GYDAD INTERNATIONAL

Filter



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.

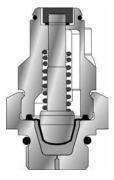
All standard filters can be fitted with a clogging indicator at any time, by simply screwing it in.

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.

Clogging Indicators

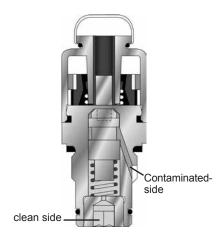


Differential pressure indicators

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

The simplest installation of the differential clogging indicator is via G ½" cavity (according to HYDAC works standard HN 28-22)

The differential pressure indicator type V02 is piped up separately.



1.5 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	Permitt. operating pressure [bar]	Return line indicator	Permitt. operating pressure [bar]	Differential pressure indicator	Permitt. operating pressure [bar]
Visual	В			•	7	•	210/420
	BF					٠	40
	BM					٠	210/420
	E			٠	7 (11)		
	ES			•	7		
	К	•	*	٠	*		
	R			•	7		
	UBM	•	0				
	UE	•	0				
	UED	•	0				
	V					•	100
Electrical	С			٠	40	•	210/420
	D			٠	40	٠	210/420
	F			٠	40		
	LE			٠	7	٠	420
	LZ			•	7	٠	420
	UF	•	0				
	VE					٠	100
	VZ					٠	100
Electronic	GC			٠	7	•	420
	GW					•	25
Mobile	CD			٠		•	210
	CJ			٠		•	210/420
	CM			•	10	•	210
	FD			٠	11		
	LEM			٠	7	•	420
	М					•	210
ATEX	В			٠	7	•	210/420
	С			٠	200	٠	210/420
UL Approval (=CRUUS)	С					٠	210/420
CSA Approval	С			•	40		

* Dependent on application.

2.2 BY FILTER TYPE

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

Туре	BF	BL	BLT	DF DFF DFFX	DFDK DFDKN	DF MA/QE KP/MP	DFM	DFN DFNF	DFP DFPF	DFZ	ELF	FLN	FLND FMND	HDF HDFF	HDP	HFM	LF LFF	LFM	LFN LFNF
3				•	•	•	•	•				•	•	•		•	•	•	•
BF																			
BM				•	•	•	•	•	•	•		•	•	•		•	•	•	•
-																			
ES																			
< २	•	•	•								•								
			•								-								
JBM JE	•	•	•								•	-1)					• 1)		
JED												•1)			•		•1)		
V															•				
v C				•	•	•	•	•	•	•		•	•	•		•	•	•	•
D				•	•	•	•	•	•	•		•	•	•		•	•	•	•
F				•	•	•	•	•	•	•		•	•	•		•	•	•	•
LE				•	•	•	•	•	•	•		•	•	•		•	•	•	•
le LZ				•	•	•	•	•	•	•		•	•	•		•	•	•	•
UF				-	•	•	-	-	-	-		•1)	•			-	•1)		-
VE												• • •					•.,		
VE VZ																			
GC					•		•	•	-	_				•			•	-	_
GC GW				•	•	•	•	•	•	•		•	•			•	•	•	•
				•	•	•	•	•	•	•		•	•	•		•	•	•	•
CJ				•	•	•	•	•	•	•		•	•	•		•	•	•	•
CJ CM				•	•	•	-	-	-	-		•	•	-		-	•	•	•
FD												•	•				•	•	•
гD M												•	•				•	•	•
LEM				•	•	•	•	•	•	•		•	•	•		•	•	•	•
				•	•	•		•	•	•		•	•	•			•		
Туре	LPF	MDF	MF	MFD	MFM	MFX	NF	NFD	RF	RFD	RFL	RFLD	RFN	RFND	RFM	RKM	SF	SFF	SFN
B	•	•			•	•			•	•	•	•	•	•	•	•	01		0.11
	-					•				-			-	-	-	-			
BF	•									1				1					
	•	•			•	•	•	•			•	•							
BM	•	•	2)	•2)	•		•	•		•	•	•	•	•	•				
BM E		•	•2)	•2)	•		•	•	•	•	•	•	•	•	•				
BF BM E ES K		•	•2)	•2)	•		•	•	•	•	•	•	•	•	•				
BM E ES K		•	•2)	•2)	•		•	•			•	•							
BM E ES K R		•	•2)	•2)	•		•	•			•	•				•			
BM E ES K R UBM	•	•			•		•	•				•					•		
BM E ES K R UBM UE		•	• ²)	•2) •1)	•		•	•			• 1)					•	•	•	•
BM E ES K R UBM UE V	• • • • • •								•	•	• 1) •	•	•	•	•	•	•	•	•
BM ES K R UBM UE V C	•	•			•		•	•			• 1)						•	•	•
BM ES K R UBM UE V C D	 • •	•	•1)			•	•	•	•	•	• 1) •	•	•	•	•	•	•	•	•
BM E ES K R UBM UB V UE V C C D	 • •	•		•1)		•	•	•	•	•	• 1) •	•	•	•	•	•	•	•	•
BM E ES K UBM UB UE C C D F LE	 • •	•	•1)	•1)	•	•	•	•	•	•	• 1) • •	•	•	•	•	• • • • • • • • • • • • • • • • • • • •	•	•	•
BM E ES K UBM UE V C C C D F LE LZ	 • •	•	• 1)	•1)	•	•	•	•	•	•	• 1) • •	•	•	•	•	•			
BM E ES K R UBM UE V C C C D F L L E L Z UF	 • •	•	•1)	•1)	•	•	•	•	•	•	• 1) • • • • • • • • • • • • • • • • • • •	•	•	•	•	• • • • • • • • • • • • • • • • • • • •	•	•	•
BM E ES K UBM UE V C C C C C C C C C C C C C C C C C C	 • •	•	• 1)	•1)	•	•	•	•	•	•	• 1) • • • • • • • • • • • • • • • • • • •	•	•	•	•	•			
BM E ES K R UBM UE V C C C C C C C C C C C C C C C C C C	 • •	•	• 1)	•1)	•	•	•	•	•	•	• 1) • • • • • • • • • • • •	•	•	• • • • • • • • • • • • • • • • • • • •	•	• • • • •			
BM E ES K R UBM UE V C C C C C C C C C C C C C C C C C C	 • •	•	• 1)	•1)	•	•	•	•	•	•	• 1) • 0 • 0 • 0 • 1) • 0 • 0	•	•	•	•	•			
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BM E ES K R UBM UE V C C C C C UF VE VZ GC GW CD	 • •	•	• 1)	•1)	•	•	•	•	• • • • • • • • • • • • •	•	• 1) • 1) • • • • • • • • • • • • • • • • • • •	•	•	• • • • • • • • • • • • • • • • • • •	•				
BM E ES K R UBM UE V C C D C C UF V E V Z G C G W C C C C	 • •<	•	• 1)	•1)	•		•	•	• • • • • • • • • • • • • • • • • • •	• • • • • • • • • • • • • • • • • • •	 1) 1) 0 0 1) 0 1) 0 <l< td=""><td>•</td><td></td><td>• • • • • • • • • • • • • • • • • • •</td><td>•</td><td></td><td></td><td></td><td></td></l<>	•		• • • • • • • • • • • • • • • • • • •	•				
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BM E ES K R UBM UE V C C C C C C C C C C C C C C C C C C	 • •	•	• 1)	•1)	•	•	•	•	• • • • • • • • • • • • • • • • • • •	• • • • • • • • • • • • • • • • • • •	 1) 1) 0 0 1) 0 1) 0 <l< td=""><td>•</td><td></td><td>• • • • • • • • • • • • • • • • • • •</td><td>•</td><td></td><td></td><td></td><td></td></l<>	•		• • • • • • • • • • • • • • • • • • •	•				
BM E ES K R UBM UE V C C C C C C C C C C C C C C C C C C	 • •<	•	• 1) • 1) • 1) • 1) • 1) • 1) • 1) • 1)	 • 1) • 1)<td>•</td><td></td><td>•</td><td>•</td><td>• • • • • • • • • • • • • • • • • • •</td><td>• • • • • • • • • • • • • • • • • • •</td><td> 1) 1) 0 0 1) 0 1) 0 <l< td=""><td>•</td><td></td><td>• • • • • • • • • • • • • • • • • • •</td><td>• • • • • • • • • • • • • • • •</td><td></td><td></td><td></td><td></td></l<></td>	•		•	•	• • • • • • • • • • • • • • • • • • •	• • • • • • • • • • • • • • • • • • •	 1) 1) 0 0 1) 0 1) 0 <l< td=""><td>•</td><td></td><td>• • • • • • • • • • • • • • • • • • •</td><td>• • • • • • • • • • • • • • • •</td><td></td><td></td><td></td><td></td></l<>	•		• • • • • • • • • • • • • • • • • • •	• • • • • • • • • • • • • • • •				

3. SPECIFICATIONS

3.1 VACUUM INDICATORS VMF x UE.x

	Type of indication	visual-analogue, scale indication	
	Weight	54 g	<u>\$50</u>
	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 / ₈	
27	Max. torque	15 Nm	<u>5W 12</u>
	Switching type	-	
	Max. switching voltage	-	<u></u>
	Electrical connection	-	ALI ITALIAN
	Max. switching voltage at resistive load	-	0,6 0,4
Y .	switching capacity	-	0,0 0,2-
	Protection class to DIN 40050	-	STOC MARKEN
В	Order example	VMF 1 UE.0	

VR x UE.x

	Type of indication	visual-analogue, scale indication	
	Weight	125 g	Ø 50 Ø 46
	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	sw 12
	Thread	G ¹ / ₂	SW 19
	Max. torque	30 Nm	<u>Seal ring 1/₅</u> O-ring 18x2.5
	Switching type	-	
	Max. switching voltage	-	G1/2
г- — -†	Electrical connection	-	unhundun.
	Max. switching voltage at resistive load	-	0,6 0, = 0,8
	switching capacity	-	==-1,0• bar
	Protection class to DIN 40050	-	"
В	Order example	VR 1 UE.0	



G 1/8

8

VRD x UE.x

A B	

Type of indication	visual-analogue, scale indication	Ø50
Weight	141 g	Ø46
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	<u>SW 27</u>
Switching type	-	51
Max. switching voltage	-	G 1/2
Electrical connection	-	
Max. switching voltage at resistive load	-	51100,6 0,4 T
switching capacity	-	0,8 0,2
Protection class to DIN 40050	-	=-1.0 bar his
Order example	VRD 1 UE.0	

VMF x UF.x

	Type of indication	electrical switch	
	Weight	170 g	4.00
	Pressure setting or indication range	-0.2 bar ± 0.1 bar	<i>∲</i> 32
	Permitt. operating pressure	40 bar	
	Permitt. temperature range	-30 °C to +100 °C	
	Thread	G ¹ / ₈	
	Max. torque	15 Nm	
	Switching type	N/O contact	36.5
T	Max. switching voltage	48 V	
1 1 1 1 1 1 1 1 1 1	Electrical connection	threaded connection	
	Max. switching voltage at resistive load	60 W = 100 VA ~	SW 24
	switching capacity	ohmic 2.5 A at 24 V = ohmic 2.5 A at 42 V ~	
B	Protection class to DIN 40050	IP 65, terminals IP 00	
	Order example	VMF 0.2 UF.0	

VR x UF.x

	Type of indication	electrical switch	
A	Weight	170 g	Ø 32
	Pressure setting or indication range	-0.2 bar ± 0.1 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/O contact	2 2 2
	Max. switching voltage	48 V	Č Č
, A	Electrical connection	threaded connection	
	Max. switching voltage at resistive load	60 W = 100 VA ~	<u>SW 18</u>
	switching capacity	ohmic 2.5 A at 24 V = ohmic 2.5 A at 42 V ~	4
	Protection class to DIN 40050	IP 65, terminals IP 00	<u> </u>
В	Order example	VR 0.2 UF.0	

electrical switch

VRD x UF.x

A	
T	

B

Type of indication

	Weight	170 g		Ø 32
	Pressure setting or indication range	-0.2 bar ± 0.1 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/O contact		
	Max. switching voltage	48 V	ĺ	
	Electrical connection	threaded connection	<u>SW 27</u>	
-	Max. switching voltage at resistive load	60 W = 100 VA ~		
0 0	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		_ G 1/2
	Order example	VRD 0.2 UF.0		

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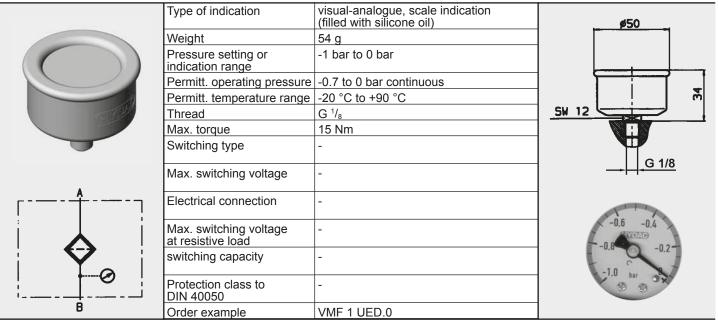
112.5

27

VMF x UBM.x

	Type of indication	visual, yellow pin	
	Weight	54 g	M10x1
	Pressure setting or indication range	-0.035 bar	
	Permitt. operating pressure	1 bar	
	Permitt. temperature range	-30 °C to +100 °C	
and the second se	Thread	M10 x 1	
Charles Inc.	Max. torque	10 Nm	
	Switching type	-	Ø46.50
	Max. switching voltage	-	
	Electrical connection	-	
	Max. switching voltage at resistive load	-	20.50
	switching capacity	-	
	Protection class to DIN 40050	-	
	Order example	VMF 0.035 UBM.0	

VMF x UED.x



3.2 RETURN LINE INDICATORS

VMF x B.x

	Type of indication	visual, red pin	
	Weight	84 g	
	Pressure setting or indication range	2 bar - 0.2 bar	1
	Permitt. operating pressure	7 bar	
	Permitt. temperature range	-30 °C to +100 °C	۵۵ ۲
	Thread	G ¹ / ₈	
	Max. torque	15 Nm	
U	Switching type	-	8
A	Max. switching voltage	-	
	Electrical connection	-	
	Max. switching voltage at resistive load	-	30 30 30 30 30 30 30 30 30 30 30 30 30 3
	switching capacity	-	
	Protection class to DIN 40050	-	<u>G 1/8</u>
В	Order example	VMF 2 B.1	

VR x B.x

	Type of indication	visual rod pip	
	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	ε
	Max. torque	15 Nm	
	Switching type	-	<u>SW30</u>
<u> </u>	Max. switching voltage	-	
	Electrical connection	-	
	Max. switching voltage at resistive load	-	
	switching capacity	-	G1/2
B	Protection class to DIN 40050	-	
D	Order example	VR 2 B.1	

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	- 28	~ 34
	Thread	G ¹ / ₈		
	Max. torque	15 Nm		
	Switching type	N/C or N/O (change-over contacts)	88.5	ş,
U	Max. switching voltage	230 V		SW 27
	Electrical connection	Male connection M20 Female connector to DIN 43650		
	Max. switching voltage at resistive load	250 W = 300 VA ~	G 1/8	
	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		

	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		~ 34
	Thread	G ¹ / ₂		
	Max. torque	30 Nm		
	Switching type	N/C or N/O (change-over contacts)		
	Max. switching voltage	230 V	2	
A	Electrical connection	Male connection M20 Female connector to DIN 43650		
	Max. switching voltage at resistive load	250 W = 300 VA ~	G 1/2	
	switching capacity	Ohmic 6 A at 24 V Ohmic 0.03 to 6 A at max. 230 V ~		
B	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		
	Woight	240 a		

	Weight
	Pressure setting indication range
	Permitt. operatii
	Permitt. temper
	Thread
	Max. torque
	Switching type
	Max. switching
A	Electrical conne
	Max. switching at resistive load
	switching capac
	Protection class DIN 40050
B	Order example

pe or indication	electrical switch	
/eight	340 g	
essure setting or dication range	2 bar - 0.3 bar	
ermitt. operating pressure	40 bar	34
ermitt. temperature range	-30 °C to +100 °C	
nread	G ¹ / ₂	
ax. torque	33 Nm	
witching type	N/C or N/O (change-over contacts)	
ax. switching voltage	230 V	*
ectrical connection	Male connection M20 Female connector to DIN 43650	
ax. switching voltage resistive load	250 W = 300 VA ~	
vitching capacity	Ohmic 6 A at 24 V Ohmic 0.03 to 6 A at max. 230 V ~	
otection class to IN 40050	IP 65 (only if the connector is wired and fitted correctly)	
rder example	VRD 2 C.1	

VMF x D.x /-L...

	Type of indication	visual indicator and electrical switch	
	Weight	300 q	
0 10	Pressure setting or indication range	2 bar - 0.3 bar	
Con Party	Permitt. operating pressure	40 bar	
	Permitt. temperature range	-30 °C to +100 °C	34
	Thread	G ¹ / ₈	
	Max. torque	15 Nm	
	Switching type	N/C or N/O (change-over contacts)	
T	Max. switching voltage	24, 48, 115, 230 V (depending on the type of light insert)	×
	Electrical connection	Male connection M20 Female connector to DIN 43650	SW 27
	Max. switching voltage at resistive load	250 W = 300 VA ~	G 1/8
	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	<u> - □28 -</u>	~ 34
 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)	~ 107.5	
Max. switching voltage	24, 48, 115, 230 V (depending on the type of light insert)		SW 27
Electrical connection	Male connection M20 Female connector to DIN 43650		
Max. switching voltage at resistive load	250 W = 300 VA ~	<u> </u>	<u> </u>
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 D.1 /-L110		

VRD x D.x /-L...

			1	
	Type of indication	visual indicator and electrical switch		
- Anna	Weight	360 g		
2 ()	Pressure setting or indication range	2 bar - 0.3 bar		
	Permitt. operating pressure	40 bar	- 28	~ 34
	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	24, 48, 115, 230 V (depending on the type of light insert)	~ 115.5	SW 27
	Electrical connection	Male connection M20 Female connector to DIN 43650		
	Max. switching voltage at resistive load	250 W = 300 VA ~	57	
Connection	switching capacity	Ohmic 6 A at 24 V = Ohmic 0.03 to 6 A at max. 230 V ~	G 1/2	
	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		- 28	~ 34
	Permitt. temperature range	-30 °C to +100 °C			
	Thread	G ¹ / ₈		(\oplus)	
	Max. torque	15 Nm			
	Switching type	N/O contact	~ 90.5		ş,
	Max. switching voltage	24 V			SW 27
	Electrical connection	Male connection M20 Female connector to DIN 43650	2		
	Max. switching voltage at resistive load	250 W = 300 VA ~		<u> </u>	
	switching capacity	Ohmic 6 A at 24 V =			
Connection block	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		. □28	~ 34
E 1999 TELEVISION	Permitt. operating pressure	40 bar			
	Permitt. temperature range	-30 °C to +100 °C			
	Thread	G 1/2			
	Max. torque	30 Nm			
	Switching type	N/O contact	107.5		2 2 2
	Max. switching voltage	24 V	ž		SW 27
	Electrical connection	Male connection M20 Female connector to DIN 43650	4		
	Max. switching voltage at resistive load	250 W = 300 VA ~	1-1	 	
O 3 0	switching capacity	Ohmic 6 A at 24 V =			
Connection block	Protection class to DIN 40050	IP 65 (only if the connector is wired and fitted correctly)			
	Order example	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	- 28	~ 34
	Permitt. temperature range	-30 °C to +100 °C		
	Thread	G 1/2		
	Max. torque	33 Nm		
	Switching type	N/O contact	roi	
	Max. switching voltage	24 V	~ 11	SW 27
	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 =	_G 1/2	
Connection block	Protection class to DIN 40050	IP 65 (only if the connector is wired and fitted correctly)		
<u>-</u>	Order example	VRD 2 D.1 /-LED		

VMF	x	E.x

VIVIF X E.X			
	Type of indication	visual-analogue, scale indication	ø50
	Weight	54 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	8
	Thread	G ¹ / ₈	5W 12
	Max. torque	15 Nm	
	Switching type	-	
A	Max. switching voltage	-	G <u>1/8</u>
	Electrical connection	-	
	Max. switching voltage at resistive load	-	3
	switching capacity	-	a bar 10
B	Protection class to DIN 40050	-	GYDAG
	Order example	VMF 2 E.0	

	Type of indication	visual-analogue, scale indication	
	Weight	54 g	<i>ø</i> 50
	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	m i m
	Max. torque	15 Nm	5W 12
	Switching type	-	
A	Max. switching voltage	-	G 1/8
	Electrical connection	-	TATION A
	Max. switching voltage at resistive load	-	5 10
	switching capacity	-	bar 15
B	Protection class to DIN 40050	-	
	Order example	VMF 16 E.0	

VR x E.x

	Type of indication	visual-analogue, scale indication	Ø50
	Weight	125 g	Ø 50 Ø 46
	Pressure setting or indication range	0 bar to +10 bar	
	Permitt. operating pressure	7 bar continuous	
	Permitt. temperature range	-20 °C to +60 °C	SW 12
	Thread	G ¹ / ₂	SW 19
	Max. torque	30 Nm	Seal ring 1/8
	Switching type	-	O-ring 18x2.5
, A ,	Max. switching voltage	-	G 1/2
	Electrical connection	-	
	Max. switching voltage at resistive load	-	
	switching capacity	-	
B	Protection class to DIN 40050	-	ge Shar G 10 (TYY JAD
	Order example	VR 2 E.0	

VRD x E.x

	Type of indication	visual-analogue, scale indication	φ50
	Weight	141 g	Ø46
	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	SW 27
	Max. torque	33 Nm	
	Switching type	-	
· · · · · · · · · · · · · · · · · · ·	Max. switching voltage	-	G 1/2
	Electrical connection	-	
	Max. switching voltage at resistive load	-	
	switching capacity	-	
	Protection class to DIN 40050	-	
В	Order example	VRD 2 E.0	

VMF x ES.x

	Type of indication	visual-analogue, scale indication	¢ 50
	Weight	54 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	e 1
	Max. torque	15 Nm	G 1/8
	Switching type	-	
A	Max. switching voltage	-	
	Electrical connection	-	
	Max. switching voltage at resistive load	-	
	switching capacity	-	3
B	Protection class to DIN 40050	-	a Shar 10
	Order example	VMF 2 ES.0	GMDAG

VR x ES.x

	Type of indication	visual-analogue, scale indication	
	Weight	125 g	
	Pressure setting or indication range	0 bar to +10 bar	
	Permitt. operating pressure	7 bar continuous	~ 44
	Permitt. temperature range	-20 °C to +60 °C	SW 18
	Thread	G ¹ / ₂	
	Max. torque	30 Nm	
	Switching type	-	_G 1/2 _
A	Max. switching voltage	-	
	Electrical connection	-	
i ¥ ↔	Max. switching voltage at resistive load	-	
	switching capacity	-	
B	Protection class to DIN 40050	-	0 Sbar 0 10
	Order example	VR 2 ES.0	GYDAG

VRD x ES.x

Marile Marine	Type of indication	visual-analogue, scale indication	<i>\$</i> 50
	Weight	141 g	
	Pressure setting or indication range	0 bar to +10 bar	
	Permitt. operating pressure	7 bar continuous	- 81
	Permitt. temperature range	-20 °C to +60 °C	SW 27
	Thread	G 1/2	
	Max. torque	33 Nm	
	Switching type	-	
	Max. switching voltage	-	
A	Electrical connection	-	
	Max. switching voltage at resistive load	-	
	switching capacity	-	
	Protection class to DIN 40050	-	0 Shar 10
В	Order example	VRD 2 ES.0	CAMUAD

VMF x F.x

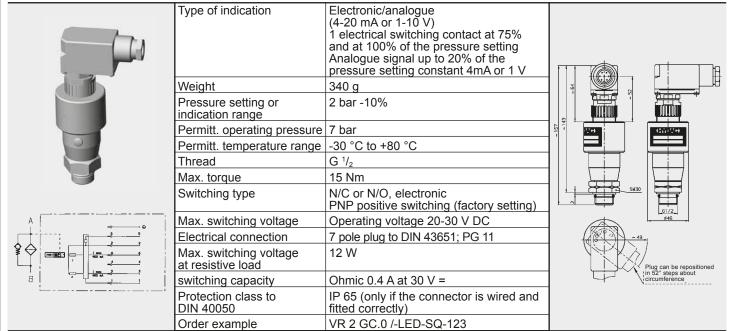
	Type of indication	electrical switch	
A	Weight	70 g	
	Pressure setting or indication range	2 bar ± 0.3 bar	Ø 32
	Permitt. operating pressure	40 bar	
	Permitt. temperature range	-30 °C to +100 °C	
	Thread	G ¹ / ₈	
	Max. torque	15 Nm	
	Switching type	N/O contact (N/C as an option)	
U	Max. switching voltage	42 V	
A	Electrical connection	threaded connection	SW 24
	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 ~	G 1/8
	Protection class to DIN 40050	IP 65, terminals IP 00	
B	Order example	VMF 2 F.0	

VR x F.x

	Type of indication	electrical switch	
A	Weight	130 g	Ø32
	Pressure setting or indication range	2 bar ± 0.3 bar	<u>т</u>
	Permitt. operating pressure	40 bar	
	Permitt. temperature range	-30 °C to +100 °C	
	Thread	G ¹ / ₂	
	Max. torque	30 Nm	
	Switching type	N/O contact (N/C as an option)	8
	Max. switching voltage	42 V	
A	Electrical connection	threaded connection	SW 19
	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	<u>G 1/2</u>
В	Order example	VR 2 F.0	

VRD x F.x

	Type of indication	electrical switch	
A	Weight	130 g	■ Ø32 ■
	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/O contact (N/C as an option)	
	Max. switching voltage	42 V	
A	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	<u>G 1/2</u>
В	Order example	VRD 2 F.0	



VMF x K.x

	Type of indication	visual-analogue, scale indication	ø50
	Weight	54 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	<u>.</u>
	Thread	G ¹ / ₈	SW 12
	Max. torque	15 Nm	
	Switching type	-	G 1/8
········	Max. switching voltage	-	
	Electrical connection	-	ALL
	Max. switching voltage at resistive load	-	20,5
	switching capacity	-	
	Protection class to DIN 40050	-	HYDAB
	Order example	VMF 0.6 K.0	

VMF x LE.x

	Type of indication	visual, red pin and electrical switch 1 switching contact at 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	<u>SW 30</u>
	Thread	G ¹ / ₈	9
	Max. torque	15 Nm	1 <u>2</u>
U	Switching type	N/C or N/O contacts Reed contacts (change-over contacts)	<u>G 1/8</u>
	Max. switching voltage	115 V	~ 79
A	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 ~	
B	Protection class to DIN 40050	IP 65 (only if the connector is wired and fitted correctly)	M20x1.5
	Order example	VMF 2 LE.1	

	Type of indication	visual, red pin and electrical switch 1 switching contact at 100% of the pressure setting	f
	Weight	143 g	
51.	Pressure setting or indication range	2 bar - 0.2 bar	
- W	Permitt. operating pressure	7 bar	
	Permitt. temperature range	-30 °C to +100 °C	sw 30
	Thread	G ¹ / ₂	
	Max. torque	15 Nm	2
	Switching type	N/C or N/O contacts Reed contacts (change-over contacts)	<u></u>
	Max. switching voltage	115 V	~ 79
A	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 ~	35 M20x1.5
↓ ↓	Protection class to DIN 40050	IP 65 (only if the connector is wired and fitted correctly)	[mcort.c
	Order example	VR 2 LE.1	

VMF x LZ.x

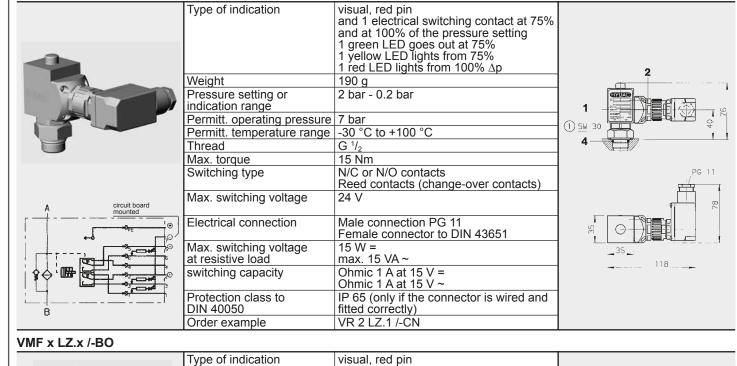
	Type of indication	visual, red pin and 1 electrical switching contact at 75% and at 100% of the pressure setting	
	Weight	230 g	
	Pressure setting or indication range	2 bar – 0.2 bar	
	Permitt. operating pressure	7 bar	
	Permitt. temperature range	-10 °C to +100 °C	
	Thread	G ¹ / ₈	SW 30
	Max. torque	15 Nm	
11	Switching type	N/C or N/O contacts	
U		Reed contacts (change-over contacts)	0 1/8
	Max. switching voltage	115 V	
	Electrical connection	Male connection M20	~ 123
		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 ~	M 20x1.5
switch: switch: warning 75% alarm 100%	Protection class to DIN	IP 65 (only if the connector is wired	
в	40050	and fitted correctly)	
	Order example	VMF 2 LZ.1	

VR x LZ.x	Type of indication	vioual rad nin	
	Type of indication	visual, red pin and 1 electrical switching contact at 75% and at 100% of the pressure setting	
	Weight	190 g	
	Pressure setting or indication range	2 bar – 0.2 bar	
	Permitt. operating pressure	7 bar	
	Permitt. temperature range	-10 °C to +100 °C	
	Thread	G ¹ / ₂	
	Max. torque	15 Nm	
<u> </u>	Switching type	N/C or N/O contacts	
		Reed contacts (change-over contacts)	<u>G 1/2</u>
	Max. switching voltage	115 V	
	Electrical connection	Male connection M20	~123
		Female connector to DIN 43650	
	Max. switching voltage	15 W =	
Î Î Î	at resistive load	max. 15 VA ~	
	switching capacity	Ohmic 1 A at 15 V =	
		Ohmic 1 A at 15 V ~	M20x1.5
switch: warning 75%	Protection class to DIN	IP 65 (only if the connector is wired	
B	40050	and fitted correctly)	
	Order example	VR 2 LZ.1	

| VMF x LZ.x /-DB

VMF 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% ∆p	
	Weight Pressure setting or indication range	170 g 2 bar - 0.2 bar	SW 30
	Permitt. operating pressure Permitt. temperature range	7 bar -30 °C to +100 °C	
	Thread	G ¹ / ₈	G 1/8
	Max. torque Switching type	15 Nm N/C or N/O contacts	~ 85 PG 11
	Max. switching voltage	Reed contacts (change-over contacts) 24 V	
A mounted	Electrical connection	Male connection PG 11	
	Max. switching voltage	Female connector to DIN 43651 15 W =	
	at resistive load	max. 15 VA ~	
	switching capacity	Ohmic 1 A at 15 V = Ohmic 1 A at 15 V ~	~ 98
	Protection class to DIN 40050	IP 65 (only if the connector is wired and	
	Order example	fitted correctly) VMF 2 LZ.1 /-DB	
VR 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	
	Weight Pressure setting or	190 g 2 bar - 0.2 bar	
	indication range		
	Permitt. operating pressure Permitt. temperature range	7 bar -30 °C to +100 °C	
	Thread	G ¹ / ₂	G 1/2
	Max. torque Switching type	15 Nm N/C or N/O contacts	~ 86 PG 11
		Reed contacts (change-over contacts)	
circuit board mounted	Max. switching voltage	24 V 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 =	~ 98
	Protection class to	Ohmic 1 A at 15 V ~ IP 65 (only if the connector is wired and	k
B	DIN 40050	fitted correctly)	
	Order example	VR 2 LZ.1 /-DB	
VMF x LZ.x /-CN	Type of indication	visual rod pip	
	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	170 g	
	Pressure setting or indication range	2 bar - 0.2 bar	SW 30
	Permitt. operating pressure	7 bar	
	Permitt. temperature range Thread	-30 °C to +100 °C G 1/8	G 1/8
	Max. torque	15 Nm	~ 86 PG 11
▲ circuit board	Switching type	N/C or N/O contacts Reed contacts (change-over contacts)	
	Max. switching voltage Electrical connection	24 V 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 =	~ 98
	Protection class to	Ohmic 1 A at 15 V ~ IP 65 (only if the connector is wired and	
В́	DIN 40050	fitted correctly)	
	Order example	VMF 2 LZ.1 /-CN	

VR x LZ.x /-CN



1000

	T			
,	A			
<	switch alarm 100% switch warning 75%			
I	B			

Type of indication	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%	73
Permitt. operating pressure	7 bar	
Permitt. temperature range	-10 °C to +100 °C	
Thread	G ¹ / ₈	
Max. torque	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 ~	<u>G 1/8</u>
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 /-BO	

VR x LZ.x /-BO

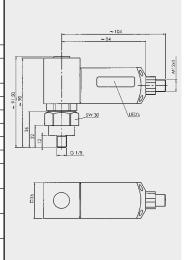
	Type of indication	visual, red pin and 1 electrical switching contact at 75% and at 100% of the pressure setting	
	Weight	145 g	
Names Contact	Pressure setting or indication range	2 bar (or 2.5 bar) - 10%	73
	Permitt. operating pressure	7 bar	
	Permitt. temperature range	-10 °C to +100 °C	
	Thread	G ¹ / ₂	
	Max. torque	15 Nm	
	Switching type	N/O (75%) N/C (100%)	
A	Max. switching voltage	24 V	₹ 5W 30
switch alarm	Electrical connection	Male connection M12 x 1	
switch varning 75%	Max. switching voltage at resistive load	15 W = max. 15 VA ~	<u> </u>
	switching capacity	Ohmic 1 A at 15 V = Ohmic 1 A at 15 V ~	
	Protection class to DIN 40050	IP 65	
В	Order example	VR 2 LZ.1 /-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%	73
	Permitt. operating pressure	7 bar	
	Permitt. temperature range	-10 °C to +100 °C	
	Thread	G ¹ / ₈	
	Max. torque	15 Nm	
	Switching type	N/C (75% and 100%)	
A	Max. switching voltage	24 V	SW 30
switch 2	Electrical connection	Male connection M12 x 1	
	Max. switching voltage at resistive load	15 W = max. 15 VA ~	G 1/8
switch warning	switching capacity	Ohmic 1 A at 15 V = Ohmic 1 A at 15 V ~	
75%	Protection class to DIN 40050	IP 65	
B	Order example	VMF 2 LZ.1 /-AV	
R 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	145 g	
	Pressure setting or indication range	2 bar (or 2.5 bar) - 10%	73,
ILO	Permitt. operating pressure	7 bar	□35
	Permitt. temperature range		
	Thread	G ¹ / ₂	
	Max. torque	15 Nm	
	Switching type	N/C (75% and 100%)	
A	Max. switching voltage	24 V	
switch alarm	Electrical connection	Male connection M12 x 1	SW 30
	Max. switching voltage at resistive load	15 W = max. 15 VA ~	<u> </u>
switch warning	switching capacity	Ohmic 1 A at 15 V = Ohmic 1 A at 15 V ~	_ 6 112 _
	Protection class to DIN 40050	IP 65	
В	Order example	VR 2 LZ.1 /-AV	
MF x LZ.x /-D4C			
	Type of indication	1 electrical switching contact at 75% and 100% of the pressure setting and suppression of the switching signal up to approx. 30 °C 2 green LED's light when below 30 °C	



circuit diagram shown in cold condition (<30°)

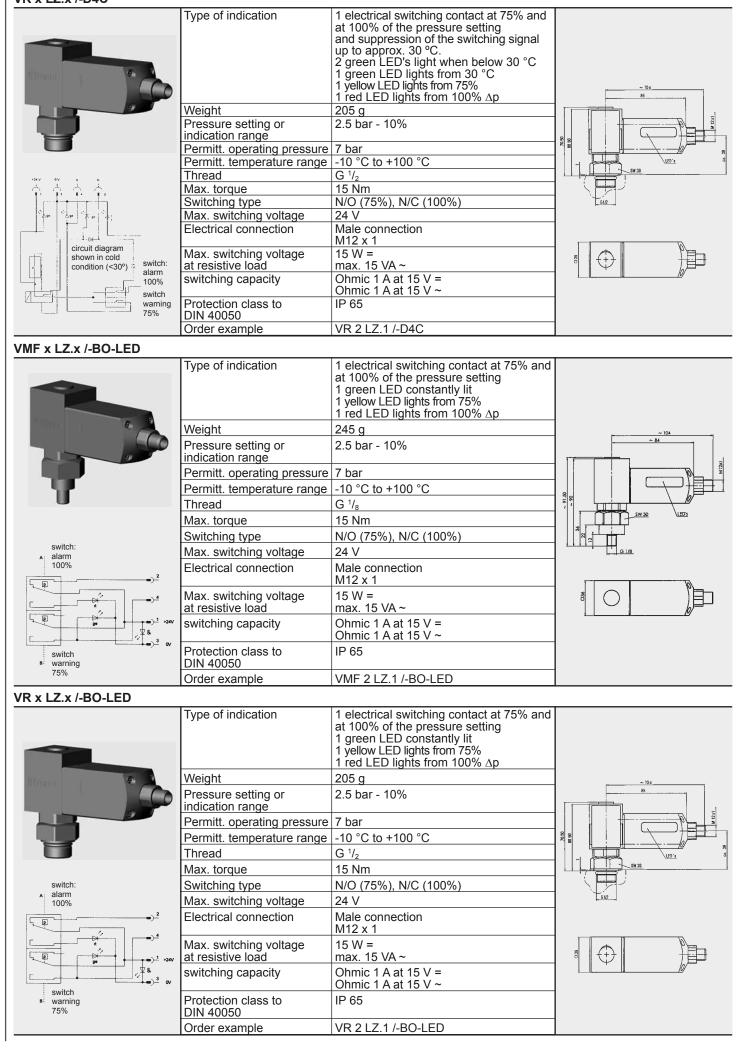
		2 green LED's light when below 30 °C 1 green LED lights from 30 °C 1 yellow LED lights from 75% 1 redLED lights from 100% ∆p	
	Weight	245 g	
	Pressure setting or indication range	2.5 bar - 10%	
	Permitt. operating pressure	7 bar	8
	Permitt. temperature range		26 26 20 10 10 10 10 10 10 10 10 10 10 10 10 10
	Thread	G ¹ / ₈	
	Max. torque	15 Nm	× + + +
	Switching type	N/O (75%), N/C (100%)	
	Max. switching voltage	24 V	
	Electrical connection	Male connection M12 x 1	F ['
switch:	Max. switching voltage at resistive load	15 W = max. 15 VA ~	
alarm 100%	switching capacity	Ohmic 1 A at 15 V = Ohmic 1 A at 15 V ~	
switch warning 75%	Protection class to DIN 40050	IP 65	
/5%	Order example	VMF 2 LZ.1 /-D4C	



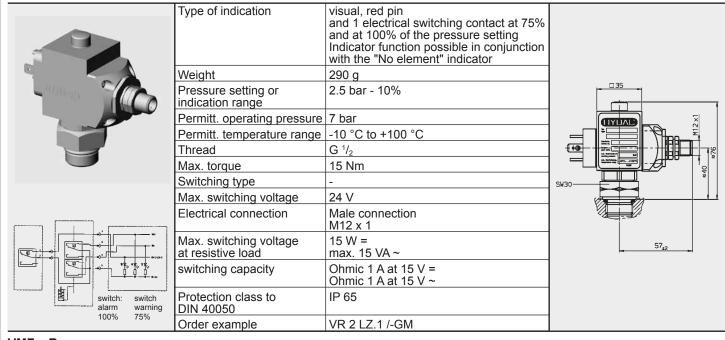
Ωt

24

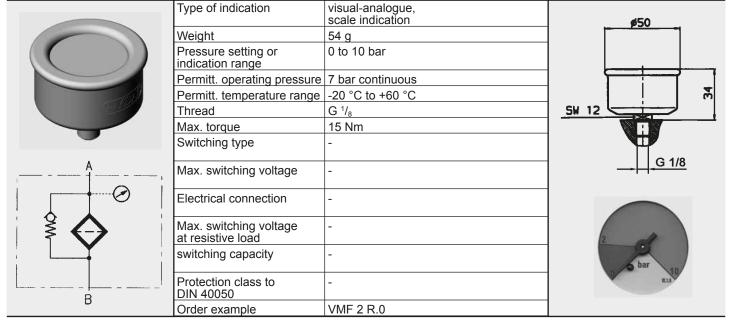
VR x LZ.x /-D4C



VR x LZ.x /-GM



VMF x R.x



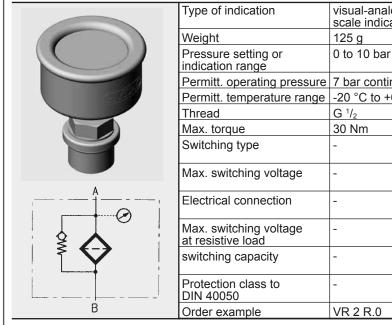
125 g

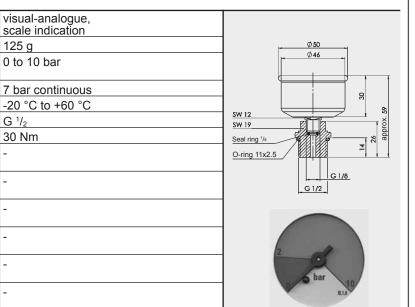
G 1/2

30 Nm

VR 2 R.0

VR x R.x



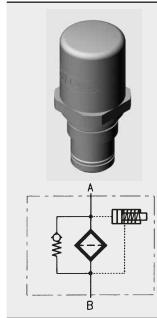


3.3 DIFFERENTIAL PRESSURE INDICATORS

VM x B.x

Type of indication	visual, red/green band Automatic reset	
Weight	55 g	
Pressure setting or indication range	2 bar - 10% 5 bar - 10% 8 bar ± 10%	#27
Permitt. operating pressure	210 bar	
Permitt. temperature range	-30 °C to +100 °C	
Thread	G 1/2	
Max. torque	33 Nm	
Switching type	-	5W27
Max. switching voltage	-	
Electrical connection	-	
Max. switching voltage at resistive load	-	
switching capacity	-	
Protection class to DIN 40050	-	
Order example	VM 5 B.1	

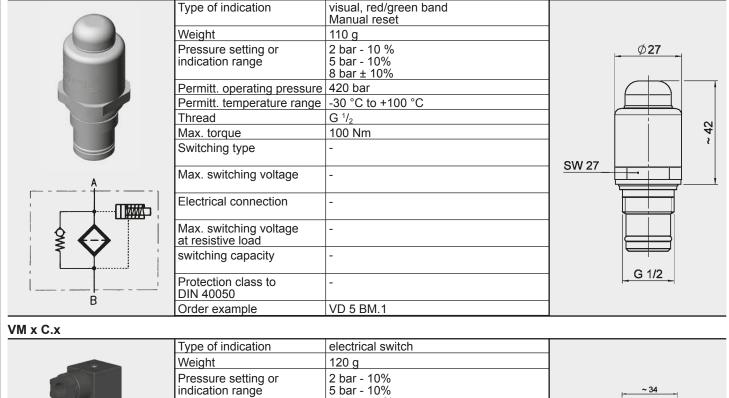
VD x B.x



Type of indication	visual, red/green band Automatic reset		
Weight	110 g		
Pressure setting or indication range	2 bar - 10% 5 bar - 10% 8 bar ± 10%		Ø27
Permitt. operating pressure	420 bar		
Permitt. temperature range	-30 °C to +100 °C		
Thread	G ¹ / ₂		0
Max. torque	100 Nm		l l l l l l l l l l l l l l l l l l l
Switching type	-	<u>SW 27</u>	
Max. switching voltage	-		
Electrical connection	-		
Max. switching voltage at resistive load	-		
switching capacity	-		G 1/2
Protection class to DIN 40050	-		
Order example	VD 5 B.1		

VM x BM.x

	Type of indication	visual, red/green band Manual reset	
	Weight	55 g	
	Pressure setting or indication range	2 bar - 10% 5 bar - 10% 8 bar ± 10%	۵ په ۲ ۲
	Permitt. operating pressure	210 bar	
	Permitt. temperature range	-30 °C to +100 °C	╽╴──┟┺╤╤┹┥╴╹╵
	Thread	G ¹ / ₂	
	Max. torque	33 Nm	
	Switching type	-	5W27
	Max. switching voltage	-	
	Electrical connection	-	
	Max. switching voltage at resistive load	-	
₹ V	switching capacity	-	
·	Protection class to DIN 40050	-	
В	Order example	VM 5 BM.1	



	Per Per Thr Ma Sw
U	Ма
A	Ele
	Ma at r Sw
B	Pro DIN Oro

Neight	120 g	
Pressure setting or ndication range	2 bar - 10% 5 bar - 10% 8 bar ± 10%	~34 □28
Permitt. operating pressure	210 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	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)	<u>G 1/2</u>
Order example	VM 5 C.0	

VD x C.x

/D 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	M20x1.5
	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)	8 5W 30 %
	Max. switching voltage	230 V	
A	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 ~	_ G 1/2 _
	Protection class to DIN 40050	IP 65 (only if the connector is wired and fitted correctly)	
В	Order example	VD 5 C.0	

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

VM x D.x /-L...

and the second	Type of indication	visual indicator and electrical switch	
	Weight	150 g	<mark>∼ 34</mark>
	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	
1000 B	Max. torque	33 Nm	
	Switching type	N/C or N/O (change-over contacts)	₽ SW 30 ⁶
	Max. switching voltage	24, 48, 115, 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)	_ G 1/2
●	Order example	VM 5 D.0 /-L24	
VD x D.x /-L			

pro co	Type of indication	visual indicator and electrical switch	
	Weight	250 g	
	Pressure setting or indication range	2 bar -10% 5 bar - 10% 8 bar ± 10%	<u>~34</u> <u>□28</u>
	Permitt. operating pressure	420 bar	M20x1.5
	Permitt. temperature range	-30 °C to +100 °C	
	Thread	G ¹ / ₂	
1000	Max. torque	100 Nm	
	Switching type	N/C or N/O (change-over contacts)	€ SW 30 5
	Max. switching voltage	24, 48, 115, 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 ~	51
Connection block	Switching capacity 1)	Ohmic 3 A at 24 V = Ohmic 0.03 to 5 A at max. 230 V ~	G 1/2
	Protection class to DIN 40050	IP 65 (only if the connector is wired and 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	~~ <u>~ 34</u>
	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	<u>│</u> │
	Max. torque	33 Nm	<u> </u> <mark>⊬─────────────────────────────────</mark>
	Switching type	N/C or N/O (change-over contacts)	€ SW 30 %
	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 =	
Connection block	Protection class to DIN 40050	IP 65 (only if the connector is wired and fitted correctly)	G 1/2
	Order example	VM 5 D.0 /-LED	

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

VD x D.x /-LED			
	Type of indication	visual indicator and	
	Woight	electrical switch	
	Weight Pressure setting or	250 g 2 bar - 10%	~ 34
	Pressure setting or indication range	5 bar - 10%	
		8 bar ± 10%	
	Permitt. operating pressure		M20x1.5
	Permitt. temperature range		
	Thread	<u>G 1/2</u>	
	Max. torque	100 Nm	
1	Switching type	N/C or N/O	
		(change-over contacts)	01 01 01 01 01 01 01 01 01 01 01 01 01 0
	Max. switching voltage	24 V	
	Electrical connection	Male connection M20	
		Female connector to DIN 43650	
	Max. switching voltage	60 W =	
``本	at resistive load	100 VA ~	51
	Switching capacity 1)	ohmic 3 A at 24 V =	
۵ ۰ ۰ ۰ ۲	Protection class to	IP 65 (only if the connector is wired and	<u> </u>
Connection block	DIN 40050	fitted correctly)	
	Order example	VD 5 D.0 /-LED	
VD x GC.x			
	Type of indicator	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	2 bar - 10%	
	indication range	5 bar - 10%	
	Permitt. operating pressure	8 bar - 10% 420 bar	¥ (?+) (300?+)
		-30 °C to +80 °C	
	Thread	G ¹ / ₂	5W30
	Max. torque	100 Nm	<mark>│ └──└┲╪╤</mark> ┘
	Switching type	N/C or N/O, electronic	
	Max. switching voltage	PNP positive switching (factory setting) Operating voltage	
A		20-30 V ĎC	
	Electrical connection	7 pole plug to DIN 43651; PG 11	
	Max. switching voltage at resistive load	12 W	Plug can be repositioned in 52° steps about
	switching capacity	ohmic 0.4 A at 30 V =	in 52° steps about circumference
	Protection class to	IP 65 (only if the connector is wired and	
	DIN 40050	fitted correctly)	
	Order example	VD 5 GC.0 /-LED-SQ-123	
VL x GW.x	I		
	Type of indication	Electronic/analogue (4-20 mA) for condition monitoring filters incl. bypass	
		monitoring. 1 switching contact at 75%	
		and at 100% of the pressure setting	
	lease a second		
	Weight	157 g	
DANATEN CONTRACTOR	Pressure setting p	157 g 2 bar ± 5% 3 bar ± 5% 5 bar ± 5%	5W 36
and the			SW 36 M12x1
	Pressure setting p (switching contact 100%) Indication range ∆p Indication range	2 bar ± 5% 3 bar ± 5% 5 bar ± 5%	SW 36
	Pressure setting p (switching contact 100%) Indication range ∆p Indication range "pressure before filter"	2 bar ± 5% 3 bar ± 5% 5 bar ± 5% 0 - 5 bar 0 - 5 bar 0 - 8 bar 25 bar - 5 bar - 8 bar	
	Pressure setting p (switching contact 100%) Indication range ∆p Indication range "pressure before filter" Type of switching	2 bar ± 5% 3 bar ± 5% 5 bar ± 5% 0 - 5 bar 0 - 5 bar 0 - 8 bar 25 bar electronic switch. PNP positive switching	SW 36
	Pressure setting p (switching contact 100%) Indication range ∆p Indication range "pressure before filter" Type of switching switching outputs ∆p Output Load	2 bar ± 5%3 bar ± 5%5 bar ± 5%0 - 5 bar0 - 5 bar0 - 8 bar25 barelectronic switch, PNP positive switching N/O or N/C contacts (factory setting)400 mA	
	Pressure setting p (switching contact 100%) Indication range ∆p Indication range "pressure before filter" Type of switching switching outputs ∆p Output Load Max, switching voltage	2 bar ± 5%3 bar ± 5%5 bar ± 5%0 - 5 bar0 - 5 bar0 - 8 bar25 barelectronic switch, PNP positive switching N/O or N/C contacts (factory setting)	
	Pressure setting p (switching contact 100%) Indication range ∆p Indication range "pressure before filter" Type of switching switching outputs ∆p Output Load Max. switching voltage / operating voltage	2 bar ± 5%3 bar ± 5%5 bar ± 5%0 - 5 bar0 - 5 bar0 - 8 bar25 barelectronic switch, PNP positive switching N/O or N/C contacts (factory setting)400 mA2030V DC	
b (2030 V DC) _ 1	Pressure setting p (switching contact 100%) Indication range ∆p Indication range "pressure before filter" Type of switching switching outputs ∆p Output Load Max. switching voltage / operating voltage Analogue outputs	2 bar ± 5%3 bar ± 5%5 bar ± 5%0 - 5 bar0 - 5 bar0 - 8 bar25 barelectronic switch, PNP positive switching N/O or N/C contacts (factory setting)400 mA	
A	Pressure setting p (switching contact 100%) Indication range ∆p Indication range "pressure before filter" Type of switching switching outputs ∆p Output Load Max. switching voltage / operating voltage	2 bar ± 5%3 bar ± 5%5 bar ± 5%0 - 5 bar0 - 5 bar0 - 8 bar25 barelectronic switch, PNP positive switching N/O or N/C contacts (factory setting)400 mA2030V DC	
	Pressure setting p (switching contact 100%) Indication range Δp Indication range "pressure before filter" Type of switching switching outputs Δp Output Load Max. switching voltage / operating voltage Analogue outputs "press. before filter" & Δp Electrical connection Protection class to	2 bar ± 5%3 bar ± 5%5 bar ± 5%0 - 5 bar0 - 5 bar0 - 8 bar25 barelectronic switch, PNP positive switching N/O or N/C contacts (factory setting)400 mA2030V DC420 mA (max. load resistance 600Ω)	
	Pressure setting p (switching contact 100%) Indication range Δp Indication range "pressure before filter" Type of switching switching outputs Δp Output Load Max. switching voltage / operating voltage Analogue outputs "press. before filter" & Δp Electrical connection Protection class to DIN 40050	2 bar ± 5%3 bar ± 5%5 bar ± 5%0 - 5 bar0 - 5 bar0 - 8 bar25 bar25 barelectronic switch, PNP positive switching N/O or N/C contacts (factory setting)400 mA2030V DC420 mA (max. load resistance 600Ω)M12 x 1 / 8 poleIP 65	
$\begin{array}{c c} A \\ \hline \\$	Pressure setting p (switching contact 100%) Indication range Δp Indication range "pressure before filter" Type of switching switching outputs Δp Output Load Max. switching voltage / operating voltage Analogue outputs "press. before filter" & Δp Electrical connection Protection class to DIN 40050 Permitt. operating pressure	2 bar ± 5% 3 bar ± 5% 5 bar ± 5% 0 - 5 bar 0 - 5 bar 0 - 8 bar 25 bar 25 bar 0 - 0 - 8 bar electronic switch, PNP positive switching N/O or N/C contacts (factory setting) 400 mA 2030V DC 420 mA (max. load resistance 600Ω) M12 x 1 / 8 pole IP 65 25 bar 25 bar	
$\begin{array}{c c} A & & & & & & & & & & & & \\ \hline & & & & & &$	Pressure setting p (switching contact 100%) Indication range Δp Indication range "pressure before filter" Type of switching switching outputs Δp Output Load Max. switching voltage / operating voltage Analogue outputs "press. before filter" & Δp Electrical connection Protection class to DIN 40050 Permitt. operating pressure Permitt. temperature range	$\begin{array}{c c c c c c c c c c c c c c c c c c c $	
$\begin{array}{c c} A \\ \hline \\$	Pressure setting p (switching contact 100%) Indication range Δp Indication range "pressure before filter" Type of switching switching outputs Δp Output Load Max. switching voltage / operating voltage Analogue outputs "press. before filter" & Δp Electrical connection Protection class to DIN 40050 Permitt. operating pressure	2 bar ± 5% 3 bar ± 5% 5 bar ± 5% 0 - 5 bar 0 - 5 bar 0 - 8 bar 25 bar 25 bar 0 - 0 - 8 bar electronic switch, PNP positive switching N/O or N/C contacts (factory setting) 400 mA 2030V DC 420 mA (max. load resistance 600Ω) M12 x 1 / 8 pole IP 65 25 bar 25 bar	
$\begin{array}{c c} A & & & & & & & & & & & & \\ \hline & & & & & &$	Pressure setting p (switching contact 100%) Indication range Δp Indication range "pressure before filter" Type of switching switching outputs Δp Output Load Max. switching voltage / operating voltage Analogue outputs "press. before filter" & Δp Electrical connection Protection class to DIN 40050 Permitt. operating pressure Permitt. temperature range Thread	$\begin{array}{c c c c c c c c c c c c c c c c c c c $	

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^u | ¹ Required amperage > 20 mA; for lower amperages, order "-SO135" indicators (see Supplementary details). 132 | **HYDAC**

	Type of indication	visual, red pin and electrical switch 1 switching contact at 100% of the pressure setting	
-5-	Weight Pressure setting or indication range	198 g 2 bar - 10% 5 bar - 10% 8 bar - 10%	SW 30
H	Permitt. operating pressure Permitt. temperature range Thread Max. torque		6 1/2
9	Switching type	N/C or N/O contacts Reed contacts (change-over contacts)	~ 79
А	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 ~	M20x1.5
B	Protection class to DIN 40050	IP 65 (only if the connector is wired and fitted correctly)	
	Order example	VD 5 LE.1	

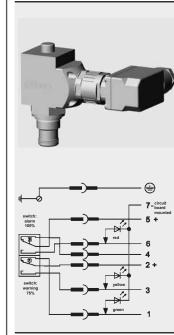
VD x LZ.x

	Type of indication	visual, red pin and 1 electrical switching contact at 75% and at 100% of the pressure setting	
	Weight	240 g	
0 5	Pressure setting or indication range	2 bar – 10% 5 bar – 10% 8 bar – 10%	
	Permitt. operating pressure	420 bar	SW 30
	Permitt. temperature range	-10 °C to +100 °C	
	Thread	G ¹ / ₂	
D	Max. torque	50 Nm	_G 1/2
	Switching type	N/C or N/O contacts Reed contacts (change-over contacts)	~ 123
	Max. switching voltage	115 V	
	Electrical connection	Male connection M20 Female connector to DIN 43650	
A switch switch alarm 20%	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 ~	M20x1.5
↓ · · · · · · · · · · · · · · · · · · ·	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% ∆p	Ē
	Weight	245 g	
	Pressure setting or indication range	2 bar - 10% 5 bar - 10% 8 bar - 10%	hex. 5/30
	Permitt. operating pressure	420 bar	
	Permitt. temperature range		
	Thread	G ¹ / ₂	
	Max. torque	50 Nm	
—) — —	Switching type	N/C or N/O contacts Reed contacts (change-over contacts)	
switch:	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 ~	
warning 75%	switching capacity	Ohmic 1 A at 15 V = Ohmic 1 A at 15 V ~	, * *I
	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	
0.00	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	50 Nm	[₽g11
	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 /-CN	

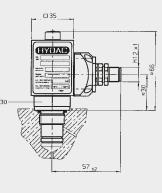
VD x LZ.x /-BO

	Type of indication	visual, red pin and one 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%	н. 035
	Permitt. operating pressure	420 bar	
	Permitt. temperature range	-10 °C to +100 °C	
	Thread	G ¹ / ₂	
	Max. torque	50 Nm	
A switch:	Switching type	N/O (75%) N/C (100%)	5w30
alarm 100%	Max. switching voltage	24 V	
	Electrical connection	Male connection M12 x 1	
	Max. switching voltage at resistive load	15 W = max. 15 VA ~	57 12
	switching capacity	Ohmic 1 A at 15 V = Ohmic 1 A at 15 V ~	
switch	Protection class to DIN 40050	IP 65	
B 75%	Order example	VD 5 LZ.1 /-BO	

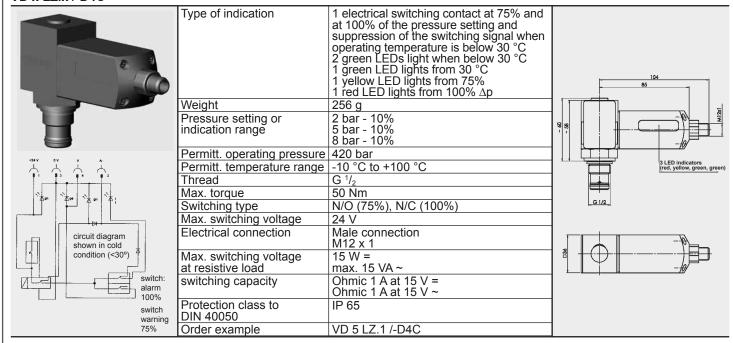
VD x LZ.x /-AV

A switch: alarm 100% 2 2 4 4 5 2 4 4 5 3 3

Type of indication	visual, red pin and one 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	50 Nm	
Switching type	N/C (75% and 100%)	
Max. switching voltage	24 V	5w30
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 /-AV	



VD x LZ.x /-D4C



VD x LZ.x /-BO-LED

	Type of indicator	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	250 g	65
-00	Pressure setting or	2 bar - 10%	
00	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	50 Nm	
switch:	Switching type	Schließer (75%) Öffner (100%)	<u>B 1/2</u>
alarm 100%	Max. switching voltage	24 V	
	Electrical connection	Male connection M12 x 1	
	Max. switching voltage at resistive load	15 W = max. 15 VA ~	
switch	switching capacity	Ohmic 1 A at 15 V = Ohmic 1 A at 15 V ~	
^{s:} warning 75%	Protection class to DIN 40050	IP 65	
	Order example	VD 5 LZ.1 /-BO-LED	

V02 x V.x

VU2 A V.A			
-	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	
C INTER	Thread	G ¹ / ₄	
	Max. torque	-	
	Switching type	-	
	Max. switching voltage	-	outiet clean
Г	Electrical connection	-	
	Max. switching voltage at resistive load	-	
\$ ♦ ∅	switching capacity	-	
	Protection class to DIN 40050	-	
В	Order example	V02 2 V.0	

	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%		inist cont.
Total D	Permitt. operating pressure	100 bar		
11000	Permitt. temperature range	-30 °C to +100 °C		
	Thread	G ¹ / ₄		
	Max. torque	-		
	Switching type	100% change-over contact		5 Outlet clean
•	Max. switching voltage	250 V	approx. 16	side /
A	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		
	Order example	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%		
1000	Permitt. operating pressure	100 bar		
	Permitt. temperature range	-30 °C to +100 °C		
	Thread	G ¹ / ₄		
	Max. torque	-		
	Switching type	75% - N/O contact 100% - change-ove	er contact	approx. 56
	Max. switching voltage	250 V		
А	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		
на стана с В	Protection class to DIN 40050	IP 65		
	Order example	V02 2 VZ.0		

3.4 MOBILE INDICATORS 3.4.1 RETURN LINE

VMF x CM.x

	Type of indication	electrical switch	
	Weight	90 g	
	Pressure setting or indication range	2 bar ± 0.3 bar	<u>M12x1</u>
	Permitt. operating pressure	10 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	24V	<u>SW 27</u>
	Electrical connection	Male connection M12 x 1	
	Max. switching voltage at resistive load	250 W= 300 VA~	_G 1/8
	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.1 /-4M0	
VMF x FD.x (plug connection	on: Deutsch DT 04-2P)		
	Type of indication	electrical switch	
	Weight	70 g	
	Pressure setting or indication range	2 bar ± 0.3 bar	
	Permitt. operating pressure		
	Permitt. temperature range		
	Thread	G ¹ / ₈	
	Max. torque	15 Nm	\$ 20
	Switching type	N/O or N/C	SW 24

42 V

60 W = 100 VA ~

Deutsch DT 04-2P

Ohmic 2.5 A at 24 V = Ohmic 1 A at 220 V ~

fitted correctly)

VMF 2 FD.0 /-2M0

IP 67 (only if the connector is wired and

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

0 0

P

₿

в

Max. switching voltage

Electrical connection

Max. switching voltage at resistive load

switching capacity

Protection class to DIN 40050

Order example

VIX X I D.X (plug connection			
	Type of indication	electrical switch	
	Weight	90 g	, Ø25 ,
	Pressure setting or indication range	2 bar ± 0.3 bar	
	Permitt. operating pressure	11 bar continuous	
	Permitt. temperature range	-30 °C to +100 °C	
	Thread	G ¹ / ₂	SW 24
	Max. torque	30 Nm	
	Switching type	N/O or N/C	
	Max. switching voltage	42 V	
A	Electrical connection	Deutsch DT 04-2P	
	Max. switching voltage at resistive load	60 W = 100 VA ~	20.96
	switching capacity	Ohmic 2.5 A at 24 V = Ohmic 1 A at 220 V ~	
	Protection class to DIN 40050	IP 67 (only if the connector is wired and fitted correctly)	
В	Order example	VR 2 FD.0 /-2M0	

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G 1/8

Туре	e of indication	visual, red pin and electrical switch	
		1 switching contact at 100% of the pressure setting	
Weig	ght	140 g	
	ssure setting or cation range	2 bar -0.2 bar	73
Perr	mitt. operating pressure	7 bar	
Perr	mitt. temperature range	-10 °C to +100 °C	
Thre	ead	G 1/2	
Max	. torque	15 Nm	
		N/C or N/O contacts Reed contacts (change-over contacts)	{
A Max	c. switching voltage	24V	SW 30
		Male connection M12 x 1	
		15 W = max. 15 VA ~	G 1/2
	0 1 9	Ohmic 1 A at 15 V = Ohmic 1 A at 15 V ~	
	tection class to 40050	IP 65	
Orde	er example	VR 2 LEM.1 /-4M0	

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	67.6
Permitt. temperature range	-10 °C to +80 °C	
Thread	M3; M4	16.5
Max. torque 0.6 Nm	0.6 Nm	── │ [←] <mark>│ ┃ <mark>╷</mark> ─── └ ── </mark>
Switching type	-	Ψ Ψ
Max. switching voltage	-	
Electrical connection	-	
Max. switching voltage at resistive load	-	
switching capacity	-	Ψ
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	SW 30
<u>II</u>	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	33 Nm	52 8
	Switching type	N/O or N/C	
	Max. switching voltage	48 V	
Ą	Electrical connection	-	<u>G 1/2</u>
	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)	SW 30
В	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%	SW 30 Ø28 Plug: Junior Power Timer 2P
	Permitt. operating pressure	210 bar	
	Permitt. temperature range	-30 °C to +100 °C	
	Thread	G 1/2	41.3
	Max. torque	33 Nm	52.8
	Switching type	N/O or N/C	
	Max. switching voltage	48 V	
	Electrical connection	Junior Power Timer	<u>G 1/2</u>
	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)	
B	Order example	VM 5 CJ.0 /-2M0	

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

	Type of indication	electrical switch	
	Weight	200 g	
	Pressure setting or indication range	2 bar - 10% 5 bar - 10% 8 bar ± 10%	928 Plug: Junior Power Timer 2P
	Permitt. operating pressure	420 bar	
	Permitt. temperature range	-30 °C to +100 °C	
	Thread	G ¹ / ₂	
	Max. torque	100 Nm	2 S
	Switching type	N/O or N/C	
	Max. switching voltage	48 V	
Ą	Electrical connection	Junior Power Timer	<u>_G 1/2</u>
	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)	
В	Order example	VD 5 CJ.0 /-2M0	

VM x CM.x

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B

Type of indication	electrical switch	MARIA
Weight	70 g	<u>M12x1</u>
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	33 Nm	
Switching type	N/C or N/O (change-over contacts)	
Max. switching voltage	48 V	
Electrical connection	Male connection M12 x 1	<u>G 1/2</u> Ø28
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 /-4M0	

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VM v M

VM x M.x			
	Type of indication	single pole (ground switching)	
	Weight	31 g	
	Pressure setting or indication range	2 bar ± 15%	<u>M3</u>
	Permitt. operating pressure	210 bar	
	Permitt. temperature range	-30 °C to +100 °C	
	Thread	G ¹ / ₂	SW 27
	Max. torque	33 Nm	
	Switching type	N/O or N/C	\$
A	Max. switching voltage	24V	
	Electrical connection	-	
	Max. switching voltage at resistive load	-	G 1/2
	switching capacity	-	
B	Protection class to DIN 40050	terminals IP00	
0	Order example	VM 2 M.0	

	Type of indication	visual, red pin and electrical switch 1 switching contact at 100% of the pressure setting	
	Weight	350 g	
HYDAC	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	50 Nm	
	Switching type	N/C or N/O contacts Reed contacts (change-over contacts)	
A	Max. switching voltage	24V	
	Electrical connection	Male connection M12 x 1	G 1/2
	Max. switching voltage at resistive load	15 W = max. 15 VA ~	
4	switching capacity	Ohmic 1 A at 15 V = Ohmic 1 A at 15 V ~	
B	Protection class to DIN 40050	IP 65	
	Order example	VD 5 LEM.1 /-4M0	

3.5 INDICATORS IN ACCORDANCE WITH ATEX DIRECTIVE

3.5.1 RETURN LINE

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

	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	-	SW30
Ą	Max. switching voltage	-	
	Electrical connection	-	
	Max. switching voltage at resistive load	-	
	switching capacity	-	G1/2
	Protection class to DIN 40050	-	
В	Order example	VR 2 B.0 /-2GC	

VR x B.x (ATEX) Can be used on steel/cast iron filters up to Zone 1

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seu on steel/cast non miter		
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	29 2
Max. torque	15 Nm	
Switching type	-	\$ \$ \$
Max. switching voltage	-	
Electrical connection	-	
Max. switching voltage at resistive load	-	
switching capacity	-	G1/2
Protection class to DIN 40050	-	
Order example	VR 2 B.0 /-2GC-SO174	

VMF x C.x /-Ex2G

101	Type of indication	electrical switch	
v	Weight	415 g	1
	Pressure setting or indication range	2 bar ± 0,5 bar	
	Permitt. operating pressure	200 bar	
	Permitt. temperature range	-20 °C to +70 °C (T6)/-20 °C to +80 °C (T5)	
	Thread	G ¹ / ₈	
	Max. torque	15 Nm	
	Switching type	N/C or N/O (change-over contacts)	
	Max. switching voltage	250 V	
T	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 DIN 40050	IP 65	<u><u>G</u> 1/8</u>
B	ATEX designation	🐼 II 2G EEx d IIC T6 / T5	
	Order example	VMF 2 C.0 /-Ex2G	

VR x C.x /-Ex2G

	Type of indication	electrical switch	
X	Weight	470 g	approx. 59
	Pressure setting or indication range	2 bar ± 0,5 bar	
	Permitt. operating pressure	40 bar	
100	Permitt. temperature range	-20 °C to +70 °C (T6)/-20 °C to +80 °C (T5)	
	Thread	G ¹ / ₂	<u>│</u>
3	Max. torque	30 Nm	<u> </u>
	Switching type	N/C or N/O (change-over contacts)	
	Max. switching voltage	250 V	
8	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 ~	SW 19
	Protection class to DIN 40050	IP 65	
B	ATEX designation	🖾 II 2G Ex d IIC T6 / T5	<u>+ 0 112 -</u> 1
	Order example	VR 2 C.0 /-Ex2G	

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

	Type of indication	electrical switch			
	Weight	340 g			
	Pressure setting or indication range	2 bar ± 0.3 bar			
	Permitt. operating pressure	40 bar		. 🗆 28 .	~ 34
	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)	103.5		
	Max. switching voltage	*	ž		SW 18
A	Electrical connection	Male connection M20 Female connector to DIN 43650	4		
	Max. switching voltage at resistive load	*		G 1/2	
	switching capacity	*			
	Protection class to DIN 40050	IP 65 (only if the connector is wired and fitted correctly)			
	Order example	VR 2 C.1 /-2GBC			

* 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).

3.5.2 DIFFERENTIAL PRESSURE

VM x B.x (ATEX) Can be used 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	<u>\$27</u>
Permitt. temperature range	-30 °C to +100 °C	
Thread	G ¹ / ₂	
Max. torque	33 Nm	36.5
Switching type	-	S#27
A Max. switching voltage	-	
Electrical connection	-	
Max. switching voltage at resistive load	-	
switching capacity	-	
Protection class to DIN 40050	-	
B Order example	VM 5 B.1 /-2GC	

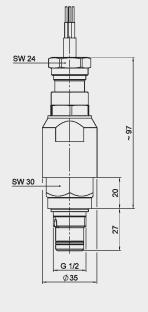
VD x B.x (ATEX) Can be used on filters up to Zone 1

	Type of indication	visual, red/green band Automatic reset	
	Weight	110 g	
	Pressure setting or indication range	5 bar - 10% 8 bar ± 10%	¢27
A STATE OF A	Permitt. operating pressure	420 bar	
	Permitt. temperature range	-30 °C to +100 °C	
	Thread	G ¹ / ₂	
	Max. torque	100 Nm	
	Switching type	-	5W27
Ą	Max. switching voltage	-	
	Electrical connection	-	
	Max. switching voltage at resistive load	-	
	switching capacity	-	
B	Protection class to DIN 40050	-	
J	Order example	VD 5 B.1 /-2GC	

VD x C.x /-2GEXDIIC

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Type of indication	electrical switch	
Weight	from 600 g	
Pressure setting or indication range	2 bar – 10% 5 bar – 10% 8 bar ± 10%	<u>SW 24</u>
Permitt. operating pressure	420 bar	
Permitt. temperature range	-20 °C to +60 °C (setting) (media temperature max. 75 °C)	
Thread	G 1/2	4
Max. torque	100 Nm	
Switching type	Change-over	
Max. switching voltage	250 V	SW 30
Electrical connection	Cable connection	00000
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	
ATEX designation	🚯 II 2G Ex d IIC T6	F
Order example	VD 2 C.1 /-2GEXDIIC	



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

VM X C.X (ATEX) Can be us	ed on aluminium filters u	p 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%	, <u> </u>
	Permitt. operating pressure	210 bar	M16x1.5
	Permitt. temperature range	-30 °C to +100 °C	
	Thread	G ¹ / ₂	
	Max. torque	33 Nm	
H	Switching type	N/C or N/O (change-over contacts)	SW 30 to
D	Max. switching voltage	*	
·	Electrical connection	Male connection M20 Female connector to DIN 43650	
	Max. switching voltage at resistive load	*	
	switching capacity	*	<u> </u>
	Protection class to DIN 40050	IP 65 (only if the connector is wired and fitted correctly)	
	Order example	VM 5 C.0 /-2GBC-SO135	

VR x C.x (ATEX) Can be used on 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	420 bar	M16x1.5
	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)	SW 30
	Max. switching voltage	*	
,	Electrical connection	Male connection M20 Female connector to DIN 43650	
	Max. switching voltage at resistive load	*	
	switching capacity	*	G 1/2
	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 (III Standard 508)

VM x C.x (UL, Standard 508	3)		
	Type of indication	electrical switch	
	Weight	120 g	~ 36
6	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	33 Nm	
	Switching type	N/C or N/O (change-over contacts)	8 SW 30 P
	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)	_ G 1/2 _
B	Order example	VM 5 C.0 /-CRUUS	
VD x C.x (UL, Standard 508)		
	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		
	Thread	G ¹ / ₂	
	Max. torque	100 Nm	
	Switching type	N/C or N/O (change-over contacts)	SW 30 R
	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	IP 65 (only if the connector is wired and	G 1/2
B	DIN 40050	fitted correctly) VD 5 C.0 /-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	-5 °C to +120 °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 PG 9 Female connector to DIN 43650	
Max. switching voltage at resistive load	250 W = 300 VA ~	SW 18
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)	_ G 1/2 _
Order example	VR 2 C.0 /-CSA	

4. MODEL CODE	<u>VR</u> 2 D . X <u>/-V-L24</u>
4.1 STANDARD CLOGGING INDICATORS	
Category VMF return line indicator; connection G ¹ / ₈ VR return line indicator; connection G ¹ / ₂ VRD return line indicator; for differential pressure cavity VM differential pressure indicator; up to 210 bar operating pressure VD differential pressure indicator; up to 420 bar operating pressure VL differential pressure indicator; up to 25 bar operating pressure	
V02 differential pressure indicator; piped separately; up to 160 bar operating pressure Pressure setting	
see particular clogging indicator	
Туре	
B visual with automatic reset BF visual, mobile	
BM visual with manual reset	
C electrical CA electrical with AMP plug (Mark II)	
CD electrical with Deutsch plug (DT 04-2P)	
CJ electrical with Junior Power Timer CM electrical with M12x1 plug	
D visual/electrical	
E pressure gauge, horizontal ES pressure gauge, vertical	
F pressure switch	
FD pressure switch with Deutsch plug (DT 04-2P) GC electronic	
GW electronic	
H pressure switch	
K pressure gauge, horizontal LE visual-mechanical indicator with 100% switching contact	
LEM visual-mechanical indicator with 100% switching contact and M12x1 plug	
LZ visual mechanical with 75% and 100% switching contact M electrical, ground switching	
R pressure gauge, horizontal	
UBM visual, vacuum UE vacuum pressure gauge, horizontal	
UF vacuum switch	
V visual/analogue VE visual/analogue with 100% switching contact	
VZ visual/analogue with 75% and 100% switching contact	
Modification number X the latest version is always supplied	
Supplementary details	
30C cold start suppression of switching outputs up to 30 °C ±5 °C (only for C, D, LZ indicators; DC voltage supply only – max. 24 Volt;	
C and D indicators only for VD and VM; on D and LZ indicators, contacts must be wired N/O only)	
L light with corresponding voltage (24, 48, 110, 230 Volt) only for type "D"	
OE N/C function	
SO135 indicator suitable for PLC controls due to Gold-Crosspoint contacts W suitable for oil/water emulsions (HFA, HFC)	
V seal in Viton (FPM), suitable for phosphate esters (HFD-R) and biodegradable oils	
(must be specified for type "GW")	
Supplementary details for "GC" type	
113 N/C function pressure peak suppression up to 10 sec. cold start suppression of switching outputs	
(PNP technique, positive switching) up to 25 °C Must be specified!	
123 N/C function pressure peak suppression up to 10 sec. Others on request	
cold start suppression of switching outputs (PNP technique positive switching) up to 25 °C	
30C cold start suppression of switching outputs up to 30 °C (other temperatures on request)	
LED 3 LED's (green, yellow, red) in terminal box PF floating switching outputs (due to relay in the plug)	
SP analogue signal: voltage output 1-10 V] if SP or SQ are not specified	
SQ analogue signal: voltage output 420 mA (current source) "current sink" model supplied	
Supplementary details to "GW" type	
113 N/O function pressure peak suppression up to 10 sec.	
cold start suppression of switching outputs (PNP technique positive switching) up to 25 °C Must be specified!	
123 N/C function pressure peak suppression up to 10 sec. Others on request	
cold start suppression of switching outputs (PNP technique positive switching) up to 25 °C	

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

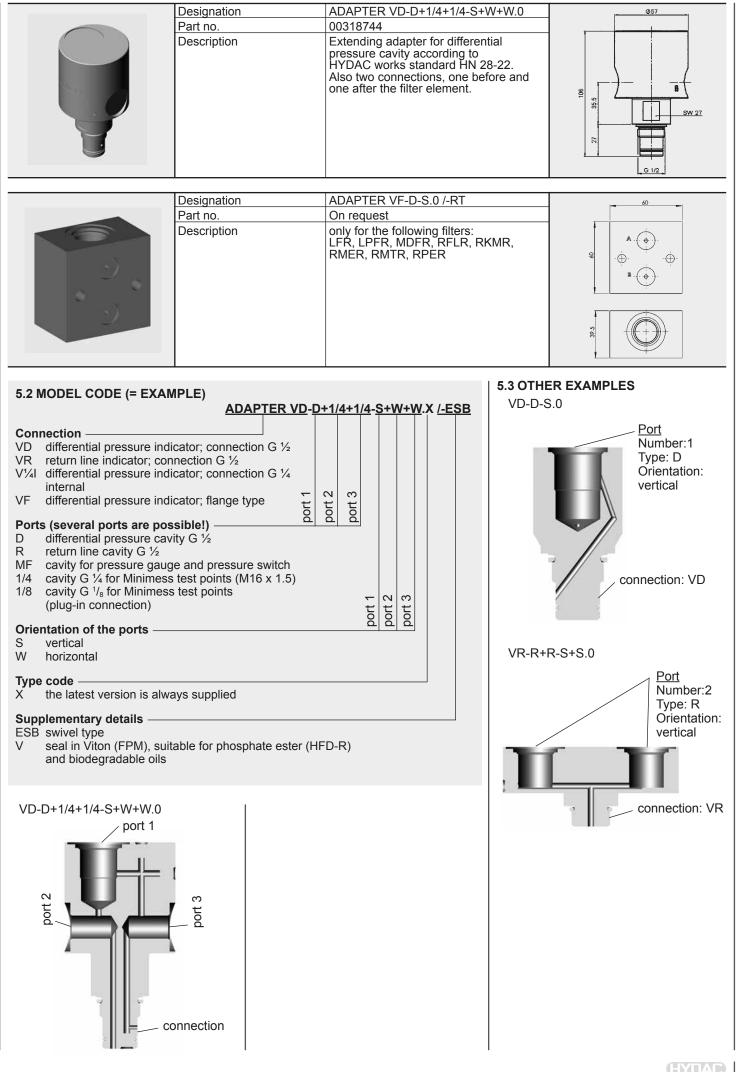
EX2G Ex-protection type for the return line indicator type "C"

Supplementary details for "UL" and "CSA" approval

- CRUUS for electrical differential indicator type "C"
- with UL approval
- CSA for electrical return line indicator type "C" with CSA approval

5. ADAPTERS 5.1 TYPES

5.1 TYPES			
	Designation	ADAPTER VD-D-S.0	C1 / 2
	Part no.	00318736	G1/2
	Description	Extending adapter for differential pressure cavity to HYDAC works standard HN 28-22	G1/2
	Designation	ADAPTER VD-D+D-S+S.0	50
	Part no.	00318732	50 G1/2 G1/2
	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	122
	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. Description	00318741 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	G1/2
	Description	Connection adapter for piping clogging indicators separately with differential pressure cavity according to HYDAC works standard HN 28-22. Two connections G ¹ / ₄ (one before and one after the filter element)	
		· · · ·	

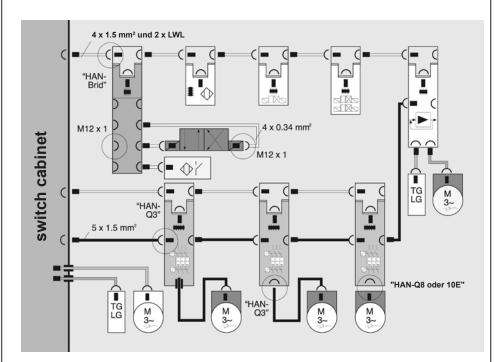


6. DESINA SPECIFICATION

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

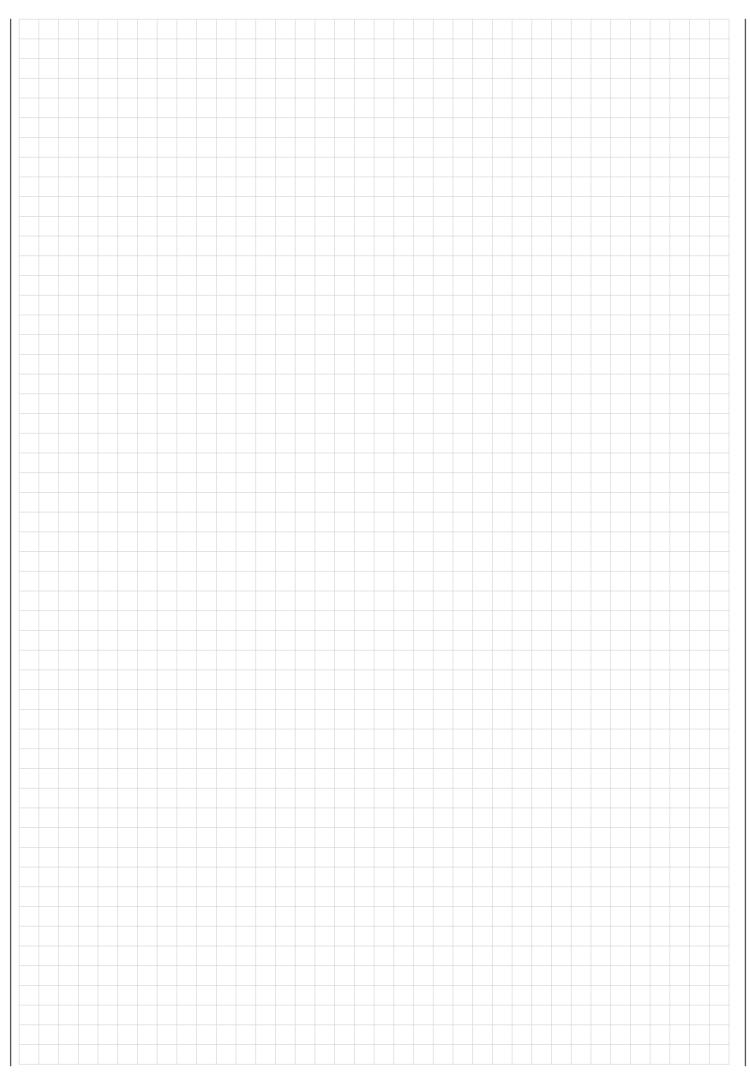


6.2. CLOGGING INDICATORS

The following clogging indicators are approved to DESINA specification: VD 5 LZ.x /-D4C VR 2.5 LZ.x /-D4C VD 5 LZ.x /-BO VR 2.5 LZ.x /-BO VD 5 LZ.x /-AV VR 2.5 LZ.x /-AV VR 2.5 LZ.x /-AV VR 2.5 LZ.x /-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 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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