Clogging Indicators



Clogging indicators are devices that check the life time of the filter elements. They measure the pressure drop through the filter element directly connected to the filter housing.
These devices trip when the clogging of the filter element causes a pressure drop increasing across the filter element.
Filter elements are efficient only if their Dirt Holding Capacity is fully exploited. This is achieved by using filter housings equipped with clogging indicators. The indicator is set to alarm before the element becomes fully clogged.

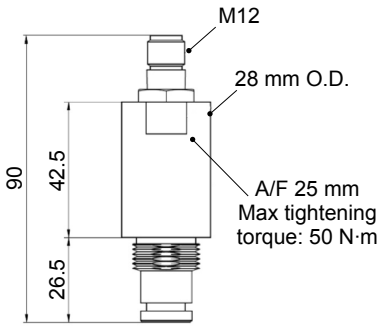
MP Filtri can supply indicators of the following designs:
- **Vacuum switches and gauges**
- **Pressure switches and gauges**
- **Differential pressure indicators**

These type of devices can be provided with a visual, electrical or both signals. The electronic differential pressure clogging indicator is also available. It provides both analogical 4-20 mA output and digital warning (75% of clogging) and alarm (clogging) outputs.

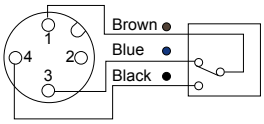
DEH*70

Hazardous Area
Electronic Differential Indicator

Settings	Ordering code
5.0 bar ±10%	DE H 50 x A 70 P01
7.0 bar ±10%	DE H 70 x A 70 P01



Connection diagram



- Certification / Approvals: ATEX, IECEx, TRCU, INMETRO
- Certification included as standard

Materials
- Body: AISI 316 Stainless steel housing with internal engineered resin switch
- Contacts: Rhodium
- Seal: MFQ - FPM

Protection class EX ia IIC T6: Intrinsically safe

Temperature class T6 (85 °C)

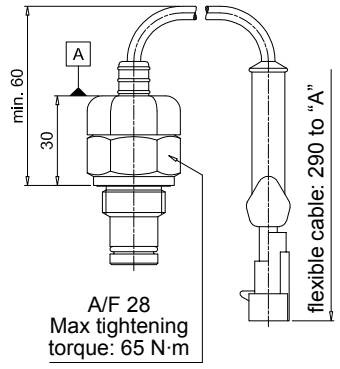
Technical data
- Max working pressure: 420 bar
- Working temperature: From -20 °C to +80 °C
- Connection type: 4 pole male M12 connector - plastic
- Contact type: SPCO/SPDT (Hermetically sealed - volt free contacts)
- Compatibility with fluids: Mineral oils, Synthetic fluids HFA, HFB, HFC according to ISO 2943
- Degree of protection: IP 66/67 according to EN 60529

Electrical data
- Current Ratings: 24v DC 830mA - 110v AC 180mA
- Electrical Ratings: Ui 30V - Li 250mA - Pi 1.3W

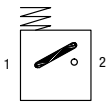
DEM*10

Electrical Differential Indicator

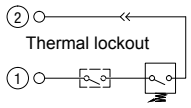
Settings	Ordering code
1.2 bar ±10%	DE M 12 x x 10 P01
2.0 bar ±10%	DE M 20 x x 10 P01
5.0 bar ±10%	DE M 50 x x 10 P01
7.0 bar ±10%	DE M 70 x x 10 P01
9.5 bar ±10%	DE M 95 x x 10 P01



Hydraulic symbol



Electrical symbol



Materials
- Body: Brass
- Base: Black Nylon
- Contacts: Silver
- Seal: HNBR - FPM

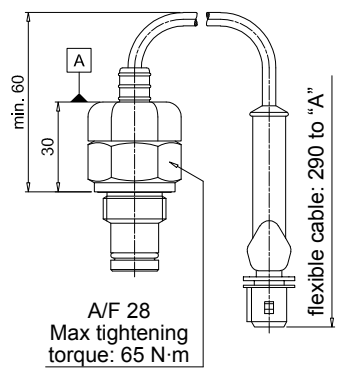
Technical data
- Max working pressure: 420 bar
- Proof pressure: 630 bar
- Burst pressure: 1260 bar
- Working temperature: From -25 °C to +110 °C
- Compatibility with fluids: Mineral oils, Synthetic fluids HFA, HFB, HFC according to ISO 2943
- Degree protection: IP66 according to EN 60529

Electrical data
- Electrical connection: AMP Superseal series 1.5
- Resistive load: 0.2 A / 115 Vdc
- Switching type: Normally open contacts (NC on request)
- Thermal lockout: Normally open up to 30 °C (option "F")

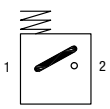
DEM*20

Electrical Differential Indicator

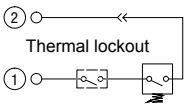
Settings	Ordering code
1.2 bar ±10%	DE M 12 x x 20 P01
2.0 bar ±10%	DE M 20 x x 20 P01
5.0 bar ±10%	DE M 50 x x 20 P01
7.0 bar ±10%	DE M 70 x x 20 P01
9.5 bar ±10%	DE M 95 x x 20 P01



Hydraulic symbol



Electrical symbol



Materials
- Body: Brass
- Base: Black Nylon
- Contacts: Silver
- Seal: HNBR - FPM

Technical data
- Max working pressure: 420 bar
- Proof pressure: 630 bar
- Burst pressure: 1260 bar
- Working temperature: From -25 °C to +110 °C
- Compatibility with fluids: Mineral oils, Synthetic fluids HFA, HFB, HFC according to ISO 2943
- Degree protection: IP66 according to EN 60529

Electrical data
- Electrical connection: AMP Time junior
- Resistive load: 0.2 A / 115 Vdc
- Switching type: Normally open contacts (NC on request)
- Thermal lockout: Normally open up to 30 °C (option "F")

DIFFERENTIAL INDICATORS

Configuration example 1:	DE	H	50	F	A	70	P01
Configuration example 2:	DE	M	50	H	F	50	P01
Configuration example 3:	DE	S	25	H	A	10	P01
Configuration example 4:	DL	E	70	V	A	71	P01
Configuration example 5:	DT	A	50	H	F	70	P01
Configuration example 6:	DV	M	95	V			P01
Configuration example 7:	DV	S	40	H			P01

Series

DE	Electrical or Electronic differential indicator
DL	Electrical / Visual differential indicator
DT	Electronic differential indicator
DV	Visual differential indicator

Type DE - DL - DT

		DE	DL	DT
A	Standard type	•	•	•
E	For high power supply		•	
H	Hazardous area	•		
M	With wired electrical connection	•		
S	Compact version	•		

Type DV

A	With automatic reset
M	With manual reset
S	Compact version

Pressure setting

		DEA	DEH	DEM	DES	DLA	DLE	DTA	DVA	DVM	DVS
12	1.2 bar	•		•		•	•	•	•	•	
20	2.0 bar	•		•		•	•	•	•	•	
25	2.5 bar				•						•
40	4.0 bar				•						•
50	5.0 bar	•	•	•		•	•	•	•	•	
70	7.0 bar	•	•	•		•	•	•	•	•	
95	9.5 bar	•		•		•	•	•	•	•	

Seals

		DEA	DEH	DEM	DES	DLA	DLE	DTA	DVA	DVM	DVS
F	MFQ		•								
H	HNBR	•		•	•	•	•	•	•	•	•
V	FPM	•	•	•		•	•	•	•	•	

Thermostat

		DEA	DEH	DEM	DES	DLA	DLE	DTA
A	Without	•	•	•	•	•	•	
F	With thermostat			•			•	•

Electrical connections

		DEA	DEH	DEM	DES	DLA	DLE	DTA
10	Connection AMP Superseal series 1.5			•	•			
20	Connection AMP Timer Junior			•				
30	Connection Deutsch DT-04-2-P			•	•			
35	Connection Deutsch DT-04-3-P			•				
48	Connection M20		•					
49	Connection 1/2" NPT		•					
50	Connection EN 175301-803	•					•	
51	Connection EN 175301-803, transparent base with lamps 24 Vdc					•		
52	Connection EN 175301-803, transparent base with lamps 110 Vdc					•		
70	Connection IEC 61076-2-101 D (M12)		•					•
71	Connection IEC 61076-2-101 D (M12), black base with lamps 24 Vdc					•		
80	Connection Stud #10-32 UNF				•			

Option

P01	MP Filtri standard
Pxx	Customized

DESIGNATION & ORDERING CODE - DIFFERENTIAL INDICATOR PLUG

Configuration example	T2	H

Series

T2	Indicator plug

Seals

H	HNBR
V	FPM

Filter family	Filter series		Electrical indicator	Electrical / Visual indicator	Electronic indicator	Visual indicator
SUCTION FILTERS	ELIXIR® SFEX060-080-110-160		VEB21AA50P01	VLB21AA51P01 VLB21AA52P01 VLB21AA53P01 VLB21AA71P01		VVB16P01 VVS16P01
	SF2 250 - 350 SF2 500 - 501 - 503 - 504 - 505 SF2 510 - 535 - 540		VEA21AA50P01	VLA21AA51P01 VLA21AA52P01 VLA21AA53P01 VLA21AA71P01		VVA16P01 VVR16P01
RETURN FILTERS	With bypass valve	ELIXIR® RFEX060-080-110-160	BEA15HA50P01 BEM15HA41P01	BLA15HA51P01 BLA15HA52P01 BLA15HA53P01 BLA15HA71P01		BVA14P01 BVR14P01 BVP15HP01 BVQ15HP01
	Without bypass valve	ELIXIR® RFEX060-080-110-160	BEA20HA50P01 BEM20HA41P01	BLA20HA51P01 BLA20HA52P01 BLA20HA53P01 BLA20HA71P01		BVA25P01 BVR25P01 BVP20HP01 BVQ20HP01
	With bypass valve	MPFX-MPTX-MPF-MPT - bypass 1.75 bar MPH - bypass 1.75 bar RF2250 - RF2350 - bypass 1.75 bar	BEA15HA50P01 BEM15HA41P01	BLA15HA51P01 BLA15HA52P01 BLA15HA53P01 BLA15HA71P01		BVA14P01 BVR14P01 BVP15HP01 BVQ15HP01
	With bypass valve	MPFX-MPTX-MPF-MPT - bypass 3 bar MPH - bypass 2.5 bar FRI 255 RF2250 - RF2350 - bypass 3 bar	BEA20HA50P01 BEM20HA41P01	BLA20HA51P01 BLA20HA52P01 BLA20HA53P01 BLA20HA71P01		BVA25P01 BVR25P01 BVP20HP01 BVQ20HP01
	MPLX FRI 025 - 040 - 100 - 250 - 630 - 850		DEA20xA50P01 DEM20xA10P01 DEM20xA20P01 DEM20xA30P01 DEM20xA35P01	DLA20xA51P01 DLA20xA52P01 DLA20xA71P01 DLE20xA50P01 DLE20xF50P01	DTA20xF70P01	DVA20xP01 DVM20xP01
RETURN / SUCTION FILTERS	Suction line	MRSX 116 - 165 - 166	VEB21AA50P01	VLB21AA51P01 VLB21AA52P01 VLB21AA53P01 VLB21AA71P01		VVB16P01 VVS16P01
	Return line	MRSX 116 - 165 - 166 LMP 124 MULTIPORT	BEA25HA50P01 BEM25HA41P01 BET25HF10P01 BET25HF30P01 BET25HF50P01	BLA25HA51P01 BLA25HA52P01 BLA25HA53P01 BLA25HA71P01		BVA25P01 BVR25P01 BVP20HP01 BVQ20HP01
SPIN-ON FILTERS	Suction line	MPS 050 - 070 - 100 - 150 MPS 200 - 250 - 300 - 350	VEB21AA50P01	VLB21AA51P01 VLB21AA52P01 VLB21AA53P01 VLB21AA71P01		VVB16P01 VVS16P01
	Return line	MPS 050 - 070 - 100 - 150 MPS 200 - 250 - 300 - 350	BEA15HA50P01 BEM15HA41P01	BLA15HA51P01 BLA15HA52P01 BLA15HA53P01 BLA15HA71P01		BVA14P01 BVR14P01 BVP20HP01 BVQ20HP01
	In-line	MPS 051 - 071 - 101 - 151 MPS 301 - 351 MSH 050 - 070 - 100 - 150	DEA12xA50P01 DEM12xAxxP01	DLA12xA51P01 DLA12xA52P01 DLA12xA71P01 DLE12xA50P01 DLE12xF50P01 DLE20xF50P01 DLE20xF50P01	DTA12xA70P01 DTA12xF70P01 DTA20xA70P01 DTA20xF70P01	DVA12xP01 DVM12xP01

QUICK REFERENCE GUIDE

Filter family	Filter series		Electrical indicator	Electrical / Visual indicator	Electronic indicator	Visual indicator	Hazardous area electronic indicator
LOW & MEDIUM PRESSURE FILTERS	With bypass valve	ELIXIR® LFEX060-080-110-160	DES25HA10P01 DES25HA30P01 DES25HA80P01			DVS25HP01	
	Without bypass valve	ELIXIR® LFEX060-080-110-160	DES40HA10P01 DES40HA30P01 DES40HA80P01			DVS40HP01	
	With bypass valve	LMP 110 - 112 - 116 - 118 - 119 MULTIPORT LMP 120 - 122 - 123 MULTIPORT LMP 210 - 211 - LDP LMP 400 - 401 & 430 - 431 LMP 900 - 901 LMP 902 - 903 LMP 950 - 951 LMP 952 - 953 - 954 LMD 211 - 400 - 401 - 431 - 951 - LDD	DEA20xA50P01 DEM20xAxxP01	DLA20xA51P01 DLA20xA52P01 DLA20xA71P01 DLE20xA50P01 DLE20xF50P01	DTA20xF70P01	DVS25HP01 DVS40HP01 DVA20xP01 DVM20xP01	
	Without bypass valve	LMP 110 - 112 - 116 - 118 - 119 MULTIPORT LMP 120 - 122 - 123 MULTIPORT LMP 210 - 211 - LDP LMP 400 - 401 & 430 - 431 LMP 900 - 901 LMP 902 - 903 LMP 950 - 951 LMP 952 - 953 - 954 LMD 211 - 400 - 401 - 431 - 951 - LDD	DEA50xA50P01 DEM50xAxxP01	DLA50xA51P01 DLA50xA52P01 DLA50xA71P01 DLE50xA50P01 DLE50xF50P01	DTA50xF70P01	DVA50xP01 DVM50xP01	
HIGH PRESSURE FILTERS	With bypass valve	FMP 039 - 065 - 135 - 320 FHP 010 - 011 - 065 - 135 - 350 - 500 FMM 050 - 150 FHA 051 FHM 006 - 007 - 010 - 050 - 065 - 135 - 320 - 500 FHB 050 - 065 - 135 - 320 FHF 325 FHD 021 - 051 - 326 - 333	DEA50xA50P01 DEM50xAxxP01	DLA50xA51P01 DLA50xA52P01 DLA50xA71P01 DLE50xA50P01 DLE50xF50P01	DTA50xF70P01	DVA50xP01 DVM50xP01	DEH50xA48P01 DEH50xA49P01 DEH50xA70P01 DEH70xA48P01 DEH70xA49P01 DEH70xA70P01
	Without bypass valve	FMP 039 - 065 - 135 - 320 FHP 010 - 011 - 065 - 135 - 350 - 500 FMM 050 - 150 FHA 051 FHM 006 - 007 - 010 - 050 - 065 - 135 - 320 - 500 FHB 050 - 065 - 135 - 320 FHF 325 FHD 021 - 051 - 326 - 333	DEA70xA50P01 DEM70xAxxP01 DEA95xA50P01 DEM95xAxxP01	DLA70xA51P01 DLA70xA52P01 DLA70xA71P01 DLE70xA50P01 DLE70xF50P01 DLA95xA51P01 DLA95xA52P01 DLE95xA50P01 DLE95xF50P01	DTA70xF70P01 DTA95xF70P01	DVA70xP01 DVM70xP01 DVA95xP01 DVM95xP01	DEH50xA48P01 DEH50xA49P01 DEH50xA70P01 DEH70xA48P01 DEH70xA49P01 DEH70xA70P01
STAINLESS STEEL HIGH PRESSURE FILTERS	With bypass valve	FZH 010 - 011 - 039 FZP 039 - 136 FZX 011 FZB 039 FZM 039 FZD 051	DEX50xA50P01	DLX50xA51P01 DLX50xA52P01		DVX50xP01 DVY50xP01	DEH50xA48P01 DEH50xA49P01 DEH50xA70P01 DEH70xA48P01 DEH70xA49P01 DEH70xA70P01
	Without bypass valve	FZH 010 - 011 - 039 FZP 039 - 136 FZB 039 FZM 039 FZD 010 - 021 - 051	DEX70xA50P01 DEX95xA50P01	DLX70xA51P01 DLX70xA52P01 DLX95xA51P01		DVX70xP01 DVY70xP01 DVX95xP01 DVY95xP01	DEH50xA48P01 DEH50xA49P01 DEH50xA70P01 DEH70xA48P01 DEH70xA49P01 DEH70xA70P01