



Filtro MP
Serie FHD



 HYDRAULIC
COMPONENTS
& FLUID CONTAMINATION
CONTROL

FHD series

Maximum working pressure up to 35 MPa (350 bar) - Flow rate up to 250 l/min



INSTALLATION, SERVICE AND MAINTENANCE MANUAL AND SAFETY INSTRUCTIONS



Please scan or click the QR codes to get updated electronic version of the related document:



FHD021



FHD051



FHD326



FHD333

For all the QR codes: Scan or click me!

Description

Technical data

High Pressure filters

Duplex

Maximum working pressure up to 35 MPa (350 bar)

Flow rate up to 250 l/min

FHD is a range of high pressure duplex filter with integrated changeover function to allow the filter element replacement without the system shut-down.

They are directly connected to the lines of the system through the hydraulic fittings.

Available features:

- Female threaded connections up to 1 1/4" and flanged connections up to 1 1/2", for a maximum flow rate of 345 l/min
- Fine filtration rating, to get a good cleanliness level into the system
- Balancing valve, available for FHD051, FHD326 and FHD333, to equalize the housing pressure before the switch.
- Bypass valve, to relieve excessive pressure drop across the filter media
- Vent ports, to avoid air trapped into the filter going into the system
- Drain ports, to remove the fluid from the housing prior the maintenance work
- Low collapse filter element "N", for use with filters provided with M25 wire mesh
- High collapse filter element "H", for use with filters not provided with bypass valve
- Low collapse filter element with external support "R", for filter element protection against the back pressure caused by the check valve or the reverse flow in filters provided with the bypass valve
- High collapse filter element with external support "S", for filter element protection against the back pressure caused by the check valve or the reverse flow in filters not provided with the bypass valve
- Visual, electrical and electronic differential clogging indicators

Common applications:

- System where shut-down causes high costs
- System where shut-down causes safety issues

Filter housing materials

- Head: Phosphatized cast iron
- Housing: Phosphatized steel
- Bypass valve: Steel

Pressure

- Test pressure: 52.5 MPa (525 bar)
- Min. Burst pressure: 105 MPa (1050 bar)
- Pulse pressure fatigue test: 1 000 000 cycles with pressure from 0 to 35 MPa (350 bar)

Bypass valve

- Opening pressure 0.6 MPa (6 bar) \pm 10%
- Other opening pressures on request.

Filter element features

| Filter FHD | | Filter element HP | |
|-------------------------|---------------------------------------|----------------------|------------|
| Δp Element type | | | |
| Element media | Construction | Δp Series | Δp |
| A - Microfiber | with outer net | R | 20 bar |
| | High Δp | H | 210 bar |
| M - Wire mesh | High Δp with external support | S | 210 bar |
| | Standard | N | 20 bar |
| | High Δp | H | 210 bar |

Please see ordering code tables to check element Δp series availability based on filter features.

Flow direction through the filter element:
From OUT to IN

Seals

- Standard NBR series A
- Optional FPM series V

Connections

In-line Inlet/Outlet 90°

Temperature

From -25 °C to +110 °C

Note

FHD filters are provided for vertical mounting

Weights [kg] and volumes [dm³]

| Filter series | Weights [kg] | | | | | Volumes [dm ³] | | | | | | |
|----------------|--------------|------|------|------|------|----------------------------|--------|------|------|------|------|------|
| | Length | 1 | 2 | 3 | 4 | 5 | Length | 1 | 2 | 3 | 4 | 5 |
| FHD 021 | - | - | 8.0 | 9.0 | 9.9 | - | - | - | 0.06 | 0.12 | 0.22 | - |
| FHD 051 | - | - | 16.9 | 17.5 | 18.5 | 19.8 | - | - | 0.31 | 0.41 | 0.53 | 0.83 |
| FHD 326 | - | 43.0 | 50.0 | 54.0 | - | - | - | 0.88 | 1.60 | 2.37 | - | - |
| FHD 333 | - | - | 74.0 | 79.0 | 98.0 | - | - | - | 1.75 | 2.52 | 3.35 | - |

Flow rates [l/min]

| Filter series | Length | Filter element design - H Series | | | | | |
|----------------|----------|----------------------------------|-----|-----|-----|-----|-----|
| | | A03 | A06 | A10 | A16 | A25 | M25 |
| FHD 021 | 2 | 6 | 8 | 14 | 16 | 19 | 26 |
| | 3 | 10 | 12 | 18 | 20 | 22 | 27 |
| | 4 | 13 | 16 | 21 | 22 | 24 | 27 |

| Filter series | Length | Filter element design - R Series | | | | | | N Series | Filter element design - S Series | | | | |
|----------------|----------|----------------------------------|-----|-----|-----|-----|-----|----------|----------------------------------|-----|-----|-----|-----|
| | | A03 | A06 | A10 | A16 | A25 | M25 | | A03 | A06 | A10 | A16 | A25 |
| FHD 051 | 2 | 39 | 41 | 51 | 54 | 59 | 64 | 35 | 37 | 48 | 51 | 58 | |
| | 3 | 45 | 46 | 54 | 56 | 61 | 65 | 41 | 43 | 52 | 54 | 60 | |
| | 4 | 50 | 52 | 58 | 58 | 62 | 65 | 47 | 49 | 56 | 56 | 61 | |
| | 5 | 56 | 57 | 61 | 62 | 63 | 65 | 53 | 53 | 57 | 59 | 63 | |
| FHD 326 | 1 | 93 | 99 | 131 | 142 | 154 | 171 | 83 | 87 | 117 | 120 | 146 | |
| | 2 | 136 | 141 | 163 | 166 | 173 | 176 | 119 | 128 | 149 | 151 | 163 | |
| | 3 | 152 | 159 | 171 | 174 | 175 | 177 | 139 | 148 | 161 | 163 | 170 | |
| FHD 333 | 2 | 175 | 184 | 224 | 230 | 245 | 249 | 147 | 162 | 199 | 201 | 225 | |
| | 3 | 204 | 217 | 241 | 245 | 247 | 252 | 179 | 196 | 221 | 224 | 238 | |
| | 4 | 216 | 224 | 242 | 247 | 253 | 255 | 196 | 204 | 223 | 225 | 239 | |

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 mm²/s (cSt) and a density of 0.86 kg/dm³.

For different pressure drop or fluid viscosity we recommend to use our selection software available on 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 S | Style B | Style B |
|----------------|---------|---------|---------|
| FHD 021 | • | - | - |
| FHD 051 | • | - | - |
| FHD 326 | • | - | • |
| FHD 333 | • | - | • |

OUT

IN

OUT

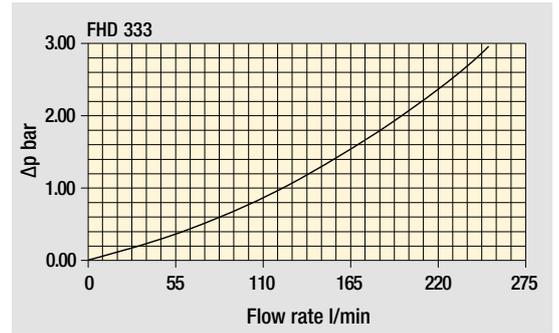
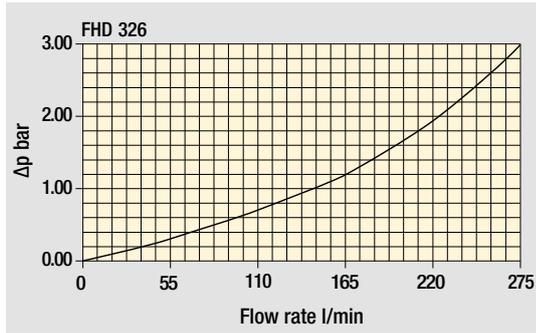
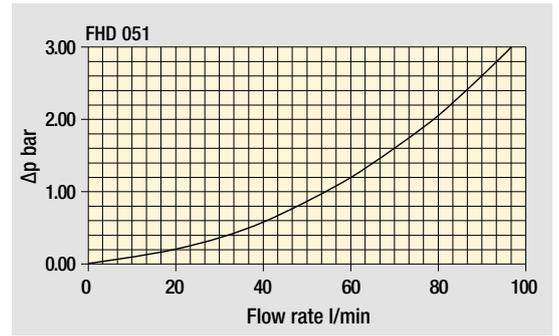
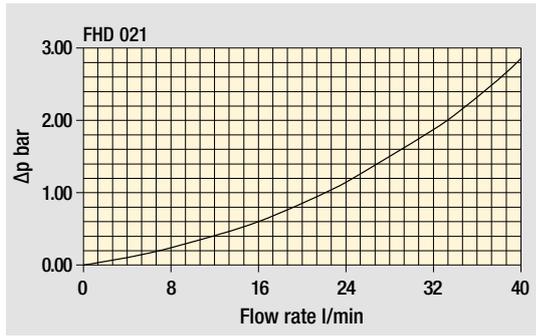
IN

OUT

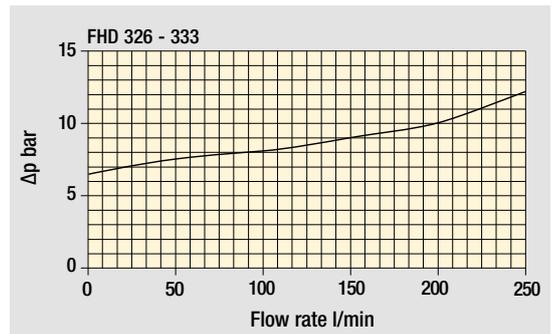
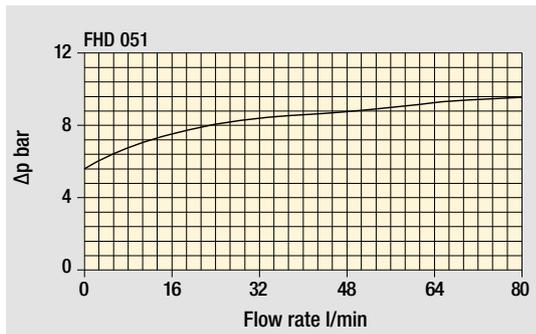
IN

Pressure drop

Filter housings Δp pressure drop



Bypass valve pressure drop



The curves are plotted using mineral oil with density of 0.86 kg/dm³ in compliance with ISO 3968. Δp varies proportionally with density.

Designation & Ordering code

COMPLETE FILTER

| | | | | | | | | |
|---|--|------------|------------|-------------------------------|--|--|--|--|
| Series and size | Configuration example: FHD021 4 S A G1 A06 H P01 | | | | | | | |
| FHD021 | | | | | | | | |
| Length | | | | | | | | |
| 2 3 4 | | | | | | | | |
| Bypass valve | | | | | | | | |
| S Without bypass | | | | | | | | |
| Seals | | | | | | | | |
| A NBR | | | | | | | | |
| V FPM | | | | | | | | |
| Connections | | | | | | | | |
| G1 G 1/2" | | | | | | | | |
| G2 1/2" NPT | | | | | | | | |
| G3 SAE 8 - 3/4" - 16 UNF | | | | | | | | |
| Filtration rating (filter media) | | | | | | | | |
| A03 Inorganic microfiber 3 µm | | | | | | | | |
| A06 Inorganic microfiber 6 µm | | | | | | | | |
| A10 Inorganic microfiber 10 µm | | | | | | | | |
| A16 Inorganic microfiber 16 µm | | | | | | | | |
| A25 Inorganic microfiber 25 µm | | | | | | | | |
| M25 Wire mesh 25 µm | | | | | | | | |
| | Filtration rating | | | | | | | |
| | Element Δp | Axx | M25 | Execution | | | | |
| | N 20 bar | - | • | P01 MP Filtri standard | | | | |
| | H 210 bar | • | • | Pxx Customized | | | | |

FILTER ELEMENT

| | | | | | | |
|---|--|-------------------|------------|------------|-------------------------------|--|
| Element series and size | Configuration example: HP011 4 A06 A H P01 | | | | | |
| HP011 | | | | | | |
| Element length | | | | | | |
| 2 3 4 | | | | | | |
| Filtration rating (filter media) | | | | | | |
| A03 Inorganic microfiber 3 µm | | | | | | |
| A06 Inorganic microfiber 6 µm | | | | | | |
| A10 Inorganic microfiber 10 µm | | | | | | |
| A16 Inorganic microfiber 16 µm | | | | | | |
| A25 Inorganic microfiber 25 µm | | | | | | |
| M25 Wire mesh 25 µm | | | | | | |
| | Filtration rating | | | | | |
| | Seals | Element Δp | Axx | M25 | Execution | |
| | A NBR | N 20 bar | - | • | P01 MP Filtri standard | |
| | V FPM | H 210 bar | • | • | Pxx Customized | |

CLOGGING INDICATORS

See page 721

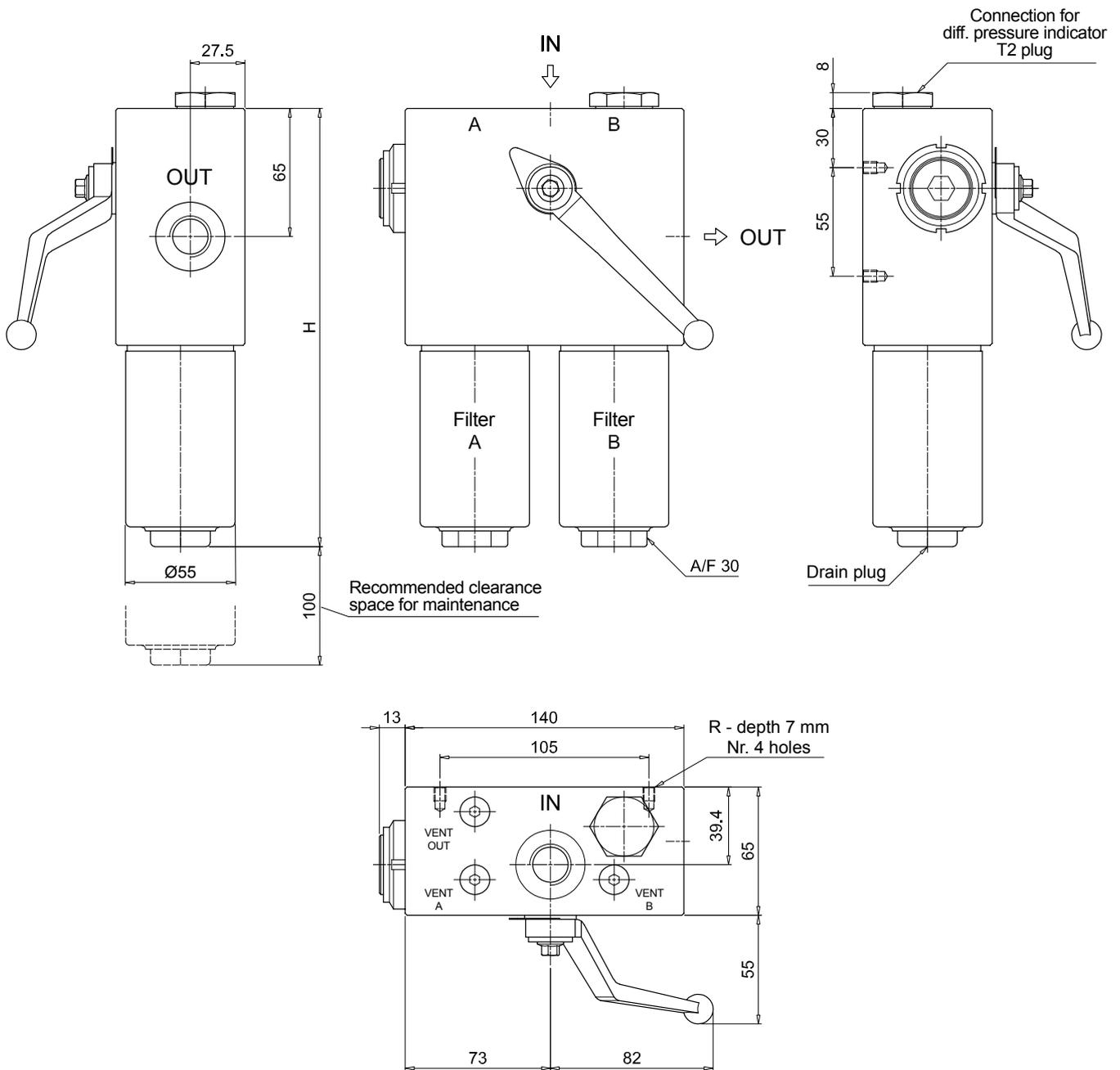
| | |
|--|--|
| DEA Electrical differential pressure indicator | DLE Electrical / visual differential pressure indicator |
| DEM Electrical differential pressure indicator | DTA Electronic differential pressure indicator |
| DEU Electrical differential pressure indicator | DVA Visual differential pressure indicator |
| DLA Electrical / visual differential pressure indicator | DVM Visual differential pressure indicator |

PLUGS

See page 741

| |
|-------------------------------|
| T2 Plug (not included) |
|-------------------------------|

| FHDO21 | |
|----------------|----------|
| Filter length | H [mm] |
| 2 | 172 |
| 3 | 222 |
| 4 | 272 |
| Connections | R |
| G1 | M6 |
| G2 - G3 | 1/4" UNC |



FHD FHD051 - FHD326 - FHD333

Designation & Ordering code

COMPLETE FILTER

Series and size Configuration example: **FHD326** **3** **S** **A** **G1** **M25** **N** **P01**

FHD051 | **FHD326** | **FHD333**

| Length | FHD051 | FHD326 | FHD333 |
|--------|--------|--------|--------|
| 1 | - | • | - |
| 2 | • | • | • |
| 3 | • | • | • |
| 4 | • | - | • |
| 5 | • | - | - |

Valves

S Without bypass
B With bypass 6 bar

Seals

A NBR
V FPM

| Connections | FHD051 | FHD326 | FHD333 |
|-------------|--------------------------|-------------------------|-------------------------|
| G1 | G 3/4" | G 1 1/4" | - |
| G2 | 3/4" NPT | - | - |
| G3 | G 1/2" | 1 1/4" NPT | - |
| G4 | 1/2" NPT | SAE 20 - 1 5/8" - 12 UN | - |
| G5 | SAE 8 - 3/4" - 16 UNF | - | - |
| G6 | SAE 12 - 1 1/16" - 12 UN | - | - |
| F1 | - | - | 1 1/2" SAE 6000 psi/M |
| F2 | - | - | 1 1/2" SAE 6000 psi/UNC |

Filtration rating (filter media)

| | |
|---------------------------------|-------|
| A03 Inorganic microfiber | 3 µm |
| A06 Inorganic microfiber | 6 µm |
| A10 Inorganic microfiber | 10 µm |
| A16 Inorganic microfiber | 16 µm |
| A25 Inorganic microfiber | 25 µm |
| M25 Wire mesh | 25 µm |

| Element Δp | Filtration rating | | Execution |
|------------------|-------------------|-----|-------------------------------|
| | Axx | M25 | |
| N 20 bar | - | • | P01 MP Filtri standard |
| R 20 bar | • | - | Pxx Customized |
| S 210 bar | • | - | |

FILTER ELEMENT

Element series and size Configuration example: **HP320** **3** **M25** **A** **N** **P01**

HP050 | **HP320**

| | FHD051 | FHD326 | FHD333 |
|--------------|--------|--------|--------|
| HP050 | • | - | - |
| HP320 | - | • | • |

| Element length | HP050 | HP320 |
|----------------|-------|-------|
| 1 | - | • |
| 2 | • | • |
| 3 | • | • |
| 4 | • | • |
| 5 | • | - |

Filtration rating (filter media)

| | |
|---------------------------------|-------|
| A03 Inorganic microfiber | 3 µm |
| A06 Inorganic microfiber | 6 µm |
| A10 Inorganic microfiber | 10 µm |
| A16 Inorganic microfiber | 16 µm |
| A25 Inorganic microfiber | 25 µm |
| M25 Wire mesh | 25 µm |

| Seals | Element Δp | Filtration rating | | Execution |
|--------------|------------------|-------------------|-----|-------------------------------|
| | | Axx | M25 | |
| A NBR | N 20 bar | - | • | P01 MP Filtri standard |
| V FPM | R 20 bar | • | - | Pxx Customized |
| | S 210 bar | • | - | |

CLOGGING INDICATORS

See page 721

DEA Electrical differential pressure indicator
DEM Electrical differential pressure indicator
DEU Electrical differential pressure indicator
DLA Electrical / visual differential pressure indicator

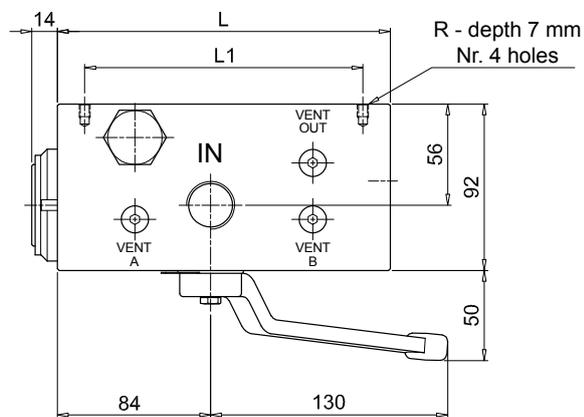
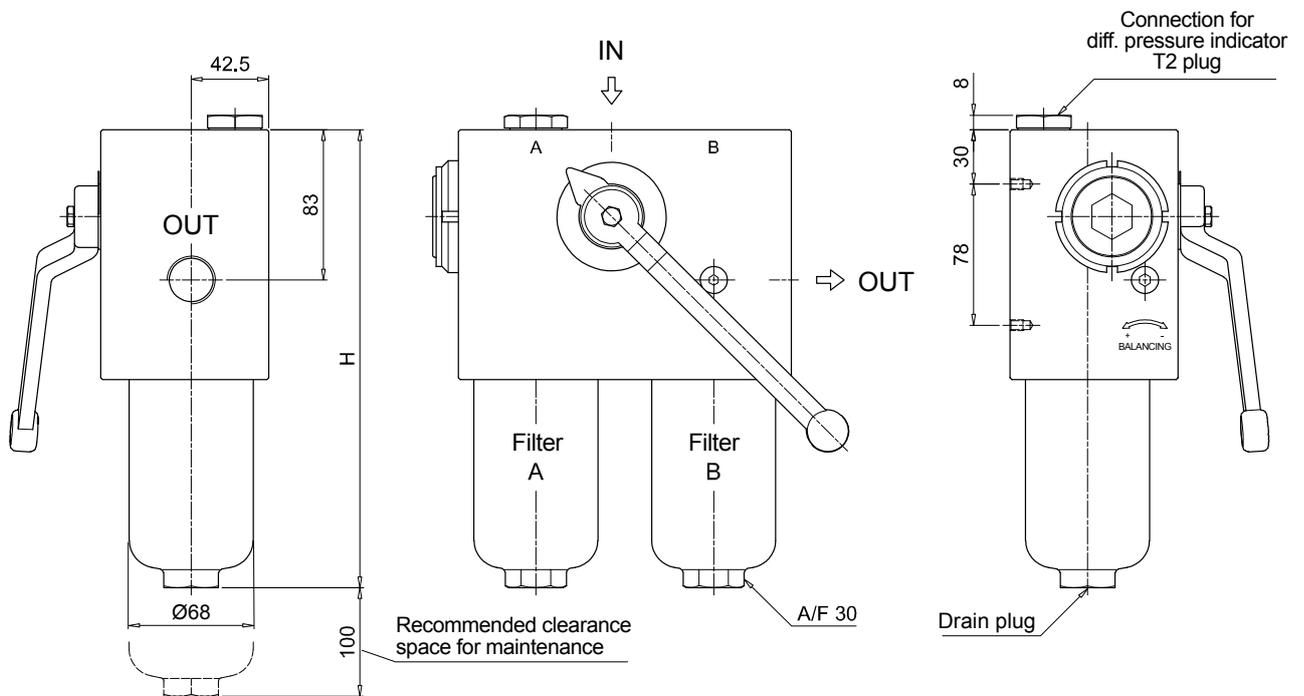
DLE Electrical / visual differential pressure indicator
DTA Electronic differential pressure indicator
DVA Visual differential pressure indicator
DVM Visual differential pressure indicator

PLUGS

See page 741

T2 Plug (not included)

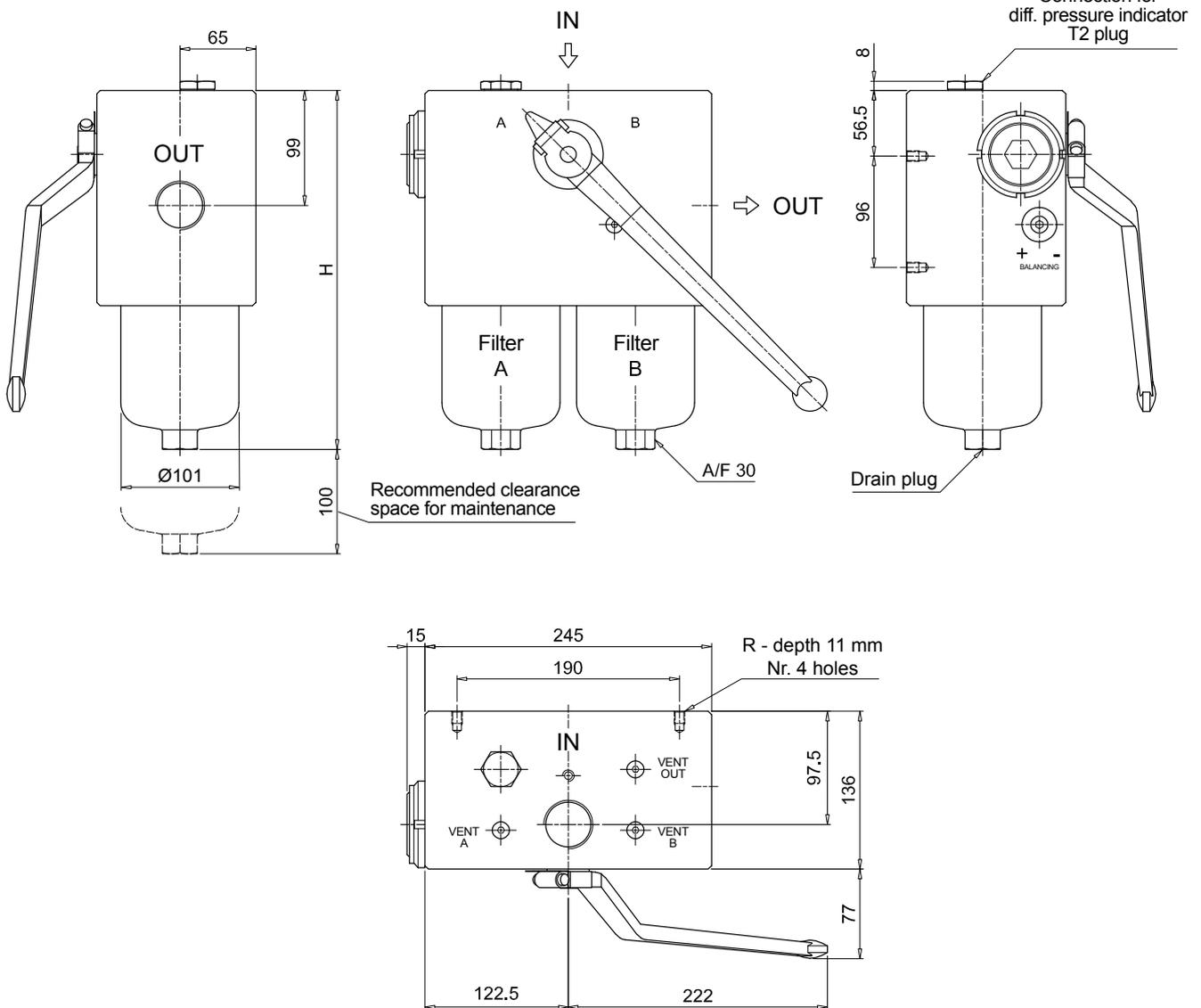
| FHD051 | | |
|-----------------|----------|---------|
| Filter length | H [mm] | |
| 2 | 253 | |
| 3 | 295 | |
| 4 | 343 | |
| 5 | 465 | |
| Connections | R | |
| G1 | M6 | |
| G2 | 1/4" UNC | |
| G3 | M6 | |
| G4-G5-G6 | 1/4" UNC | |
| Valves | L [mm] | L1 [mm] |
| S | 168 | 138 |
| B | 182.5 | 152.5 |



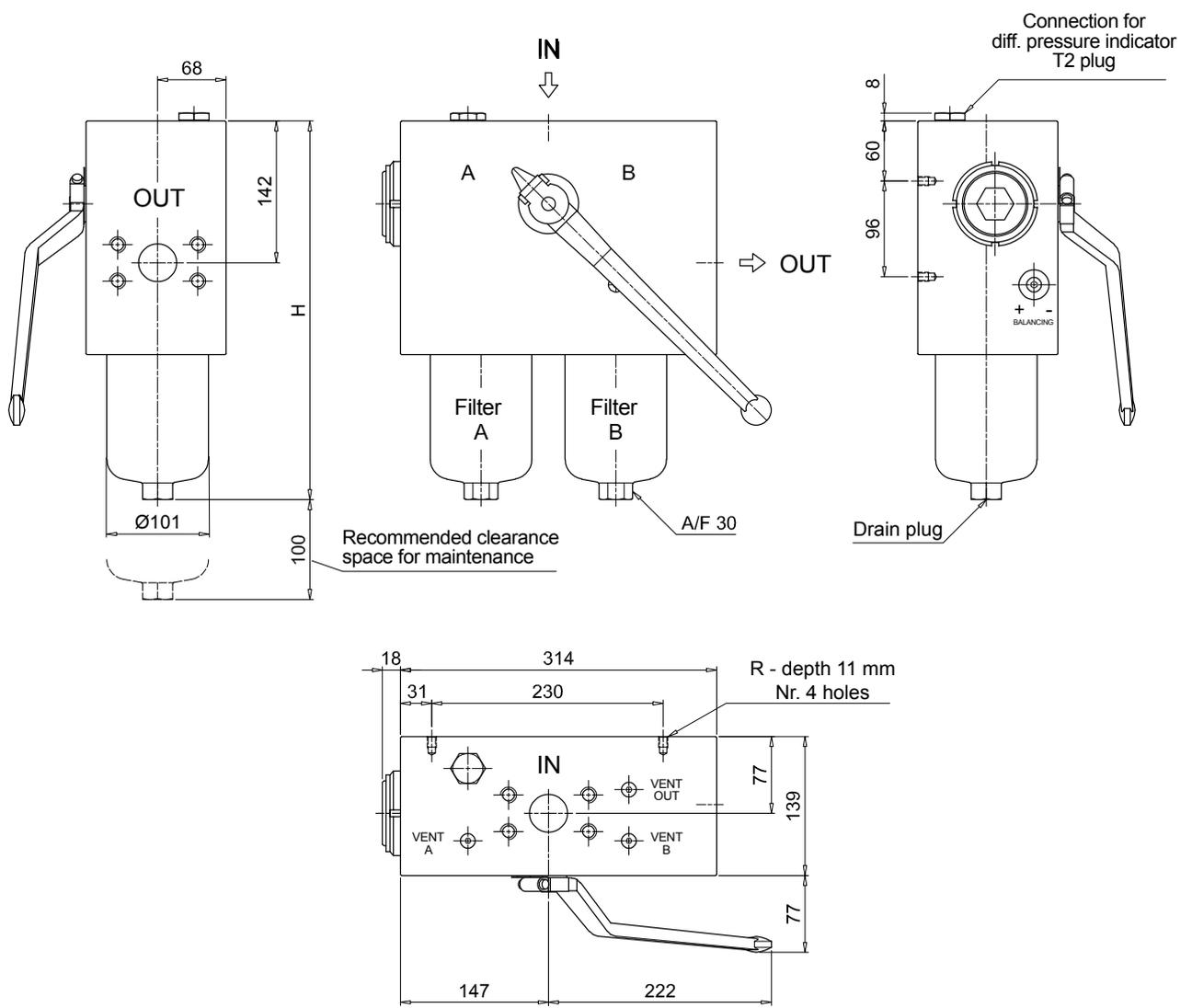
FHD FHD051 - FHD326 - FHD333

Dimensions

| FHD326 | |
|---------------|----------|
| Filter length | H [mm] |
| 1 | 309 |
| 2 | 432 |
| 3 | 564 |
| Connections | R |
| G1 | M10 |
| G2 - G3 | 3/8" UNC |



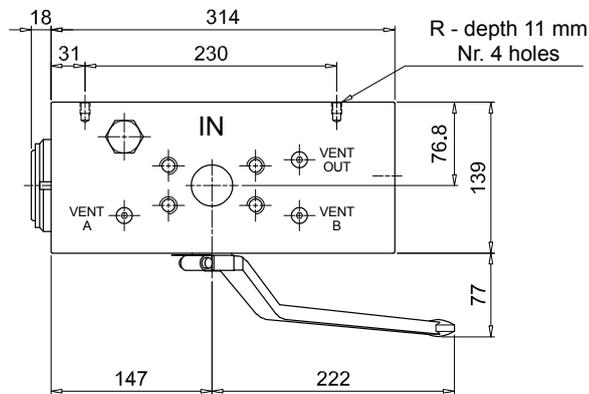
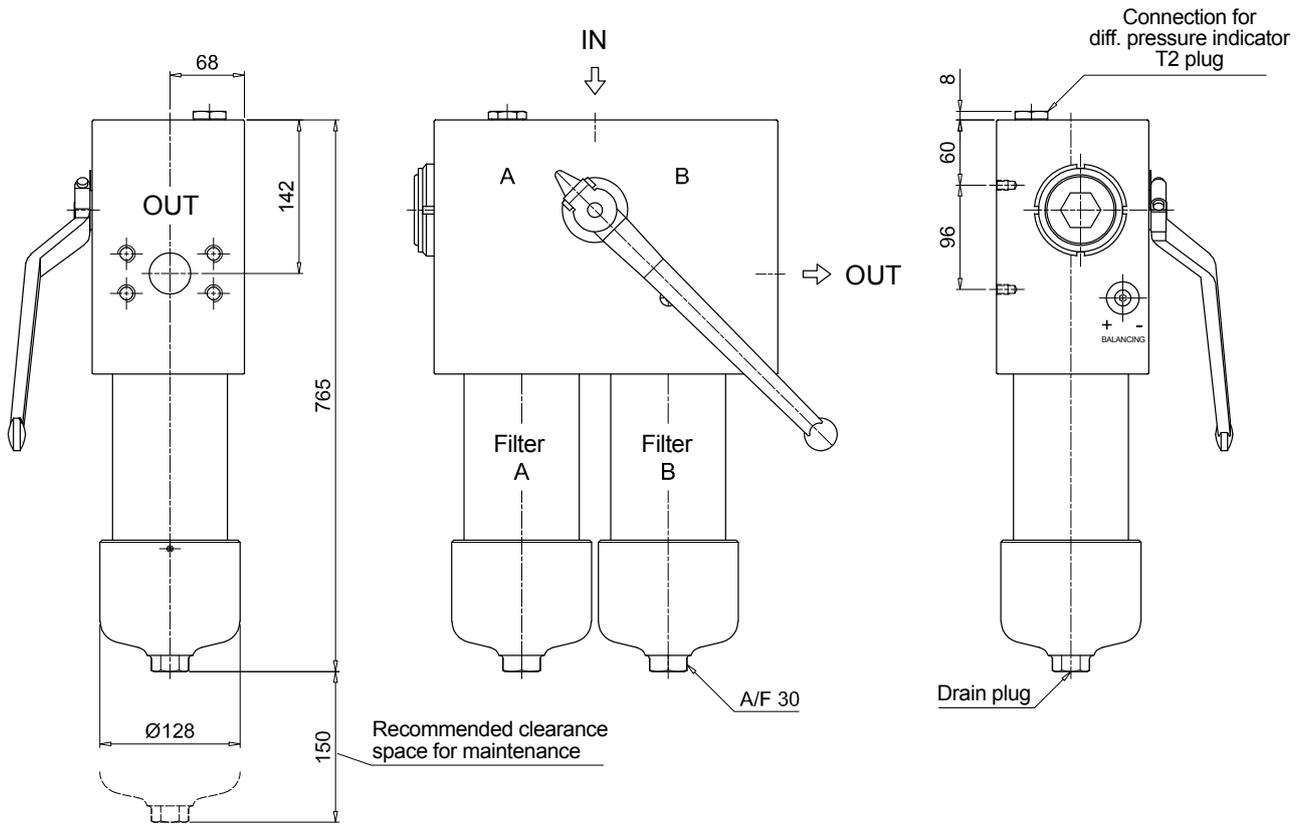
| FHD333 | |
|---------------|----------|
| Length 2 - 3 | |
| Filter length | H [mm] |
| 2 | 479 |
| 3 | 612 |
| Connections | R |
| F1 | M10 |
| F2 | 3/8" UNC |



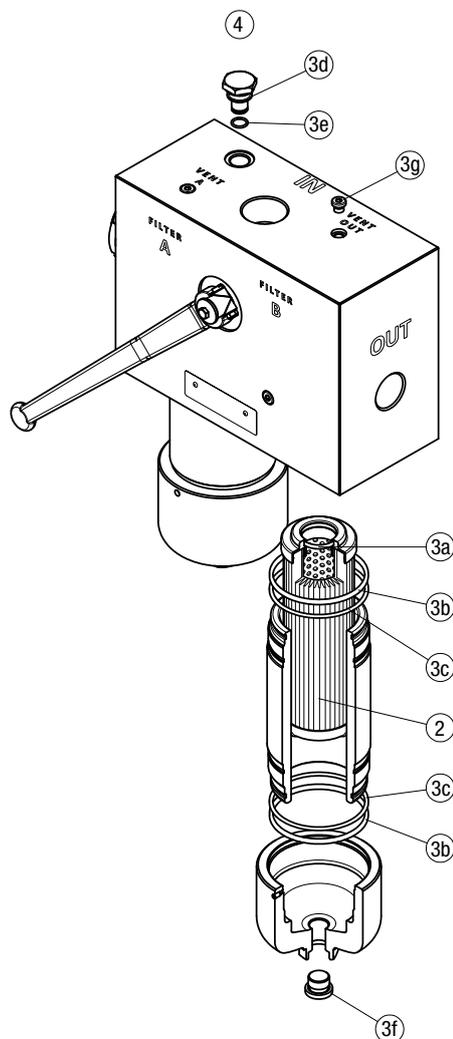
FHD FHD051 - FHD326 - FHD333

Dimensions

| | |
|-------------|----------|
| FHD333 | |
| Length 4 | |
| Connections | R |
| F1 | M10 |
| F2 | 3/8" UNC |



FHD 021 - 051 - 326 - 333



| Item: | Q.ty: 1 pc. | Q.ty: 1 pc. | | Q.ty: 1 pc. | |
|---------------|-----------------|----------------------|----------|---------------------------|-----|
| Filter series | Filter element | Seal Kit code number | | Indicator connection plug | |
| FHD 021 | See order table | NBR | FPM | NBR | FPM |
| FHD 051 | See order table | 02050511 | 02050512 | T2H | T2V |
| FHD 326-333 | See order table | 02050420 | 02050421 | | |
| | | 02050377 | 02050378 | | |

LubeTeam Hydraulic S.r.l.

Administration and Headquarter:

Via Tufara Scautieri, 6

83018 - San Martino Valle Caudina (AV)

Office and Warehouse:

S.S. 7 Appia, Km. 237,00

82011 - Airola BN

ITALY

Tel. +39 0823 950 994

Fax +39 0823 412 546

www.lubeteam.it info@lubeteam.it

Italian VAT / C.F. e P.IVA: 01251720627

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