

# LMD 400-401 & 431 series

Maximum working pressure up to 1.6 MPa (16 bar) - Flow rate up to 600 l/min



## Description

## Technical data

**Low & Medium Pressure filters****Duplex****Maximum working pressure up to 1.6 MPa (16 bar)****Flow rate up to 600 l/min**

LMD400 is a range of versatile low 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:**

- 2 1/2" flanged connections, for a maximum flow rate of 600 l/min
- LMD400: In-line connections
- LMD401: In-line connections with compact design
- LMD431: In-line connections with compact design and base mounting
- Base-mounting design also available, for ease of the replacement of the filter element
- Fine filtration rating, to get a good cleanliness level into the system
- Water removal elements, to remove the free water from the hydraulic fluid.  
For further information, see the Contamination Management document and the dedicate leaflet.
- Balancing valve, 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
- Visual, electrical and electronic differential clogging indicators

**Common applications:**

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

**Filter housing materials**

- Head: Anodized Aluminium
- Housing: Anodized Aluminium
- Manifolds: Steel - Painted black
- Bypass valve: Steel
- 3-way ball valve: Steel housings - Stainless Steel ball
- Valve: Phosphatized Steel - Stainless Steel

**Pressure**

Test pressure: 2.5 MPa (25 bar)

**Bypass valve**

- Opening pressure 350 kPa (3.5 bar)  $\pm 10\%$
- Other opening pressures on request.

 **$\Delta p$  element type**

- Microfibre filter elements - series N - W: 20 bar
- Fluid flow through the filter element from OUT to IN

**Seals**

FPM series V

**Temperature**

From -25° C to +110° C

**Connections**

- LMD 400-401: In-line Inlet/Outlet
- LMD 401: Same side
- LMD 400-401-431: In-Line

**Note**

LMD 400 - 401 - 431 filters are provided for vertical mounting

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

Filter series	Weights [kg]				Volumes [dm <sup>3</sup> ]			
	Length	4	5	6	Length	4	5	6
<b>LMD 400 - 401</b>	60	65	72		20	28	33	
<b>LMD 431</b>	-	68	78		-	28	33	

Flow rates [l/min]

Filter series	Length	Filter element design - N Series							
		A03	A06	A10	A16	A25	M25 M60 M90	P10	P25
<b>LMD 400 - 401</b>	<b>4</b>	308	349	453	474	530	628	547	567
	<b>5</b>	395	427	509	547	589	637	577	592
	<b>6</b>	429	483	558	568	597	639	583	597
<b>LMD 431</b>	<b>5</b>	395	427	509	547	589	637	577	592
	<b>6</b>	429	483	558	568	597	639	583	597

**Maximum flow rate for a complete low and medium pressure filter with a pressure drop  $\Delta p = 0.7$  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>.

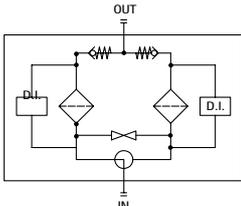
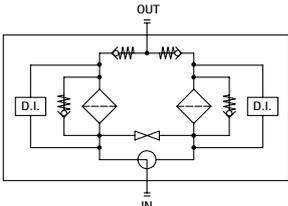
For different pressure drop or fluid viscosity we recommend to use our selection software available on [www.mpfiltri.com](http://www.mpfiltri.com).

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.

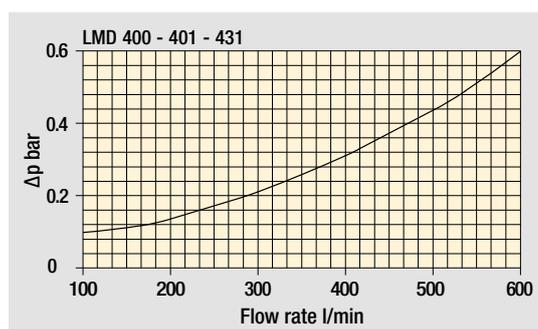
## Hydraulic symbols

Filter series	Execution S	Execution B
<b>LMD 400 - 401</b>	•	•
<b>LMD 431</b>	•	•

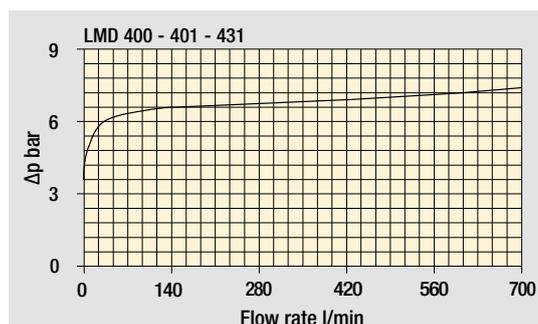



## Pressure drop

Filter housings  $\Delta p$  pressure drop



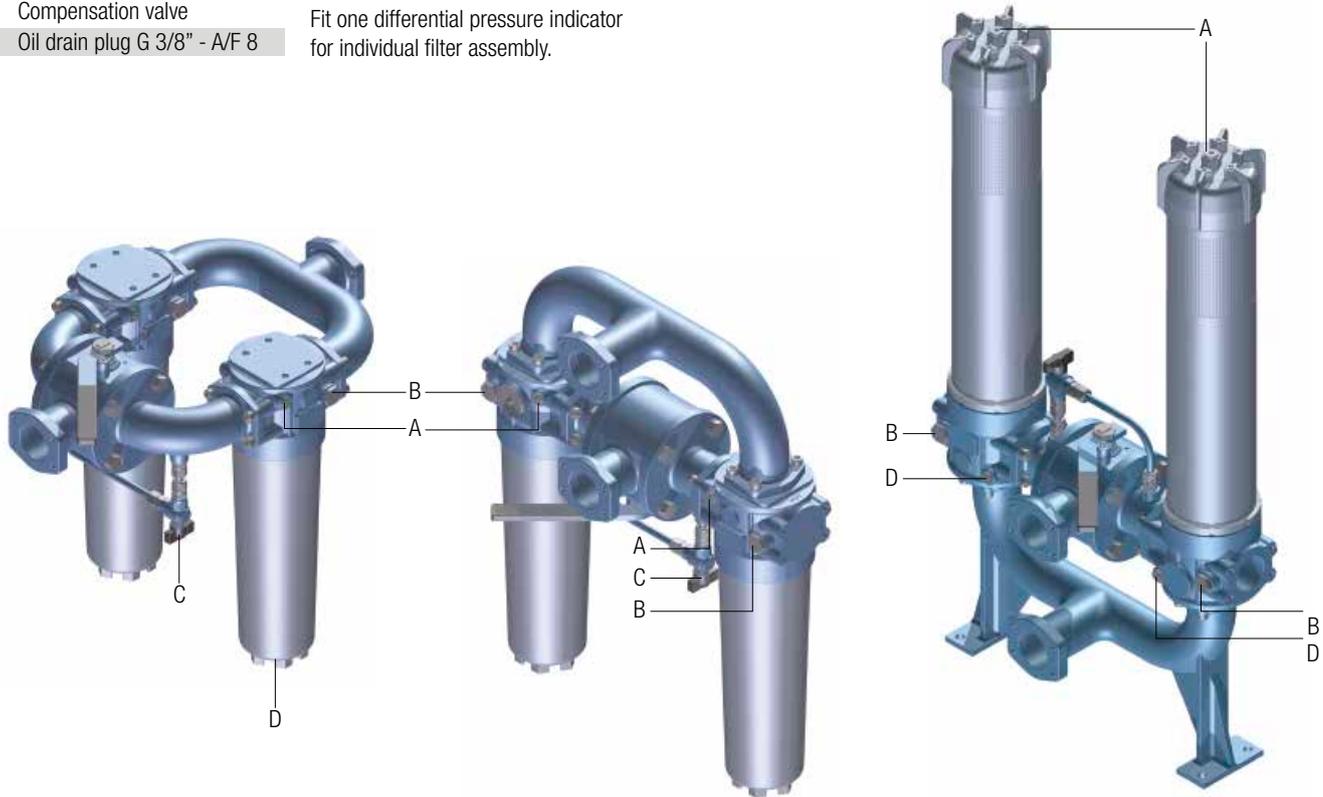
Bypass valve pressure drop



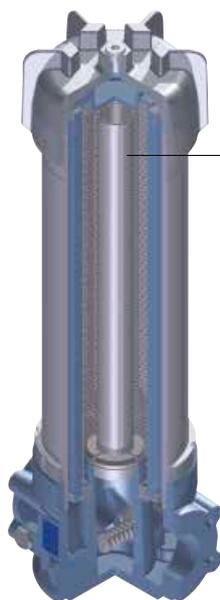
The curves are plotted using mineral oil with density of 0.86 kg/dm<sup>3</sup> in compliance with ISO 3968.  $\Delta p$  varies proportionally with density.

Focus on

- A** Breather plug G 3/8" - A/F 8
  - B** Indicator port Plug T2 - A/F 30
  - C** Compensation valve
  - D** Oil drain plug G 3/8" - A/F 8
- LMP 400 - 401 & 431  
Fit one differential pressure indicator  
for individual filter assembly.



## LMD 431: Execution P02



"Internal tube for low flow rate" is recommended for flow rate values below 150 l/min.

The use of option P02 makes it easier to fill the housing with the operating fluid.



# LMD 400-401

## Designation & Ordering code

### COMPLETE FILTER

Series and size		Configuration example: <b>LMD401</b>   <b>4</b>   <b>B</b>   <b>V</b>   <b>F1</b>   <b>A10</b>   <b>N</b>   <b>P01</b>							
<b>LMD400</b>   <b>LMD401</b>									
Length									
<b>4</b>   <b>5</b>   <b>6</b>									
Bypass valve									
<b>S</b> Without bypass		<b>B</b> With bypass 3.5 bar							
Seals and treatments									
<b>V</b> FPM									
Connections		LMD400		LMD401					
<b>F1</b> 2 1/2" SAE 3000 psi/M		•		•					
<b>F2</b> 2 1/2" SAE 3000 psi/UNC		•		•					
<b>F3</b> 2 1/2" SAE 3000 psi/M, In-line connections		-		•					
<b>F4</b> 2 1/2" SAE 3000 psi/UNC, In-line connections		-		•					
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							
<b>WA025</b> Water absorber inorganic microfiber 25 µm									
Element Δp		Execution						Filter length	
<b>N</b> 20 bar		<b>P01</b> MP Filtri standard						• • •	
		<b>P02</b> Maintenance from the bottom of the housing						- • •	
		<b>Pxx</b> Customized						- - -	

### FILTER ELEMENT

Element series and size		Configuration example: <b>CU400</b>   <b>4</b>   <b>A10</b>   <b>V</b>   <b>N</b>   <b>P01</b>					
<b>CU400</b>							
Element length							
<b>4</b>   <b>5</b>   <b>6</b>							
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					
<b>WA025</b> Water absorber inorganic microfiber 25 µm							
Seals							
<b>V</b> FPM							
Element Δp		Execution				Filter length	
<b>N</b> 20 bar		<b>P01</b> MP Filtri standard				• • •	
		<b>Pxx</b> Customized				- - -	

### CLOGGING INDICATORS

See page 726

<b>DEA</b> Electrical differential pressure indicator	<b>DLE</b> Electrical / visual differential pressure indicator
<b>DEM</b> Electrical differential pressure indicator	<b>DTA</b> Electronic differential pressure indicator
<b>DEU</b> Electrical differential pressure indicator	<b>DVA</b> Visual differential pressure indicator
<b>DLA</b> Electrical / visual differential pressure indicator	<b>DVM</b> Visual differential pressure indicator

### PLUGS

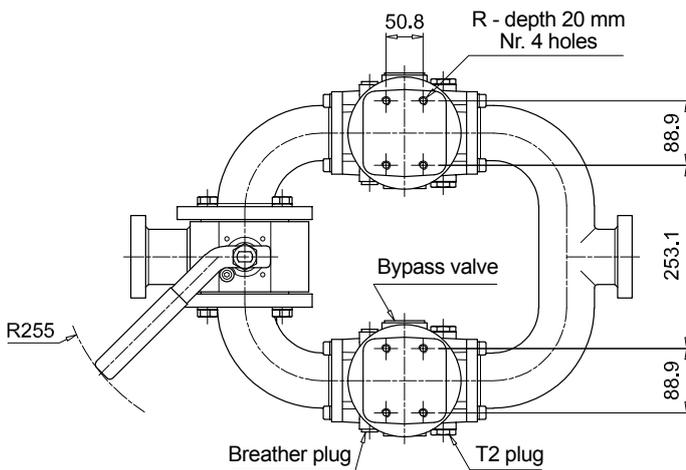
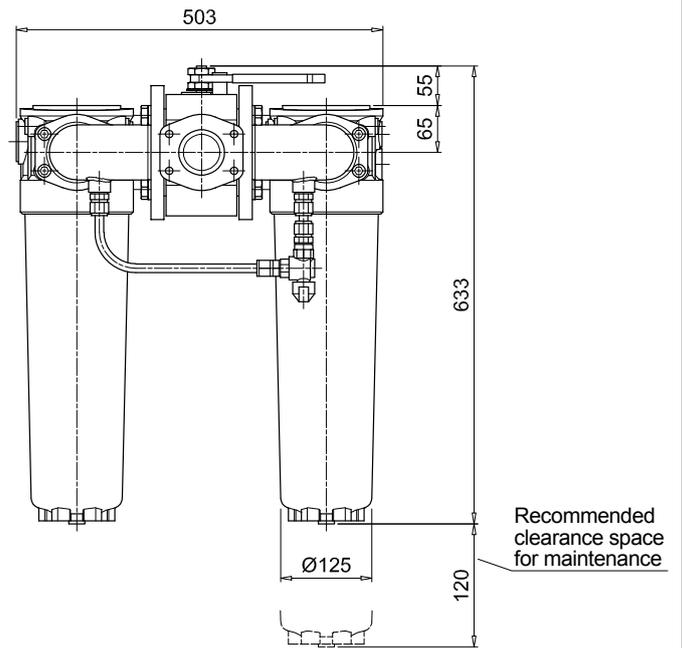
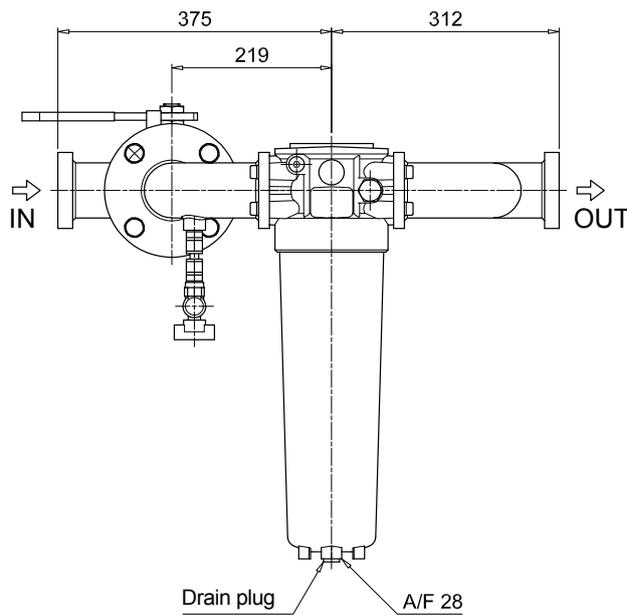
See page 747

<b>T2</b> Plug
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# LMD 400-401

## Dimensions

LMD400	
Length 4	
Connections	R
<b>F1</b>	M12
<b>F2</b>	1/2" UNC
<b>F3</b>	M12
<b>F4</b>	1/2" UNC



T2 plug = connection for differential pressure indicator

# LMD 400-401

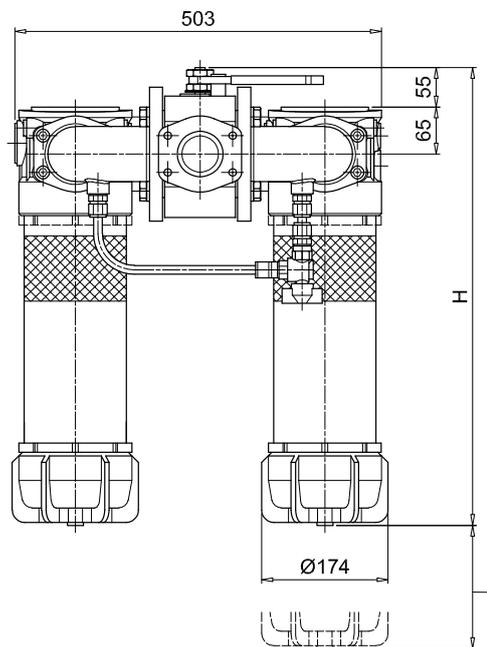
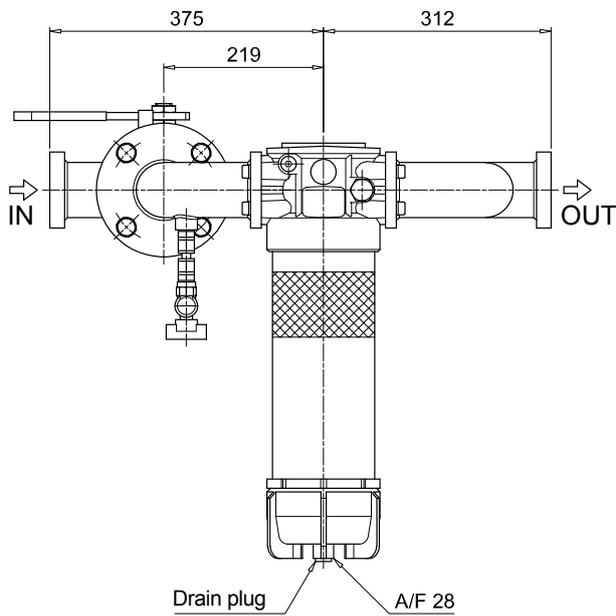
## Dimensions

### LMD400

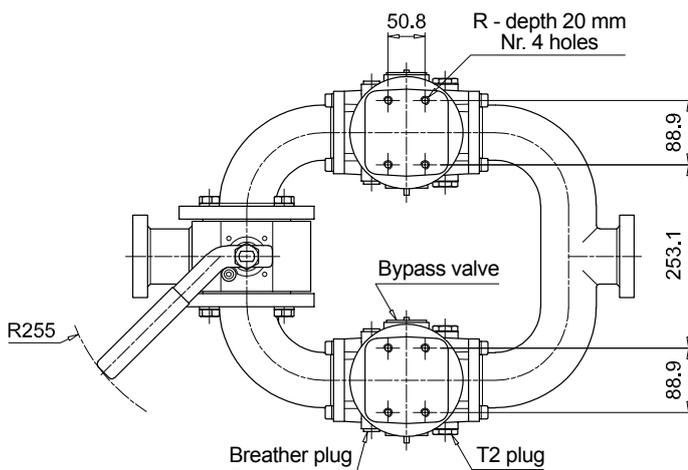
#### Length 5 - 6

Filter length	H [mm]	H2 [mm] Execution	
		P01	P02
5	883	120	660
6	1213	120	690

Connections	R
F1	M12
F2	1/2" UNC
F3	M12
F4	1/2" UNC



H2 - Recommended clearance space for maintenance

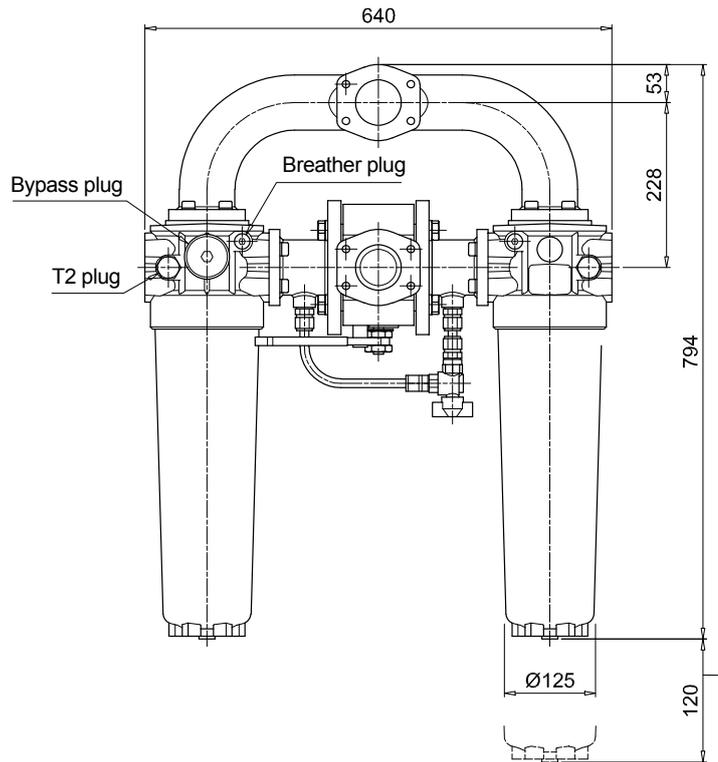
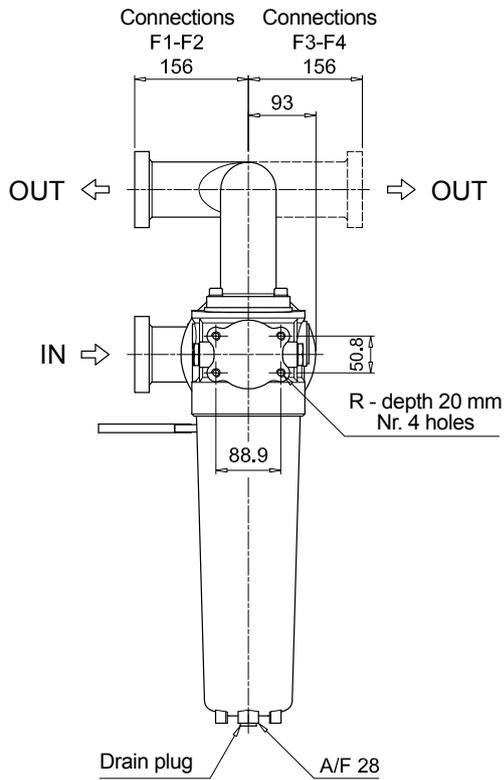


T2 plug = connection for differential pressure indicator

# LMD 400-401

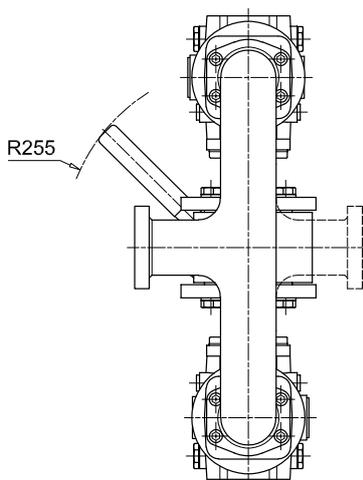
## Dimensions

LMD401	
Length 4	
Connections	R
<b>F1</b>	M12
<b>F2</b>	1/2" UNC
<b>F3</b>	M12
<b>F4</b>	1/2" UNC



T2 plug = connection for differential pressure indicator

Recommended clearance space for maintenance



# LMD 400-401

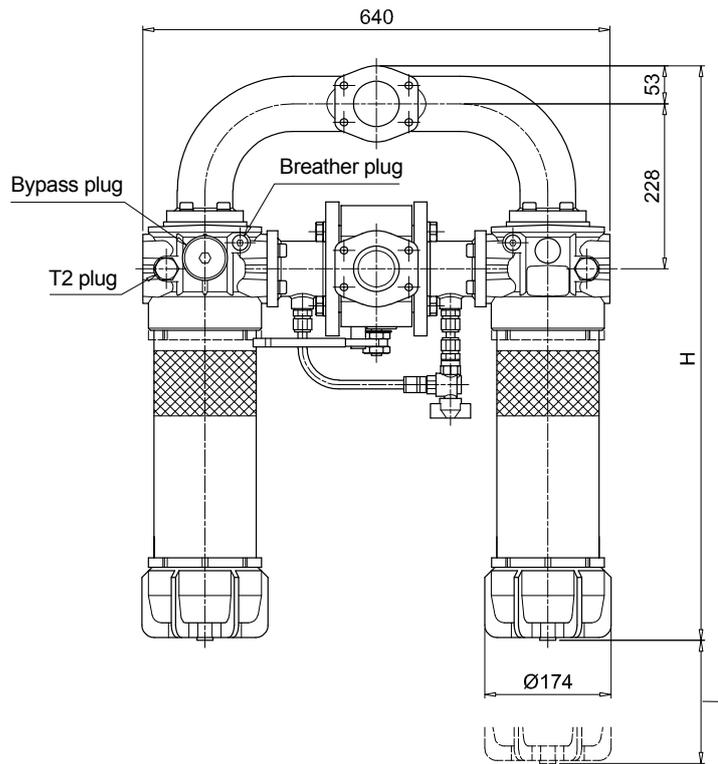
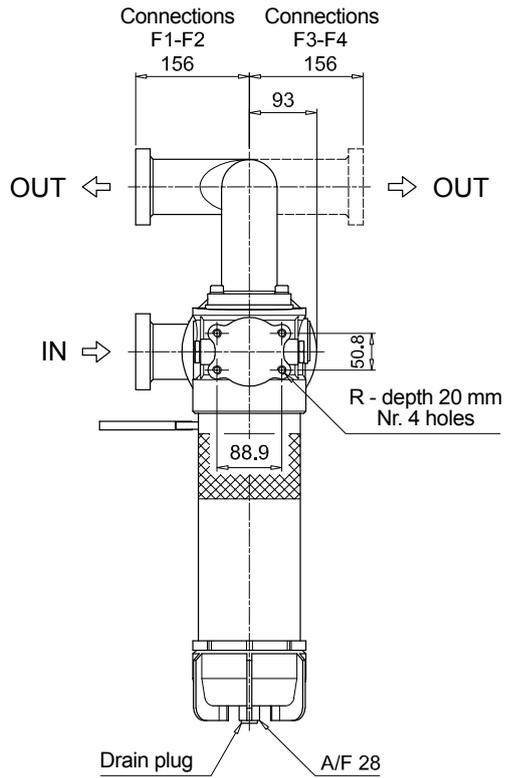
## Dimensions

LMD401

Length 5 - 6

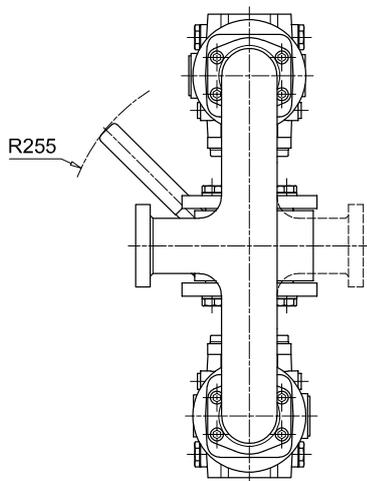
Filter length	H [mm]	H2 [mm] Execution	
		P01	P02
5	1044	120	660
6	1374	120	690

Connections	R
F1	M12
F2	1/2" UNC
F3	M12
F4	1/2" UNC



T2 plug = connection for differential pressure indicator

H2 - Recommended clearance space for maintenance





# LMD 431

## Designation & Ordering code

### COMPLETE FILTER

<b>Series and size</b>	Configuration example: <b>LMD431</b>   <b>5</b>   <b>B</b>   <b>V</b>   <b>F1</b>   <b>A10</b>   <b>N</b>   <b>P01</b>									
<b>LMD431</b>										
<b>Length</b>	5   6									
<b>Bypass valve</b>	<b>S</b> Without bypass   <b>B</b> With bypass 3.5 bar									
<b>Seals and treatments</b>	<b>V</b> FPM									
<b>Connections</b>	<b>F1</b> 2 1/2" SAE 3000 psi/M <b>F2</b> 2 1/2" SAE 3000 psi/UNC <b>F3</b> 2 1/2" SAE 3000 psi/M, In-line connections <b>F4</b> 2 1/2" SAE 3000 psi/UNC, In-line connections									
<b>Filtration rating (filter media)</b>	<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 <b>WA025</b> Water absorber inorganic microfiber 25 µm									
<b>Element Δp</b>	<b>N</b> 20 bar									
<b>Execution</b>	<b>P01</b> MP Filtri standard <b>P02</b> With internal tube for low flow rate <b>Pxx</b> Customized									

### FILTER ELEMENT

<b>Element series and size</b>	Configuration example: <b>CU400</b>   <b>5</b>   <b>A10</b>   <b>V</b>   <b>N</b>   <b>P01</b>						
<b>CU400</b>							
<b>Element length</b>	5   6						
<b>Filtration rating (filter media)</b>	<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 <b>WA025</b> Water absorber inorganic microfiber 25 µm						
<b>Seals</b>	<b>V</b> FPM						
<b>Element Δp</b>	<b>N</b> 20 bar						
<b>Execution</b>	<b>P01</b> MP Filtri standard <b>Pxx</b> Customized						

### CLOGGING INDICATORS

See page 726

<b>DEA</b> Electrical differential pressure indicator	<b>DLE</b> Electrical / visual differential pressure indicator
<b>DEM</b> Electrical differential pressure indicator	<b>DTA</b> Electronic differential pressure indicator
<b>DEU</b> Electrical differential pressure indicator	<b>DVA</b> Visual differential pressure indicator
<b>DLA</b> Electrical / visual differential pressure indicator	<b>DVM</b> Visual differential pressure indicator

### PLUGS

See page 747

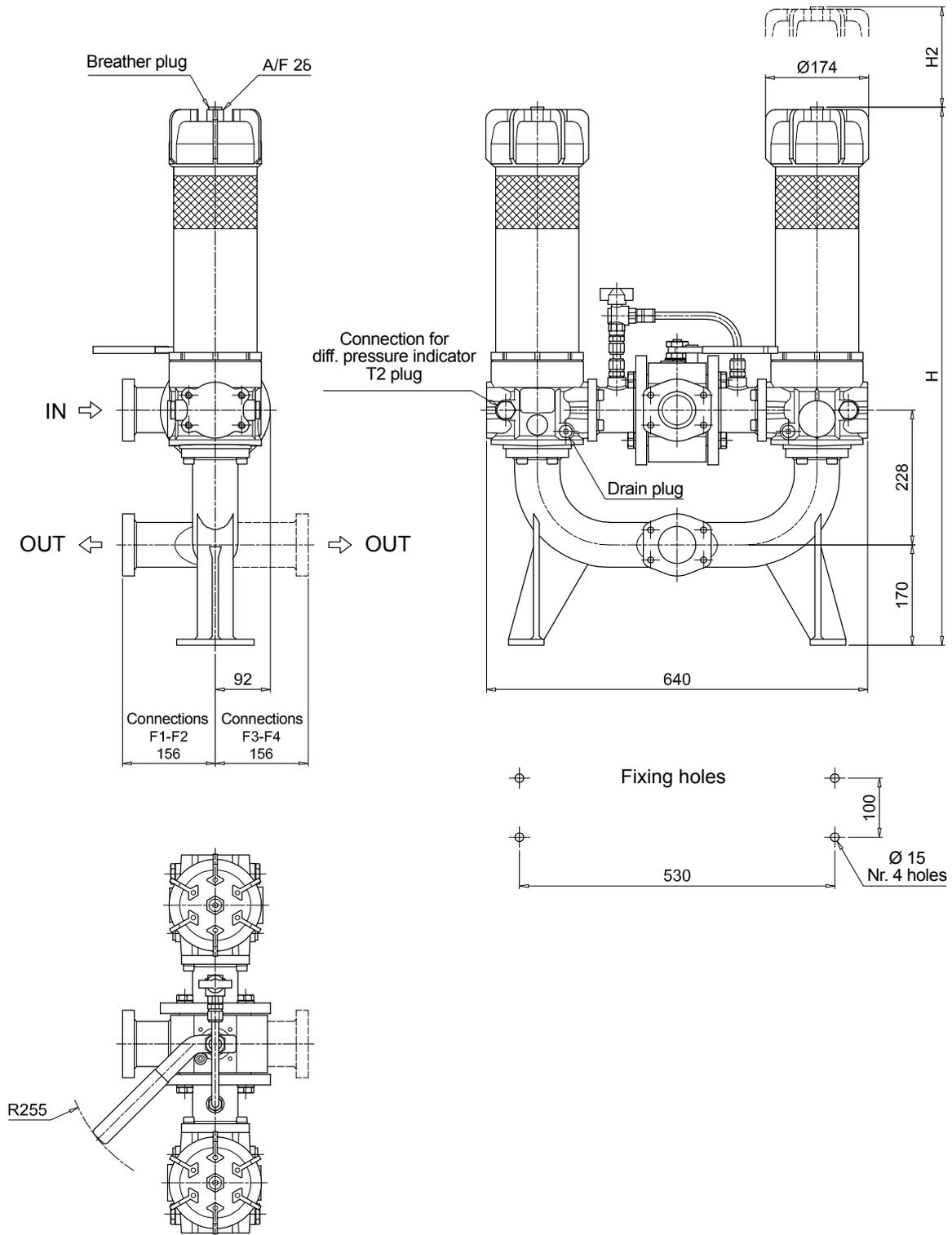
<b>T2</b> Plug
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# LMD 431

## Dimensions

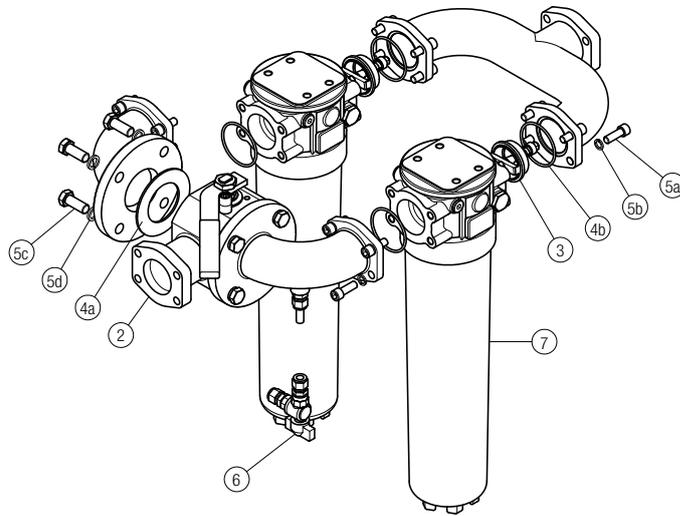
### LMD431

Filter length	H [mm]	H2 [mm]
5	1161	660
6	1491	690



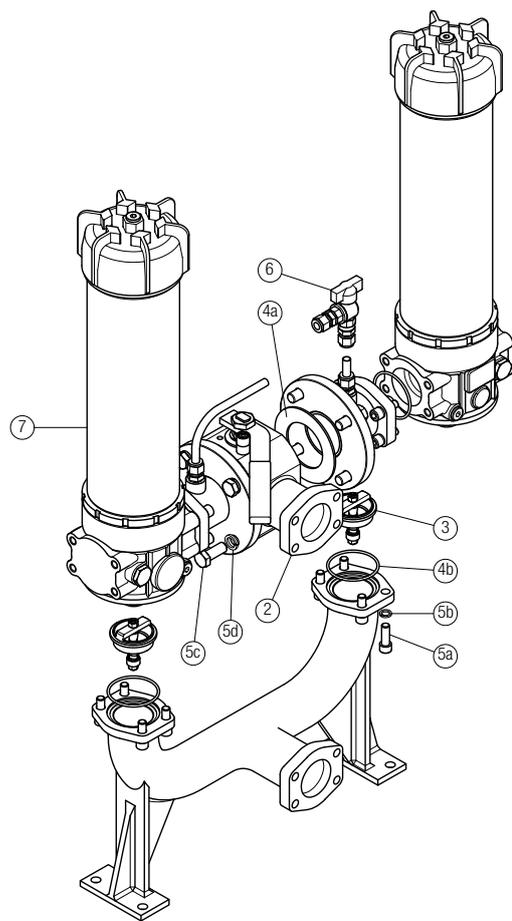
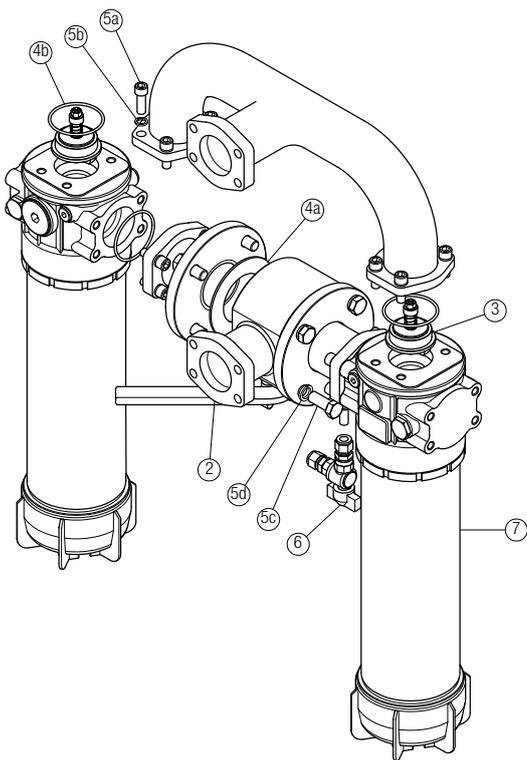
Order number for spare parts

**LMD 400**



**LMD 401**

**LMD 431**



Item:	Q.ty: 1 pc.		Q.ty: 2 pcs.	Q.ty: 1 pc.	Q.ty: 1 pc.	Q.ty: 1 pc.	Q.ty: 2 pcs.
Filter series	3-way ball valve PN 16 2 1/2" SAE 3000 psi/M 2 1/2" SAE 3000 psi/UNC		One-way valve	Seal Kit	Threaded fasteners kit	Kit ball valve with hose fitting	Filter See order table
<b>LMD 400-401-431</b>	02001440	02001441	02001429	02050399	02049062	02025043	LMP400xF2.....

# CLOGGING INDICATORS LOW & MEDIUM PRESS. FILTERS

## Designation & Ordering code

### DIFFERENTIAL PRESSURE INDICATORS

Series	Configuration example 1:	DE	M	20	H	F	50	P01	
<b>DE</b> Electrical differential pressure indicator	Configuration example 2:	DE	U	50	V	A	50	P01	UL
<b>DL</b> Electrical/Visual differential pressure indicator	Configuration example 3:	DL	E	50	V	A	71	P01	
<b>DT</b> Electronic differential pressure indicator	Configuration example 4:	DT	A	20	H	F	70	P01	
<b>DV</b> Visual differential pressure indicator	Configuration example 5:	DV	M	50	V			P01	

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

Pressure setting	DEA	DEM	DEU	DES	DLA	DLE	DTA	DVA	DVM	DVS
<b>12</b> 1.2 bar	•	•	-	•	•	•	•	•	•	•
<b>20</b> 2.0 bar	•	•	•	-	•	•	•	•	•	-
<b>25</b> 2.5 bar	-	-	-	-	-	-	-	-	-	•
<b>40</b> 4.0 bar	-	-	-	•	-	-	-	-	-	•
<b>50</b> 5.0 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	Configuration example	T2	H
<b>T2</b> Plug			
<b>T4</b> Plug			

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