INTERNATIONAL



Filter Clogging Indicators

1. TECHNICAL SPECIFICATIONS

1.1 GENERAL

HYDAC clogging indicators are designed to indicate visually and/or electrically when the filter elements must be cleaned or changed. The operational safety of a system and efficient utilisation of a filter element can only be guaranteed if clogging indicators are used.

Depending on the type of filter, vacuum, return line or differential pressure clogging indicators are used.

1.2 SEALS

NBR (= Perbunan) or V (= Viton)

1.3 INSTALLATION

Some users install filters without clogging indicators and prefer instead to replace or clean the elements according to a specified time schedule or according to a set number of operating hours. However, this involves some risk.

Fitting a clogging indicator has two main advantages:

- The operator no longer has to estimate when the element is clogged.
- The unnecessary costs of changing the element too early are avoided.
 All standard filters can be fitted with

a clogging indicator at any time, by

simply screwing it in.

1.4 DESIGN

Return line indicators

These are used for return line and suction filters. In return line filters they react to the increasing static pressure before the filter element, and in suction filters to the decreasing pressure after the filter element, which is caused by increasing contamination.

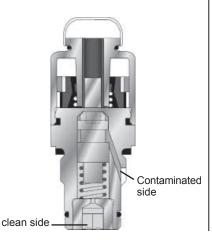


Differential pressure indicators

These are used for all inline filters and react to the increasing pressure differential caused by increasing contamination of the filter element.

The most simple installation of the differential clogging indicator: G ½" cavity (according to HYDAC works standard HN 28-22)

The differential pressure indicator type V02 is piped up separately.



1.4 SPECIAL INDICATORS

Mobile indicators

These indicators have been developed for special applications and are fitted with AMP, Deutsch and Junior Power Timer plugs.

ATEX indicators

These indicators are used in potentially explosive locations and are subject to the ATEX Equipment Directive 94/9/EC and the ATEX Operator Directive 1999/92/EC.



UL and CSA indicators

Indicators which are exported to the USA and Canada often require classification according to current UL and CSA standards. The UL and CSA symbols are found on many products, particularly in the field of electrical engineering.





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2. QUICK SELECTION TABLES FOR CLOGGING INDICATORS

2.1 BY INDICATOR TYPE

Please select the type of indicator you require from the table.

Туре		Vacuum indicator	Return line indicator	Differential pressure indicator
√isual	В		•	•
	BF			•
	BM			•
	E		•	
	ES		•	
	K	•		
	R		•	
	UBM	•		
	UE	•		
	UED	•		
	V			•
Electrical	С		•	•
	D		•	•
	F		•	
	LE		•	•
	LZ		•	•
	UF	•		
	VE			•
	VZ			•
Electronic	GC		•	•
	GW			•
Nobile	CD		•	•
	CJ		•	•
	CM		•	•
	FD		•	
	LEM		•	•
	M			•
ATEX	В		•	•
	С		•	•
JL Approval	С			•
= CRUUS)	D			•
CSA Approval	С		•	

2.2 BY FILTER TYPE

Please select the clogging indicator required for your filter from the table.

Туре	BF	BL	BLT	DF DFF	DFDK	DF MA/QE	DFM	DFN DFNF	DFP DFPF	DFZ	ELF	FLN	FLND FMND		HDP	HFM	LF LFF	LFM	LFN LFNF
3				•	•	•	•	•				•	•	•		•	•	•	•
3F																			
3M				•	•	•	•	•	•	•		•	•	•		•	•	•	•
ES																			
<	•	•	•								•								
?																			
JBM	•	•	•								•								
JE												● 1)					● 1)		
JED															•				
/																			
				•	•	•	•	•	•	•		•	•	•		•	•	•	•
)				•	•	•	•	•	•	•		•	•	•		•	•	•	•
.E				•	•	•	•	•	•	•		•	•	•		•	•	•	•
Z				•	•	•	•	•	•	•		•	•	•		•	•	•	•
JF												● 1)					●1)		
/E																			
/Z																			
GC .				•	•	•	•	•	•	•		•	•	•		•	•	•	•
SW.																			
CD				•	•	•	•	•	•	•		•	•	•		•	•	•	•
CJ				•	•	•	•	•	•	•		•	•	•		•	•	•	•
CM												•	•				•	•	•
D																			
Л												•	•				•	•	•
_EM				•	•	•	•	•	•	•		•	•	•		•	•	•	•
уре	LPF	MDF	MF	MFD	MFM	MFX	NF	NFD	RF	RFD	RFL	RFLD	RFN	RFND	RFM	RKM	SF	SFF	SFN
3	•	•			•	•			•	•	•	•	•	•	•	•			$oxed{oxed}$
		1	1	1	1	1 1	i	1	1	1	i .	1	1	i .	1	1		i .	1

Туре	LPF	MDF	MF	MFD	MFM	MFX	NF	NFD	RF	RFD	RFL	RFLD	RFN	RFND	RFM	RKM	SF	SFF	SFM
В	•	•			•	•			•	•	•	•	•	•	•	•			
BF	•					•													
BM	•	•			•	•	•	•			•	•							
Е			2)	2)					•	•			•	•	•				
ES									•	•			•	•	•				
K																			
R																•			
UBM																			
UE	● 1)		● 1)	● 1)							● 1)					•	•	•	•
V											•	•							
С	•	•			•	•	•	•	•	•	•	•	•	•	•	•			
D	•	•			•	•	•	•	•	•	•	•	•	•	•	•			
F			•	•					•	•			•	•	•	•			
LE	•	•			•	•	•	•	•	•	•	•	•	•	•	•			
LZ	•	•			•	•	•	•	•	•	•	•	•	•	•	•			
UF	● 1)		● 1)	● 1)							● 1)					•	•	•	•
VE											•	•							
VZ											•	•							
GC	•	•			•		•	•	•	•	•	•	•	•	•	•			
GW	•						•	•			•	•							
CD	•	•			•		•	•	•	•	•	•	•	•	•	•			
CJ	•	•			•		•	•	•	•	•	•	•	•	•	•			
CM	•					•	•	•	•	•	•	•	•	•	•	•			
FD			•	•					•	•			•	•	•	•			
М	•					•													
LEM	•	•			•	•	•	•	•	•	•	•	•	•	•	•			

 $^{^{1)}}$ Can only be used for suction operation $^{2)}$ Use VMF 16 E.0 only

3. SPECIFICATIONS

3.1 VACUUM INDICATORS

VMF x UE.x

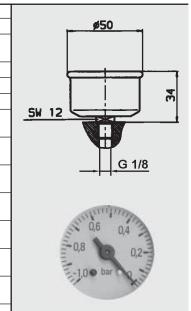


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Order example

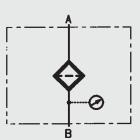
Type of indication	visual-analogue, scale indication
Weight	100 g
Setting pressure or indication range	-1 bar to 0 bar
Permitt. operating pressure	-0.7 to 0 bar continuous
Permitt. temperature range	-20 °C to +60 °C
Thread	G 1/8
Max. torque	15 Nm
Switching type	-
Max. switching voltage	-
Electrical connection	-
Max. switching voltage at resistive load	-
Switching capacity	-
Protection class to DIN 40050	-

VMF 1 UE.0

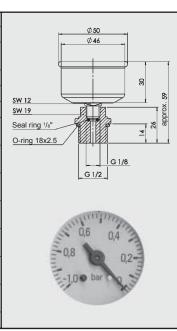


VR x UE.x





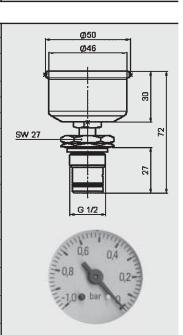
Type of indication	visual-analogue, scale indication
Weight	100 g
Pressure setting or indication range	-1 bar to 0 bar
Permitt. operating pressure	-0.7 to 0 bar continuous
Permitt. temperature range	-20 °C to +60 °C
Thread	G 1/2
Max. torque	30 Nm
Switching type	-
Max. switching voltage	-
Electrical connection	-
Max. switching voltage at resistive load	-
Switching capacity	-
Protection class to DIN 40050	-
Order example	VR 1 UE.0



VRD x UE.x



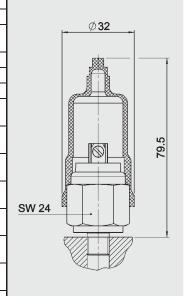
Type of indication	visual-analogue, scale indication
Weight	145 g
Pressure setting or indication range	-1 bar to 0 bar
Permitt. operating pressure	-0.7 to 0 bar continuous
Permitt. temperature range	-20 °C to +60 °C
Thread	G 1/2
Max. torque	33 Nm
Switching type	-
Max. switching voltage	-
Electrical connection	-
Max. switching voltage at resistive load	-
Switching capacity	-
Protection class to DIN 40050	-
Order example	VRD 1 UE.0





Type of indication	electrical switch
Weight	170 g
Pressure setting or indication range	-0.2 bar ± 0.1 bar
Permitt. operating pressure	20 bar
Permitt. temperature range	-30 °C to +100 °C
Thread	G ¹ / ₈
Max. torque	15 Nm
Switching type	N/O contact
Max. switching voltage	48 V
Electrical connection	threaded connection
Max. switching voltage at resistive load	60 W = 100 VA ~
Switching capacity	ohmic 2.5 A at 24 V = ohmic 2.5 A at 42 V ~
Protection class to DIN 40050	IP 65, terminals IP 00

VMF 0.2 UF.0



VR x UF.x



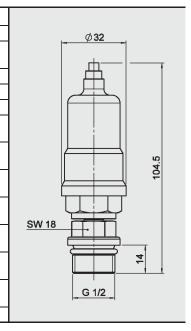
Order example

Type of indication	electrical switch
Weight	170 g
Pressure setting or indication range	-0.2 bar ± 0.1 bar
Permitt. operating pressure	20 bar
Permitt. temperature range	-30 °C to +100 °C
Thread	G 1/2
Max. torque	30 Nm
Switching type	N/O contact
Max. switching voltage	48 V
Electrical connection	threaded connection
Max. switching voltage at resistive load	60 W = 100 VA ~
Switching capacity	ohmic 2.5 A at 24 V = ohmic 2.5 A at 42 V ~
Protection class to DIN 40050	IP 65, terminals IP 00
Order example	VR 0.2 UF.0

electrical switch

-0.2 bar ± 0.1 bar

170 g



VRD x UF.x

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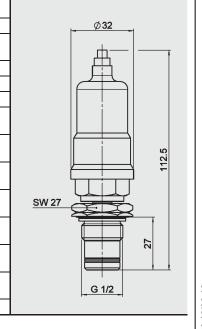


Permitt. operating pressure	20 bar
Permitt. temperature range	-30 °C to +100 °C
Thread	G 1/2
Max. torque	33 Nm
Switching type	N/O contact
Max. switching voltage	48 V
Electrical connection	threaded connection
Max. switching voltage at resistive load	60 W = 100 VA ~
Switching capacity	ohmic 2.5 A at 24 V = ohmic 2.5 A at 42 V ~
Protection class to DIN 40050	IP 65, terminals IP 00
Order example	VRD 0.2 UF.0

Type of indication

Pressure setting or indication range

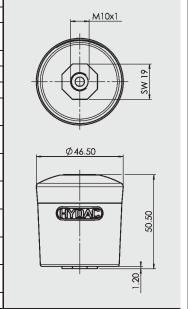
Weight



VMF x UBM.x



Type of indication	visual, yellow pin
Weight	0.05 g
Pressure setting or indication range	-0.035 bar
Permitt. operating pressure	1 bar
Permitt. temperature range	-30 °C to +100 °C
Thread	M10 x 1
Max. torque	15 Nm
Switching type	-
Max. switching voltage	-
Electrical connection	-
Max. switching voltage at resistive load	-
Switching capacity	-
Protection class to DIN 40050	-
Order example	VMF 0.035 UBM.0

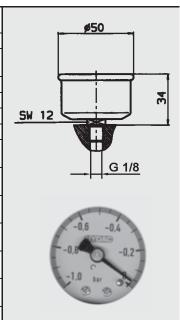


VMF x UED.x

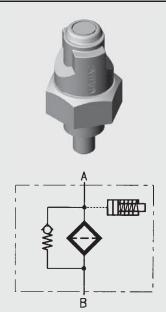


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	J

Type of indication	visual-analogue, scale indication (filled with silicone oil)
Weight	100 g
Pressure setting or indication range	-1 bar to 0 bar
Permitt. operating pressure	-0.7 to 0 bar continuous
Permitt. temperature range	-20 °C to +90 °C
Thread	G 1/8
Max. torque value	15 Nm
Switching type	-
Max. switching voltage	-
Electrical connection	-
Max. switching voltage at resistive load	-
Switching capacity	-
Protection class to DIN 40050	-
Order example	VMF 1 UED.0



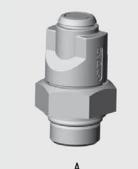
VMF x B.x

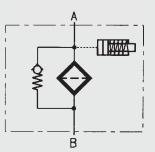


Type of indication	visual, red pin
Weight	84 g
Pressure setting or indication range	2 bar - 0.2 bar
Permitt. operating pressure	7 bar
Permitt. temperature range	-30 °C to +100 °C
Thread	G 1/8
Max. torque	15 Nm
Switching type	-
Max. switching voltage	-
Electrical connection	-
Max. switching voltage at resistive load	-
Switching capacity	-
Protection class to DIN 40050	-

Ø10
85.05
3
sw 30
2
G 1/2

VR x B.x





Type of indication	visual, red pin
Weight	44 g
Pressure setting or indication range	2 bar - 0.2 bar
Permitt. operating pressure	7 bar
Permitt. temperature range	-30 °C to +100 °C
Thread	G 1/2
Max. torque	15 Nm
Switching type	-
Max. switching voltage	-
Electrical connection	-
Max. switching voltage at resistive load	-
Switching capacity	-

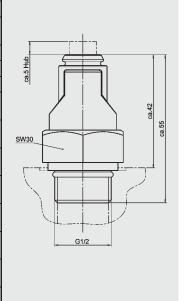
VR 2 B.1

VMF 2 B.1

Order example

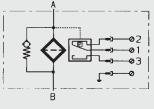
Protection class to DIN 40050

Order example

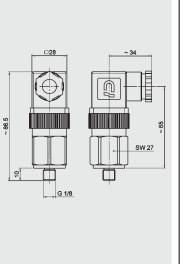


VMF x C.x

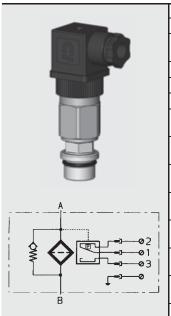




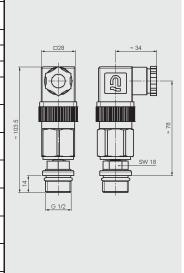
Type of indication	electrical switch
Weight	270 g
Pressure setting or indication range	2 bar - 0.3 bar
Permitt. operating pressure	40 bar
Permitt. temperature range	-30 °C to +100 °C
Thread	G ¹ / ₈
Max. torque	15 Nm
Switching type	N/C or N/O (change-over contacts)
Max. switching voltage	230 V
Electrical connection	Male connection M20 Female connector to DIN 43650
Max. switching voltage at resistive load	250 W = 300 VA ~
Switching capacity	Ohmic 6 A at 24 V = Ohmic 0.03 to 6 A at max. 230 V ~
Protection class to DIN 40050	IP 65 (only if the connector is wired and fitted correctly)
Order example	VMF 2 C.1



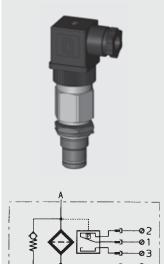
VR x C.x



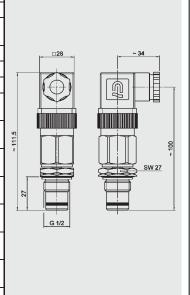
Type of indication	electrical switch
Weight	340 g
Pressure setting or indication range	2 bar - 0.3 bar
Permitt. operating pressure	40 bar
Permitt. temperature range	-30 °C to +100 °C
Thread	G 1/2
Max. torque	30 Nm
Switching type	N/C or N/O (change-over contacts)
Max. switching voltage	230 V
Electrical connection	Male connection M20 Female connector to DIN 43650
Max. switching voltage at resistive load	250 W = 300 VA ~
Switching capacity	ohmic 6 A at 24 V ohmic 0.03 to 6 A at max. 230 V ~
Protection class to DIN 40050	IP 65 (only if the connector is wired and fitted correctly)
Order example	VR 2 C.1



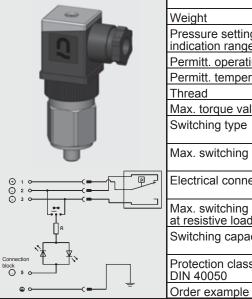
VRD x C.x



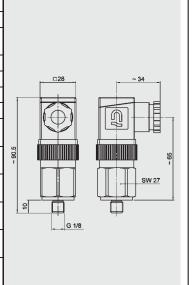
	Type of indication	electrical switch
ı	Weight	340 g
	Pressure setting or indication range	2 bar - 0.3 bar
	Permitt. operating pressure	40 bar
	Permitt. temperature range	-30 °C to +100 °C
	Thread	G 1/2
	Max. torque	33 Nm
	Switching type	N/C or N/O (change-over contacts)
	Max. switching voltage	230 V
	Electrical connection	Male connection M20 Female connector to DIN 43650
	Max. switching voltage at resistive load	250 W = 300 VA ~
	Switching capacity	ohmic 6 A at 24 V ohmic 0.03 to 6 A at max. 230 V ~
	Protection class to DIN 40050	IP 65 (only if the connector is wired and fitted correctly)
	Order example	VRD 2 C 1



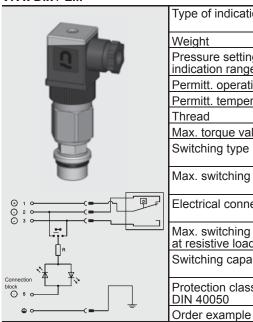
VMF x D.x /-L...



Type of indication	visual indicator and electrical switch
Weight	300 g
Pressure setting or indication range	2 bar - 0.3 bar
Permitt. operating pressure	40 bar
Permitt. temperature range	-30 °C to +100 °C
Thread	G ¹ / ₈
Max. torque value	15 Nm
Switching type	N/C or N/O (change-over contacts)
Max. switching voltage	24, 48, 110, 230 V (depending on the type of light insert
Electrical connection	Male connection M20 Female connector to DIN 43650
Max. switching voltage at resistive load	250 W = 300 VA ~
Switching capacity	Ohmic 6 A at 230 V = Ohmic 0.03 to 6 A at max. 230 V ~
Protection class to DIN 40050	IP 65 (only if the connector is wired and fitted correctly)
Order example	VMF 2 D.1 /-L24

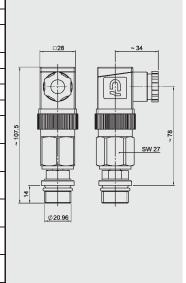


VR x D.x /-L...

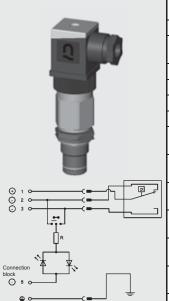


	Type of indication	visual indicator and electrical switch
	Weight	360 g
	Pressure setting or indication range	2 bar - 0.3 bar
	Permitt. operating pressure	40 bar
	Permitt. temperature range	-30 °C to +100 °C
	Thread	G ¹ / ₂
	Max. torque value	30 Nm
	Switching type	N/C or N/O (change-over contacts)
,	Max. switching voltage	24, 48, 110, 230 V (depending on the type of light insert
	Electrical connection	Male connection M20 Female connector to DIN 43650
]	Max. switching voltage at resistive load	250 W = 300 VA ~
	Switching capacity	Ohmic 6 A at 24 V = Ohmic 0.03 to 6 A at max. 230 V ~
	Protection class to DIN 40050	IP 65 (only if the connector is wired and fitted correctly)

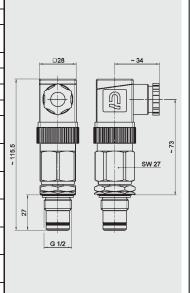
VR 2 D.1 /-L110



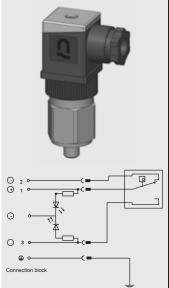
VRD x D.x /-L...



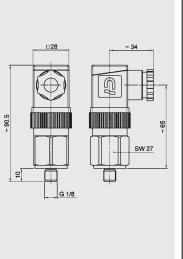
	Type of indication	visual indicator and electrical switch
	Weight	360 g
	Pressure setting or indication range	2 bar - 0.3 bar
	Permitt. operating pressure	40 bar
	Permitt. temperature range	-30 °C to +100 °C
	Thread	G 1/2
	Max. torque value	33 Nm
	Switching type	N/C or N/O (change-over contacts)
,	Max. switching voltage	24, 48, 110, 230 V (depending on the type of light insert
	Electrical connection	Male connection M20 Female connector to DIN 43650
J	Max. switching voltage at resistive load	250 W = 300 VA ~
	Switching capacity	Ohmic 6 A at 24 V = Ohmic 0.03 to 6 A at max. 230 V ~
	Protection class to DIN 40050	IP 65 (only if the connector is wired and fitted correctly)
	Order example	VRD 2 D.1 /-L110



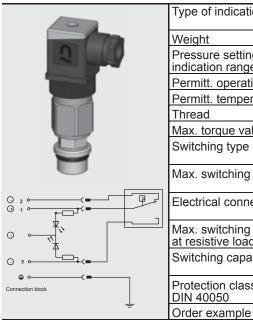
VMF x D.x /-LED



Type of indication	visual indicator and electrical switch
Weight	300 g
Pressure setting or indication range	2 bar - 0.3 bar
Permitt. operating pressure	40 bar
Permitt. temperature range	-30 °C to +100 °C
Thread	G 1/8
Max. torque value	15 Nm
Switching type	N/O contact
Max. switching voltage	24 V
Electrical connection	Male connection M20 Female connector to DIN 43650
Max. switching voltage at resistive load	250 W = 300 VA ~
Switching capacity	ohmic 6 A at 24 V =
Protection class to DIN 40050	IP 65 (only if the connector is wired and fitted correctly)
Order example	VMF 2 D.1 /-LED

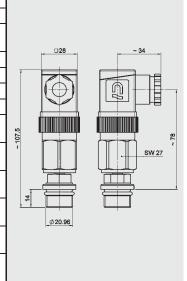


VR x D.x /-LED

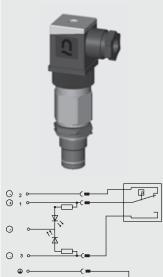


Type of indication	visual indicator and electrical switch
Weight	360 g
Pressure setting or indication range	2 bar - 0.3 bar
Permitt. operating pressure	40 bar
Permitt. temperature range	-30 °C to +100 °C
Thread	G ¹ / ₈
Max. torque value	30 Nm
Switching type	N/O contact
Max. switching voltage	24 V
Electrical connection	Male connection M20 Female connector to DIN 43650
Max. switching voltage at resistive load	250 W = 300 VA ~
Switching capacity	ohmic 6 A at 24 V =
Protection class to DIN 40050	IP 65 (only if the connector is wired and fitted correctly)

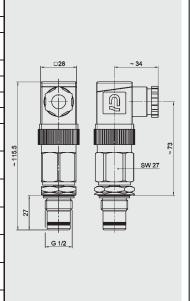
VR 2 D.1 /-LED



VRD x D.x /-LED

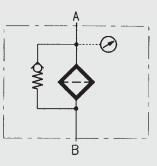


	Type of indication	visual indicator and electrical switch
	Weight	360 g
	Pressure setting or indication range	2 bar - 0.3 bar
	Permitt. operating pressure	40 bar
	Permitt. temperature range	-30 °C to +100 °C
	Thread	G ¹ / ₈
	Max. torque value	33 Nm
	Switching type	N/O contact
,	Max. switching voltage	24 V
	Electrical connection	Male connection M20 Female connector to DIN 43650
J	Max. switching voltage at resistive load	250 W = 300 VA ~
	Switching capacity	ohmic 6 A at 24 V =
	Protection class to DIN 40050	IP 65 (only if the connector is wired and fitted correctly)
	Order example	VRD 2 D.1 /-LED

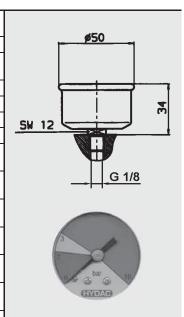


VMF x E.x

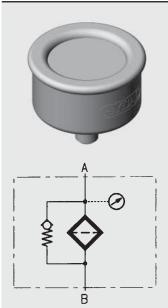




Type of indication	visual-analogue, scale indication
Weight	80 g
Pressure setting or indication range	0 bar to +10 bar
Permitt. operating pressure	7 bar continuous
Permitt. temperature range	-20 °C to +60 °C
Thread	G 1/8
Max. torque value	15 Nm
Switching type	-
Max. switching voltage	-
Electrical connection	-
Max. switching voltage at resistive load	-
Switching capacity	-
Protection class to DIN 40050	-
Order example	VMF 2 E.0



VMF 16 E.x



Protection class to DIN 40050

Order example

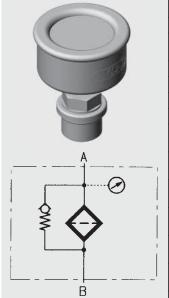
Order example

Type of indication	visual-analogue, scale indication
Weight	80 g
Pressure setting or indication range	0 bar to +16 bar
Permitt. operating pressure	11 bar continuous
Permitt. temperature range	-20 °C to +60 °C
Thread	G ¹ / ₈
Max. torque value	15 Nm
Switching type	-
Max. switching voltage	-
Electrical connection	-
Max. switching voltage at resistive load	-
Switching capacity	-

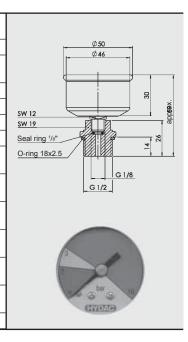
VMF 16 E.0

ø50
SW 12
G 1/8
10
9 bar 15

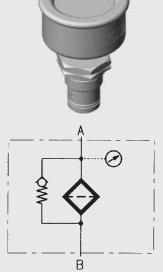
VR x E.x



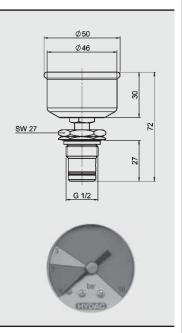
Type of indication	visual-analogue, scale indication
Weight	140 g
Pressure setting or indication range	0 bar to +10 bar
Permitt. operating pressure	7 bar continuous
Permitt. temperature range	-20 °C to +60 °C
Thread	G ¹ / ₂
Max. torque value	30 Nm
Switching type	-
Max. switching voltage	-
Electrical connection	-
Max. switching voltage at resistive load	-
Switching capacity	-
Protection class to DIN 40050	-
Order example	VR 2 E.0



VRD x E.x

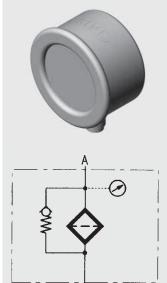


Type of indication	visual-analogue, scale indication
Weight	140 g
Pressure setting or indication range	0 bar to +10 bar
Permitt. operating pressure	7 bar continuous
Permitt. temperature range	-20 °C to +60 °C
Thread	G 1/2
Max. torque value	33 Nm
Switching type	-
Max. switching voltage	-
Electrical connection	-
Max. switching voltage at resistive load	-
Switching capacity	-
Protection class to DIN 40050	-



VRD 2 E.0

VMF x ES.x



B

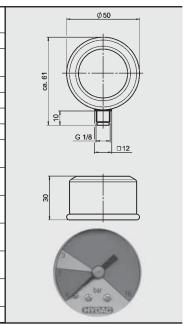
Protection class to DIN 40050

Order example

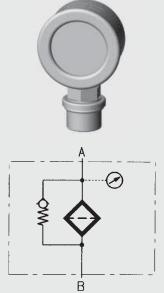
Order example

Type of indication	visual-analogue, scale indication
Weight	100 g
Pressure setting or indication range	0 bar to +10 bar
Permitt. operating pressure	7 bar continuous
Permitt. temperature range	-20 °C to +60 °C
Thread	G 1/8
Max. torque value	15 Nm
Switching type	-
Max. switching voltage	-
Electrical connection	-
Max. switching voltage at resistive load	-
Switching capacity	-

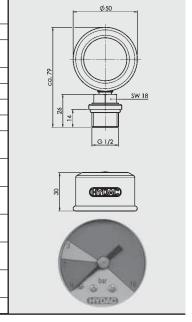
VMF 2 ES.0



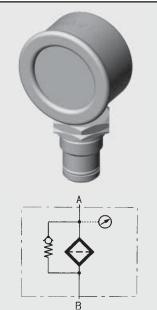
VR x ES.x



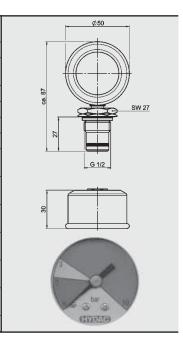
_		
	Type of indication	visual-analogue, scale indication
	Weight	120 g
	Pressure setting or indication range	0 bar to +10 bar
١	Permitt. operating pressure	7 bar continuous
	Permitt. temperature range	-20 °C to +60 °C
١	Thread	G ¹ / ₂
	Max. torque value	30 Nm
	Switching type	-
	Max. switching voltage	-
	Electrical connection	-
	Max. switching voltage at resistive load	-
	Switching capacity	-
	Protection class to DIN 40050	-
	Order example	VR 2 ES.0



VRD x ES.x

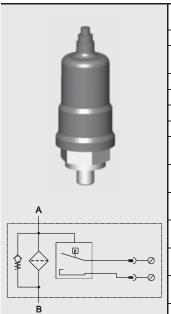


Type of indication	visual-analogue, scale indication
Weight	120 g
Pressure setting or indication range	0 bar to +10 bar
Permitt. operating pressure	7 bar continuous
Permitt. temperature range	-20 °C to +60 °C
Thread	G ¹ / ₂
Max. torque value	33 Nm
Switching type	-
Max. switching voltage	-
Electrical connection	-
Max. switching voltage at resistive load	-
Switching capacity	-
Protection class to DIN 40050	-

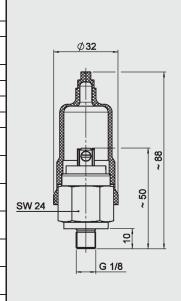


VRD 2 ES.0

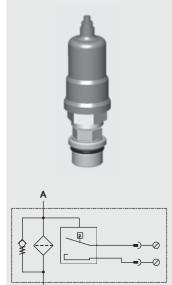
VMF x F.x



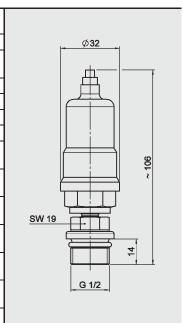
Type of indication	electrical switch
Weight	70 g
Pressure setting or indication range	2 bar ± 0.4 bar
Permitt. operating pressure	40 bar
Permitt. temperature range	-30 °C to +100 °C
Thread	G ¹ / ₈
Max. torque value	15 Nm
Switching type	N/O contact (N/C as an option)
Max. switching voltage	42 V
Electrical connection	threaded connection
Max. switching voltage at resistive load	60 W = 100 VA ~
Switching capacity	Ohmic 2.5 A at 24 V = Ohmic 2.5 A at 42 V ~
Protection class to DIN 40050	IP 65, terminals IP 00
Order example	VMF 2 F.0



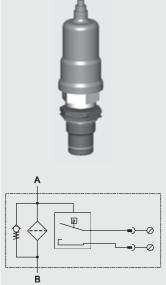
VR x F.x



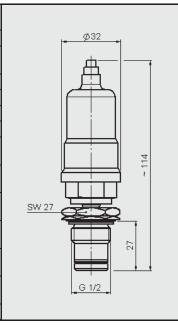
Type of indication	electrical switch
Weight	130 g
Pressure setting or indication range	2 bar ± 0.4 bar
Permitt. operating pressure	40 bar
Permitt. temperature range	-30 °C to +100 °C
Thread	G 1/2
Max. torque value	30 Nm
Switching type	N/O contact (N/C as an option)
Max. switching voltage	42 V
Electrical connection	threaded connection
Max. switching voltage at resistive load	60 W = 100 VA ~
Switching capacity	Ohmic 2.5 A at 24 V = Ohmic 2.5 A at 42 V ~
Protection class to DIN 40050	IP 65, terminals IP 00
Order example	VR 2 F.0



VRD x F.x



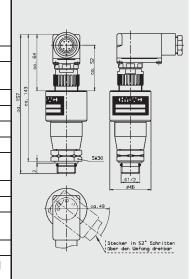
Type of indication	electrical switch
Weight	130 g
Pressure setting or indication range	2 bar ± 0.4 bar
Permitt. operating pressure	40 bar
Permitt. temperature range	-30 °C to +100 °C
Thread	G ¹ / ₂
Max. torque value	33 Nm
Switching type	N/O contact (N/C as an option)
Max. switching voltage	42 V
Electrical connection	threaded connection
Max. switching voltage at resistive load	60 W = 100 VA ~
Switching capacity	Ohmic 2.5 A at 24 V = Ohmic 2.5 A at 42 V ~
Protection class to DIN 40050	IP 65, terminals IP 00
Order example	VRD 2 F.0



VR x GC.x



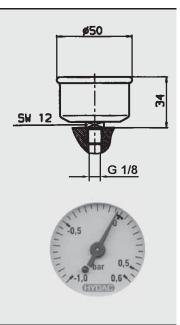
Type of indication	Electronic/analogue (4-20 mA or 1-10 V) 1 electrical switching contact at 75% and at 100% of the pressure setting Analogue signal up to 20% of the pressure setting constant 4mA or 1 V
Weight	340 g
Pressure setting or indication range	2 bar -10%
Permitt. operating pressure	7 bar
Permitt. temperature range	-30 °C to +80 °C
Thread	G 1/2
Max. torque value	15 Nm
Switching type	N/C or N/O, electronic PNP positive switching (factory setting)
Max. switching voltage	Operating voltage 20-30 V DC
Electrical connection	7 pole plug to DIN 43651; PG 11
Max. switching voltage at resistive load	12 W
Switching capacity	ohmic 0.4 A at 30 V =
Protection class to DIN 40050	IP 65 (only if the connector is wired and fitted correctly)
Order example	VR 2 GC.0 /-LED-SQ-123



VMF x K.x



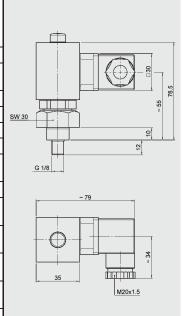
Type of indication	visual-analogue, scale indication
Weight	100 g
Pressure setting or indication range	-1 bar to 0.6 bar
Permitt. operating pressure	-0.7 to +0.4 bar continuous
Permitt. temperature range	-20 °C to +60 °C
Thread	G ¹ / ₈
Max. torque value	15 Nm
Switching type	-
Max. switching voltage	-
Electrical connection	-
Max. switching voltage at resistive load	-
Switching capacity	-
Protection class to DIN 40050	-
Order example	VMF 0.6 K.0



VMF x LE.x



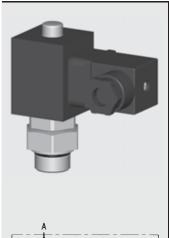
Type of indication	Visual, red pin and electrical switch 1 switching contact 100% of the pressure setting
Weight	120 g
Pressure setting or indication range	2 bar - 0.2 bar
Permitt. operating pressure	7 bar
Permitt. temperature range	-30 °C to +100 °C
Thread	G 1/8
Max. torque value	15 Nm
Switching type	N/C or N/O contacts Reed contacts (change-over contacts)
Max. switching voltage	115 V
Electrical connection	Male connection M20 Female connector to DIN 43650
Max. switching voltage at resistive load	15 W = max. 15 VA ~
Switching capacity	Ohmic 1 A at 15 V = Ohmic 1 A at 15 V ~
Protection class to DIN 40050	IP 65 (only if the connector is wired and fitted correctly)



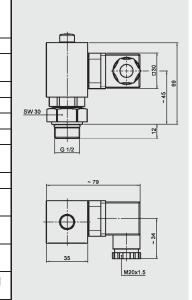
VMF 2 LE.1

Order example

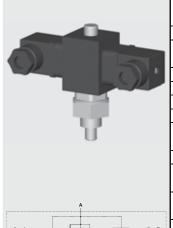
VR x LE.x



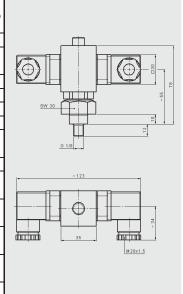
Type of indication	Visual, red pin and electrical switch 1 switching contact 100% of the pressure setting
Weight	143 g
Pressure setting or indication range	2 bar - 0.2 bar
Permitt. operating pressure	7 bar
Permitt. temperature range	-30 °C to +100 °C
Thread	G 1/2
Max. torque value	15 Nm
Switching type	N/C or N/O contacts Reed contacts (change-over contacts)
Max. switching voltage	115 V
Electrical connection	Male connection M20 Female connector to DIN 43650
Max. switching voltage at resistive load	15 W = max. 15 VA ~
Switching capacity	Ohmic 1 A at 15 V = Ohmic 1 A at 15 V ~
Protection class to DIN 40050	IP 65 (only if the connector is wired and fitted correctly)
Order example	VR 2 LE.1



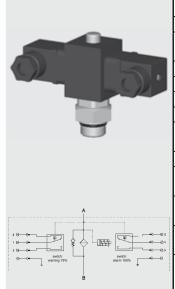
VMF x LZ.x



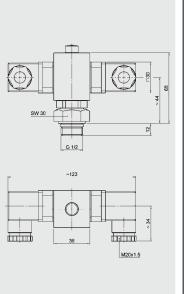
	Type of indication	Visual, red pin and 1 electrical switching contact at 75% and at 100% of the pressure setting
	Weight	230 g
ı	Pressure setting or indication range	2 bar - 0.2 bar
ı	Permitt. operating pressure	7 bar
1	Permitt. temperature range	-10 °C to +100 °C
	Thread	G 1/8
	Max. torque value	15 Nm
	Switching type	N/C or N/O contacts
		Reed contacts (change-over contacts)
	Max. switching voltage	115 V
	Electrical connection	Male connection M20
		Female connector to DIN 43650
	Max. switching voltage	15 W =
	at resistive load	max. 15 VA ~
	Switching capacity	ohmic 1 A at 15 V =
		ohmic 1 A at 15 V ~
	Protection class to	IP 65 (only if the connector is wired
	DIN 40050	and fitted correctly)
	Order example	VMF 2 LZ.1



VR x LZ.x



Ty	ype of indication	Visual, red pin and 1 electrical switching contact at 75% and at 100% of the pressure setting
W	/eight	190 g
	ressure setting or dication range	2 bar - 0.2 bar
Р	ermitt. operating pressure	7 bar
Р	ermitt. temperature range	-10 °C to +100 °C
TI	hread	G 1/2
M	lax. torque value	15 Nm
S	witching type	N/C or N/O contacts
L		Reed contacts (change-over contacts)
M	lax. switching voltage	115 V
ĮΕ	lectrical connection	Male connection M20
L		Female connector to DIN 43650
M	lax. switching voltage	15 W =
at	resistive load	max. 15 VA ~
S	witching capacity	ohmic 1 A at 15 V =
		ohmic 1 A at 15 V ~
	rotection class to	IP 65 (only if the connector is wired
ΙD	IN 40050	and fitted
L		correctly)
10	rder example	VR 2 LZ.1

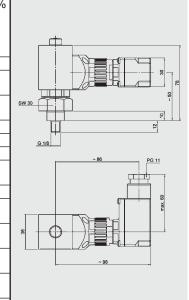


VMF x LZ.x /-DB



A	circuit board mounted
♀ ↔ Ⅲ	
В	

Type of indication	visual, red pin and 1 electrical switching contact at 75% and at 100% of the pressure setting 1 green LED constantly lit 1 yellow LED lights from 75% 1 red LED lights from 100% Δp
Weight	170 g
Pressure setting or indication range	2 bar - 0.2 bar
Permitt. operating pressure	7 bar
Permitt. temperature range	-30 °C to +100 °C
Thread	G ¹ / ₈
Max. torque value	15 Nm
Switching type	N/C or N/O contacts Reed contacts (change-over contacts)
Max. switching voltage	24 V
Electrical connection	Male connection PG 11 Female connector to DIN 43651
Max. switching voltage	15 W =
at resistive load	max. 15 VA ~
Switching capacity	Ohmic 1 A at 15 V = Ohmic 1 A at 15 V ~
Protection class to DIN 40050	IP 65 (only if the connector is wired and fitted correctly)
Order example	VMF 2 LZ.1 /-DB

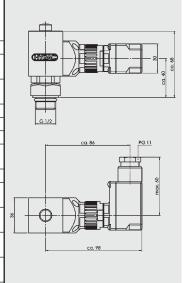


VR x LZ.x /-DB



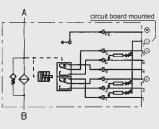
circuit board mounted

visual, red pin and 1 electrical switching contact at 75% and at 100% of the pressure setting Type of indication 1 green LED constantly lit 1 yellow LED lights from 75% 1 red LED lights from 100% ∆p 190 g Weight Pressure setting or 2 bar - 0.2 bar indication range Permitt. operating pressure 7 bar -30 °C to +100 °C Permitt. temperature range Thread G 1/2 15 Nm Max. torque value Switching type N/C or N/O contacts Reed contacts (change-over contacts) Max. switching voltage 24 V Male connection PG 11 Electrical connection Female connector to DIN 43651 Max. switching voltage 15 W = at resistive load max. 15 VA ~ Ohmic 1 A at 15 V = Switching capacity Ohmic 1 A at 15 V ~ Protection class to DIN 40050 IP 65 (only if the connector is wired and fitted correctly) Order example VR 2 LZ.1 /-DB

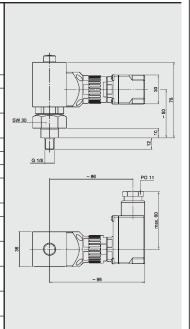


VMF x LZ.x /-CN



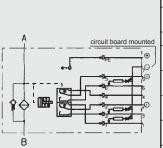


	Type of indication	visual, red pin and 1 electrical switching contact at 75% and at 100% of the pressure setting 1 green LED goes out at 75% 1 yellow LED lights from 75% 1 red LED lights from 100% Δp
	Weight	170 g
	Pressure setting or indication range	2 bar - 0.2 bar
	Permitt. operating pressure	7 bar
	Permitt. temperature range	-30 °C to +100 °C
	Thread	G 1/8
	Max. torque value	15 Nm
	Switching type	N/C or N/O contacts Reed contacts (change-over contacts)
₫	Max. switching voltage	24 V
	Electrical connection	Male connection PG 11 Female connector to DIN 43651
	Max. switching voltage at resistive load	15 W = max. 15 VA ~
	Switching capacity	Ohmic 1 A at 15 V = Ohmic 1 A at 15 V ~
	Protection class to DIN 40050	IP 65 (only if the connector is wired and fitted correctly)
	Order example	VMF 2 LZ.1 /-CN

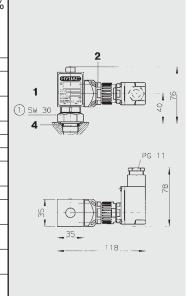


VR x LZ.x /-CN

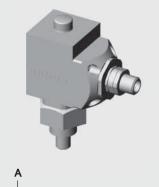


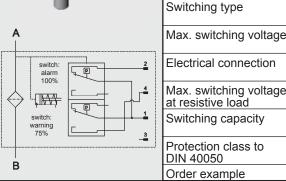


	Type of indication	visual, red pin and 1 electrical switching contact at 75% and at 100% of the pressure setting 1 green LED goes out at 75% 1 yellow LED lights from 75% 1 red LED lights from 100% ∆p
	Weight	190 g
	Pressure setting or indication range	2 bar - 0.2 bar
	Permitt. operating pressure	7 bar
	Permitt. temperature range	-30 °C to +100 °C
	Thread	G 1/2
	Max. torque value	15 Nm
	Switching type	N/C or N/O contacts Reed contacts (change-over contacts)
i	Max. switching voltage	24 V
	Electrical connection	Male connection PG 11 Female connector to DIN 43651
	Max. switching voltage at resistive load	15 W = max. 15 VA ~
	Switching capacity	Ohmic 1 A at 15 V = Ohmic 1 A at 15 V ~
	Protection class to DIN 40050	IP 65 (only if the connector is wired and fitted correctly)
	Order example	VR 2 LZ.1 /-CN

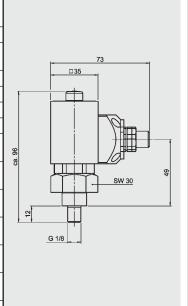


VMF x LZ.x /-BO



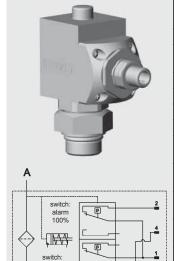


	Type of indication	Visual, red pin and 1 electrical switching contact at 75% and at 100% of the pressure setting
	Weight	120 g
	Pressure setting or indication range	2 bar (or 2.5 bar) - 10%
	Permitt. operating pressure	7 bar
	Permitt. temperature range	-10 °C to +100 °C
	Thread	G 1/8
	Max. torque value	15 Nm
	Switching type	N/O (75%) N/C (100%)
	Max. switching voltage	24 V
NAME AND ADDRESS OF THE PARTY AND ADDRESS OF T	Electrical connection	Male connection M12 x 1
	Max. switching voltage at resistive load	15 W = max. 15 VA ~
	Switching capacity	Ohmic 1 A at 15 V = Ohmic 1 A at 15 V ~
Lancard	Protection class to DIN 40050	IP 65



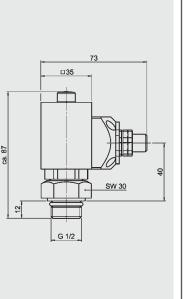
VR x LZ.x /-BO

В



Type of indication	Visual, red pin and 1 electrical switching contact at 75% and at 100% of the pressure setting
Weight	145 g
Pressure setting or indication range	2 bar (or 2.5 bar) - 10%
Permitt. operating pressure	7 bar
Permitt. temperature range	-10 °C to +100 °C
Thread	G 1/2
Max. torque value	15 Nm
Switching type	N/O (75%) N/C (100%)
Max. switching voltage	24 V
Electrical connection	Male connection M12 x 1
Max. switching voltage at resistive load	15 W = max. 15 VA ~
Switching capacity	Ohmic 1 A at 15 V = Ohmic 1 A at 15 V ~
Protection class to DIN 40050	IP 65

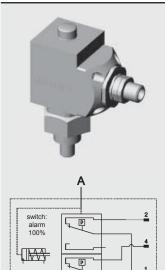
VMF 2 LZ.1 /-BO



VR 2 LZ.1 /-BO

Order example

VMF x LZ.x /-AV

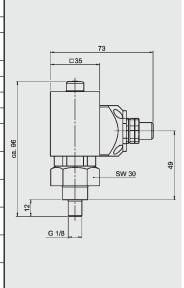


Type of indication	Visual, red pin and 1 electrical switching contact at 75% and at 100% of the pressure setting
Weight	120 g
Pressure setting or indication range	2 bar (or 2.5 bar) - 10%
Permitt. operating pressure	7 bar
Permitt. temperature range	-10 °C to +100 °C
Thread	G ¹ / ₈
Max. torque value	15 Nm
Switching type	N/C (75% and 100%)
Max. switching voltage	24 V
Electrical connection	Male connection M12 x 1
Max. switching voltage at resistive load	15 W = max. 15 VA ~
Switching capacity	Ohmic 1 A at 15 V =

Ohmic 1 A at 15 V ~

VMF 2 LZ.1 /-AV

IP 65



VR x LZ.x /-AV



F

B

B

	Weight	145 g
	Pressure setting or indication range	2 bar (or 2.5 bar) - 10%
	Permitt. operating pressure	7 bar
	Permitt. temperature range	-10 °C to +100 °C
	Thread	G 1/2
	Max. torque value	15 Nm
	Switching type	N/C (75% and 100%)
	Max. switching voltage	24 V
	Electrical connection	Male connection M12 x 1
•	Max. switching voltage at resistive load	15 W = max. 15 VA ~
	Switching capacity	Ohmic 1 A at 15 V = Ohmic 1 A at 15 V ~
	Protection class to DIN 40050	IP 65

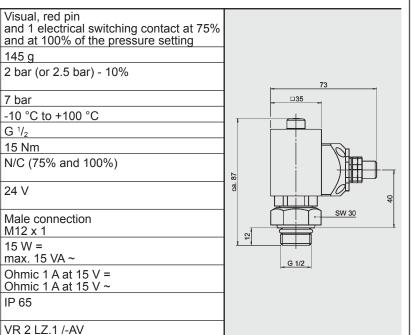
Protection class to

Order example

Type of indication

Order example

DIN 40050



VMF x LZ.x /-D4C

switch: alarm 100%

-,||\

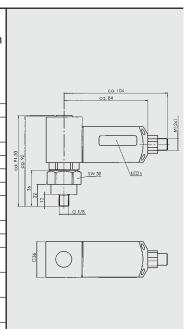
warning 75%



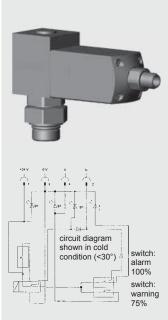
U	
circuit diagram shown in cold condition (<30°)	switch: alarm 100% switch: warning 75%

Type of indication	1 electrical switching contact at 75% and 100% of the pressure setting and suppression of the switching signal when operating temp. is below 30 °C. 2 green LEDs light when below 30 °C 1 green LED lights from 30 °C 1 yellow LED lights from 75% 1 red LED lights from 100% Δp
Weight	245 g
Pressure setting or indication range	2.5 bar - 10%
Permitt. operating pressure	7 bar
Permitt. temperature range	
Thread	G ¹ / ₈
Max. torque value	15 Nm
Switching type	N/O (75%) N/C (100%)
Max. switching voltage	24 V
Electrical connection	Male connection M12 x 1
Max. switching voltage at resistive load	15 W = max. 15 VA ~
Switching capacity	Ohmic 1 A at 15 V = Ohmic 1 A at 15 V ~
Protection class to DIN 40050	IP 65
Order example	VMF 2 LZ.1 /-D4C

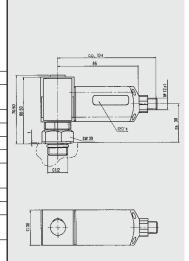
VR 2 LZ.1 /-AV



VR x LZ.x /-D4C

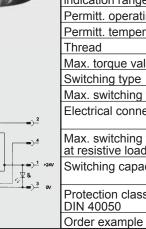


Type of indication	at 100% of the land suppression up to approx. 30 2 green LEDs light 1 green LED light 1 yellow LED light	ching contact at 75% and pressure setting n of the switching signal 0°C. ight when below 30°C ints from 30°C is from 75% as from 100% Δp
Weight	205 g	
Pressure setting or indication range	2.5 bar - 10%	
Permitt. operating pre	ure 7 bar	
Permitt. temperature	ge -10 °C to +100	°C
Thread	G 1/2	
Max. torque value	15 Nm	
Switching type	N/O (75%) N/C (100%)	
Max. switching voltag	24 V	
Electrical connection	Male connectio	n M12 x 1
Max. switching voltag at resistive load	15 W = max. 15 VA ~	
Switching capacity	Ohmic 1 A at 15 Ohmic 1 A at 15	
Protection class to DIN 40050	IP 65	
Order example	VR 2 LZ.1 /-D4	С



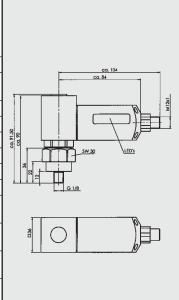
VMF x LZ.x /-BO-LED





Type of indication	1 electrical switching contact at 75% and at 100% of the pressure setting 1 green LED constantly lit 1 yellow LED lights from 75% 1 red LED lights from 100% △p
Weight	245 g
Pressure setting or indication range	2.5 bar - 10%
Permitt. operating pressure	7 bar
Permitt. temperature range	-10 °C to +100 °C
Thread	G ¹ / ₈
Max. torque value	15 Nm
Switching type	N/O (75%), N/C (100%)
Max. switching voltage	24 V
Electrical connection	Male connection M12 x 1
Max. switching voltage at resistive load	15 W = max. 15 VA ~
Switching capacity	Ohmic 1 A at 15 V = Ohmic 1 A at 15 V ~
Protection class to DIN 40050	IP 65

VMF 2 LZ.1 /-BO-LED



VR x LZ.x /-BO-LED

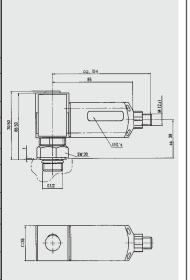
switch: warning 75%

switch: alarm 100%



switch:	
100%	ı
	l
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p₀ 1 +24V	ŀ
3 ov	ľ
switch: warning	l
75%	ĺ

	Type of indication	1 electrical switching contact at 75% and at 100% of the pressure setting 1 green LED constantly lit 1 yellow LED lights from 75% 1 red LED lights from 100% Δp	
	Weight	205 g	
)	Pressure setting or indication range	2.5 bar - 10%	
	Permitt. operating pressure	7 bar	
	Permitt. temperature range	-10 °C to +100 °C	
	Thread	G 1/2	
	Max. torque value	15 Nm	
	Switching type	N/O (75%), N/C (100%)	
	Max. switching voltage	24 V	
	Electrical connection	Male connection M12 x 1	
v	Max. switching voltage at resistive load	15 W = max. 15 VA ~	
,	Switching capacity	Ohmic 1 A at 15 V = Ohmic 1 A at 15 V ~	
	Protection class to DIN 40050	IP 65	
	Order example	VR 2 LZ.1 /-BO-LED	

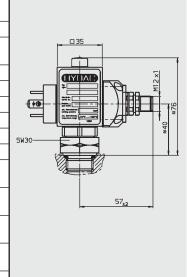


VR x LZ.x /-GM



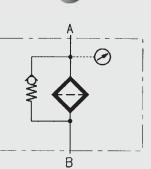
	Indication range
	Permitt. operatii
	Permitt. tempera
	Thread
	Max. torque val
	Switching type
	Max. switching
	Electrical conne
	Max. switching at resistive load
* * * * *	Switching capac
switch: switch: alarm warning	Protection class DIN 40050
100% 75%	Order example

Type of indication	Visual, red pin and 1 electrical switching contact at 75% and at 100% of the pressure setting Indicator function possible in conjunction with the "No element" indicator
Weight	290 g
Pressure setting or indication range	2.5 bar - 10%
Permitt. operating pressure	7 bar
Permitt. temperature range	-10 °C to +100 °C
Thread	G 1/2
Max. torque value	15 Nm
Switching type	-
Max. switching voltage	24 V
Electrical connection	Male connection M12 x 1
Max. switching voltage at resistive load	15 W = max. 15 VA ~
Switching capacity	Ohmic 1 A at 15 V = Ohmic 1 A at 15 V ~
Protection class to DIN 40050	IP 65



$VMF \; x \; R.x$





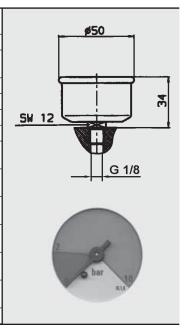
Order example

Order example

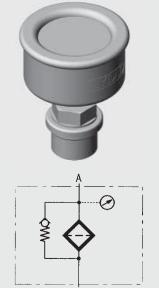
Type of indication	visual-analogue, scale indication
Weight	80 g
Pressure setting or indication range	0 to 10 bar
Permitt. operating pressure	7 bar continuous
Permitt. temperature range	-20 °C to +60 °C
Thread	G 1/8
Max. torque value	15 Nm
Switching type	-
Max. switching voltage	-
Electrical connection	-
Max. switching voltage at resistive load	-
Switching capacity	-
Protection class to DIN 40050	-
	1

VMF 2 R.0

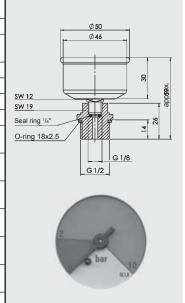
VR 2 LZ.1 /-GM



VR x R.x



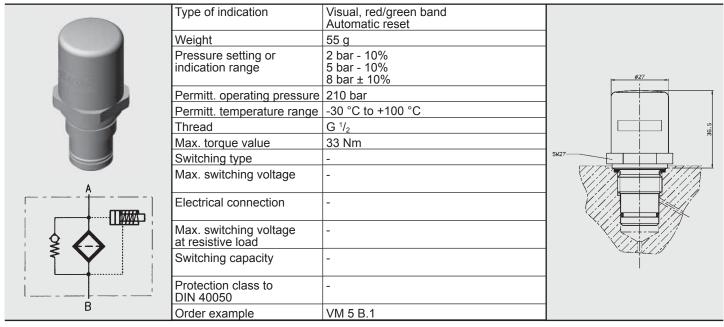
Type of indication	visual-analogue, scale indication
Weight	140 g
Pressure setting or indication range	0 to 10 bar
Permitt. operating pressure	7 bar continuous
Permitt. temperature range	-20 °C to +60 °C
Thread	G 1/2
Max. torque value	30 Nm
Switching type	-
Max. switching voltage	-
Electrical connection	-
Max. switching voltage at resistive load	-
Switching capacity	-
Protection class to DIN 40050	-



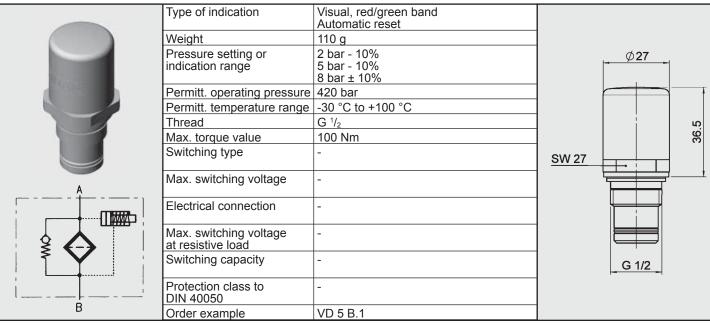
VR 2 R.0

3.3 DIFFERENTIAL PRESSURE INDICATORS

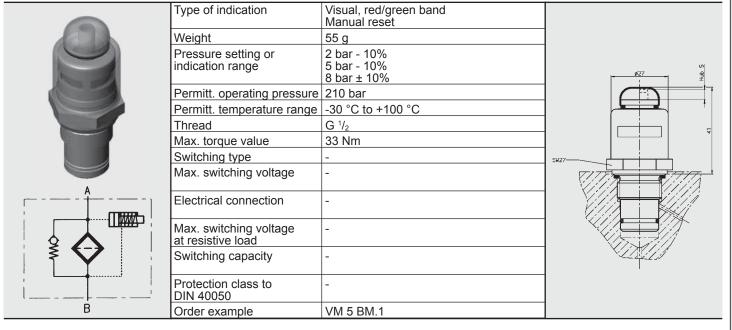
VM x B.x



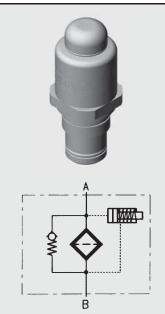
VD x B.x



VM x BM.x



VD x BM.x



Type of indication	Visual, red/green band Manual reset
Weight	110 g
Pressure setting or indication range	2 bar - 10 % 5 bar - 10% 8 bar ± 10%
Permitt. operating pressure	420 bar
Permitt. temperature range	-30 °C to +100 °C
Thread	G 1/2
Max. torque	100 Nm
Switching type	-
Max. switching voltage	-
Electrical connection	-
Max. switching voltage at resistive load	-
Switching capacity	-

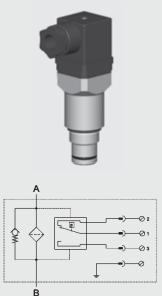
VD 5 BM.1

Protect. class to DIN 40050

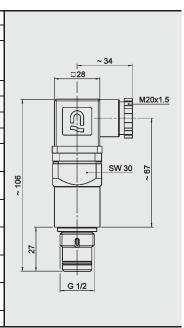
Order example

	SW 27_	Ø27	~ 42
- - -		G 1/2	

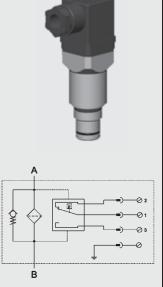
VM x C.x



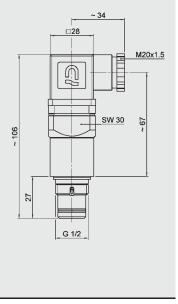
Type of indication	electrical switch
Weight	120 g
Pressure setting or indication range	2 bar - 10% 5 bar - 10% 8 bar ± 10%
Permitt. operating pressure	210 bar
Permitt. temperature range	-30 °C to +100 °C
Thread	G 1/2
Max. torque value	33 Nm
Switching type	N/C or N/O (change-over contacts)
Max. switching voltage	230 V
Electrical connection	Male connection M20 Female connector to DIN 43650
Max. switching voltage at resistive load	60 W = 100 VA ~
Switching capacity 1)	Ohmic 3 A at 24 V = Ohmic 0.03 to 5 A at max. 230 V ~
Protection class to DIN 40050	IP 65 (only if the connector is wired and fitted correctly)
Order example	VM 5 C.0
	·



VD x C.x

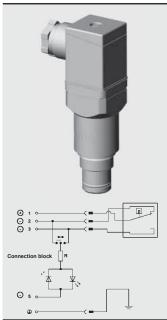


Type of indication	electrical switch
Weight	220 g
Pressure setting or indication range	5 bar - 10% 8 bar ± 10%
Permitt. operating pressure	420 bar
Permitt. temperature range	-30 °C to +100 °C
Thread	G 1/2
Max. torque	100 Nm
Switching type	N/C or N/O (change-over contacts)
Max. switching voltage	230 V
Electrical connection	Male connection M20 Female connector to DIN 43650
Max. switching voltage at resistive load	60 W = 100 VA ~
Switching capacity 1)	Ohmic 3 A at 24 V = Ohmic 0.03 to 5 A at max. 230 V ~
Protection class to DIN 40050	IP 65 (only if the connector is wired and fitted correctly)
Order example	VD 5 C.0



 $^{^{1)}}$ Required amperage > 20 mA; for lower amperages, order "-SO135" indicators (see Supplementary details).

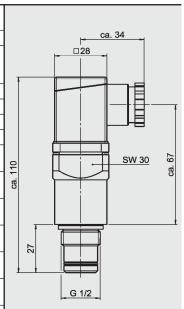
VM x D.x /-L...



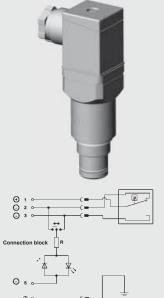
Type of indication	visual indicator and electrical switch
Weight	150 g
Pressure setting or indication range	2 bar - 10% 5 bar - 10% 8 bar ± 10%
Permitt. operating pressure	210 bar
Permitt. temperature range	-30 °C to +100 °C
Thread	G 1/2
Max. torque value	33 Nm
Switching type	N/C or N/O (change-over contacts)
Max. switching voltage	24, 48, 110, 230 V depending on the type of light insert
Electrical connection	Male connection M20 Female connector to DIN 43650
Max. switching voltage at resistive load	60 W = 100 VA ~
Switching capacity 1)	Ohmic 3 A at 24 V = Ohmic 0.03 to 5 A at max. 230 V ~
Protection class to DIN 40050	IP 65 (only if the connector is wired and fitted correctly)
Electrical connection Max. switching voltage at resistive load Switching capacity 1) Protection class to	depending on the type of light insert Male connection M20 Female connector to DIN 43650 60 W = 100 VA ~ Ohmic 3 A at 24 V = Ohmic 0.03 to 5 A at max. 230 V ~ IP 65 (only if the connector is wired and

VM 5 D.0 /-L24

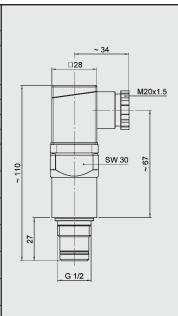
Order example



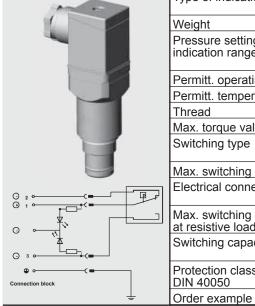
VD x D.x /-L...



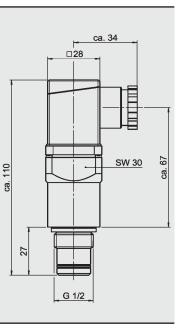
Type of indication	visual indicator and
	electrical switch
Weight	250 g
Pressure setting or	2 bar -10%
indication range	5 bar - 10%
	8 bar ± 10%
Permitt. operating pressure	420 bar
Permitt. temperature range	-30 °C to +100 °C
Thread	G 1/2
Max. torque value	100 Nm
Switching type	N/C or N/O
. ,.	(change-over contacts)
Max. switching voltage	24, 48, 110, 230 V
	depending on the type of light insert
Electrical connection	Male connection M20
	Female connector to DIN 43650
Max. switching voltage	60 W =
at resistive load	100 VA ~
Switching capacity 1)	Ohmic 3 A at 24 V =
	Ohmic 0.03 to 5 A at max. 230 V ~
Protection class to	IP 65 (only if the connector is wired and
DIN 40050	fitted correctly)
Order example	VD 5 D.0 /-L24



VM x D.x /-LED



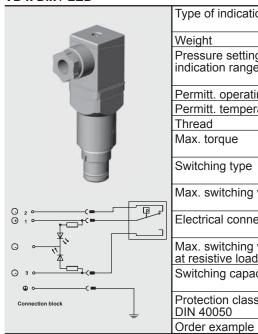
Type of indication	visual indicator and electrical switch
Weight	150 g
Pressure setting or indication range	2 bar - 10% 5 bar - 10% 8 bar ± 10%
Permitt. operating pressure	210 bar
Permitt. temperature range	-30 °C to +100 °C
Thread	G 1/2
Max. torque value	33 Nm
Switching type	N/C or N/O (change-over contacts)
Max. switching voltage	24 V
Electrical connection	Male connection M20 Female connector to DIN 43650
Max. switching voltage at resistive load	60 W = 100 VA ~
Switching capacity 1)	ohmic 3 A at 24 V =
Protection class to DIN 40050	IP 65 (only if the connector is wired and fitted correctly)
I a company of the co	1



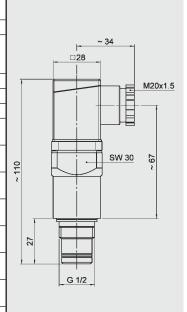
¹⁾ Required amperage > 20 mA; for lower amperages, order "-SO135" indicators (see Supplementary details).

VM 5 D.0 /-LED

VD x D.x /-LED



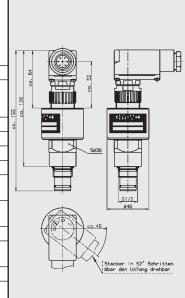
	Type of indication	visual indicator and	
		electrical switch	
	Weight	250 g	
	Pressure setting or	2 bar - 10%	
	indication range	5 bar - 10%	
		8 bar ± 10%	
	Permitt. operating pressure		
	Permitt. temperature range	-30 °C to +100 °C	
	Thread	G 1/2	
	Max. torque	100 Nm	
	Switching type	N/C or N/O	
		(change-over contacts)	
,	Max. switching voltage	24 V	
Н	Electrical connection	Male connection M20	
Ш	Electrical connection	Female connector to DIN 43650	
4	Max. switching voltage	60 W =	
	at resistive load	100 VA ~	
	Switching capacity 1)	ohmic 3 A at 24 V =	
	emicining capacity	5.111116 67 t dt 21 v	
	Protection class to	IP 65 (only if the connector is wired and	
	DIN 40050	fitted correctly)	
	Order example	VD 5 D.0 /-LED	



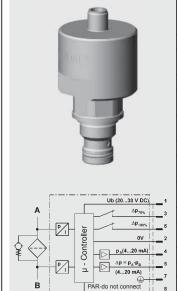
VD x GC.x



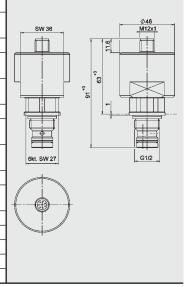
Type of indication	Electronic/analogue (4-20 mA or 1-10 V) 1 electrical switching contact at 75% and at 100% of the pressure setting Analogue signal up to 20% of the pressure setting constant 4mA or 1 V
Weight	400 g
Pressure setting or indication range	2 bar - 10% 5 bar - 10% 8 bar - 10%
Permitt. operating pressure	420 bar
Permitt. temperature range	-30 °C to +80 °C
Thread	G 1/2
Max. torque value	100 Nm
Switching type	N/C or N/O, electronic PNP positive switching (factory setting)
Max. switching voltage	operating voltage 20 - 30 V DC
Electrical connection	7 pole plug to DIN 43651; PG 11
Max. switching voltage at resistive load	12 W
Switching capacity	ohmic 0.4 A at 30 V =
Protection class to DIN 40050	IP 65 (only if the connector is wired and fitted correctly)
Order example	VD 5 GC.0 /-LED-SQ-123



VL x GW.x

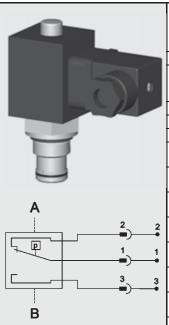


Type of indication	condition monitoring.	nalogue (4-20 onitoring filters 1 switching co 6 of the pressu	incl. bypass ntact at 75%
Weight	157 g		-
Pressure setting p (switching contact 100%)	2 bar ± 5%	3 bar ± 5%	5 bar ± 5%
Indication range ∆p	0 - 5 bar	0 - 5 bar	0 - 8 bar
Indication range "pressure before filter"	25 bar		
Type of switching switching outputs ∆p		vitch, PNP posi contacts (factor	
Output load	400 mA		
Max. switching voltage / operating voltage	2030V DC	;	
Analogue outputs "press. before filter" & ∆p	420 mA (r	nax. load resi	stance 600Ω)
Electrical connection	M12 x 1 / 8	pole	
Protection class to DIN 40050	IP 65		
Permitt. operating pressure	25 bar		
Permitt. temperature range	-40 °C to +8	85 °C	
Thread	G ¹ / ₂		
Max. torque	33 Nm		
Order example	VL 5 GW.0		

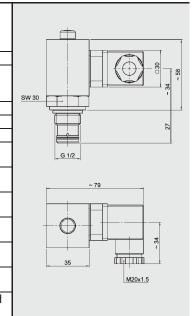


¹⁾ Required amperage > 20 mA; for lower amperages, order "-SO135" indicators (see Supplementary details).

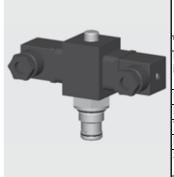
VD x LE.x



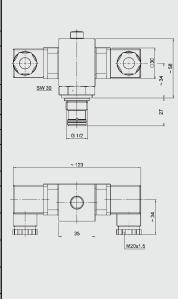
	Type of indication	visual, red pin and electrical switch 1 switching contact at 100% of the pressure setting
I	Weight	198 g
	Pressure setting or indication range	2 bar - 10% 5 bar - 10% 8 bar - 10%
Ι	Permitt. operating pressure	420 bar
Ι	Permitt. temperature range	-30 °C to +100 °C
Ι	Thread	G 1/2
	Max. torque	50 Nm
Ī	Switching type	N/C or N/O contacts Reed contacts (change-over contacts)
ſ	Max. switching voltage	115 V
	Electrical connection	Male connection M20 Female connector to DIN 43650
	Max. switching voltage at resistive load	15 W = max. 15 VA ~
L	Switching capacity	Ohmic 1 A at 15 V = Ohmic 1 A at 15 V ~
	Protection class to DIN 40050	IP 65 (only if the connector is wired and fitted correctly)
	Order example	VD 5 LE.1



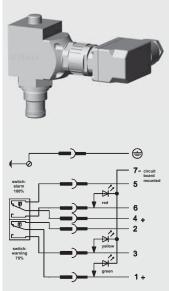
VD x LZ.x



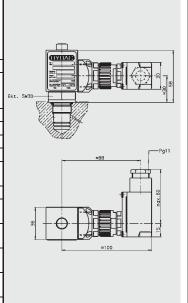
	Type of indication	Visual, red pin and 1 electrical switching contact at 75% and at 100% of the pressure setting
	Weight	240 g
	Pressure setting or indication range	2 bar – 10% 5 bar – 10% 8 bar – 10%
	Permitt. operating pressure	420 bar
	Permitt. temperature range	-30 °C to +100 °C
	Thread	G ¹ / ₂
	Max. torque value	50 Nm
	Switching type	N/C or N/O contacts Reed contacts (change-over contacts)
	Max. switching voltage	115 V
	Electrical connection	Male connection M20 Female connector to DIN 43650
7	Max. switching voltage at resistive load	15 W = max. 15 VA ~
	Switching capacity	ohmic 1 A at 15 V = ohmic 1 A at 15 V ~
	Protection class to DIN 40050	IP 65 (only if the connector is wired and fitted correctly)
	Order example	VD 5 LZ.1



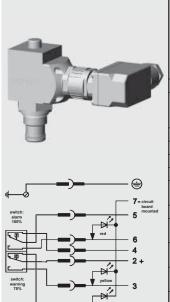
VD x LZ.x /-DB



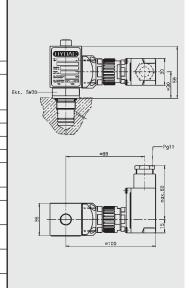
	Type of indication	visual, red pin and 1 electrical switching contact at 75% and at 100% of the pressure setting 1 green LED constantly lit 1 yellow LED lights from 75% 1 red LED lights from 100% Δp
1	Weight	245 g
6	Pressure setting or indication range	2 bar - 10% 5 bar - 10% 8 bar - 10%
	Permitt. operating pressure	420 bar
	Permitt. temperature range	-30 °C to +100 °C
	Thread	G 1/2
	Max. torque value	50 Nm
	Switching type	N/C or N/O contacts Reed contacts (change-over contacts)
	Max. switching voltage	24 V
	Electrical connection	Male connection PG 11 Female connector to DIN 43651
	Max. switching voltage at resistive load	15 W = max. 15 VA ~
	Switching capacity	Ohmic 1 A at 15 V = Ohmic 1 A at 15 V ~
	Protection class to DIN 40050	IP 65 (only if the connector is wired and fitted correctly)
	Order example	VD 5 LZ.1 /-DB



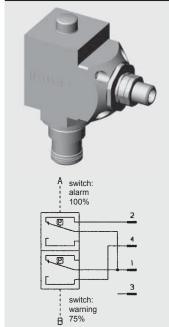
VD x LZ.x /-CN



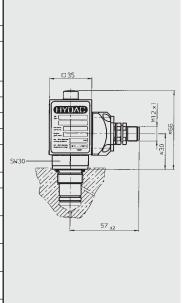
	Type of indication	visual, red pin and 1 electrical switching contact at 75% and at 100% of the pressure setting 1 green LED goes out at 75% 1 yellow LED lights from 75% 1 red LED lights from 100% Δp
	Weight	245 g
	Pressure setting or	2 bar - 10%
	indication range	5 bar - 10%
	D	8 bar - 10%
ı	Permitt. operating pressure	
ļ	Permitt. temperature range	
ı	Thread	G 1/2
ļ	Max. torque value	50 Nm
	Switching type	N/C or N/O contacts
ļ		Reed contacts (change-over contacts)
ı	Max. switching voltage	24 V
	Electrical connection	Male connection PG 11 Female connector to DIN 43651
	Max. switching voltage	15 W =
	at resistive load	max. 15 VA ~
	Switching capacity	Ohmic 1 A at 15 V =
ļ		Ohmic 1 A at 15 V ~
	Protection class to	IP 65 (only if the connector is wired and
	DIN 40050	fitted correctly)
	Order example	VD 5 LZ.1 /-CN



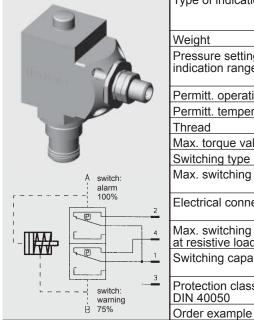
VD x LZ.x /-BO



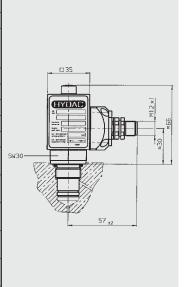
Type of indication	Visual, red pin and 1 electrical switching contact at 75% and at 100% of the pressure setting
Weight	197 g
Pressure setting or indication range	2 bar - 10% 5 bar - 10% 8 bar - 10%
Permitt. operating pressure	420 bar
Permitt. temperature range	-10 °C to +100 °C
Thread	G ¹ / ₂
Max. torque value	50 Nm
Switching type	N/O (75%) N/C (100%)
Max. switching voltage	24 V
Electrical connection	Male connection M12 x 1
Max. switching voltage at resistive load	15 W = max. 15 VA ~
Switching capacity	Ohmic 1 A at 15 V = Ohmic 1 A at 15 V ~
Protection class to DIN 40050	IP 65
Order example	VD 5 LZ.1 /-BO



VD x LZ.x /-AV

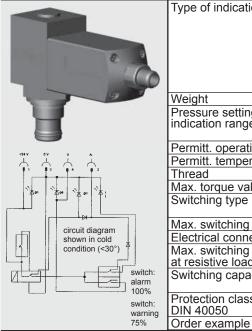


Type of indication	Visual, red pin and 1 electrical switching contact at 75% and at 100% of the pressure setting	
Weight	197 g	
Pressure setting or indication range	2 bar - 10% 5 bar - 10% 8 bar - 10%	
Permitt. operating pressure	420 bar	
Permitt. temperature range	-10 °C to +100 °C	
Thread	G 1/2	
Max. torque value	50 Nm	
Switching type	N/C (75% and 100%)	
Max. switching voltage	24 V	
Electrical connection	Male connection M12 x 1	
Max. switching voltage at resistive load	15 W = max. 15 VA ~	
Switching capacity	Ohmic 1 A at 15 V = Ohmic 1 A at 15 V ~	
Protection class to DIN 40050	IP 65	



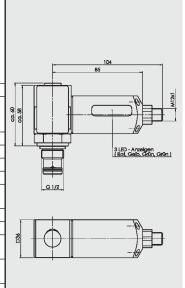
VD 5 LZ.1 /-AV

VD x LZ.x /-D4C



	Type of indication	1 electrical switching contact at 75% and at 100% of the pressure setting and suppression of the switching signal when operating temperature is below 30 °C 2 green LEDs light when below 30 °C 1 green LED constantly lit 1 yellow LED lights from 75% 1 red LED lights from 100% Δp
۱	Weight	256 g
	Pressure setting or indication range	2 bar - 10% 5 bar - 10% 8 bar - 10%
	Permitt. operating pressure	420 bar
	Permitt. temperature range	-10 °C to +100 °C
	Thread	G ¹ / ₂
	Max. torque value	50 Nm
	Switching type	N/O (75%) N/C (100%)
ı	Max. switching voltage	24 V
ı	Electrical connection	Male connection M12 x 1
	Max. switching voltage at resistive load	15 W = max. 15 VA ~
	Switching capacity	Ohmic 1 A at 15 V = Ohmic 1 A at 15 V ~
	Protection class to DIN 40050	IP 65

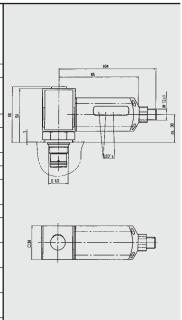
VD 5 LZ.1 /-D4C



VD x LZ.x /-BO-LED



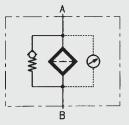
	Type of indication	1 electrical switching contact at 75% and at 100% of the pressure setting 1 green LED constantly lit 1 yellow LED lights from 75% 1 red LED lights from 100% Δp
	Weight	250 g
)	Pressure setting or indication range	2 bar - 10% 5 bar - 10% 8 bar - 10%
	Permitt. operating pressure	420 bar
	Permitt. temperature range	-10 °C to +100 °C
1	Thread	G 1/2
	Max. torque value	50 Nm
	Switching type	N/O (75%) N/C (100%)
	Max. switching voltage	24 V
	Electrical connection	Male connection M12 x 1
,	Max. switching voltage at resistive load	15 W = max. 15 VA ~
	Switching capacity	Ohmic 1 A at 15 V = Ohmic 1 A at 15 V ~
	Protection class to DIN 40050	IP 65
	Order example	VD 5 LZ.1 /-BO-LED



V02 x V.x

switch: warning 75%

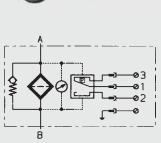




Type of indication	visual-analogue	
Weight	580 g	
Pressure setting or indication range	0.8 bar ± 10% 2.0 bar ± 10% 4.3 bar ± 10%	
Permitt. operating pressure	100 bar	
Permitt. temperature range	-30 °C to +100 °C	- 51 - 17 - 2
Thread	G 1/4	
Max. torque value	-	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Switching type	-	
Max. switching voltage	-	
Electrical connection	-	
Max. switching voltage at resistive load	-	
Switching capacity	-	
Protection class to DIN 40050	-	
Order example	V02 2 V.0	

V02 x VE.x

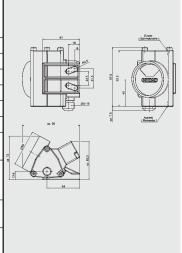




Order example

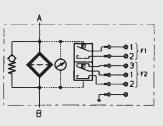
Type of indication	Visual/analogue indicator and electrical switching contact 100% of the pressure setting
Weight	640 g
Pressure setting or indication range	0.8 bar ± 10% 2.0 bar ± 10% 4.3 bar ± 10%
Permitt. operating pressure	100 bar
Permitt. temperature range	-30 °C to +100 °C
Thread	G ¹ / ₄
Max. torque value	_
Switching type	100% change-over contact
Max. switching voltage	250 V
Electrical connection	threaded connection M16 x 1.5
Max. switching voltage at resistive load	100% contact 30 W = 60 VA ~
Switching capacity	Ohmic 2.5 A at 24 V = Ohmic 1 A at 220 V ~
Protection class to DIN 40050	IP 65

V02 2 VE.0

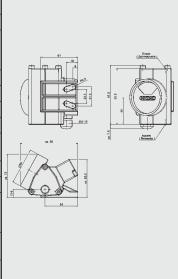


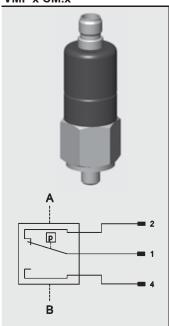
V02 x VZ.x



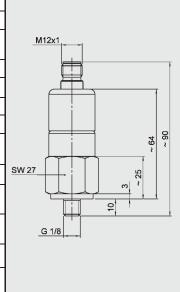


Type of indication	Visual/analogue inc and 1 electrical swi 75% and 100% of t	tching contact at
Weight	650 g	
Pressure setting or indication range	0.8 bar ± 10% 2.0 bar ± 10% 4.3 bar ± 10%	
Permitt. operating pressure	100 bar	
Permitt. temperature range	-30 °C to +100 °C	
Thread	G ¹ / ₄	
Max. torque value	-	
Switching type	75% - N/O contact 100% - change-ove	er contact
Max. switching voltage	250 V	
Electrical connection	threaded connectio	n M16 x 1.5
Max. switching voltage at resistive load	75% contact 120 W = 120 VA ~	100% contact 30 W = 60 VA ~
Switching capacity	Ohmic 2.5 A at 24 \ Ohmic 1 A at 220 V	
Protection class to DIN 40050	IP 65	
Order example	V02 2 VZ.0	





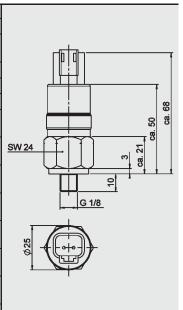
Type of indication	electrical switch
Weight	90 g
Pressure setting or indication range	2 bar ± 0.4 bar
Permitt. operating pressure	10 bar
Permitt. temperature range	-10 °C to +100 °C
Thread	G ¹ / ₈
Max. torque value	15 Nm
Switching type	N/C or N/O (change-over contacts)
Max. switching voltage	24V
Electrical connection	Male connection M12 x 1
Max. switching voltage at resistive load	250 W= 300 VA~
Switching capacity	Ohmic 6 A at 24 V = Ohmic 0.03 to 6 A at max. 230 V ~
Protection class to DIN 40050	IP 67 (only if the connector is wired and fitted correctly)
Order example	VMF 2 CM.0



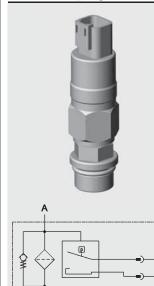
VMF x FD.x (plug connection: Deutsch DT 04-2P)



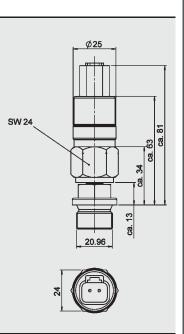
Type of indication	electrical switch
Weight	70 g
Pressure setting or indication range	2 bar ± 0.4 bar
Permitt. operating pressure	11 bar continuous
Permitt. temperature range	-30 °C to +100 °C
Thread	G ¹ / ₈
Max. torque	15 Nm
Switching type	N/O or N/C
Max. switching voltage	42 V
Electrical connection	Deutsch DT 04-2P
Max. switching voltage at resistive load	60 W = 100 VA ~
Switching capacity	Ohmic 2.5 A at 24 V = Ohmic 1 A at 220 V ~
Protection class to DIN 40050	IP 65, terminals IP 00
Order example	VMF 2 FD.0 /-2M0

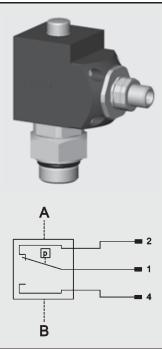


VR x FD.x (plug connection: Deutsch DT 04-2P)

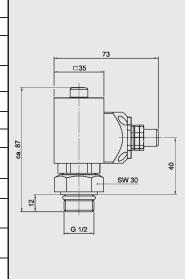


 i. Deutsch Di 04-21)		
Type of indication	electrical switch	
Weight	90 g	
Pressure setting or indication range	2 bar ± 0.4 bar	
Permitt. operating pressure	11 bar continuous	
Permitt. temperature range	-30 °C to +100 °C	
Thread	G 1/2	
Max. torque	30 Nm	•
Switching type	N/O or N/C	
Max. switching voltage	42 V	
Electrical connection	Deutsch DT 04-2P	
Max. switching voltage at resistive load	60 W = 100 VA ~	
Switching capacity	Ohmic 2.5 A at 24 V = Ohmic 1 A at 220 V ~	
Protection class to DIN 40050	IP 65, terminals IP 00	
Order example	VR 2 FD.0 /-2M0	





Type of indication	visual, red pin and electrical switch 1 switching contact at 100% of the pressure setting
Weight	140 g
Pressure setting or indication range	2 bar ± 0.4 bar
Permitt. operating pressure	7 bar
Permitt. temperature range	-10 °C to +100 °C
Thread	G 1/2
Max. torque value	15 Nm
Switching type	N/C or N/O contacts Reed contacts (change-over contacts)
Max. switching voltage	24V
Electrical connection	Male connection M12 x 1
Max. switching voltage at resistive load	15 W = max. 15 VA ~
Switching capacity	ohmic 1 A at 15 V = ohmic 1 A at 15 V ~
Protect. class to DIN 40050	IP 65
Order example	VR 2 LEM.1

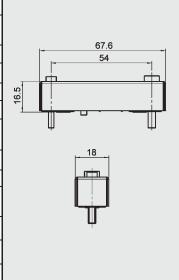


3.4.2 **DIFFERENTIAL PRESSURE**

VL x BF.x



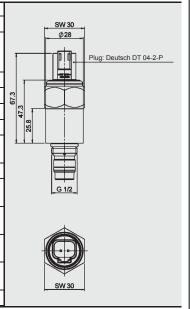
Type of indication	visual
Weight	25 g
Pressure setting or indication range	1 bar – 10% 2.5 bar – 10%
Permitt. operating pressure	40 bar
Permitt. temperature range	-10 °C to +80 °C
Thread	M3; M4
Max. torque value	0.6 Nm
Switching type	-
Max. switching voltage	-
Electrical connection	-
Max. switching voltage at resistive load	-
Switching capacity	-
Protection class to DIN 40050	-
Order example	VL 2.5 BF.0



VM x CD.x (plug type: Deutsch DT 04-2P)



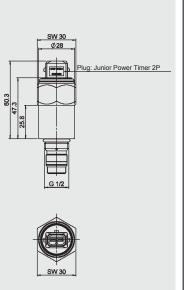
_			
	Type of indication	electrical switch	
	Weight	100 g	
	Pressure setting or indication range	2 bar - 10% 5 bar - 10% 8 bar ± 10%	
	Permitt. operating pressure	210 bar	
	Permitt. temperature range	-30 °C to +100 °C	
	Thread	G 1/2	
	Max. torque value	33 Nm	
	Switching type	N/O or N/C	
	Max. switching voltage	230 V	
	Electrical connection	-	
	Max. switching voltage at resistive load	60 W = 100 VA ~	
	Switching capacity	Ohmic 3 A at 24 V = Ohmic 0.03 to 5 A at max. 230 V ~	
	Protection class to DIN 40050	IP 67 (only if the connector is wired and fitted correctly)	
	Order example	VM 5 CD.0 /-2M0	



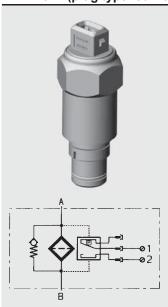
VM x CJ.x (plug type: Junior Power Timer)



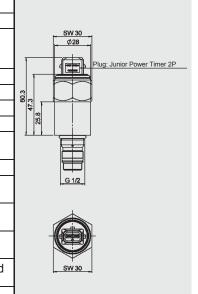
Type of indication	electrical switch
Weight	100 g
Pressure setting or indication range	2 bar - 10% 5 bar - 10% 8 bar ± 10%
Permitt. operating pressure	210 bar
Permitt. temperature range	-30 °C to +100 °C
Thread	G 1/2
Max. torque value	33 Nm
Switching type	N/O or N/C
Max. switching voltage	230 V
Electrical connection	Junior Power Timer
Max. switching voltage at resistive load	60 W = 100 VA ~
Switching capacity	Ohmic 3 A at 24 V = Ohmic 0.03 to 5 A at max. 230 V ~
Protection class to DIN 40050	IP 54 (only if the connector is wired and fitted correctly)
Order example	VM 5 CJ.0 /-2M0



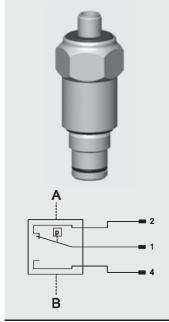
VD x CJ.x (plug type: Junior Power Timer)



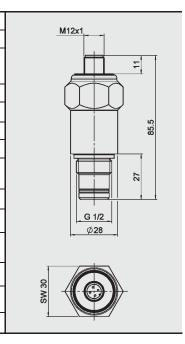
O	or Power Timer)		
	Type of indication	electrical switch	
	Weight	200 g	
	Pressure setting or indication range	2 bar - 10% 5 bar - 10%	
		8 bar ± 10%	
	Permitt. operating pressure	420 bar	
	Permitt. temperature range	-30 °C to +100 °C	80.3
	Thread	G 1/2	١
	Max. torque value	100 Nm	
	Switching type	N/O or N/C	
	Max. switching voltage	230 V	
	Electrical connection	Junior Power Timer	
	Max. switching voltage at resistive load	60 W = 100 VA ~	
	Switching capacity	Ohmic 3 A at 24 V = Ohmic 0.03 to 5 A at max. 230 V ~	
	Protection class to DIN 40050	IP 54 (only if the connector is wired and fitted correctly)	
	Order example	VD 5 CJ.0 /-2M0	



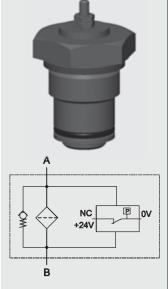
VM x CM.x



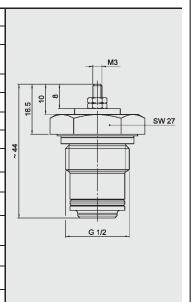
Type of indication	electrical switch
Weight	70 g
Pressure setting or indication range	2 bar – 10% 5 bar – 10% 8 bar ± 10%
Permitt. operating pressure	210 bar
Permitt. temperature range	-10 °C to +100 °C
Thread	G 1/2
Max. torque value	33 Nm
Switching type	N/C or N/O (change-over contacts)
Max. switching voltage	24 V
Electrical connection	Male connection M12 x 1
Max. switching voltage at resistive load	60 W = 100 VA ~
Switching capacity	ohmic 2.5 A at 24 V = ohmic 2.5 A at 42 V ~
Protection class to DIN 40050	IP 67 (only if the connector is wired and fitted correctly)
Order example	VM 2 CM.0



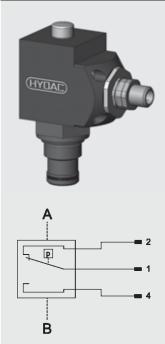
VM x M.x



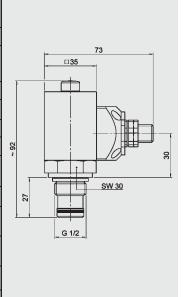
Type of indication	single pole (ground switching)
Weight	31 g
Pressure setting or indication range	2 bar ± 15%
Permitt. operating pressure	210 bar
Permitt. temperature range	-30 °C to +100 °C
Thread	G 1/2
Max. torque value	33 Nm
Switching type	N/O or N/C
Max. switching voltage	24V
Electrical connection	-
Max. switching voltage at resistive load	-
Switching capacity	-
Protection class to DIN 40050	terminals IP00
Order example	VM 2 M.0



VD x LEM.x

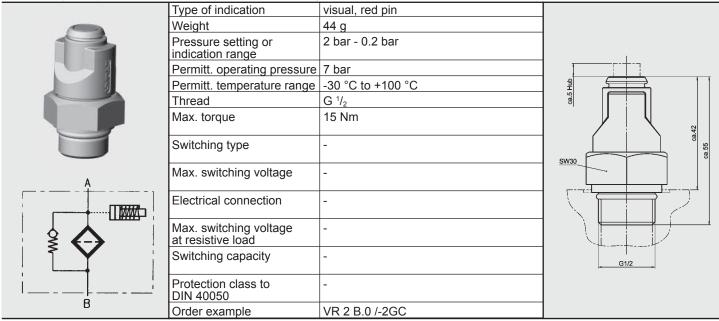


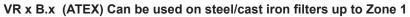
Type of indication	Visual, red pin
,,, ,, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	and electrical switch
	1 switching contact at 100% of the
	pressure setting
Weight	350 g
Pressure setting or	2 bar – 10%
indication range	5 bar – 10%
	8 bar – 10%
Permitt. operating pressure	420 bar
Permitt. temperature range	-10 °C to +100 °C
Thread	G 1/2
Max. torque value	50 Nm
Switching type	N/C or N/O contacts
]	Reed contacts (change-over contacts)
Max. switching voltage	24V
Electrical connection	Male connection
	M12 x 1
Max. switching voltage	15 W =
at resistive load	max. 15 VA ~
Switching capacity	ohmic 1 A at 15 V =
Switching capacity	ohmic 1 A at 15 V ~
Protection class to	IP 65
DIN 40050	
Order example	VD 5 LEM.0



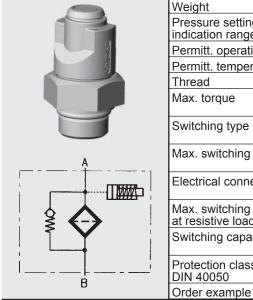
3.5.1 **RETURN LINE**

VR x B.x (ATEX) Can be used on aluminium filters up to Zone 1



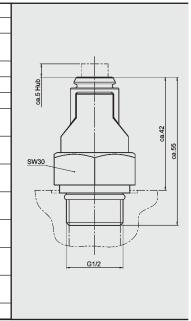


Order example

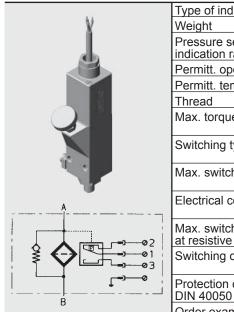


Type of indication	visual, red pin
Weight	44 g
Pressure setting or indication range	2 bar - 0.2 bar
Permitt. operating pressure	7 bar
Permitt. temperature range	-30 °C to +100 °C
Thread	G 1/2
Max. torque	15 Nm
Switching type	-
Max. switching voltage	-
Electrical connection	-
Max. switching voltage at resistive load	-
Switching capacity	-
Protection class to	-

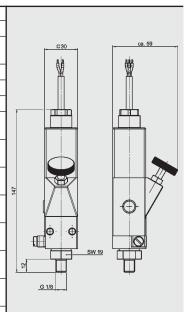
VR 2 B.0 /-2GC-SO174



VMF x C.x /-Ex2G

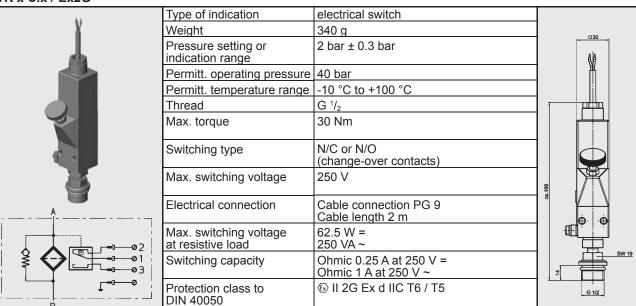


Type of indication	electrical switch
Weight	270 g
Pressure setting or indication range	2 bar ± 0.3 bar
Permitt. operating pressure	200 bar
Permitt. temperature range	-10 °C to +100 °C
Thread	G 1/8
Max. torque	15 Nm
Switching type	N/C or N/O (change-over contacts)
Max. switching voltage	250 V
Electrical connection	Cable connection PG 9 Cable length 2 m
Max. switching voltage at resistive load	62.5 W = 250 VA ~
Switching capacity	Ohmic 0.25 A at 250 V = Ohmic 1 A at 250 V ~
Protection class to	



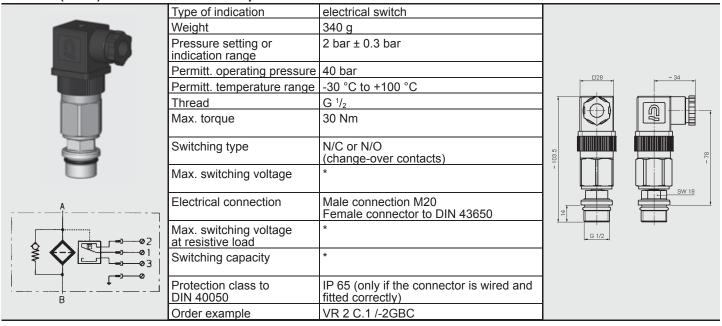
VMF 2 C.0 /-Ex2G

VR x C.x /-Ex2G



VR x C.x (ATEX) Can be used on filters up to Zone 1 *

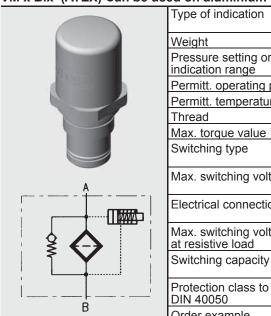
Order example



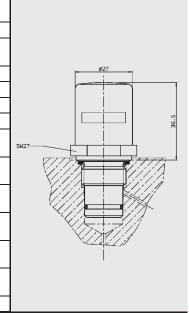
VR 2 C.0 /-Ex2G

The clogging indicator is simple electrical operating equipment according to DIN EN 60079-14 and may only be used in intrinsically safe circuits (supplied with manufacturer's declaration and operating instructions).

VM x B.x (ATEX) Can be us



S	sed on aluminium filters up to Zone 1		
	Type of indication	Visual, red/green band Automatic reset	
	Weight	110 g	
	Pressure setting or indication range	5 bar - 10% 8 bar ± 10%	
	Permitt. operating pressure	210 bar	
	Permitt. temperature range	-30 °C to +100 °C	
	Thread	G 1/2	
	Max. torque value	33 Nm	
	Switching type	-	
	Max. switching voltage	-	
	Electrical connection	-	
	Max. switching voltage at resistive load	-	
	Switching capacity	-	



VD x B.x (ATEX) Can be used on filters up to Zone 1

Order example

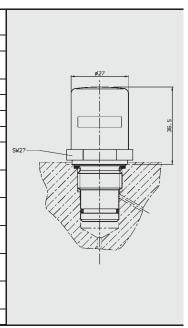
Switching capacity

Protection class to DIN 40050 Order example

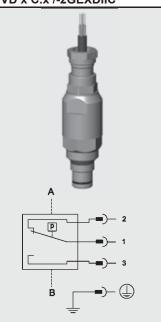


_		
	Type of indication	Visual, red/green band Automatic reset
	Weight	110 g
	Pressure setting or indication range	5 bar - 10% 8 bar ± 10%
	Permitt. operating pressure	420 bar
	Permitt. temperature range	-30 °C to +100 °C
	Thread	G 1/2
	Max. torque value	100 Nm
	Switching type	-
	Max. switching voltage	-
	Electrical connection	-
	Max. switching voltage	-

VM 5 B.1 /-2GC



VD x C.x /-2GEXDIIC

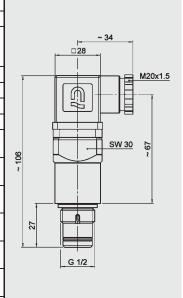


Type of indication	electrical switch
Weight	from 600 g
Pressure setting or indication range	2 bar – 10% 5 bar – 10% 8 bar ± 10%
Permitt. operating pressure	420 bar
Permitt. temperature range	-20 °C to +60 °C
Thread	G ¹ / ₂
Max. torque value	100 Nm
Switching type	Change-over
Max. switching voltage	250 V
Electrical connection	Cable connection
Max. switching voltage at resistive load	60 W = 100 VA ~
Switching capacity	ohmic 3 A at 24 V = ohmic 0.03 A to 5 A at 250 V ~
Protection class to DIN 40050	IP 66
Order example	VD 2 C.1 /-2GEXDIIC

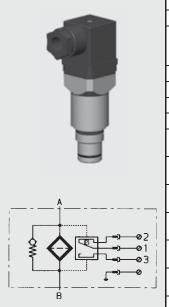
VD 5 B.1 /-2GC

VM x C.x (ATEX) Can be use
2 2 3 3
B

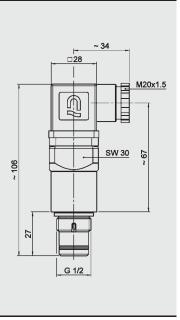
S	sed on aluminium filters up to Zone 1 *		
	Type of indication	electrical switch	
	Weight	120 g	
	Pressure setting or indication range	2 bar - 10% 5 bar - 10% 8 bar ± 10%	
	Permitt. operating pressure	210 bar	
	Permitt. temperature range	-30 °C to +100 °C	
	Thread	G ¹ / ₂	
	Max. torque value	33 Nm	
	Switching type	N/C or N/O (change-over contacts)	
	Max. switching voltage	*	
	Electrical connection	Male connection M20 Female connector to DIN 43650	
	Max. switching voltage at resistive load	*	
	Switching capacity	*	
	Protection class to DIN 40050	IP 65 (only if the connector is wired and fitted correctly)	
	Order example	VM 5 C.0 /-2GBC-SO135	



VD x C.x (ATEX) Can be used on filters up to Zone 1 *



<u>'</u>	
Type of indication	electrical switch
Weight	120 g
Pressure setting or indication range	2 bar - 10% 5 bar - 10% 8 bar ± 10%
Permitt. operating pressure	420 bar
Permitt. temperature range	-30 °C to +100 °C
Thread	G ¹ / ₂
Max. torque value	100 Nm
Switching type	N/C or N/O (change-over contacts)
Max. switching voltage	*
Electrical connection	Male connection M20 Female connector to DIN 43650
Max. switching voltage at resistive load	*
Switching capacity	*
Protection class to DIN 40050	IP 65 (only if the connector is wired and fitted correctly)
Order example	VD 5 C.0 /-2GBC-SO135

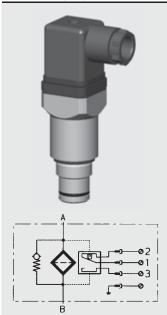


The clogging indicator is simple electrical operating equipment according to DIN EN 60079-14 and may only be used in intrinsically safe circuits (supplied with manufacturer's declaration and operating instructions).

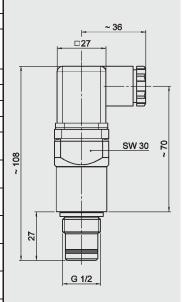
3.6 INDICATORS WITH UL OR CSA APPROVAL

3.6.1 **DIFFERENTIAL PRESSURE**

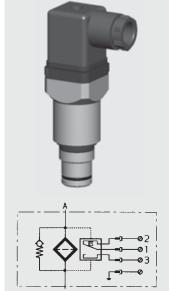
VM x C.x (UL)



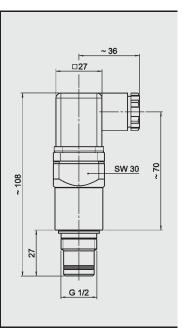
Type of indication	electrical switch
Weight	120 g
Pressure setting or indication range	2 bar - 10% 5 bar - 10% 8 bar ± 10%
Permitt. operating pressure	210 bar
Permitt. temperature range	-30 °C to +100 °C
Thread	G 1/2
Max. torque value	33 Nm
Switching type	N/C or N/O (change-over contacts)
Max. switching voltage	115 V
Electrical connection	Male connection M20 Female connector to DIN 43650
Max. switching voltage at resistive load	60 W = 100 VA ~
Switching capacity	ohmic 3 A at 24 V =
Protection class to DIN 40050	IP 65 (only if the connector is wired and fitted correctly)
Order example	VM 5 C.0 /-CRUUS



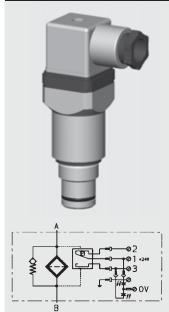
VD x C.x (UL)



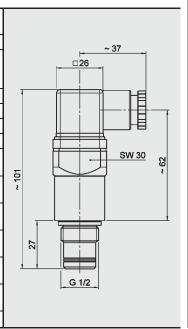
Type of indication	electrical switch
Weight	120 g
Pressure setting or indication range	2 bar - 10% 5 bar - 10% 8 bar ± 10%
Permitt. operating pressure	420 bar
Permitt. temperature range	-30 °C to +100 °C
Thread	G 1/2
Max. torque value	100 Nm
Switching type	N/C or N/O (change-over contacts)
Max. switching voltage	115 V
Electrical connection	Male connection M20 Female connector to DIN 43650
Max. switching voltage at resistive load	60 W = 100 VA ~
Switching capacity	ohmic 3 A at 24 V =
Protection class to DIN 40050	IP 65 (only if the connector is wired and fitted correctly)
Order example	VD 5 C.0 /-CRUUS



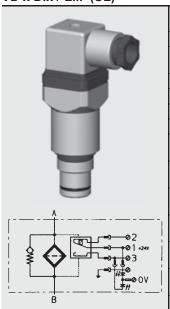
VM x D.x /-L... (UL)



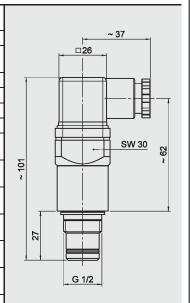
Type of indication	visual indicator and electrical switch
Weight	150 g
Pressure setting or indication range	2 bar - 10% 5 bar - 10% 8 bar ± 10%
Permitt. operating pressure	210 bar
Permitt. temperature range	-30 °C to +100 °C
Thread	G 1/2
Max. torque value	33 Nm
Switching type	N/C or N/O (change-over contacts)
Max. switching voltage	24, 48, 110 V depending on the type of light insert
Electrical connection	Male connection M20 Female connector to DIN 43650
Max. switching voltage at resistive load	60 W = 100 VA ~
Switching capacity	ohmic 3 A at 24 V =
Protection class to DIN 40050	IP 65 (only if the connector is wired and fitted correctly)
Order example	VM 5 D.0 /-L24-CRUUS



VD x D.x /-L... (UL)



Type of indication	visual indicator and electrical switch
Weight	250 g
Pressure setting or indication range	5 bar - 10% 8 bar ± 10%
Permitt. operating pressure	420 bar
Permitt. temperature range	-30 °C to +100 °C
Thread	G 1/2
Max. torque value	100 Nm
Switching type	N/C or N/O (change-over contacts)
Max. switching voltage	24, 48, 110 V depending on the type of light insert
Electrical connection	Male connection M20 Female connector to DIN 43650
Max. switching voltage at resistive load	60 W = 100 VA ~
Switching capacity	ohmic 3 A at 24 V =
Protection class to DIN 40050	IP 65 (only if the connector is wired and fitted correctly)
Order example	VD 5 D.0 /-L24-CRUUS

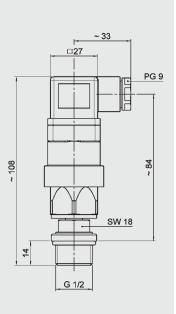


3.6.2 **RETURN LINE**

VR x C.x (CSA)



Type of indication	electrical switch
Weight	340 g
Pressure setting or indication range	2 bar – 0.3 bar
Permitt. operating pressure	40 bar
Permitt. temperature range	-30 °C to +100 °C
Thread	G ¹ / ₂
Max. torque value	30 Nm
Switching type	N/C or N/O, (change-over contacts)
Max. switching voltage	230 V
Electrical connection	Male connection PG 9 Female connector to DIN 43650
Max. switching voltage at resistive load	250 W = 300 VA ~
Switching capacity	ohmic 4 A at 24 V ohmic 0.3 to 4 A at max. 230 V ~
Protection class to DIN 40050	IP 65 (only if the connector is wired and fitted correctly)
Order example	VR 2 C.0 /-CSA



Supplementary details for "LZ" type

AV plug and connector to AUDI, VW specification

BO plug and connector to BMW, Opel, Ford specification

BO-LEDas for BO, but with progressive LED strip

CN electrical connection, 1 connector DIN 43651 with 3 LEDs (to CNOMO specification NF E 48-700)

DB electrical connection, 1 connector to DIN 43651 with 3 LEDs (to Daimler-Benz and BMW specification)

D4C plug and connector to Daimler-Chrysler specification with cold start suppression 30 °C

Supplementary details to "ATEX" type

2GC for visual indicator type "B" with ATEX certificate

2GBC for electrical indicator type "C" with ATEX certificate (the switch used in the indicator is a passive component according

to EN 50020 and can therefore be used in intrinsically safe circuits as simple apparatus in accordance with

EN 60079-14)

2GEXDIIC for electrical indicator suitable for use in Zone 1 (Category 2), gas atmosphere, Category d (Flameproof Enclosure),

Explosive subdivision IIC to ATEX directive

EX2G Ex-protection type for the return line indicator type "C"

Supplementary details for "UL" and "CSA" approval

CRUUS for electrical differential indicator type "C" or visual/electrical indicator

type "D" with UL approval

CSA for electrical return line indicator type "C" with CSA approval

5. ADAPTERS

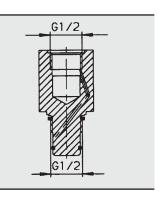
5.1 TYPES



Part no.	00318736
·	Extending adapter for differential pressure cavity to HYDAC works standard HN 28-22

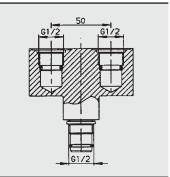
Designation

ADAPTER VD-D-S.0



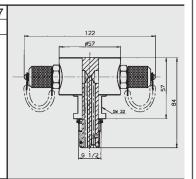


Designation	ADAPTER VD-D+D-S+S.0
Part no.	00318732
Description	Y-adapter to convert 1 differential pressure cavity into 2 differential pressure cavities according to HYDAC works standard HN 28-22.
	Swivel-type on request!



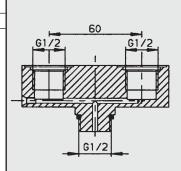


Designation	ADAPTER VD-1/4+1/4-W+W.0 /-00404337
Part no.	00404337
Description	Test adapter for different pressure cavity according to HYDAC works standard HN 28-22. To test the pressure before and after the filter element. Also available without minimess couplings (on request)!



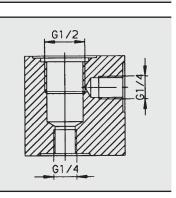


	Designation	ADAPTER VR-R+R-S+S.0
	Part no.	00318741
	Description	Y-adapter to convert 1 return line cavity into 2 return line cavities (G ½)
		Swivel-type on request!



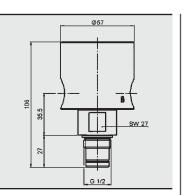


Designation	ADAPTER V ¼ I-D-S.0
Part no.	00318730
Description	Connection adapter for piping clogging indicators separately with differential pressure cavity according to HYDAC works standard HN 28-22.
	Two connections G ¼ (one before and one after the filter element)



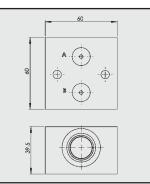


Designation	ADAPTER VD-D+1/4+1/4-S+W+W.0
Part no.	00318744
Description	Extending adapter for differential pressure cavity according to HYDAC works standard HN 28-22. Also two connections, one before and one after the filter element.





Designation	ADAPTER VF-D-S.0 /-RT
Part no.	On request
Description	only for the following filters: LFR, LPFR, MDFR, RFLR, RFMR, RKMR, SFFR



5.2 MODEL CODEL (= EXAMPLE)

ADAPTER VD-D+1/4+1/4-S+W+W.X /-ESB

port port

Connection

differential pressure indicator; connection G 1/2 VD

VR return line indicator; connection G ½

V1/4I differential pressure indicator; connection G 1/4

internal

VF differential pressure indicator; flange type

Ports (several ports are possible!) -

differntial pressure cavity G 1/2 D

R return line cavity G 1/2

MF cavity for pressure gauge and pressure switch

cavity G 1/4 for Minimess test points (M16 x 1.5)

cavity G 1/8 for Minimess test points 1/8 (plug-in connection)

Orientation of the ports

vertical

W horizontal

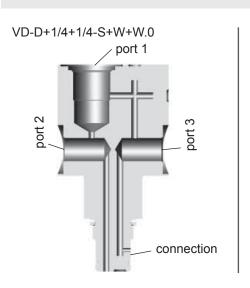
Type code

the latest version is always supplied

Supplementary details -

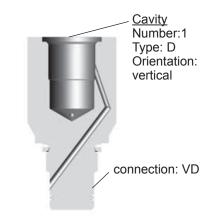
ESB swivel type

seal in Viton (FPM), suitable for phosphate ester (HFD-R) and biodegradable oils

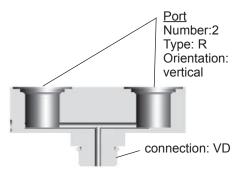


5.3 OTHER EXAMPLES

VD-D-S.0



VR-R+R-S+S.0

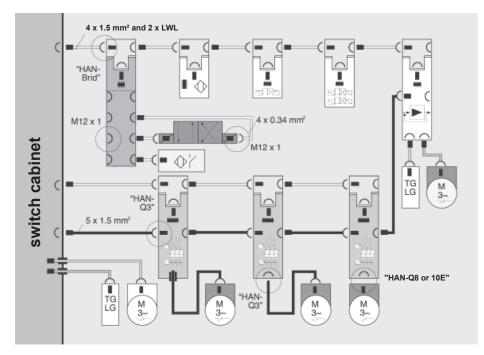


6. DESINA SPECIFICATION

DESINA is a fully comprehensive system intended to bring standardization and decentralization to the field of fluid technology and to electrical installation of machinery and systems. The system engineering, automotive and supply industries have worked together to draw up specifications of the necessary components. DESINA makes use of tried-and-tested solutions, such as open bus systems, standard industrial plugs etc.

By standardizing components, interfaces and connection systems, such as a hybrid field bus cable (Cu/LWL), a wide range of different field bus systems can be made compatible on a single physical base.

6.1. TOTAL CONCEPT FOR MACHINE TOOL INSTALLATION



6.2. CLOGGING INDICATORS

The following clogging indicators are approved to DESINA specification:

VD 5 LZ.1 /-D4C

VR 2.5 LZ. 1 /-D4C

VD 5 LZ.1 /-BO

VR 2.5 LZ. 1 /-BO

VD 5 LZ. 1 /-AV

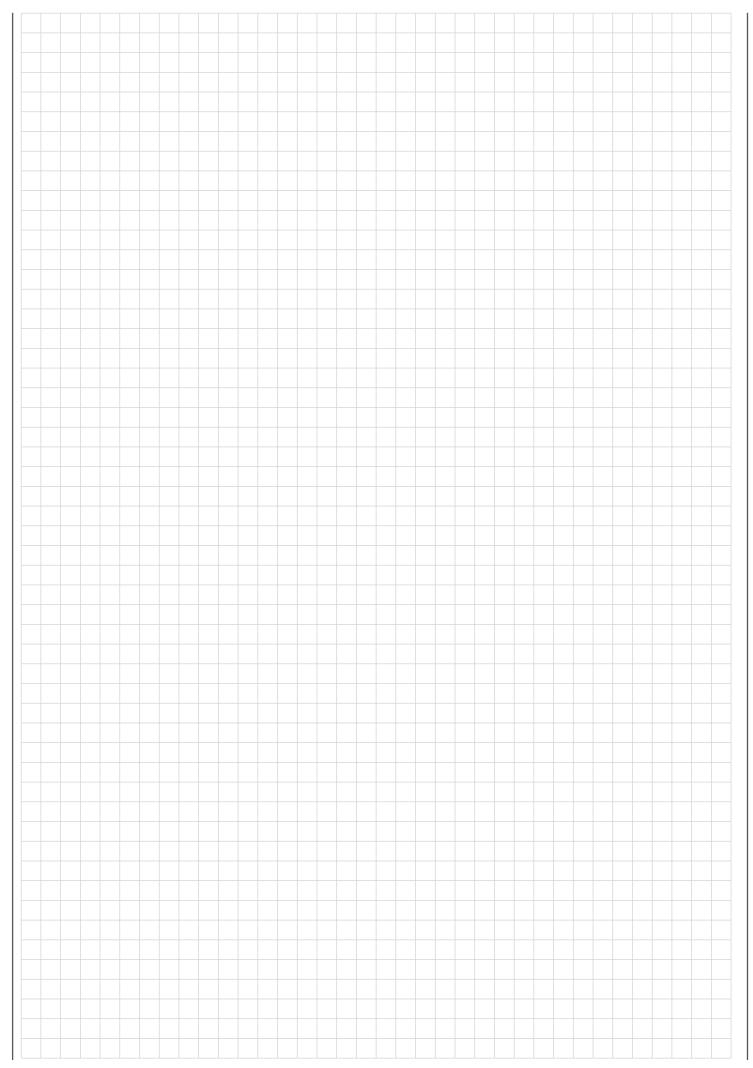
VR 2.5 LZ. 1 /-AV VR 2.5 LZ. 0 /-GM

all with M 12 x 1 connector!





The DESINA logo is shown on the type code label of approved clogging indicators.



NOTE The information in this br described. For applications or opera

The information in this brochure relates to the operating conditions and applications described.

For applications or operating conditions not described, please contact the relevant technical department.

Subject to technical modifications.

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