

### **Clogging Indicators for Process Filters**

### 0-6092 psi 0-420 bar



#### General

The PVD Clogging Indicators for Process Filters are designed to indicate visually and/or electronically when the filter elements must be cleaned or changed. The use of clogging indicators guarantees both the operational safety of the system and the efficient utilization of the filter elements.

#### Seals

V (=Viton) or T (=FEP encapsulated)

#### Construction

Differential pressure indicators are used on all process filters. They react to the pressure differential between the filter inlet and filter outlet, which rises as the level of contamination in the element increases.

Simplest fitting of the differential pressure indicator: G1/2" cavity (acc. Schroeder's works standard HN 28-22)

The differential pressure indicator type V01 is piped up separately.

For duplex filter housings, the differential pressure indicators and connected using an adapter block.

#### **Special Indicators**

Electrical ATEX indicators: Optional: electrical indicator for process filters for use in potentially explosive atmospheres subject to the ATEX equipment directive 94/9/EC and the ATEX operator directive 1999/92/EC.

#### **Torque Values - Differential Pressure Indicators**

Note: The clogging indicators must only be tightened or adjusted on the spanner flats.

PVDB.1:	SW27
PVDC.0:	SW30
PVDD.0/L:	SW30
max. torque value	: 100 Nm

Clogging Indicators According To Filter Type

	Filter Types				
Туре	PRFL PRFLD	PRFS PRFSD	PFM PFH	EDF	PMRF PMRFD
PVDB	•	•	•	•	•
PVDC	•	•	•	•	·
PVDD	•	•	•	•	•
V01VZ	•	•	On Req	uest	•
Differential Pressure Gauge	•	•	On Req	uest	

# Clogging Indicators for Process Filters PVD



Type Of Indication:	Visual, red/green Automatic reset	band	PVD	x B.x RF3-C
Weight:				RF3-0
Cracking Pressure Or Indication Range:	1 bar <u>+</u> 10% 1.5 bar <u>+</u> 10%	3 bar <u>+</u> 10% 5 bar <u>+</u> 10%		RF3-1
	2 bar <u>+</u> 10%	8 bar <u>+</u> 10%		
Perm. Operating Pressure:	6092 psi (420 bai	•)		RF3-2
Perm. Temperature Range:	-20°C to 100°C			
Thread:				RF3-2.5
Max. Torque Value:	100 Nm			
Switching Type:	-			RF3-3
Max. Switching Voltage:	-			
Electrical Connection:				RF3-4
Max. Switching Voltage At Resistive Load:				
Switching Capacity:				RF3-5
Protective Class Acc. DIN 40050:	-			- RF3-6
Type Of Indication:	Electrical switch		PVD	x C.x
Weight:	220 g			RF3-7
Cracking Pressure Or Indication Range:	1 bar <u>+</u> 10% 1.5 bar <u>+</u> 10% 2 bar <u>+</u> 10%	3 bar <u>+</u> 10% 5 bar <u>+</u> 10% 8 bar <u>+</u> 10%		RF3-8
Perm. Operating Pressure:	6092 psi (420 bai	-)		
Perm. Temperature Range:	-20°C to 100°C			RF5
Thread:	G 1/2			
Max. Torque Value:	100 Nm			RF7
Switching Type:	N/C or N/O (chan	ge-over contacts)		
Max. Switching Voltage:	230 V			RF10
Max. Switching Voltage: Electrical Connection:	Male Connection Female Connector	M20x1.5 acc. EN 50262 or acc. DIN 43650		RF10 RF4
Electrical Connection: Max. Switching Voltage At Resistive Load:	Male Connection Female Connecto 60 W = 100 VA ~	or acc. DIN 43650		RF4
Electrical Connection: Max. Switching Voltage At Resistive Load: Switching Capacity:	Male Connection Female Connecto 60 W = 100 VA ~ Ohmic 3 A at 24 V Ohmic 0.03 to 5 A	or acc. DIN 43650 / = A at max. 230 V ~		
Electrical Connection: Max. Switching Voltage At Resistive Load:	Male Connection Female Connecto 60 W = 100 VA ~ Ohmic 3 A at 24 V Ohmic 0.03 to 5 A	or acc. DIN 43650	DVD	RF4 RF4-1 RF4-2
Electrical Connection: Max. Switching Voltage At Resistive Load: Switching Capacity:	Male Connection Female Connector 60 W = 100 VA ~ Ohmic 3 A at 24 V Ohmic 0.03 to 5 A IP 65 (only if the fitted correctly)	or acc. DIN 43650 / = A at max. 230 V ~ connector is wired and	PVD	RF4 RF4-1 RF4-2 X RF12
Electrical Connection: Max. Switching Voltage At Resistive Load: Switching Capacity: Protective Class Acc. DIN 40050:	Male Connection Female Connector 60 W = 100 VA ~ Ohmic 3 A at 24 V Ohmic 0.03 to 5 A IP 65 (only if the fitted correctly)	or acc. DIN 43650 / = A at max. 230 V ~ connector is wired and	PVD D.x /	RF4 RF4-1 RF4-2 X RF12 -L
Electrical Connection: Max. Switching Voltage At Resistive Load: Switching Capacity: Protective Class Acc. DIN 40050: Type Of Indication:	Male Connection Female Connector 60 W = 100 VA ~ Ohmic 3 A at 24 V Ohmic 0.03 to 5 A IP 65 (only if the fitted correctly)	or acc. DIN 43650 / = A at max. 230 V ~ connector is wired and		RF4 RF4-1 RF4-2 X RF12 -L BTU
Electrical Connection: Max. Switching Voltage At Resistive Load: Switching Capacity: Protective Class Acc. DIN 40050: Type Of Indication: Weight: Cracking Pressure Or Indication Range:	Male Connection Female Connector 60 W = $100 VA \sim$ Ohmic 3 A at 24 V Ohmic 0.03 to 5 A IP 65 (only if the 4 fitted correctly) Visual indicator a 250 g 1 bar ± 10% 1.5 bar ± 10% 2 bar ± 10%	br acc. DIN 43650 f = A at max. 230 V ~ connector is wired and and electrical switch $3 \text{ bar } \pm 10\%$ $5 \text{ bar } \pm 10\%$ $8 \text{ bar } \pm 10\%$		RF4 RF4-1 RF4-2 X RF12 -L
Electrical Connection: Max. Switching Voltage At Resistive Load: Switching Capacity: Protective Class Acc. DIN 40050: Type Of Indication: Weight: Cracking Pressure Or Indication Range: Perm. Operating Pressure:	Male Connection Female Connector 60 W = $100 VA \sim$ Ohmic 3 A at 24 V Ohmic 0.03 to 5 A IP 65 (only if the of fitted correctly) Visual indicator a 250 g 1 bar ± 10% 1.5 bar ± 10%	br acc. DIN 43650 f = A at max. 230 V ~ connector is wired and and electrical switch $3 \text{ bar } \pm 10\%$ $5 \text{ bar } \pm 10\%$ $8 \text{ bar } \pm 10\%$		RF4 RF4-1 RF4-2 X RF12 -L BTU ATF
Electrical Connection: Max. Switching Voltage At Resistive Load: Switching Capacity: Protective Class Acc. DIN 40050: Type Of Indication: Weight: Cracking Pressure Or Indication Range:	Male Connection Female Connector 60 W = $100 VA \sim$ Ohmic 3 A at 24 A Ohmic 0.03 to 5 A IP 65 (only if the a fitted correctly) Visual indicator a 250 g 1 bar ± 10% 1.5 bar ± 10% 2 bar ± 10% 6092 psi (420 bar -20°C to 100°C	br acc. DIN 43650 f = A at max. 230 V ~ connector is wired and and electrical switch $3 \text{ bar } \pm 10\%$ $5 \text{ bar } \pm 10\%$ $8 \text{ bar } \pm 10\%$		RF4 RF4-1 RF4-2 X RF12 -L BTU
Electrical Connection: Max. Switching Voltage At Resistive Load: Switching Capacity: Protective Class Acc. DIN 40050: Type Of Indication: Weight: Cracking Pressure Or Indication Range: Perm. Operating Pressure: Perm. Temperature Range:	Male Connection Female Connector 60 W = $100 VA \sim$ Ohmic 3 A at 24 A Ohmic 0.03 to 5 A IP 65 (only if the a fitted correctly) Visual indicator a 250 g 1 bar ± 10% 1.5 bar ± 10% 2 bar ± 10% 6092 psi (420 bar -20°C to 100°C	br acc. DIN 43650 f = A at max. 230 V ~ connector is wired and and electrical switch $3 \text{ bar } \pm 10\%$ $5 \text{ bar } \pm 10\%$ $8 \text{ bar } \pm 10\%$		RF4 RF4-1 RF4-2 X RF12 -L BTU ATF PLF1
Electrical Connection: Max. Switching Voltage At Resistive Load: Switching Capacity: Protective Class Acc. DIN 40050: Type Of Indication: Weight: Cracking Pressure Or Indication Range: Perm. Operating Pressure: Perm. Temperature Range:	Male Connection Female Connector 60 W = $100 VA \sim$ Ohmic 3 A at 24 V Ohmic 0.03 to 5 A IP 65 (only if the 4 fitted correctly) Visual indicator at 250 g 1 bar ± 10% 1.5 bar ± 10% 2 bar ± 10% 6092 psi (420 bat -20°C to 100°C G 1/2 100 Nm	br acc. DIN 43650 f = A at max. 230 V ~ connector is wired and and electrical switch $3 \text{ bar } \pm 10\%$ $5 \text{ bar } \pm 10\%$ $8 \text{ bar } \pm 10\%$		RF4 RF4-1 RF4-2 X RF12 -L BTU ATF
Electrical Connection: Max. Switching Voltage At Resistive Load: Switching Capacity: Protective Class Acc. DIN 40050: Type Of Indication: Weight: Cracking Pressure Or Indication Range: Perm. Operating Pressure: Perm. Temperature Range: Thread: Max. Torque Value:	Male Connection Female Connector 60 W = $100 VA \sim$ Ohmic 3 A at 24 V Ohmic 0.03 to 5 A IP 65 (only if the fitted correctly) Visual indicator a 250 g 1 bar ± 10% 1.5 bar ± 10% 2 bar ± 10% 6092 psi (420 bar -20°C to 100°C G 1/2 100 Nm N/C or N/O (char	or acc. DIN 43650 / = A at max. 230 V ~ connector is wired and ind electrical switch 3 bar $\pm$ 10% 5 bar $\pm$ 10% 8 bar $\pm$ 10% )		RF4 RF4-1 RF4-2 X RF12 -L BTU ATF PLF1
Electrical Connection: Max. Switching Voltage At Resistive Load: Switching Capacity: Protective Class Acc. DIN 40050: Type Of Indication: Weight: Cracking Pressure Or Indication Range: Perm. Operating Pressure: Perm. Temperature Range: Thread: Max. Torque Value: Switching Type:	Male Connection Female Connector 60 W = $100 VA \sim$ Ohmic 3 A at 24 V Ohmic 0.03 to 5 A IP 65 (only if the effited correctly) Visual indicator at 250 g 1 bar ± 10% 1.5 bar ± 10% 2 bar ± 10% 6092 psi (420 bar -20°C to 100°C G 1/2 100 Nm N/C or N/O (char 24, 48, 110, 230 V insert	pr acc. DIN 43650 / = A at max. 230 V ~ connector is wired and ind electrical switch 3 bar $\pm$ 10% 5 bar $\pm$ 10% 8 bar $\pm$ 10% 		RF4 RF4-1 RF4-2 X RF12 -L BTU ATF PLF1
Electrical Connection: Max. Switching Voltage At Resistive Load: Switching Capacity: Protective Class Acc. DIN 40050: Type Of Indication: Weight: Cracking Pressure Or Indication Range: Perm. Operating Pressure: Perm. Temperature Range: Thread: Max. Torque Value: Switching Type: Max. Switching Voltage:	Male Connection Female Connector 60 W = $100 VA \sim$ Ohmic 3 A at 24 V Ohmic 0.03 to 5 A IP 65 (only if the effited correctly) Visual indicator at 250 g 1 bar ± 10% 1.5 bar ± 10% 2 bar ± 10% 6092 psi (420 bar -20°C to 100°C G 1/2 100 Nm N/C or N/O (char 24, 48, 110, 230 V insert	pr acc. DIN 43650 / = A at max. 230 V ~ connector is wired and ind electrical switch 3 bar $\pm$ 10% 5 bar $\pm$ 10% 8 bar $\pm$ 10% 9 ge-over contacts) / depending on the light M20x1.5 acc. EN 50262		RF4 RF4-1 RF4-2 X RF12 -L BTU ATF PLF1
Electrical Connection: Max. Switching Voltage At Resistive Load: Switching Capacity: Protective Class Acc. DIN 40050: Type Of Indication: Weight: Cracking Pressure Or Indication Range: Perm. Operating Pressure: Perm. Temperature Range: Thread: Max. Torque Value: Switching Type: Max. Switching Voltage: Electrical Connection:	Male Connection Female Connector 60 W = $100 VA \sim$ Ohmic 3 A at 24 V Ohmic 0.03 to 5 A IP 65 (only if the effitted correctly) Visual indicator at 250 g 1 bar ± 10% 1.5 bar ± 10% 2 bar ± 10% 6092 psi (420 bar -20°C to 100°C G 1/2 100 Nm N/C or N/O (char 24, 48, 110, 230 V insert Male Connection Female Connection Female Connection	pr acc. DIN 43650 / = A at max. 230 V ~ connector is wired and ind electrical switch 3 bar $\pm$ 10% 5 bar $\pm$ 10% 8 bar $\pm$ 10% 9 ge-over contacts) / depending on the light M20x1.5 acc. EN 50262 pr acc. DIN 43650		RF4 RF4-1 RF4-2 X RF12 -L BTU ATF PLF1



## **PVD** Clogging Indicators for Process Filters

V01 x VZ.x		Type Of Indication:	Visual/analogue indicator and 1 electrical switching contact at 75% and 100% of the cracking pressure		
		Weight:	650 g		
	Cracking Pressure Or Indication Range:	0.8 bar <u>+</u> 10% 2.0 bar <u>+</u> 10% 4.3 bar <u>+</u> 10%			
	Perm. Operating Pressure:	2321 psi (160 bar)			
	Perm. Temperature Range:	-20°C to 100°C			
	Thread:	G 1/4			
	Max. Torque Value:	-			
	Switching Type:	75% - N/O contact 100% - N/C contact			
	Max. Switching Voltage:	250 V			
		Electrical Connection:	Threaded conne M20x1.5 acc. EN		
	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 V Ohmic 1 A at 250 V			
		Protective Class Acc. DIN 40050:	IP 55		
DS11	Type Of Indication:	2 microswitches, 1-pole change-over contacts, can be adjusted manually to recommended set values			
	Saulty .	Weight:	1.2 - 3.5 kg		
		Cracking Pressure Or Indication Range:	0 - 1.6 bar 0 - 4 bar on requ	est	
		Perm. Operating Pressure:	363 psi (25 bar); 580 psi (40 bar) on req		
		Perm. Temperature Range:	-10°C to 100°C		
	-	Thread:	G 1/4		
		Max. Torque Value:	-		
		Switching Type:	Change-over cor	ntacts	
		Max. Switching Voltage:	U~max = 250 V AC U~max = 3- V DC		
		Electrical Connection:	Hard-wired numbered cable, cable connector, 7 pole plug-in connection		
		Max. Switching Voltage At Resistive Load:	Imax = 5 A, Imax = 0.4 A,	Pmax = 250VA, Pmax = 10 W	
		Switching Capacity:	-		
		Protective Class Acc. DIN 40050:	IP 55		

# Clogging Indicators for Process Filters PVD

	el Number for a BTU:		Filter RF3 Model
xample: NOTE: One option	per box		Number
BOX 1 BOX 2 BOX 3 E	BOX 4 BOX 5		Selection
PVD 2 D.	0 -L24 = PVD-2-D0 / -L24		
			RF3
BOX 1	BOX 2	BOX 3	
Unit Type	Cracking Pressure	Clogging Indicator	RF3-2
PVD = Clogging indicator	0.8 = +0.8 bar (only for V01 indicator)	B. = Visual indicator with automatic reset	
V01 = Clogging indicator	1 = +1 bar (PVD indicator)	C. = Electrical indicator	RF3
,	1.5 = +1.5 bar (PVD indicator)	D. = Visual/electrical indicator	RF
	2 = +2 bar (all clogging indicators)	VZ. = Visual/analogue indicator with 75% and	
	3 = +3 bar (PVD indicator)	100% switch contacts	RE
	4.3 = +4.3 bar (only for V01 indicator)		
	5 = +5 bar (only for PVD indicator)		RF
	8 = +8 bar (only for PVD indactor)		
			RF
BOX 4	BOX 5		
Modification Numb	per Supplementary Details (only PVD)		RF
			R
0 = All clogging indicators	5		
1 = Only B. type	-L48 = Light with 48 V		R
	-L110 = Light with 110 V		
	-L220 = Light with 220 V		RF
			F
			RF
			RF
			RF
			RF
			RF

PLF1

ATF