

Diaphragm pressure switches up to 42 V with spade terminal

- Made of zinc-plated steel (CrVI-free)
- Spade terminal
- Overpressure safety up to 8,700 psi (600 bar)¹⁾, Burst pressure safety up to 10,153 psi (700 bar)¹⁾

Adjustment range tolerance at room temperature	Male thread	Order number NO → :	Order number NC → :
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0163 Diaphragm pressure switches with spade terminal

1.45 - 14.5 ± 2.90 psi (0.1 - 1 ± 0.2 bar)	M 10x1 taper	0163 - 403 01 - X - 009	0163 - 404 01 - X - 013
	M 12x1.5 cyl.	0163 - 403 02 - X - 010	0163 - 404 02 - X - 014
	1/4" BSPP	0163 - 403 03 - X - 011	0163 - 404 03 - X - 015
	1/8" BSPP	0163 - 403 28 - X - 603	0163 - 403 28 - X - 604
	1/4" NPT	0163 - 403 09 - X - 345	0163 - 404 09 - X - 346
	1/8" NPT	0163 - 403 04 - X - 012	0163 - 404 04 - X - 016
	7/16-20 UNF	0163 - 403 20 - X - 305	0163 - 404 20 - X - 307
	9/16-20 UNF	0163 - 403 21 - X - 306	0163 - 404 21 - X - 308
7.25 - 43.5 ± 4.35 psi (0.5 - 3 ± 0.3 bar)	M 10x1 taper	0163 - 423 01 - X - 070	0163 - 424 01 - X - 070
	M 12x1.5 cyl.	0163 - 423 02 - X - 070	0163 - 424 02 - X - 070
	1/4" BSPP	0163 - 423 03 - X - 070	0163 - 424 03 - X - 070
	1/8" BSPP	0163 - 423 28 - X - 070	0163 - 424 28 - X - 070
	1/4" NPT	0163 - 423 09 - X - 070	0163 - 424 09 - X - 070
	1/8" NPT	0163 - 423 04 - X - 070	0163 - 424 04 - X - 070
	7/16-20 UNF	0163 - 423 20 - X - 070	0163 - 424 20 - X - 070
	9/16-20 UNF	0163 - 423 21 - X - 070	0163 - 424 21 - X - 070
14.5 - 145 ± 7.25 psi (1 - 10 ± 0.5 bar)	M 10x1 taper	0163 - 407 01 - X - 025	0163 - 408 01 - X - 029
	M 12x1.5 cyl.	0163 - 407 02 - X - 026	0163 - 408 02 - X - 030
	1/4" BSPP	0163 - 407 03 - X - 027	0163 - 408 03 - X - 031
	1/8" BSPP	0163 - 407 28 - X - 607	0163 - 408 28 - X - 608
	1/4" NPT	0163 - 407 09 - X - 349	0163 - 408 09 - X - 350
	1/8" NPT	0163 - 407 04 - X - 028	0163 - 408 04 - X - 032
	7/16-20 UNF	0163 - 407 20 - X - 313	0163 - 408 20 - X - 315
	9/16-20 UNF	0163 - 407 21 - X - 314	0163 - 408 21 - X - 316
145 - 290 ± 14.50 psi (10 - 20 ± 1.0 bar)	M 10x1 taper	0163 - 411 01 - X - 041	0163 - 412 01 - X - 045
	M 12x1.5 cyl.	0163 - 411 02 - X - 042	0163 - 412 02 - X - 046
	1/4" BSPP	0163 - 411 03 - X - 043	0163 - 412 03 - X - 047
	1/8" BSPP	0163 - 411 03 - X - 043	0163 - 412 03 - X - 047
	1/4" NPT	0163 - 411 09 - X - 353	0163 - 412 09 - X - 354
	1/8" NPT	0163 - 411 28 - X - 611	0163 - 412 28 - X - 612
	7/16-20 UNF	0163 - 411 20 - X - 321	0163 - 412 20 - X - 323
	9/16-20 UNF	0163 - 411 21 - X - 322	0163 - 412 21 - X - 324
290 - 725 ± 29.0 psi (20 - 50 ± 2.0 bar)	M 10x1 taper	0163 - 415 01 - X - 057	0163 - 416 01 - X - 061
	M 12x1.5 cyl.	0163 - 415 02 - X - 058	0163 - 416 02 - X - 062
	1/4" BSPP	0163 - 415 03 - X - 059	0163 - 416 03 - X - 063
	1/8" BSPP	0163 - 415 28 - X - 615	0163 - 416 28 - X - 616
	1/4" NPT	0163 - 415 09 - X - 357	0163 - 416 09 - X - 358
	1/8" NPT	0163 - 415 04 - X - 060	0163 - 416 04 - X - 064
	7/16-20 UNF	0163 - 415 20 - X - 329	0163 - 416 20 - X - 331
	9/16-20 UNF	0163 - 415 21 - X - 330	0163 - 416 21 - X - 332

Seal material – Application areas

NBR (BunaN)	Hydraulic/machine oil, heating oil, air, nitrogen, etc.	1
EPDM	Brake fluid, hydrogen, oxygen, acetylene, etc.	2
FKM (Viton®)	Hydraulic fluids (HFA, HFB, HFD), petrol/gasoline, etc.	3
FFKM	Hot water, chemical acids, diluted alkalis, ketones, esters, alcohols	6
HNBR	Hydraulic/machine oil, ester-based bio-oils	9

Your order number:

0163 - XXX XX - X - XXX

M.3

hex 24



M



¹⁾ Static value. Dynamic value is 30-50 % lower. Values pertain to the hydraulic/pneumatic part of the pressure switch.

M.3

hex 24



0163

Diaphragm pressure switches up to 42 V with M3 screw terminal

- Made of zinc-plated steel (CrVI-free)
- M3 screw terminal
- Overpressure safety up to 8,700 psi (600 bar) ¹⁾

Adjustment range tolerance at room temperature	Male thread	Order number NO → :	Order number NC → :
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0163 Diaphragm pressure switches with M3 screw terminal

1.45 - 14.5 ± 2.90 psi (0.1 - 1 ± 0.2 bar)	M 10x1 taper	0163 - 401 01 - X - 001	0163 - 402 01 - X - 005
	M 12x1.5 cyl.	0163 - 401 02 - X - 002	0163 - 402 02 - X - 006
	1/4" BSPP	0163 - 401 03 - X - 003	0163 - 402 03 - X - 007
	1/8" BSPP	0163 - 401 28 - X - 601	0163 - 402 28 - X - 602
	1/4" NPT	0163 - 401 09 - X - 343	0163 - 402 09 - X - 344
	1/8" NPT	0163 - 401 04 - X - 004	0163 - 402 04 - X - 008
	7/16-20 UNF	0163 - 401 20 - X - 301	0163 - 402 20 - X - 303
	9/16-20 UNF	0163 - 401 21 - X - 302	0163 - 402 21 - X - 304
7.25 - 43.5 ± 4.35 psi (0.5 - 3 ± 0.3 bar)	M 10x1 taper	0163 - 421 01 - X - 070	0163 - 422 01 - X - 070
	M 12x1.5 cyl.	0163 - 421 02 - X - 070	0163 - 422 02 - X - 070
	1/4" BSPP	0163 - 421 03 - X - 070	0163 - 422 03 - X - 070
	1/8" BSPP	0163 - 421 28 - X - 070	0163 - 422 28 - X - 070
	1/4" NPT	0163 - 421 09 - X - 070	0163 - 422 09 - X - 070
	1/8" NPT	0163 - 421 04 - X - 070	0163 - 422 04 - X - 070
	7/16-20 UNF	0163 - 421 20 - X - 070	0163 - 422 20 - X - 070
	9/16-20 UNF	0163 - 421 21 - X - 070	0163 - 422 21 - X - 070
14.5 - 145 ± 7.25 psi (1 - 10 ± 0.5 bar)	M 10x1 taper	0163 - 405 01 - X - 017	0163 - 406 01 - X - 021
	M 12x1.5 cyl.	0163 - 405 02 - X - 018	0163 - 406 02 - X - 022
	1/4" BSPP	0163 - 405 03 - X - 019	0163 - 406 03 - X - 023
	1/8" BSPP	0163 - 405 28 - X - 605	0163 - 406 28 - X - 606
	1/4" NPT	0163 - 405 09 - X - 347	0163 - 406 09 - X - 348
	1/8" NPT	0163 - 405 04 - X - 020	0163 - 406 04 - X - 024
	7/16-20 UNF	0163 - 405 20 - X - 309	0163 - 406 20 - X - 311
	9/16-20 UNF	0163 - 405 21 - X - 310	0163 - 406 21 - X - 312
145 - 290 ± 14.50 psi (10 - 20 ± 1.0 bar)	M 10x1 taper	0163 - 409 01 - X - 033	0163 - 410 01 - X - 037
	M 12x1.5 cyl.	0163 - 409 02 - X - 034	0163 - 410 02 - X - 038
	1/4" BSPP	0163 - 409 03 - X - 035	0163 - 410 03 - X - 039
	1/8" BSPP	0163 - 409 28 - X - 609	0163 - 410 28 - X - 610
	1/4" NPT	0163 - 409 09 - X - 351	0163 - 410 09 - X - 352
	1/8" NPT	0163 - 409 04 - X - 036	0163 - 410 04 - X - 040
	7/16-20 UNF	0163 - 409 20 - X - 317	0163 - 410 20 - X - 319
	9/16-20 UNF	0163 - 409 21 - X - 318	0163 - 410 21 - X - 320
290 - 725 ± 29.0 psi (20 - 50 ± 2.0 bar)	M 10x1 taper	0163 - 413 01 - X - 049	0163 - 414 01 - X - 053
	M 12x1.5 cyl.	0163 - 413 02 - X - 050	0163 - 414 02 - X - 054
	1/4" BSPP	0163 - 413 03 - X - 051	0163 - 414 03 - X - 055
	1/8" BSPP	0163 - 413 28 - X - 051	0163 - 414 28 - X - 055
	1/4" NPT	0163 - 413 09 - X - 355	0163 - 414 09 - X - 356
	1/8" NPT	0163 - 413 04 - X - 052	0163 - 414 04 - X - 056
	7/16-20 UNF	0163 - 413 20 - X - 325	0163 - 414 20 - X - 327
	9/16-20 UNF	0163 - 413 21 - X - 326	0163 - 414 21 - X - 328

Seal material – Application areas

NBR (BunaN)	Hydraulic/machine oil, heating oil, air, nitrogen, etc.	1
EPDM	Brake fluid, hydrogen, oxygen, acetylene, etc.	2
FKM (Viton®)	Hydraulic fluids (HFA, HFB, HFD), petrol/gasoline, etc.	3
FFKM	Hot water, chemical acids, diluted alkalis, ketones, esters, alcohols	6
HNBR	Hydraulic/machine oil, ester-based bio-oils	9

Refer to page 41 for the temperature range and application thresholds of sealing materials.



Your order number:

0163 - XXX XX - X - XXX

¹⁾ Static value. Dynamic value is 30-50 % lower. Values pertain to the hydraulic/pneumatic part of the pressure switch.

M.3

hex 24

Pressure switches hex 24

NC or NO, maximum voltage 42 V



- Most cost-effective solution for mechanical pressure monitoring
- Stable switching point even after long use and high load
- Switching point can be adjusted when fitted on site¹⁾
- High pressure resistance, compact, small switches, available as normally closed (NC) or normally open (NO)
- For solutions with integrated connectors, please refer to chapter M.1, starting at page 22
- For customized and ready-wired pressure switches, please refer to chapter M.5

¹⁾ Pressure switches can also be supplied preset at factory.
Our preset switches are sealed with lacquer paint, set points are embossed on the housing.

Pressure switches hex 24

Technical data

M.3

hex 24



Rated working voltage:	10 ... 42 VAC/DC	
Rated current range (resistive load, DC12 / AC12:	10 mA ... 4 A	
Switching power DC12 / AC12:	100 W / 100 VA	
Temperature resistance of sealing materials:	NBR (BunaN)	-40 °F ... +212 °F (-40 °C ... +100 °C)
	NBR (in piston pressure switch)	-22 °F ... +212 °F (-30 °C ... +100 °C)
	EPDM	-22 °F ... +248 °F (-30 °C ... +120 °C)
	EPDM-W270, diaphragm	-4 °F ... +212 °F (-20 °C ... +100 °C)
	FKM (Viton®) (in diaphragm pressure switch)	+23 °F ... +248 °F (-5 °C ... +120 °C)
	FKM (Viton®) (in piston pressure switch)	+5 °F ... +248 °F (-15 °C ... +120 °C)
	FFKM	-4 °F ... +248 °F (-20 °C ... +120 °C)
	Silicone, diaphragm	-40 °F ... +248 °F (-40 °C ... +120 °C)
	HNBR	-22 °F ... +248 °F (-30 °C ... +120 °C)
Burst pressure (diaphragm pressure switch):	5,800 psi (400 bar)	
Burst pressure (piston pressure switch):	10,150 psi (700 bar) (for threads M10, G 1/8, R 1/8 and NPT 1/8 up to max. 600 bar)	
Switching frequency:	200 / min.	
Mechanical life expectancy:	1,000,000 cycles (for diaphragm pressure switches, life expectancy value only applies for switching pressures to max. 725 psi / 50 bar)	
Pressure rise rate:	≤ 14.5 psi/ms (1 bar/ms)	
Differential:	Average value 5 – 30 % depending on type, not adjustable	
Vibration resistance	10 g; 5 – 200 Hz sine wave; DIN EN 60068-2-6	
Shock resistance:	294 m/s ² ; 14 ms half sine wave; DIN EN 60068-2-27	
Protection class:	IP65 with socket device, terminals IP00	
Weight:	approx. 3.17 oz (90 g)	

Type:		0163	0164	0166	0167	0168	0169
Material:	Zinc-plated steel (CrVI-free)	●		●		●	●
	Stainless steel		●				
	Brass				●		
Overpressure safety up to:	35 bar				●		
	300 bar			●		●	
	600 bar	●	●				●



M