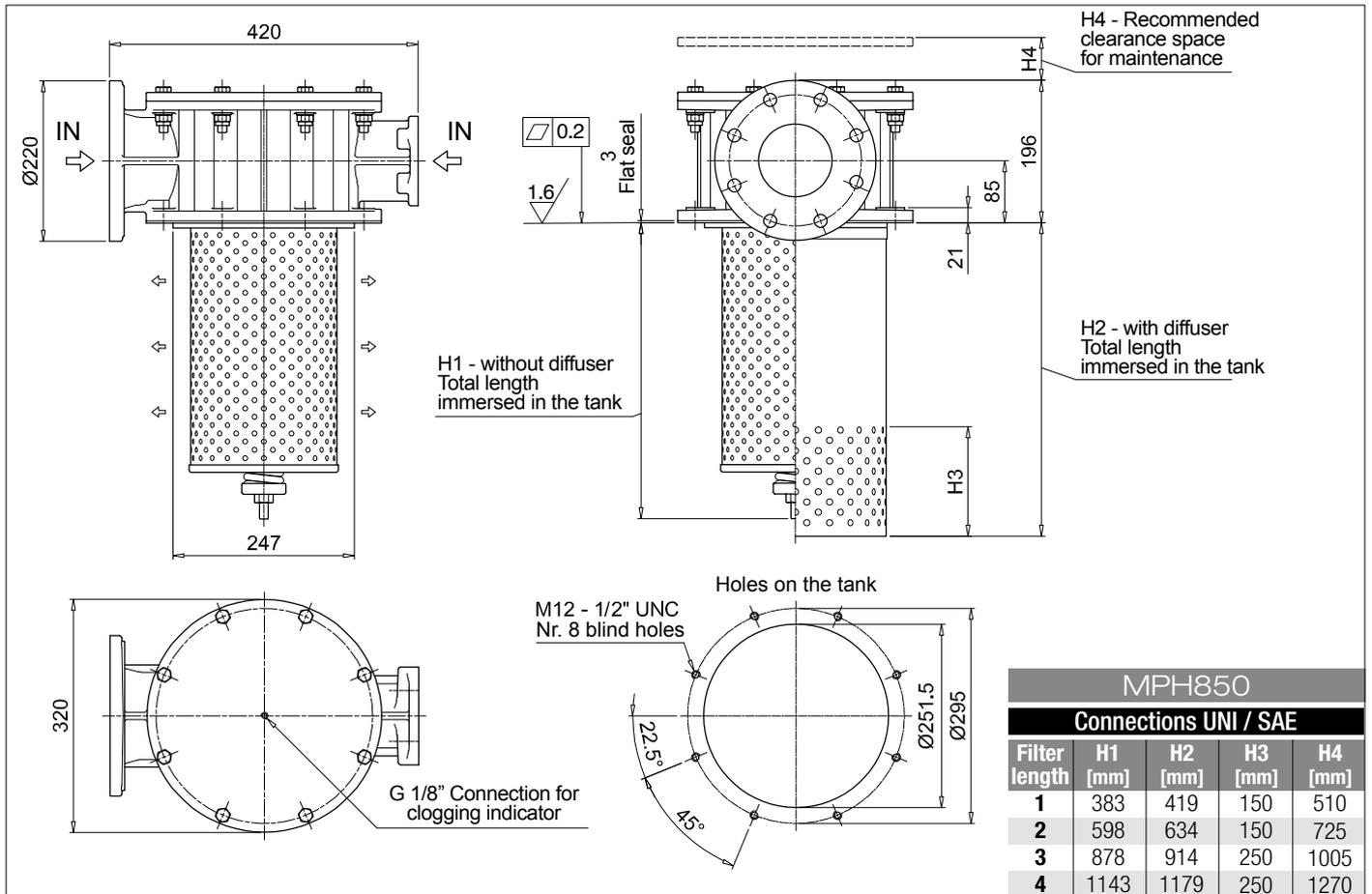
Seals	Execution
<b>A</b> NBR	<b>P01</b> MP Filtri standard
<b>V</b> FPM	<b>Pxx</b> Customized

### CLOGGING INDICATORS

See page 720-721

<b>BVA</b> Axial pressure gauge
<b>BVR</b> Radial pressure gauge
<b>BVP</b> Visual pressure indicator with automatic reset
<b>BVQ</b> Visual pressure indicator with manual reset

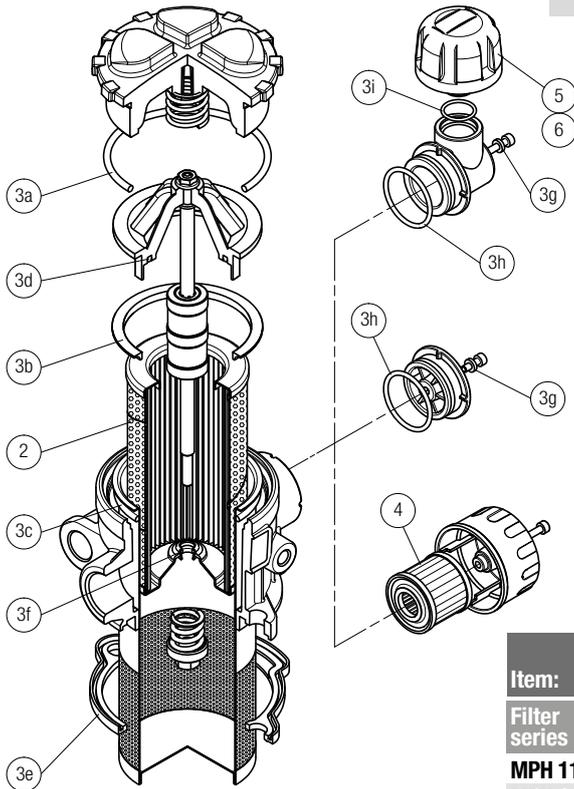
<b>BEA</b> Electrical pressure indicator
<b>BEM</b> Electrical pressure indicator
<b>BLA</b> Electrical / visual pressure indicator



# MPH SPARE PARTS

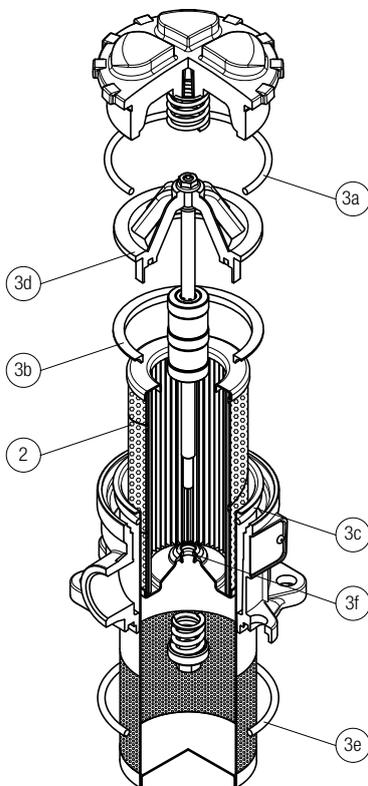
Order number for spare parts

## MPH 110 - 114



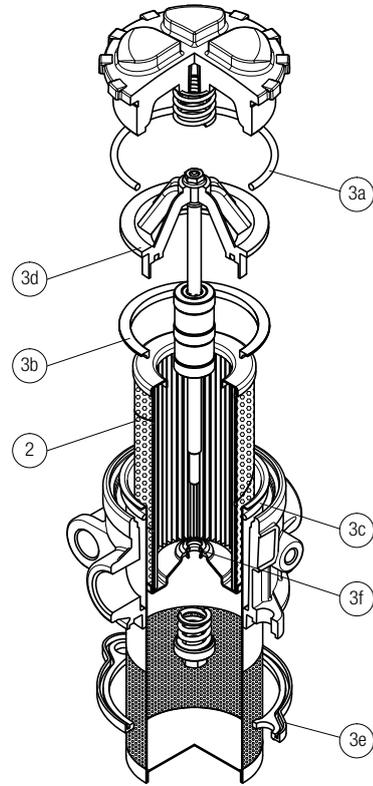
Item:	Q.ty: 1 pc.	Q.ty: 1 pc.		Q.ty: 1 pc.	Q.ty: 1 pc.		Q.ty: 1 pc.
Filter series	Filter element	Seal Kit code number		Air breather filter element - version:			
		NBR	FPM	C	D	P	
MPH 110	See order table	02050565	02050566	10 µm A3L03	10 µm SAP50G3L03A0P01	10 µm SAP50G3L03A1P01	
MPH 114	See order table	02050582	02050583				

## MPH 116



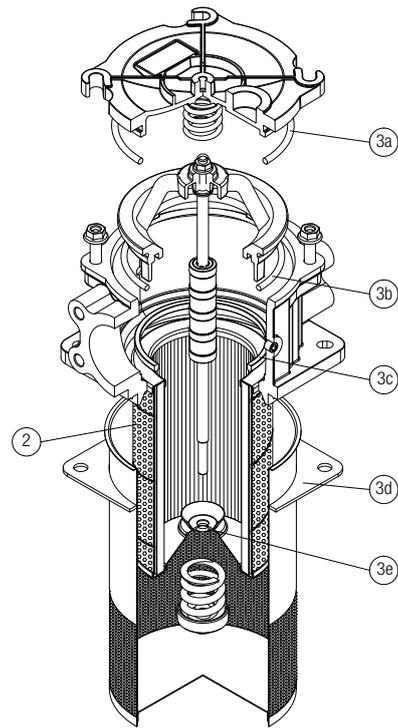
Item:	Q.ty: 1 pc.	Q.ty: 1 pc.	
Filter series	Filter element	Seal Kit code number	
		NBR	FPM
MPH 116	See order table	02050741	02050742

## MPH 120



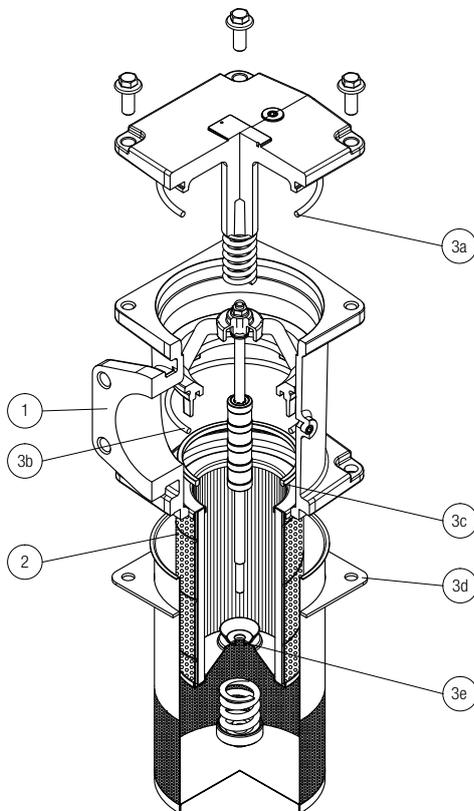
Item:	Q.ty: 1 pc.	Q.ty: 1 pc.	
Filter series	Filter element	Seal Kit code number	
		NBR	FPM
MPH 120	See order table	02050567	02050568

## MPH 250 - 630



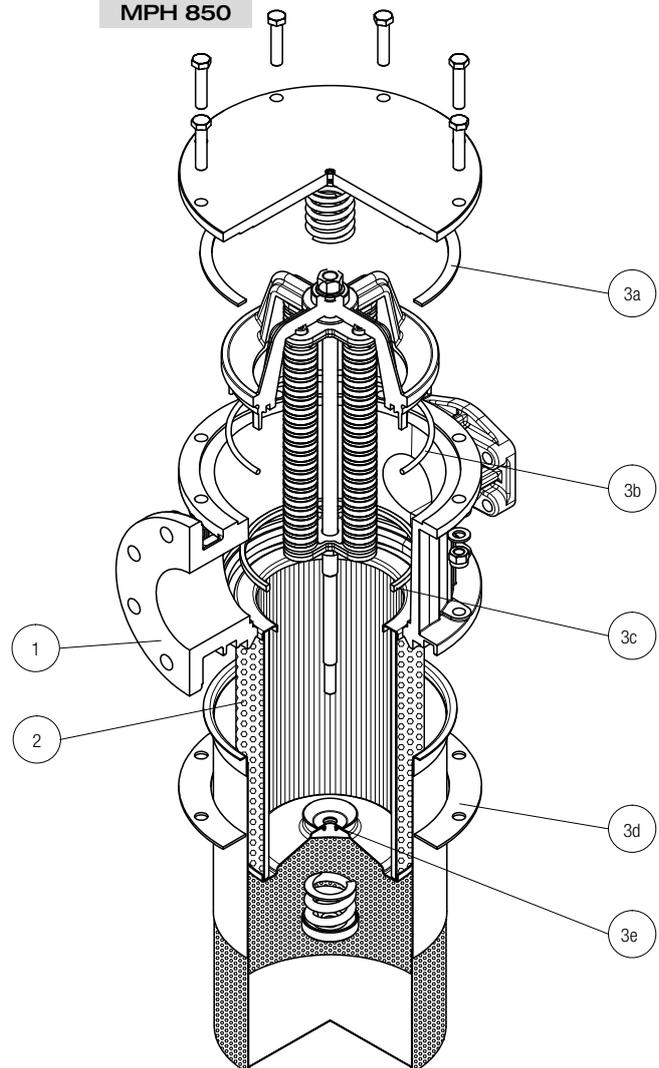
Item:	Q.ty: 1 pc.	Q.ty: 1 pc.	
Filter series	Filter element	Seal Kit code number	
MPH 250	MPH 630	NBR	FPM
	2	3 (3a ÷ 3e)	
	See order table	02050151	02050152
	See order table	02050153	02050154

## MPH 660



Item:	Q.ty: 1 pc.	Q.ty: 1 pc.	
Filter series	Filter element	Seal Kit code number	
MPH 660	MPH 850	NBR	FPM
	2	3 (3a ÷ 3e)	
	See order table	02050153	02050154
	See order table	02050155	02050156

## MPH 850



# Accessories

## DIFFUSER WITH FAST LOCK CONNECTION

Configuration example: **DFS 32 A 075**

Series	Size	Ø D [mm]	Version	Length
<b>DFS</b>	<b>40</b>	<b>40</b>	<b>A</b> Standard	<b>075</b> Standard

COMPATIBILITY TABLE							
Filter series	Filter size			Filter Length	DFS32	DFS40	
MPF	100	104	110	1	•	-	
				2	-	-	
				3	-	-	
				4	-	•	
MPFX	100	104	110	1	-	•	
				2	-	•	
				3	-	•	
				4	-	•	
MPT	110	114	116	120	1	•	-
					2	-	-
					3	-	-
					4	-	•
MPTX	110	114	116	120	1	-	•
					2	-	•
					3	-	•
					4	-	•

## DIPSTICK

Configuration example: **DPT 20 M10 A P01**

Series	Length	H [mm]	Seals	Execution
<b>DPT</b>	<b>15</b>	<b>134</b>	<b>A</b> NBR	<b>P01</b> MP Filtri standard
	<b>20</b>	<b>184</b>	<b>V</b> FPM	<b>Pxx</b> Customized
	<b>25</b>	<b>234</b>		
	<b>30</b>	<b>284</b>		
	<b>35</b>	<b>334</b>		

**Materials**

- Screw: phosphatized steel
- Stick: phosphatized steel
- Handle: Polyamide

**Technical data**

Working temperature: from -25 °C to +110 °C

**Fastening**

- M8** Fastening with screws  $\varnothing D = M8$
- M10** Fastening with screws  $\varnothing D = M10$

## FILLER PLUG

**Materials**

- Body: Polyamide
- Seal: NBR

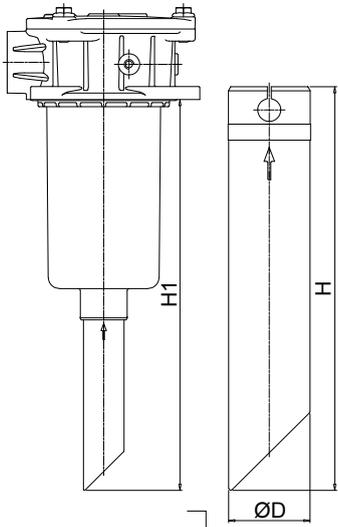
**Technical data**

Tightening torque: 15 N·m

O-Ring 3106

For any further information, please, contact our commercial dept.

## POLYAMIDE EXTENSION TUBE



H1 - Total length immersed in the tank

Conf. example: **TE** **40** **A** **250**

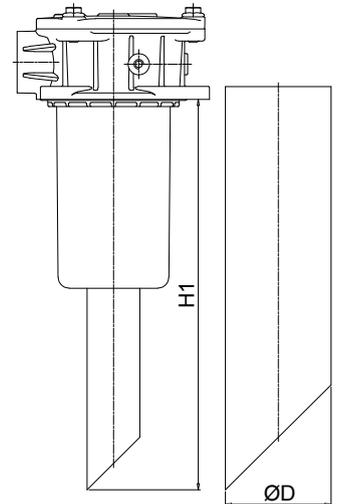
Series	Length	H [mm]	25-32-40	51-62
<b>TE</b>	<b>200</b>	200	•	•
<b>250</b>	<b>250</b>	250	•	-
<b>300</b>	<b>300</b>	300	•	•
<b>350</b>	<b>350</b>	350	•	-
<b>400</b>	<b>400</b>	400	•	•
<b>450</b>	<b>450</b>	450	•	-
<b>500</b>	<b>500</b>	500	•	•
<b>600</b>	<b>600</b>	600	-	•

Size	Ø D [mm]
<b>25</b>	25
<b>32</b>	32
<b>40</b>	40
<b>51</b>	51
<b>62</b>	62

Material **A** Polyamide

COMPATIBILITY TABLE																					
Filter series	Filter size			Filter length	Tube length																
					TE25	TE32	TE40	TE51	TE62	200	250	300	350	400	450	500	600				
MPF	30			1	•	-	-	-	-	-	266	316	366	416	466	516	566	-			
MPF	100	104	110	1	-	•	-	-	-	-	275	325	375	425	475	525	575	-			
				2	-	•	-	-	-	-	-	322	372	422	472	522	572	622	-		
				3	-	-	•	-	-	-	-	-	400	450	500	550	600	650	700	-	
				4	-	-	-	-	-	-	-	-	502	552	602	652	702	752	802	-	
MPFX	100	104	110	1	-	-	•	-	-	-	277	327	377	427	477	527	577	-			
				2	-	-	•	-	-	-	-	322	372	422	472	522	572	622	-		
				3	-	-	-	-	-	-	-	-	400	450	500	550	600	650	700	-	
				4	-	-	-	-	-	-	-	-	502	552	602	652	702	752	802	-	
MPF	181	182	184	1	-	-	•	-	-	-	410	460	510	560	610	660	710	-			
				2	-	-	•	-	-	-	-	623	673	723	773	823	873	923	-		
MPFX	400	410	450	451	1	-	-	-	•	-	620	-	720	-	820	-	920	1020			
					2	-	-	-	-	•	-	-	352	-	452	-	552	-	652	752	
	3	-	-	-	-	-	•	-	-	411	-	511	-	611	-	711	811				
	4	-	-	-	-	-	-	•	-	459	-	559	-	659	-	759	859				
MPT	110	114	116	120	1	-	-	-	-	•	597	-	697	-	797	-	897	997			
					2	-	-	-	-	-	-	-	278	328	378	428	478	528	578	-	
					3	-	-	-	-	-	-	-	-	342	392	442	492	542	592	642	-
					4	-	-	-	-	-	-	-	-	380	430	480	530	580	630	680	-
MPTX	110	114	116	120	1	-	•	-	-	-	273	323	373	423	473	523	573	-			
					2	-	•	-	-	-	-	-	320	370	420	470	520	570	620	-	
					3	-	-	•	-	-	-	-	-	396	446	496	546	596	646	696	-
					4	-	-	-	•	-	-	-	-	498	548	598	648	698	748	798	-
MPTX	110	114	116	120	1	-	-	•	-	-	273	323	373	423	473	523	573	-			
					2	-	-	•	-	-	-	-	318	368	418	468	518	568	618	-	
					3	-	-	-	•	-	-	-	-	396	446	496	546	596	646	696	-
					4	-	-	-	-	•	-	-	-	498	548	598	648	698	748	798	-

## STEEL EXTENSION TUBE



H1

ØD

Configuration example: **MPF191** **2** **A** **F1** **A10** **H** **B** **S60**

Length	H1 [mm]
<b>S30</b>	300
<b>S35</b>	350
<b>S40</b>	400
<b>S45</b>	450
<b>S50</b>	500
<b>S60</b>	600
<b>S70</b>	700
<b>S80</b>	800
<b>S90</b>	900

COMPATIBILITY TABLE							
Filter series	Filter size			Filter length	Ø D [mm]		
					52	65	
MPF	191	192	194	2	•	-	
				1	•	-	
	400	410	450	451	2	-	•
					3	-	•
	750				1	-	•

## Designation & Ordering code

### BAROMETRIC (PRESSURE) INDICATORS

Series	Configuration example 1:	BE	A	15	H	A	41	P01	EX
<b>BE</b> Electrical pressure indicator	Configuration example 2:	BL	A	20	H	A	71	P01	
<b>BL</b> Electrical/Visual pressure indicator	Configuration example 3:	BV	R	14				P01	
<b>BV</b> Visual pressure indicator	Configuration example 4:	BV	P	20	H			P01	

Type	BE	BL	BV
<b>A</b> Standard type	•	•	<b>A</b> Axial connection pressure gauge
<b>M</b> With wired electrical connection	•	-	<b>R</b> Radial connection pressure gauge
<b>T</b> With thermal switch	•	-	<b>P</b> Visual indicator with automatic reset
			<b>Q</b> Visual indicator with manual reset

Pressure setting	BEA-BEM	BET	BLA	BVA-BVR	BVP-BVQ
<b>14</b> 1.4 bar	-	-	-	•	-
<b>15</b> 1.5 bar	•	-	•	-	•
<b>20</b> 2.0 bar	•	•	•	-	•
<b>25</b> 2.5 bar	-	•	-	•	-

Seals	BE	BLA	BVA-BVR	BVP-BVQ
<b>H</b> HNBR	•	•	-	•

Thermostat	BEA-BEM	BET	BLA
<b>A</b> Without thermostat	•	-	•
<b>F</b> With thermostat	-	•	-

Electrical connections	BEA	BEM	BET	BL
<b>10</b> Connection AMP Superseal series 1,5	-	-	•	-
<b>30</b> Connection Deutsch DT-04-2-P	-	-	•	-
<b>41</b> Connection via four-core cable	-	•	-	-
<b>50</b> Connection EN 175301-803	•	-	-	-
<b>51</b> Connection EN 175301-803, transparent base with lamps 24 Vdc	-	-	-	•
<b>52</b> Connection EN 175301-803, transparent base with lamps 110 Vdc	-	-	-	•
<b>53</b> Connection EN 175301-803, transparent base with lamps 230 Vac	-	-	-	•
<b>71</b> Connection IEC 61076-2-101 D (M12), black base with lamps 24 Vdc	-	-	-	•

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

Certifications	BEA	BEM-BET	BL	BV
Without	•	•	•	•
<b>EX</b> ATEX certification	•	-	-	-
<b>UL</b> UL certification	•	-	-	-

## DIFFERENTIAL PRESSURE INDICATORS

Series
<b>DE</b> Electrical differential pressure indicator
<b>DL</b> Electrical/Visual differential pressure indicator
<b>DT</b> Electrical differential pressure indicator
<b>DV</b> Visual differential pressure indicator

Configuration example 1:	DE	M	20	H	F	50	P01	
Configuration example 2:	DE	U	50	V	A	50	P01	UL
Configuration example 3:	DL	E	20	V	A	71	P01	
Configuration example 4:	DT	A	20	H	F	70	P01	
Configuration example 5:	DV	M	20	V			P01	

Type	DE	DL	DT
<b>A</b> Standard type	•	•	•
<b>M</b> With wired electrical connection	•	-	-
<b>U</b> Standard type 210 bar, UL certified	•	-	-
<b>E</b> For high power supply	-	•	-
<b>S</b> Compact version	•	-	-

DV
<b>A</b> With automatic reset
<b>M</b> With manual reset
<b>S</b> With automatic reset

Pressure setting	DEA	DEM	DEU	DES	DL	DT	DVA	DVM	DVS
<b>12</b> 1.2 bar	-	-	-	•	-	-	-	-	•
<b>20</b> 2.0 bar	•	•	•	-	•	•	•	•	-
<b>25</b> 2.5 bar	-	-	-	•	-	-	-	-	•

Seals	DEA	DEM	DEU	DES	DL	DT	DVA	DVM	DVS
<b>H</b> HNBR	•	•	-	•	•	•	•	•	•
<b>V</b> FPM	•	•	•	-	•	•	•	•	-

Thermostat	DEA	DEM	DEU	DES	DLA	DLE	DT
<b>A</b> Without thermostat	•	•	•	•	•	•	-
<b>F</b> With thermostat	-	•	-	-	-	•	•

Electrical connections	DEA	DEM	DEU	DES	DLA	DLE	DT
<b>10</b> Connection AMP Superseal series 1.5	-	•	-	•	-	-	-
<b>20</b> Connection AMP Timer Junior	-	•	-	-	-	-	-
<b>30</b> Connection Deutsch DT-04-2-P	-	•	-	•	-	-	-
<b>35</b> Connection Deutsch DT-04-3-P	-	•	-	-	-	-	-
<b>50</b> Connection EN 175301-803	•	-	•	-	-	•	-
<b>51</b> Connection EN 175301-803, transparent base with lamps 24 Vdc	-	-	-	-	•	-	-
<b>52</b> Connection EN 175301-803, transparent base with lamps 110 Vdc	-	-	-	-	•	-	-
<b>70</b> Connection IEC 61076-2-101 D (M12)	-	-	-	-	-	-	•
<b>71</b> Connection IEC 61076-2-101 D (M12), black base with lamps 24 Vdc	-	-	-	-	•	-	-
<b>80</b> Connection Stud #10-32 UNF	-	-	-	•	-	-	-

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

Certifications	DEU	OTHERS
Without	-	•
<b>UL</b> UL certification	•	-

## PLUGS

Series
<b>T2</b> Plug
<b>T4</b> Plug

Configuration example	T2	H
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Seals	T2	T4
<b>A</b> NBR	-	•
<b>H</b> HNBR	•	-
<b>V</b> FPM	•	-