

Diaphragm Pressure Switches

ATEX flameproof enclosure, Types 03.40...03.45

03.40...45



These flameproof electrical apparatus comply with European Directive ATEX 94/9/EC, for group II and category 2 GD. They are suitable for a variety of uses in hazardous zones 1, 2, 21 and 22 in which the use of flameproof instrument is required. The sensing element is a metallic diaphragm and acts directly on the microswitch through a self-centering pivot. The simplicity of the design, without levers, cams or similar mechanisms, gives the unit an exceptionally long working life.

40 - Functional and constructive characteristics

Type of ignition protection: EEx d IIC T6 IP65 T85°C, as per EN 50014, EN 50018, EN 50281-1-1.

Ingress protection: IP 65 as per EN 60529.

Certificate: no. 04 ATEX 027, issued by CESI - Milano, notified body no. 0722.

Ranges: 0...1 bar/0...160 bar; -1...0 bar.

Electrical specifications: N. 1...2 SPDT microswitches, or N.1 with adjustable differential. (see microswitches table)

Differential: fixed (adjustable 10%...50% of setting range: code E of microswitches tables).

Repeatability: - 1% of the full setting value.

Set-point adjustment: internal, micrometric adjustable.

Cable exit: 1/2-14 NPT F; 3/4-14 NPT F; 1/2" BSP F-ISO 7/1 F; 3/4" BSP F-ISO 7/1 F; M20 x 1,5 F.

Earth contacts: N. 1 internal, N. 1 external.

Process temperature: max 65°C.

Ambient temperature: -20...+65 °C.

Thermal drift: -0,05% / °C.

Process connection: AISI 316 st.st. 1/2" BSP, 1/2-14 NPT M; plane and tower DN15...50, PN6...40 UNI-DIN step seal; 1/2"...2" class 150...600 RF ANSI B16.5.

Elastic element: AISI 316 st.st. diaphragm for pressure ranges - 60 bar; carbon steel diaphragm covered with AISI 316 st.st. for pressure ranges > 60 bar. PTFE gasket.

Case: aluminium, blue polyurethane painted.

Cover: aluminium, beige polyurethane painted.

Tag: AISI 304 st.st., etched.

Tell-tale vents: polypropylene.

45 - Functional and constructive characteristics

Ranges: 0...40 mbar/0...600mbar; -40...0 mbar/-600...0 mbar.

Electrical specifications: N. 1...2 SPDT microswitches. (see microswitches table)

Differential: fixed.

Elastic element: AISI 316 st.st. diaphragm. PTFE gasket.

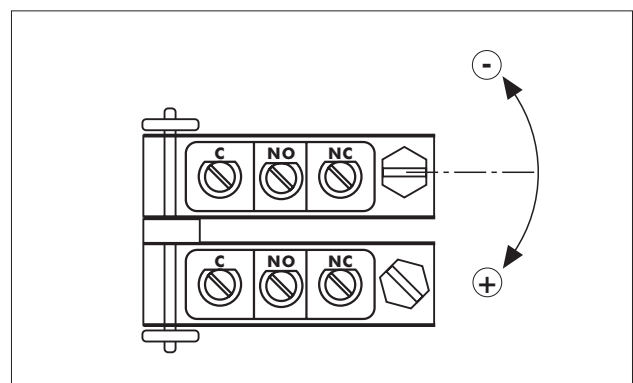
Process connection: AISI 316 st.st. G 1/2 A, 1/2-14 NPT M; plane DN15...50, PN6...40 UNI-DIN step seal; 1/2"...2" class 150...600 RF ANSI B16.5.

Other features as model 03.40.

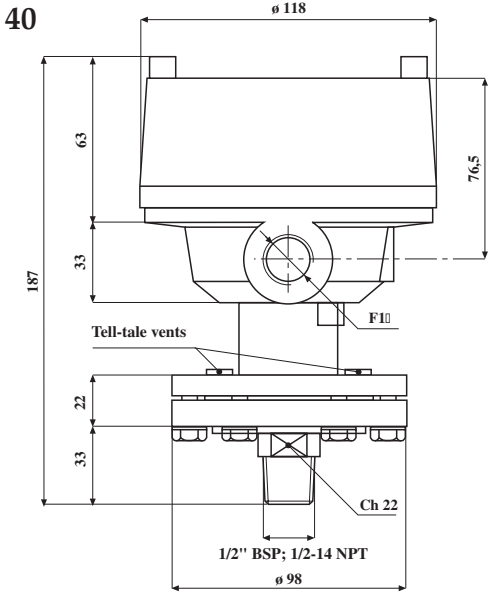
Set-point adjustment

With the cover removed:

the adjusting screw can be turned clockwise to increase the operating absolute pressure and anticlockwise to reduce it. (see drawing below)



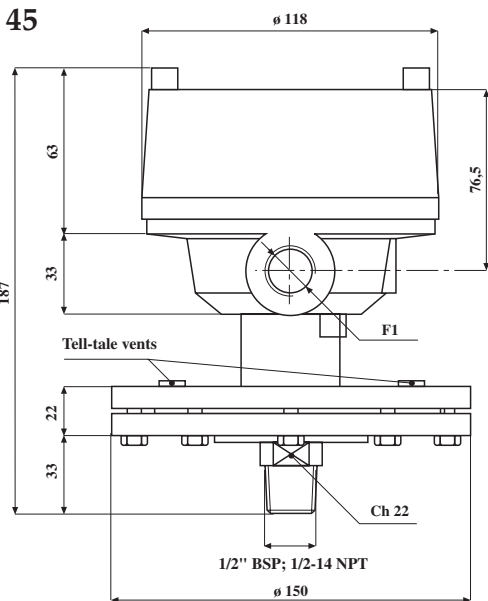
THREADED CONNECTION: TYPE, WEIGHTS AND DIMENSIONS (mm.)



F1 = cable exit; see "Order-Code".
Weight = ~ 3 Kg.

Setting ranges	Test pressures	Special O.P. (option F03)	Differential 1 micro type C,G,M (2)	Differential 2 micro type D,H,P (2)
0,06...1 bar (1)	1,2 bar	10 bar	25 mbar	60 mbar
0,06...1,6 bar (1)	2 bar	10 bar	30 mbar	60 mbar
0,06...2,5 bar (1)	3 bar	10 bar	40 mbar	60 mbar
0,08...4 bar (1)	5 bar	15 bar	50 mbar	80 mbar
0,09...6 bar (1)	8 bar	15 bar	60 mbar	90 mbar
0,15...10 bar (1)	12 bar	20 bar	100 mbar	150 mbar
0,25...16 bar (1)	20 bar	30 bar	160 mbar	250 mbar
0,4...25 bar (1)	30 bar	35 bar	250 mbar	400 mbar
0,6...40 bar	48 bar	60 bar	400 mbar	600 mbar
0,9...60 bar	70 bar	80 bar	600 mbar	900 mbar
6...100 bar	120 bar		4 bar	6 bar
8...160 bar	185 bar		5 bar	8 bar

(1) available also for vacuum & compound.
(2) differential and minimum set-point values for goldplated microswitches (type I,N,L,R) are 300% of those shown in table.



F1 = cable exit; see "Order-Code".
Weight = ~ 3 Kg.

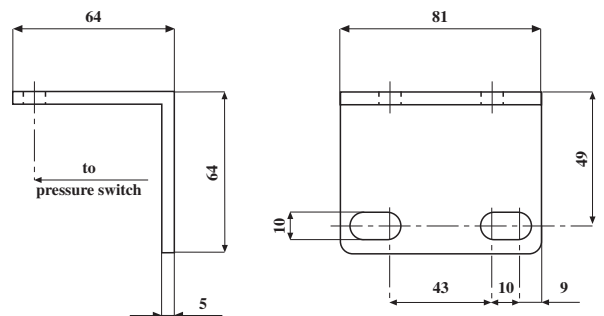
Setting ranges (1)	Test pressure	Differential 1 micro type C,G,M (2)	Differential 2 micro type D,H,P (2)
5...40 mbar	0,5 bar	4 mbar	5 mbar
5...60 mbar	0,5 bar	4 mbar	5 mbar
6...100 mbar	0,5 bar	4 mbar	6 mbar
9...160 mbar	0,5 bar	6 mbar	9 mbar
9...250 mbar	1 bar	6 mbar	9 mbar
15...400 mbar	1 bar	10 mbar	15 mbar
18...600 mbar	1 bar	12 mbar	18 mbar

(1) available also for vacuum & compound.
(2) differential and minimum set-point values for goldplated microswitches (type I,N,L,R) are 300% of those shown in table.

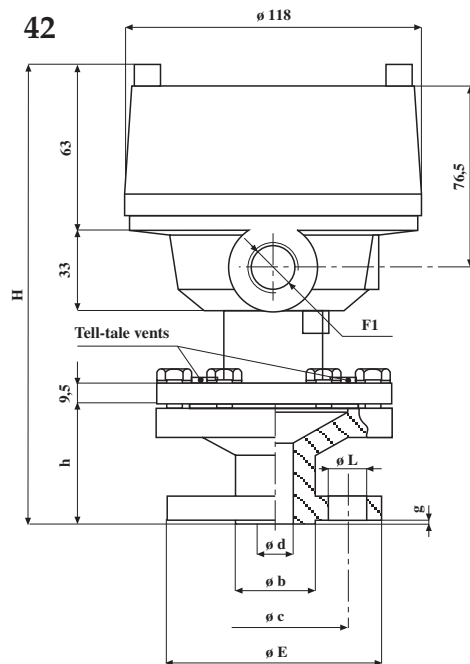
MICROSWITCHES - ohmic load

Type	N.1 micro code	N.2 micro code	250 Vac	125 Vac	125 Vdc	24 Vdc
std.	C	D	15A	15A	0,5A	2A
splash proof	G	H	15A	15A	0,5A	2A
goldplated	I	L		1A		1A
inert gas filled	M	P	15A	15A	0,5A	2A
goldplated & inert gas filled	N	R		1A		1A
adjustable dead band	E		20A	20A	0,5A	2A

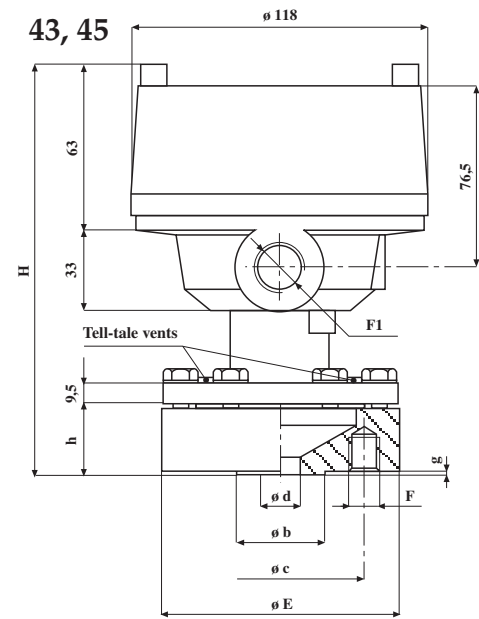
WALL MOUNTING BRACKET



FLANGED CONNECTIONS: TYPE AND DIMENSIONS (mm.)



F1 = cable exit; see "How to order".



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UNI - DIN RULES

DN	PN-bar (1)	Code	h	H	E (2)	b	d	g	c	F	L	N (3)
15	6	OOG	46	188	80 (150)	40	15	2	55	M10	11,5	4
15	10...16	OQG	50	192	95 (150)	45	15	2	65	M12	14	4
15	25...40	OSG	52	194	95 (150)	45	15	2	65	M12	14	4
20	6	POG	48	190	90 (150)	50	20	2	65	M10	11,5	4
20	10...16	PQG	27	169	105 (150)	58	20	2	75	M12	14	4
20	25...40	PSG	27	169	105 (150)	58	20	2	75	M12	14	4
25	6	QOG	27	169	100 (150)	60	25	2	75	M10	11,5	4
25	10...16	QQG	27	169	115 (150)	68	25	2	85	M12	14	4
25	25...40	QSG	27	169	115 (150)	68	25	2	85	M12	14	4
40	6	SOG	27	169	130 (150)	80	40	3	100	M12	14	4
40	10...16	SOQ	27	169	150 (150)	88	40	3	110	M16	18	4
40	25...40	SSG	27	169	150 (150)	88	40	3	110	M16	18	4
50	6	TOG	27	169	140 (150)	90	50	3	110	M12	14	4
50	10...16	TQG	27	169	165 (165)	102	50	3	125	M16	18	4
50	25...40	TSG	27	169	165 (165)	102	50	3	125	M16	18	4

ANSI RULES



DN	PN-PSI (1)	Code	h	H	E (2)	b	d	g	c	F	L	N (3)
1/2"	150	4AA	48	190	89 (150)	35	15	1,6	60,5	1/2" 13UNC	16	4
1/2"	300	4BA	53,5	195,5	95,5 (150)	35	15	1,6	67	1/2" 13UNC	16	4
1/2"	600	4DA	60	202	95,5 (150)	35	15	6,5	67	1/2" 13UNC	16	4
1"	150	6AA	27	169	108 (150)	50,8	25	1,6	79,4	1/2" 13UNC	16	4
1"	300	6BA	38	180	124 (150)	50,8	25	1,6	88,9	5/8" 11UNC	19	4
1"	600	6DA	48,5	190,5	124 (150)	50,8	25	6,3	88,9	5/8" 11UNC	19	4
1" 1/2	150	AAA	27	169	127 (150)	73	40	1,6	98,4	1/2" 13UNC	16	4
1" 1/2	300	ABA	27	169	155,5 (155,5)	73	40	1,6	114,3	3/4" 10UNC	22	4
1" 1/2	600	ADA	48,5	190,5	155,5 (155,5)	73	40	6,3	114,3	3/4" 10UNC	22	4
2"	150	BAA	27	169	155,5 (155,5)	92,1	50	1,6	120,6	5/8" 11UNC	19	4
2"	300	BBA	27	169	165 (165)	92,1	50	1,6	127	5/8" 11UNC	19	8
2"	600	BDA	48,5	190,5	165 (165)	92,1	50	6,3	127	5/8" 11UNC	19	8

1) suitable for 150% of flange rating at 20...30 °C and 100% of flange rating at 100 °C.

2) model 45 dimensions, between bracket;

3) N° of threaded or through holes.

FLANGE SHAPE AND FINISHING

Code	Form UNI	Finishing (turning made)	Code	Form DIN	Finishing (turning made)	Code	Form ANSI B16.5	Finishing
LM1	2225 SM	Ra 3,2 µm max	LM2	2513 V13	Rz 63 µm max	LM3	LM	AARH 125÷250 µin (grooves)
LF1	2225 SF	Ra 3,2 µm max	LF2	2513 R13	Rz 63 µm max	LF3	LF	AARH 125÷250 µin (grooves)
LT1	2226 DM	Ra 3,2 µm max	LT2	2512 F	Rz 40 µm max	LT3	LT	AARH 125 µin max(turning made)
LG1	2226 DF	Ra 3,2 µm max	LG2	2512 N	Rz 40 µm max	LG3	LG	AARH 125 µin max(turning made)
CM1	2227 CM	Ra 12,5 µm max	CM2	2514 V	Rz 160 µm max	ST3	ST	AARH 125 µin max(turning made)
CF1	2227 CF	Ra 12,5 µm max	CF2	2514 R	Rz 160 µm max	SG3	SG	AARH 125 µin max(turning made)
LN1	6078	Ra 0,8 µm max	LN2	2696 L	Rz 4 µm max	RJ3	RJ	AARH 63 µin max(turning made)
FF1	2229 	Ra 12,5 µm max	FF2	2526 A/B	Rz 40÷160 µm	FF3	FF	AARH 125÷250 µin (grooves)
RF1	2229 	Ra 12,5 µm max	RF2	2526 C	Rz 40÷160 µm	RF3	RF	AARH 125÷250 µin (grooves)
			RF4	2526 D	Rz 40 µm max	SM3	SM	AARH 125 µin max(turning made)
			RF5	2526 E	Rz 16 µm max	SF3	SF	AARH 125 µin max(turning made)
						RFS	RF (smooth)	AARH 125 µin max(turning made)
						RF6	Stock	AARH 500 µin max (grooves)

							
Ra (µm)	0,8	1,6	3,2	6,3	12,5	25	50
Rz (µm)	3,2	6,3	12,5	25	50	100	200
AARH (µin)	32	63	125	250	500	1000	2000

ORDER-CODE:

CODE & DESCRIPTION

- 03** 3 - pressure switches
- 42** 40 - threaded
42 - flanged, tower
43 - flanged, plane
45 - low pressure, threaded & plane flanged
- 0/10 bar** see setting ranges table
- C** see microswitches table
- 2** Cable exit
1 - 1/2" BSP F-ISO 7/1
2 - 3/4" BSP F-ISO 7/1
3 - 1/2-14 NPT F
4 - 3/4-14 NPT F
A - M20 x 1,5 Innengewinde
- 6AA** Process connection
41M - 1/2" BSP male
43M - 1/2-14 NPT
see flanged connection to code
- 4** Process connection material
4 - AISI 316 st. st.
- RF3** Flange shape and finishing
(flanged connection only - see table)
- T01** see options table

OPTIONS

Description	Code	40	42	43	45
Special overpressure stop	F03	◆	◆	◆	
PTFE diaphragm	M26	◆	◆	◆	◆
Right-angle mounting brackets	S15	◆			◆
Tropicalisation	T01	◆	◆	◆	◆
Proc. conn. PTFE coating	T05	◆	◆	◆	
Proc. conn. PTFE coating, low pressure	T06				◆
Epoxy painting	V20	◆	◆	◆	◆

ACCESSORIES

Diaphragm seals, only for model 03.40: complete range of diaphragm seals is available with a choice of materials of construction. Specifically for corrosive and difficult process fluids plus hygienic applications. For further details refer to relevant data sheets, select only diaphragm with ø 3 63 mm.

Adjustable over-load protector: this is useful for installations which may generate high overpressures; the pressure gauges is automatically excluded at the pre-set pressure and cut in again automatically when the operating pressure returns to normal. For further details refer to relevant data sheet.

Pressure snubbers: for further details refer to relevant data sheet.

Pigtail and siphons: recommended with temperatures of 65° C (150° F) or over. For further details refer to relevant data sheet.



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