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MR42

MR62-31

MR62-35

MR62-43

MR76

MR90

M42

M62

M76

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Attu























































































































# Clogging indicators

## Vacuum indicators

### Introduction

Filter elements are efficient only if their Dirt Holding Capacity is fully exploited. This is achieved by using filter housings equipped with clogging indicators.

These devices trip when the clogging of the filter element causes an increase in pressure drop across the filter element.

The indicator is set to alarm before the element becomes fully clogged.

MP Filtri can supply vacuum indicators with a visual, electrical or both signals.

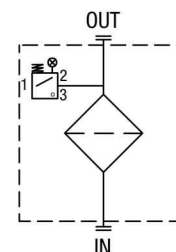
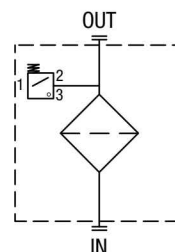
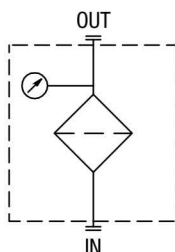
### Suitable indicator types

#### VACUUM INDICATORS

Vacuum indicators are used on the Suction line to check the efficiency of the filter element. They measure the pressure downstream of the filter element.

Standard items are produced with R 1/4" EN 10226 connection.

Available products with R 1/8" EN 10226 to be fitted on MPS series.



### Quick reference guide

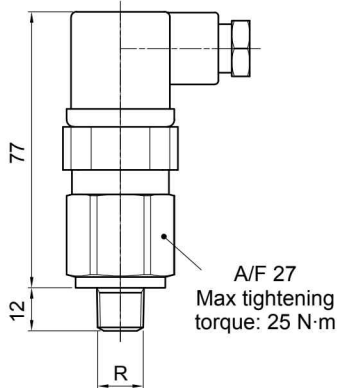
Filter series	Visual indicator	Electrical indicator	Electrical / Visual indicator
SF2 250 - 350	VVA16P01	VEA21AA50P01	VLA21AA51P01
SF2 500 - 501 - 503 - 504 - 505	VVR16P01		VLA21AA52P01
SF2 510 - 535 - 540			VLA21AA53P01 VLA21AA71P01



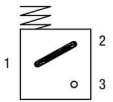
# VACUUM INDICATORS

## Dimensions

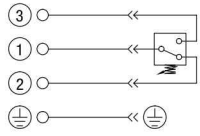
VE*50	
Electrical Vacuum Indicator	
R	Ordering code
EN 10226 - R1/4"	VE A 21 A A 50 P01



**Hydraulic symbol**



**Electrical symbol**




**Materials**

- Body: Brass
- Base: Black Nylon
- Contacts: Silver
- Seal: NBR

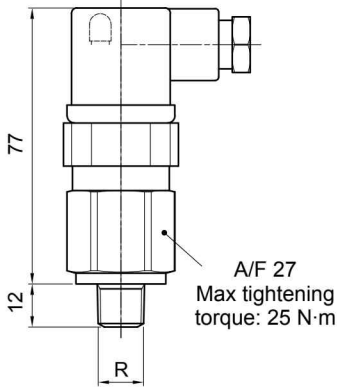
**Technical data**

- Vacuum setting: -0.21 bar  $\pm$ 10%
- Max working pressure: 10 bar
- Proof pressure: 15 bar
- Working temperature: From -25 °C to +80 °C
- Compatibility with fluids: Mineral oil, Synthetic fluids  
HFA, HFB, HFC according to ISO 2943
- Degree of protection: IP65 according to EN 60529

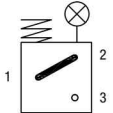
**Electrical data**

- Electrical connection: EN 175301-803
- Resistive load: 5 A / 14 Vdc  
4 A / 30 Vdc  
5 A / 125 Vac  
4 A / 250 Vac
- Available Atex product: II 1GD Ex ia IIC Tx Ex ia IIIC Tx°C X 
- CE certification

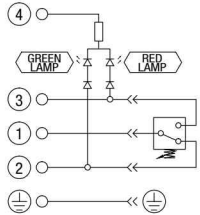
VL*51 - VL*52 - VL*53	
Electrical/Visual Vacuum Indicator	
R	Ordering code
EN 10226 - R1/4"	VL A 21 A A xx P01



**Hydraulic symbol**



**Electrical symbol**



**Materials**

- Body: Brass
- Base: Transparent Nylon
- Contacts: Brass - Nylon
- Seal: NBR

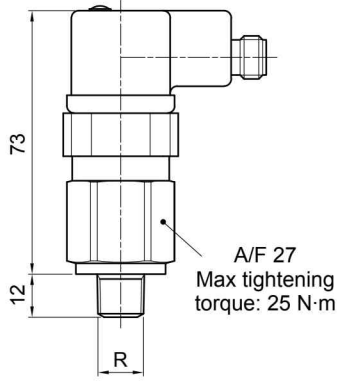
**Technical data**

- Vacuum setting: -0.21 bar  $\pm$ 10%
- Max working pressure: 10 bar
- Proof pressure: 15 bar
- Working temperature: From -25 °C to +80 °C
- Compatibility with fluids: Mineral oil, Synthetic fluids  
HFA, HFB, HFC according to ISO 2943
- Degree of protection: IP65 according to EN 60529

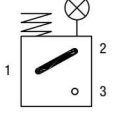
**Electrical data**

- Electrical connection: EN 175301-803
- Type: 51                      52                      53
- Lamps: 24 Vdc              110 Vdc              230 Vac
- Resistive load: 0.8 A / 24 Vdc   0.2 A / 115 Vdc   4 A / 230 Vac

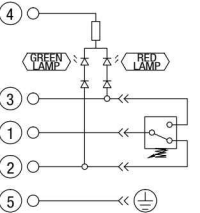
VL*71	
Electrical/Visual Vacuum Indicator	
Connections	Indicator code
EN 10226 - R1/4"	VL A 21 A A 71 P01



**Hydraulic symbol**



**Electrical symbol**



**Materials**

- Body: Brass
- Base: Black Nylon
- Contacts: Silver
- Seal: NBR

**Technical data**

- Vacuum setting: -0.21 bar  $\pm$ 10%
- Max working pressure: 10 bar
- Proof pressure: 15 bar
- Working temperature: From -25 °C to +80 °C
- Compatibility with fluids: Mineral oil, Synthetic fluids  
HFA, HFB, HFC according to ISO 2943
- Degree of protection: IP65 according to EN 60529

**Electrical data**

- Electrical connection: IEC 61076-2-101 D (M12)
- Lamps: 24 Vdc
- Resistive load: 0.4 A / 24 Vdc

VVA									
Axial Vacuum Gauge									
R	Ordering code								
EN 10226 - R1/4"	VVA 16 P01								
<b>Hydraulic symbol</b> 									
<b>Dial scale</b> 									
<b>Conversion to SI units</b> <table border="1"> <thead> <tr> <th>[cmHg]</th> <th>[bar]</th> </tr> </thead> <tbody> <tr> <td>-12</td> <td>-0.16</td> </tr> <tr> <td>-18</td> <td>-0.24</td> </tr> <tr> <td>-76</td> <td>-1.01</td> </tr> </tbody> </table>		[cmHg]	[bar]	-12	-0.16	-18	-0.24	-76	-1.01
[cmHg]	[bar]								
-12	-0.16								
-18	-0.24								
-76	-1.01								
<b>Materials</b> - Case: Painted Steel - Window: Transparent plastic - Dial: Painted Steel - Pointer: Painted Aluminium - Pressure connection: Brass - Pressure element: Bourdon tube Cu-alloy soft soldered									
<b>Technical data</b> - Max working pressure: Static: 7 bar Fluctuating: 6 bar Short time: 10 bar - Working temperature: From -40 °C to +60 °C - Compatibility with fluids: Mineral oil, Synthetic fluids HFA, HFB, HFC according to ISO 2943 - Accuracy: Class 2.5 according to EN 13190 - Degree of protection: IP31 according to EN 60529									

VVR									
Radial Vacuum Gauge									
R	Ordering code								
EN 10226 - R1/4"	VVR 16 P01								
<b>Hydraulic symbol</b> 									
<b>Dial scale</b> 									
<b>Conversion to SI units</b> <table border="1"> <thead> <tr> <th>[cmHg]</th> <th>[bar]</th> </tr> </thead> <tbody> <tr> <td>-12</td> <td>-0.16</td> </tr> <tr> <td>-18</td> <td>-0.24</td> </tr> <tr> <td>-76</td> <td>-1.01</td> </tr> </tbody> </table>		[cmHg]	[bar]	-12	-0.16	-18	-0.24	-76	-1.01
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-12	-0.16								
-18	-0.24								
-76	-1.01								
<b>Materials</b> - Case: Painted Steel - Window: Transparent plastic - Dial: Painted Steel - Pointer: Painted Aluminium - Pressure connection: Brass - Pressure element: Bourdon tube Cu-alloy soft soldered									
<b>Technical data</b> - Max working pressure: Static: 7 bar Fluctuating: 6 bar Short time: 10 bar - Working temperature: From -40 °C to +60 °C - Compatibility with fluids: Mineral oil, Synthetic fluids HFA, HFB, HFC according to ISO 2943 - Accuracy: Class 2.5 according to EN 13190 - Degree of protection: IP31 according to EN 60529									

DESIGNATION & ORDERING CODE									
<b>Series</b>		Configuration example 1:	VE	A	21	A	A	50	P01
<b>VE</b>	Electrical vacuum indicator	Configuration example 2:	VL	A	21	A	A	71	P01
<b>VL</b>	Electrical/Visual vacuum indicator	Configuration example 3:	VV	R	16				P01
<b>VV</b>	Vacuum gauge								
<b>Type VE - VL</b>		<b>Type VV</b>							
<b>A</b>	Connection EN 10226 - R1/4"	<b>A</b>	Axial connection EN 10226 - R1/4"						
		<b>R</b>	Radial connection EN 10226 - R1/4"						
<b>Vacuum setting</b>		<b>VE</b>	<b>VL</b>	<b>VV</b>					
<b>16</b>	0.16 bar			•					
<b>21</b>	0.21 bar	•	•						
<b>Seals</b>		<b>VE</b>	<b>VL</b>	<b>VV</b>					
<b>A</b>	NBR	•	•						
<b>Thermostat</b>		<b>VE</b>	<b>VL</b>	<b>VV</b>					
<b>A</b>	Without	•	•						
<b>Electrical connections</b>		<b>VE</b>	<b>VL</b>	<b>VV</b>					
<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 Vdc		•						
<b>71</b>	Connection IEC 61076-2-101 D (M12), black base with lamps 24 Vdc		•						
									<b>Option</b>
									<b>P01</b> MP Filtri standard
									<b>Pxx</b> Customized

Filter elements are efficient only if their Dirt Holding Capacity is fully exploited. This is achieved by using filter housings equipped with clogging indicators.

These devices trip when the clogging of the filter element causes an increase in pressure drop across the filter element.

The indicator is set to alarm before the element becomes fully clogged.

MP Filtri can supply indicators of the following designs:

- **Vacuum switches and gauges**
- **Pressure switches and gauges**
- **Differential pressure indicators**

These type of devices can be provided with a visual, electrical or both signals.

# Clogging Indicators





# Clogging indicators



# CLOGGING INDICATORS

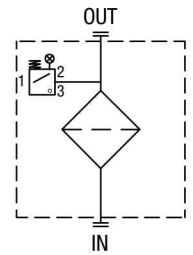
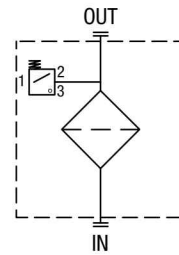
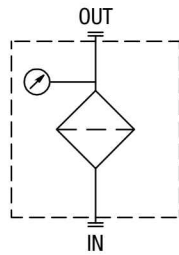
## Suitable indicator types

### VACUUM INDICATORS

Vacuum indicators are used on the Suction line to check the efficiency of the filter element. They measure the pressure downstream of the filter element.

Standard items are produced with R 1/4" EN 10226 connection.

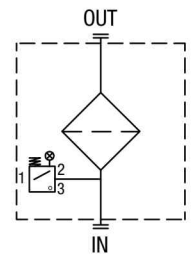
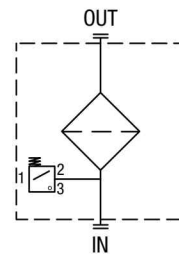
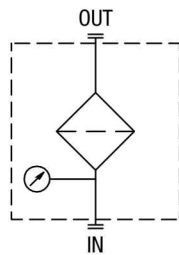
Available products with R 1/8" EN 10226 to be fitted on MPS series.



### BAROMETRIC INDICATORS

Pressure indicators are used on the Return line to check the efficiency of the filter element. They measure the pressure upstream of the filter element.

Standard items are produced with R 1/8" EN 10226 connection.

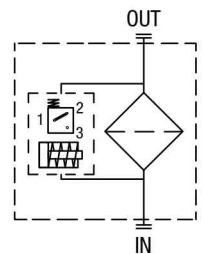
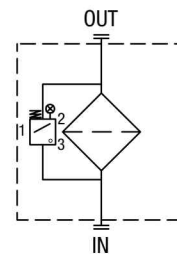
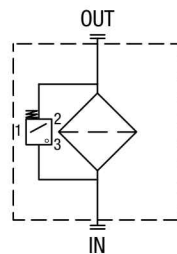
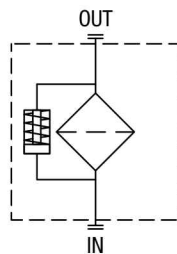


### DIFFERENTIAL INDICATORS

Differential indicators are used on the Pressure line to check the efficiency of the filter element. They measure the pressure upstream and downstream of the filter element (differential pressure).

Standard items are produced with special connection G 1/2" size.

Also available in Stainless Steel models.



Filter family	Filter series	Visual indicator	Electrical indicator	Electrical / Visual indicator	Electronic indicator
<b>SUCTION FILTERS</b>	SF2 250 - 350 SF2 500 - 501 - 503 - 504 - 505 SF2 510 - 535 - 540	VVA16P01 VVR16P01	VEA21AA50P01	VLA21AA51P01 VLA21AA52P01 VLA21AA53P01 VLA21AA71P01	
<b>RETURN FILTERS</b>	MPFX-MPTX-MPF-MPT with bypass 1.75 bar MPH with bypass 1.75 bar	BVA14P01 BVR14P01 BVP20HP01 BVQ20HP01	BEA15HA50P01 BEM15HA41P01	BLA15HA51P01 BLA15HA52P01 BLA15HA53P01 BLA15HA71P01	
	MPFX-MPTX-MPF-MPT with bypass 3 bar MPH with bypass 2.5 bar FRI 255	BVA25P01 BVR25P01 BVP20HP01 BVQ20HP01	BEA20HA50P01 BEM20HA41P01	BLA20HA51P01 BLA20HA52P01 BLA20HA53P01 BLA20HA71P01	
	FRI 025 - 040 - 100 - 250 - 630 - 850	DVA20xP01 DVM20xP01	DEA20xA50P01 DEM20xAxxP01	DLA20xA51P01 DLA20xA52P01 DLA20xA71P01 DLE20xA50P01 DLE20xF50P01	DTA20xF70P01
<b>RETURN / SUCTION FILTERS</b>	Suction line MRSX 116 - 165 - 166	VB16P01 VVS16P01	VEB21AA50P01	VLB21AA51P01 VLB21AA52P01 VLB21AA53P01 VLB21AA71P01	
	Return line MRSX 116 - 165 - 166 LMP 124	BVA25P01 BVR25P01 BVP20HP01 BVQ20HP01	BEA25HA50P01 BEM25HA41P01 BET25HF10P01 BET25HF30P01 BET25HF50P01	BLA25HA51P01 BLA25HA52P01 BLA25HA53P01 BLA25HA71P01	
<b>SPIN-ON FILTERS</b>	Suction line MPS 050 - 070 - 100 - 150 MPS 200 - 250 - 300 - 350	VB16P01 VVS16P01	VEB21AA50P01	VLB21AA51P01 VLB21AA52P01 VLB21AA53P01 VLB21AA71P01	
	Return line MPS 050 - 070 - 100 - 150 MPS 200 - 250 - 300 - 350 MST 050 - 070 - 100 - 150	BVA14P01 BVR14P01 BVP20HP01 BVQ20HP01	BEA15HA50P01 BEM15HA41P01	BLA15HA51P01 BLA15HA52P01 BLA15HA53P01 BLA15HA71P01	
	In-line MPS 051 - 071 - 101 - 151 MPS 301 - 351 MSH 050 - 070 - 100 - 150	DVA12xP01 DVM12xP01	DEA12xA50P01 DEM12xAxxP01	DLA12xA51P01 DLA12xA52P01 DLA12xA71P01 DLE12xA50P01 DLE12xF50P01	
<b>LOW &amp; MEDIUM PRESSURE FILTERS</b>	With bypass valve LMP 110 - 112 - 116 - 118 - 119 LMP 120 - 122 - 123 LMP 210 - 211 - LDP LMP 400 - 401 - 430 - 431 LMP 902 - 903 - 952 - 953 - 954 LMD 211 - 400 - 401 - 431 - 951 - LDD	DVA20xP01 DVM20xP01	DEA20xA50P01 DEM20xAxxP01	DLA20xA51P01 DLA20xA52P01 DLA20xA71P01 DLE20xA50P01 DLE20xF50P01	DTA20xF70P01
	Without bypass valve LMP 110 - 112 - 116 - 118 - 119 LMP 120 - 122 - 123 LMP 210 - 211 - LDP LMP 400 - 401 - 430 - 431 LMP 902 - 903 - 952 - 953 - 954 LMD 211 - 400 - 401 - 431 - 951 - LDD	DVA50xP01 DVM50xP01	DEA50xA50P01 DEM50xAxxP01	DLA50xA51P01 DLA50xA52P01 DLA50xA71P01 DLE50xA50P01 DLE50xF50P01	DTA50xF70P01
<b>HIGH PRESSURE FILTERS</b>	With bypass valve FMP 039 - 065 - 135 - 320 FHP 010 - 011 - 065 - 135 - 320 - 500 FMM 050 - FHA 051 FHM 006 - 007 - 010 - 050 - 065 - 135 - 320 - 500 FHB 050 - 135 - 320 FHF 325 FHD 021 - 051 - 326 - 333	DVA50xP01 DVM50xP01	DEA50xA50P01 DEM50xAxxP01	DLA50xA51P01 DLA50xA52P01 DLA50xA71P01 DLE50xA50P01 DLE50xF50P01	DTA50xF70P01
	Without bypass valve FMP 039 - 065 - 135 - 320 FHP 010 - 011 - 065 - 135 - 320 - 500 FMM 050 - FHA 051 FHM 006 - 007 - 010 - 050 - 065 - 135 - 320 - 500 FHB 050 - 135 - 320 FHF 325 FHD 021 - 051 - 326 - 333	DVA70xP01 DVM70xP01	DEA70xA50P01 DEM70xAxxP01	DLA70xA51P01 DLA70xA52P01 DLA70xA71P01 DLE70xA50P01 DLE70xF50P01	DTA70xF70P01
<b>STAINLESS STEEL HIGH PRESSURE FILTERS</b>	With bypass valve FZH 010 - 011 - 039 FZP 039 - 136 FZX 011 FZB 039 FZM 039 FZD 051	DVX50xP01 DVY50xP01	DEX50xA50P01	DLX50xA51P01 DLX50xA52P01	
	Without bypass valve FZH 010 - 011 - 039 FZP 039 - 136 FZB 039 FZM 039 FZD 010 - 021 - 051	DVX70xP01 DVY70xP01	DEX70xA50P01	DLX70xA51P01 DLX70xA52P01	



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Rev. 10-2017



The mark of  
responsible forestry





## WORLDWIDE NETWORK

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