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 site[1)]
- 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 cutomized and ready-wired pressure switches, please refer to chapter M.5, starting at page 62.

[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 details

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 (diaphragm pressure switch)	-40 °C … +100 °C
	NBR (piston pressure switch)	-30 °C … +100 °C
	EPDM	-30 °C … +120 °C
	EPDM-TW (diaphragm pressure switch)	-20°C . . . +100 °C
	FKM (diaphragm pressure switch)	-5 °C … +120 °C
	FKM (piston pressure switch)	-15 °C … +120 °C
	FFKM	-20 °C … +120 °C
	Silicone (diaphragm pressure switch)	-40 °C … +120 °C
	HNBR	-30 °C … +120 °C
Burst pressure (diaphragm pressure switch):	400 bar	
Burst pressure (piston pressure switch)	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 up to max. 50 bar)	
Pressure rise rate:	≤ 1,000 bar/s	
Hysteresis:	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/s²; 14 ms half sine wave; DIN EN 60068-2-27	
Protection class:	IP65 with socket device, terminals IP00	
Weight:	approx. 90 g	

Overview of contact materials and maximum overpressure safety

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.3
hex 24

0163

Diaphragm pressure switches up to 42 V with spade terminal

- Made of zinc-plated steel (CrVI-free)
- Spade terminal
- Overpressure safety up to 600 bar[1)]



0163 Diaphragm pressure switches with spade terminal

Adjustment range (Tolerance at room temperature)	Male thread	Article number NO —› |:	Article number NC —› :|
0.1 - 1 (± 0.2) bar	G 1/4	0163 - 403 03 - X - 011	0163 - 404 03 - X - 015
	G 1/8	0163 - 403 28 - X - 603	0163 - 404 28 - X - 604
	M 10x1 cyl.	0163 - 403 13 - X - 003	0163 - 404 13 - X - 004
	M 10x1 con.	0163 - 403 01 - X - 009	0163 - 404 01 - X - 013
	M 12x1.5 cyl.	0163 - 403 02 - X - 010	0163 - 404 02 - X - 014
	NPT 1/8	0163 - 403 04 - X - 012	0163 - 404 04 - X - 016
0.5 - 3 (± 0.3) bar	G 1/4	0163 - 423 03 - X - 070	0163 - 424 03 - X - 070
	G 1/8	0163 - 423 28 - X - 070	0163 - 424 28 - X - 070
	M 10x1 cyl.	0163 - 423 13 - X - 070	0163 - 424 13 - X - 070
	M 10x1 con.	0163 - 423 01 - X - 070	0163 - 424 01 - X - 070
	M 12x1.5 cyl.	0163 - 423 02 - X - 070	0163 - 424 02 - X - 070
	NPT 1/8	0163 - 423 04 - X - 070	0163 - 424 04 - X - 070
1 - 10 (± 0.5) bar	G 1/4	0163 - 407 03 - X - 027	0163 - 408 03 - X - 031
	G 1/8	0163 - 407 28 - X - 607	0163 - 408 28 - X - 608
	M 10x1 cyl.	0163 - 407 13 - X - 007	0163 - 408 13 - X - 008
	M 10x1 con.	0163 - 407 01 - X - 025	0163 - 408 01 - X - 029
	M 12x1.5 cyl.	0163 - 407 02 - X - 026	0163 - 408 02 - X - 030
	NPT 1/8	0163 - 407 04 - X - 028	0163 - 408 04 - X - 032
10 - 20 (± 1.0) bar	G 1/4	0163 - 411 03 - X - 043	0163 - 412 03 - X - 047
	G 1/8	0163 - 411 28 - X - 611	0163 - 412 28 - X - 612
	M 10x1 cyl.	0163 - 411 13 - X - 011	0163 - 412 13 - X - 012
	M 10x1 con.	0163 - 411 01 - X - 041	0163 - 412 01 - X - 045
	M 12x1.5 cyl.	0163 - 411 02 - X - 042	0163 - 412 02 - X - 046
	NPT 1/8	0163 - 411 04 - X - 044	0163 - 412 04 - X - 048
20 - 50 (± 2.0) bar	G 1/4	0163 - 415 03 - X - 059	0163 - 416 03 - X - 063
	G 1/8	0163 - 415 28 - X - 615	0163 - 416 28 - X - 616
	M 10x1 cyl.	0163 - 415 13 - X - 015	0163 - 416 13 - X - 016
	M 10x1 con.	0163 - 415 01 - X - 057	0163 - 416 01 - X - 061
	M 12x1.5 cyl.	0163 - 415 02 - X - 058	0163 - 416 02 - X - 062
	NPT 1/8	0163 - 415 04 - X - 060	0163 - 416 04 - X - 064

Seal material – Application areas

NBR	Hydraulic/machine oil, air, nitrogen, etc.	1
EPDM	Brake fluid, hydrogen, oxygen, acetylene, etc.	2
FKM	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.

Article 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.

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 600 bar[1)]

Adjustment range (Tolerance at room temperature)	Male thread	Article number NO —› |:	Article number NC —› :|

0163 Diaphragm pressure switches with M3 screw terminal

0.1 - 1 (± 0.2) bar	G 1/4	0163 - 401 03 - X - 003	0163 - 402 03 - X - 007
	G 1/8	0163 - 401 28 - X - 601	0163 - 402 28 - X - 602
	M 10x1 cyl.	0163 - 401 13 - X - 001	0163 - 402 13 - X - 002
	M 10x1 con.	0163 - 401 01 - X - 001	0163 - 402 01 - X - 005
	M 12x1.5 cyl.	0163 - 401 02 - X - 002	0163 - 402 02 - X - 006
	NPT 1/8	0163 - 401 04 - X - 004	0163 - 402 04 - X - 008
0.5 - 3 (± 0.3) bar	G 1/4	0163 - 421 03 - X - 070	0163 - 422 03 - X - 070
	G 1/8	0163 - 421 28 - X - 070	0163 - 422 28 - X - 070
	M 10x1 cyl.	0163 - 421 13 - X - 070	0163 - 422 13 - X - 070
	M 10x1 con.	0163 - 421 01 - X - 070	0163 - 422 01 - X - 070
	M 12x1.5 cyl.	0163 - 421 02 - X - 070	0163 - 422 02 - X - 070
	NPT 1/8	0163 - 421 04 - X - 070	0163 - 422 04 - X - 070
1 - 10 (± 0.5) bar	G 1/4	0163 - 405 03 - X - 019	0163 - 406 03 - X - 023
	G 1/8	0163 - 405 28 - X - 605	0163 - 406 28 - X - 606
	M 10x1 cyl.	0163 - 405 13 - X - 005	0163 - 406 13 - X - 006
	M 10x1 con.	0163 - 405 01 - X - 017	0163 - 406 01 - X - 021
	M 12x1.5 cyl.	0163 - 405 02 - X - 018	0163 - 406 02 - X - 022
	NPT 1/8	0163 - 405 04 - X - 020	0163 - 406 04 - X - 024
10 - 20 (± 1.0) bar	G 1/4	0163 - 409 03 - X - 035	0163 - 410 03 - X - 039
	G 1/8	0163 - 409 28 - X - 609	0163 - 410 28 - X - 610
	M 10x1 cyl.	0163 - 409 13 - X - 009	0163 - 410 13 - X - 010
	M 10x1 con.	0163 - 409 01 - X - 033	0163 - 410 01 - X - 037
	M 12x1.5 cyl.	0163 - 409 02 - X - 034	0163 - 410 02 - X - 038
	NPT 1/8	0163 - 409 04 - X - 036	0163 - 410 04 - X - 040
20 - 50 (± 2.0) bar	G 1/4	0163 - 413 03 - X - 051	0163 - 414 03 - X - 055
	G 1/8	0163 - 413 28 - X - 613	0163 - 414 28 - X - 614
	M 10x1 cyl.	0163 - 413 13 - X - 013	0163 - 414 13 - X - 014
	M 10x1 con.	0163 - 413 01 - X - 049	0163 - 414 01 - X - 053
	M 12x1.5 cyl.	0163 - 413 02 - X - 050	0163 - 414 02 - X - 054
	NPT 1/8	0163 - 413 04 - X - 052	0163 - 414 04 - X - 056



Seal material – Application areas

NBR	Hydraulic/machine oil, air, nitrogen, etc.	1
EPDM	Brake fluid, hydrogen, oxygen, acetylene, etc.	2
FKM	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.

Article 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.

0166

Diaphragm pressure switches up to 42 V with spade terminal

- Made of zinc-plated steel (CrVI-free)
- Spade terminal
- Overpressure safety up to 300 bar[1)]



0166 Diaphragm pressure switches with spade terminal

Adjustment range (Tolerance at room temperature)	Male thread	Article number NO —› |:	Article number NC —› :|
0.1 - 1 (± 0.2) bar	G 1/4	0166 - 403 03 - X - 011	0166 - 404 03 - X - 015
	G 1/8	0166 - 403 28 - X - 603	0166 - 404 28 - X - 604
	M 10x1 cyl.	0166 - 403 13 - X - 003	0166 - 404 13 - X - 004
	M 10x1 con.	0166 - 403 01 - X - 009	0166 - 404 01 - X - 013
	M 12x1.5 cyl.	0166 - 403 02 - X - 010	0166 - 404 02 - X - 014
	NPT 1/8	0166 - 403 04 - X - 012	0166 - 404 04 - X - 016
0.5 - 3 (± 0.3) bar	G 1/4	0166 - 423 03 - X - 070	0166 - 424 03 - X - 070
	G 1/8	0166 - 423 28 - X - 070	0166 - 424 28 - X - 070
	M 10x1 cyl.	0166 - 423 13 - X - 070	0166 - 424 13 - X - 070
	M 10x1 con.	0166 - 423 01 - X - 070	0166 - 424 01 - X - 070
	M 12x1.5 cyl.	0166 - 423 02 - X - 070	0166 - 424 02 - X - 070
	NPT 1/8	0166 - 423 04 - X - 070	0166 - 424 04 - X - 070
1 - 10 (± 0.5) bar	G 1/4	0166 - 407 03 - X - 027	0166 - 408 03 - X - 031
	G 1/8	0166 - 407 28 - X - 607	0166 - 408 28 - X - 608
	M 10x1 cyl.	0166 - 407 13 - X - 007	0166 - 408 13 - X - 008
	M 10x1 con.	0166 - 407 01 - X - 025	0166 - 408 01 - X - 029
	M 12x1.5 cyl.	0166 - 407 02 - X - 026	0166 - 408 02 - X - 030
	NPT 1/8	0166 - 407 04 - X - 028	0166 - 408 04 - X - 032
10 - 20 (± 1.0) bar	G 1/4	0166 - 411 03 - X - 043	0166 - 412 03 - X - 047
	G 1/8	0166 - 411 28 - X - 611	0166 - 412 28 - X - 612
	M 10x1 cyl.	0166 - 411 13 - X - 011	0166 - 412 13 - X - 012
	M 10x1 con.	0166 - 411 01 - X - 041	0166 - 412 01 - X - 045
	M 12x1.5 cyl.	0166 - 411 02 - X - 042	0166 - 412 02 - X - 046
	NPT 1/8	0166 - 411 04 - X - 044	0166 - 412 04 - X - 048
20 - 50 (± 2.0) bar	G 1/4	0166 - 415 03 - X - 059	0166 - 416 03 - X - 063
	G 1/8	0166 - 415 28 - X - 615	0166 - 416 28 - X - 616
	M 10x1 cyl.	0166 - 415 13 - X - 015	0166 - 416 13 - X - 016
	M 10x1 con.	0166 - 415 01 - X - 057	0166 - 416 01 - X - 061
	M 12x1.5 cyl.	0166 - 415 02 - X - 058	0166 - 416 02 - X - 062
	NPT 1/8	0166 - 415 04 - X - 060	0166 - 416 04 - X - 064

Seal material – Application areas

NBR	Hydraulic/machine oil, air, nitrogen, etc.	1
EPDM	Brake fluid, hydrogen, oxygen, acetylene, etc.	2
FKM	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.

Article number:	0166 – XXX XX – X – XXX

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

0166

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 300 bar[1)]

M.3
hex 24

Adjustment range (Tolerance at room temperature)	Male thread	**Article number** NO —› |:	**Article number** NC —› :|
0166 Diaphragm pressure switches with M3 screw terminal			
0.1 - 1 (± 0.2) bar	G 1/4	0166 - 401 03 - X - 003	0166 - 402 03 - X - 007
	G 1/8	0166 - 401 28 - X - 601	0166 - 402 28 - X - 602
	M 10x1 cyl.	0166 - 401 13 - X - 001	0166 - 402 13 - X - 002
	M 10x1 con.	0166 - 401 01 - X - 001	0166 - 402 01 - X - 005
	M 12x1.5 cyl.	0166 - 401 02 - X - 002	0166 - 402 02 - X - 006
	NPT 1/8	0166 - 401 04 - X - 004	0166 - 402 04 - X - 008
0.5 - 3 (± 0.3) bar	G 1/4	0166 - 421 03 - X - 070	0166 - 422 03 - X - 070
	G 1/8	0166 - 421 28 - X - 070	0166 - 422 28 - X - 070
	M 10x1 cyl.	0166 - 421 13 - X - 070	0166 - 422 13 - X - 070
	M 10x1 con.	0166 - 421 01 - X - 070	0166 - 422 01 - X - 070
	M 12x1.5 cyl.	0166 - 421 02 - X - 070	0166 - 422 02 - X - 070
	NPT 1/8	0166 - 421 04 - X - 070	0166 - 422 04 - X - 070
1 - 10 (± 0.5) bar	G 1/4	0166 - 405 03 - X - 019	0166 - 406 03 - X - 023
	G 1/8	0166 - 405 28 - X - 605	0166 - 406 28 - X - 606
	M 10x1 cyl.	0166 - 405 13 - X - 005	0166 - 406 13 - X - 006
	M 10x1 con.	0166 - 405 01 - X - 017	0166 - 406 01 - X - 021
	M 12x1.5 cyl.	0166 - 405 02 - X - 018	0166 - 406 02 - X - 022
	NPT 1/8	0166 - 405 04 - X - 020	0166 - 406 04 - X - 024
10 - 20 (± 1.0) bar	G 1/4	0166 - 409 03 - X - 035	0166 - 410 03 - X - 039
	G 1/8	0166 - 409 28 - X - 609	0166 - 410 28 - X - 610
	M 10x1 cyl.	0166 - 409 13 - X - 009	0166 - 410 13 - X - 010
	M 10x1 con.	0166 - 409 01 - X - 033	0166 - 410 01 - X - 037
	M 12x1.5 cyl.	0166 - 409 02 - X - 034	0166 - 410 02 - X - 038
	NPT 1/8	0166 - 409 04 - X - 036	0166 - 410 04 - X - 040
20 - 50 (± 2.0) bar	G 1/4	0166 - 413 03 - X - 051	0166 - 414 03 - X - 055
	G 1/8	0166 - 413 28 - X - 613	0166 - 414 28 - X - 614
	M 10x1 cyl.	0166 - 413 13 - X - 013	0166 - 414 13 - X - 014
	M 10x1 con.	0166 - 413 01 - X - 049	0166 - 414 01 - X - 053
	M 12x1.5 cyl.	0166 - 413 02 - X - 050	0166 - 414 02 - X - 054
	NPT 1/8	0166 - 413 04 - X - 052	0166 - 414 04 - X - 056



Seal material – Application areas

NBR	Hydraulic/machine oil, air, nitrogen, etc.	1
EPDM	Brake fluid, hydrogen, oxygen, acetylene, etc.	2
FKM	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.

Article number:	**0166 – XXX XX – X – XXX**

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

0168

Diaphragm pressure switches up to 42 V

- Made of zinc-plated steel (CrVI-free)
- Spade or M3 screw terminal
- Overpressure safety up to 300 bar[1)]
- With female thread with compression type fitting 6L to DIN EN ISO 8434-1 (former DIN 2353)





Adjustment range (Tolerance at room temperature)	Female thread	**Article number** NO —› |:	**Article number** NC —› :|

0168 Diaphragm pressure switches with spade terminal

0.1 - 1 (± 0.2) bar	M 12x1.5 female DIN EN ISO 8434-1	0168 - 403 16 - X - 003	0168 - 404 16 - X - 004
0.5 - 3 (± 0.3) bar		0168 - 423 16 - X - 070	0168 - 424 16 - X - 070
1 - 10 (± 0.5) bar		0168 - 407 16 - X - 007	0168 - 408 16 - X - 008
10 - 20 (± 1) bar		0168 - 411 16 - X - 011	0168 - 412 16 - X - 012
20 - 50 (± 2) bar		0168 - 415 16 - X - 015	0168 - 416 16 - X - 016

0168 Diaphragm pressure switches with M3 screw terminal

0.1 - 1 (± 0.2) bar	M 12x1.5 female DIN EN ISO 8434-1	0168 - 401 16 - X - 001	0168 - 402 16 - X - 002
0.5 - 3 (± 0.3) bar		0168 - 421 16 - X - 070	0168 - 422 16 - X - 070
1 - 10 (± 0.5) bar		0168 - 405 16 - X - 005	0168 - 406 16 - X - 006
10 - 20 (± 1) bar		0168 - 409 16 - X - 009	0168 - 410 16 - X - 010
20 - 50 (± 2) bar		0168 - 413 16 - X - 013	0168 - 414 16 - X - 014

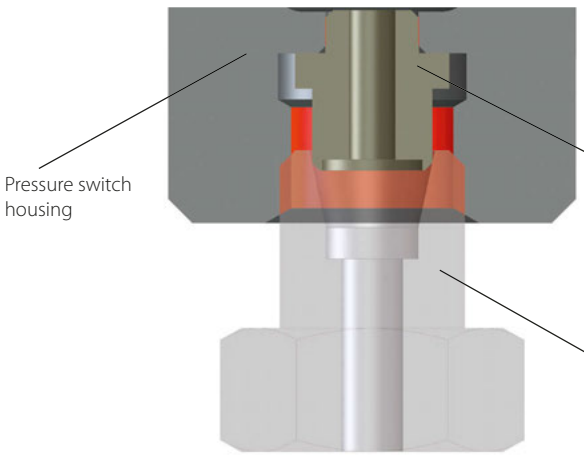
Seal material – Application areas

NBR	Hydraulic/machine oil, air, nitrogen, etc.	1
EPDM	Brake fluid, hydrogen, oxygen, acetylene, etc.	2
FKM	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.

Article number:	**0168 – XXX 16 – X – XXX**

Seal type 0168 with counterpart 6L



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

0169

Piston pressure switches up to 42 V

- Made of zinc-plated steel (CrVI-free)
- Spade or M3 screw terminal
- Overpressure safety up to 600 bar[1)]

M.3
hex 24

Adjustment range (Tolerance at room temperature)	Male thread	**Article number** NO ⟶ |:	**Article number** NC ⟶ :|

0169 Piston pressure switches with spade terminal

50 - 150 (± 5) bar	G 1/4	0169 - 419 03 - X - 011	0169 - 420 03 - X - 015
	G 1/8	0169 - 419 28 - X - 603	0169 - 420 28 - X - 604
	M 10x1 cyl.	0169 - 419 13 - X - 003	0169 - 420 13 - X - 004
	M 10x1 con.	0169 - 419 01 - X - 009	0169 - 420 01 - X - 013
	M 12x1.5 cyl.	0169 - 419 02 - X - 010	0169 - 420 02 - X - 014
	NPT 1/8	0169 - 419 04 - X - 012	0169 - 420 04 - X - 016
100 - 200 (± 5) bar[2)]	G 1/4 DIN 3852-2-A	0169 - 493 60 - X - 011	0169 - 494 60 - X - 015
	M 12x1.5 DIN 3852-1-A	0169 - 493 68 - X - 010	0169 - 494 68 - X - 014

AMP 6.3 x 0.8
Galvanically tin-plated



0169 Piston pressure switches with M3 screw terminal

50 - 150 (± 5) bar	G 1/4	0169 - 417 03 - X - 003	0169 - 418 03 - X - 007
	G 1/8	0169 - 417 28 - X - 601	0169 - 418 28 - X - 602
	M 10x1 cyl.	0169 - 417 13 - X - 001	0169 - 418 13 - X - 002
	M 10x1 con.	0169 - 417 01 - X - 001	0169 - 418 01 - X - 005
	M 12x1.5 cyl.	0169 - 417 02 - X - 002	0169 - 418 02 - X - 006
	NPT 1/8	0169 - 417 04 - X - 004	0169 - 418 04 - X - 008
100 - 200 (± 5) bar[2)]	G 1/4 DIN 3852-2-A	0169 - 491 60 - X - 003	0169 - 492 60 - X - 007
	M 12x1.5 DIN 3852-1-A	0169 - 491 68 - X - 002	0169 - 492 68 - X - 006

Screw M3



Seal material – Application areas

NBR	Hydraulic/machine oil, air, nitrogen, etc.	1
EPDM	Brake fluid, hydrogen, oxygen, acetylene, etc.	2
FKM	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.

Article number:	**0169 – XXX XX – X – XXX**

[1)] Static value. Dynamic value is 30-50 % lower. Values pertain to the hydraulic/pneumatic part of the pressure switch.
[2)] Further thread types are available from a minimum order quantity of 500 pieces.

M.3
hex 24

0164

Diaphragm pressure switches up to 42 V with stainless steel housing

- Stainless steel housing (1.4305 / AISI 303)
- Spade terminal
- Overpressure safety up to 600 bar[1)]
  EPDM-TW and silicone diaphragm max. up to 35 bar[2)]



Adjustment range (Tolerance at room temperature)	Male thread	**Article number** NO —› |:	**Article number** NC —› :|
0164 Diaphragm pressure switches with spade terminal			
0.1 - 1 (± 0.2) bar	G 1/4-E	0164 - 403 41 - X - 003	0164 - 404 41 - X - 004
	R 1/8	0164 - 403 12 - X - 003	0164 - 404 12 - X - 004
	R 1/4	0164 - 403 46 - X - 003	0164 - 404 46 - X - 004
	NTP1/8	0164 - 403 04 - X - 003	0164 - 404 04 - X - 004
0.5 - 3 (± 0.3) bar	G 1/4-E	0164 - 423 41 - X - 070	0164 - 424 41 - X - 070
	R 1/8	0164 - 423 12 - X - 070	0164 - 424 12 - X - 070
	R 1/4	0164 - 423 46 - X - 070	0164 - 424 46 - X - 070
	NTP1/8	0164 - 423 04 - X - 070	0164 - 424 04 - X - 070
1 - 10 (± 0.5) bar	G 1/4-E	0164 - 407 41 - X - 007	0164 - 408 41 - X - 008
	R 1/8	0164 - 407 12 - X - 007	0164 - 408 12 - X - 008
	R 1/4	0164 - 407 46 - X - 007	0164 - 408 46 - X - 008
	NTP1/8	0164 - 407 04 - X - 007	0164 - 408 04 - X - 008
10 - 20 (± 1) bar	G 1/4-E	0164 - 411 41 - X - 011	0164 - 412 41 - X - 012
	R 1/8	0164 - 411 12 - X - 011	0164 - 412 12 - X - 012
	R 1/4	0164 - 411 46 - X - 011	0164 - 412 46 - X - 012
	NTP1/8	0164 - 411 04 - X - 011	0164 - 412 04 - X - 012
20 - 50 (± 2) bar	G 1/4-E	0164 - 415 41 - X - 015	0164 - 416 41 - X - 016
	R 1/8	0164 - 415 12 - X - 015	0164 - 416 12 - X - 016
	R 1/4	0164 - 415 46 - X - 015	0164 - 416 46 - X - 016
	NTP1/8	0164 - 415 04 - X - 015	0164 - 416 04 - X - 016

Seal material – Application areas

NBR	Hydraulic/machine oil, air, nitrogen, etc.	1
EPDM	Water, Brake fluid, hydrogen, oxygen, acetylene, etc.	2
EPDM-TW[2)]	Drinking water ($p_{max} \leq 35$ bar)	5
FKM	Hydraulic fluids (HFA, HFB, HFD), petrol/gasoline, etc.	3
FFKM	Hot water, chemical acids, diluted alkalis, ketones, esters, alcohols	6
Silicone[2)3)]	Water, food products, air, etc. ($p_{max} \leq 35$ bar)	8
HNBR	Hydraulic/machine oil, ester-based bio-oils	9

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

Article number:	**0164 – XXX XX – X – XXX**

[1)] Static value. Dynamic value is 30-50 % lower. Values pertain to the hydraulic/pneumatic part of the pressure switch.
[2)] Functional safety and reliability only up to 35 bar with seal materials EPDM-TW and silicone.
[3)] The G 1/4-E thread has an EPDM sealing ring if the silicone membrane is selected.

0164

Diaphragm pressure switches up to 42 V with stainless steel housing

- Stainless steel housing (1.4305 / AISI 303)
- M3 screw terminal
- Overpressure safety up to 600 bar[1)]
  EPDM-TW and silicone diaphragm up to max. 35 bar[2)]

M.3
hex 24

Adjustment range (Tolerance at room temperature)	Male thread	**Article number** NO —› |:	**Article number** NC —› :|

0164 Diaphragm pressure switches with screw terminal M3

0.1 - 1 (± 0.2) bar	G 1/4-E	0164 - 401 41 - X - 001	0164 - 402 41 - X - 002
	R 1/8	0164 - 401 12 - X - 001	0164 - 402 12 - X - 002
	R 1/4	0164 - 401 46 - X - 001	0164 - 402 46 - X - 002
	NTP1/8	0164 - 401 04 - X - 001	0164 - 402 04 - X - 002
0.5 - 3 (± 0.3) bar	G 1/4-E	0164 - 421 41 - X - 070	0164 - 422 41 - X - 070
	R 1/8	0164 - 421 12 - X - 070	0164 - 422 12 - X - 070
	R 1/4	0164 - 421 46 - X - 070	0164 - 422 46 - X - 070
	NTP1/8	0164 - 421 04 - X - 070	0164 - 422 04 - X - 070
1 - 10 (± 0.5) bar	G 1/4-E	0164 - 405 41 - X - 005	0164 - 406 41 - X - 006
	R 1/8	0164 - 405 12 - X - 005	0164 - 406 12 - X - 006
	R 1/4	0164 - 405 46 - X - 005	0164 - 406 46 - X - 006
	NTP1/8	0164 - 405 04 - X - 005	0164 - 406 04 - X - 006
10 - 20 (± 1) bar	G 1/4-E	0164 - 409 41 - X - 009	0164 - 410 41 - X - 010
	R 1/8	0164 - 409 12 - X - 009	0164 - 410 12 - X - 010
	R 1/4	0164 - 409 46 - X - 009	0164 - 410 46 - X - 010
	NTP1/8	0164 - 409 04 - X - 009	0164 - 410 04 - X - 010
20 - 50 (± 2) bar	G 1/4-E	0164 - 413 41 - X - 013	0164 - 414 41 - X - 014
	R 1/8	0164 - 413 12 - X - 013	0164 - 414 12 - X - 014
	R 1/4	0164 - 413 46 - X - 013	0164 - 414 46 - X - 014
	NTP1/8	0164 - 413 04 - X - 013	0164 - 414 04 - X - 014



Seal material – Application areas

NBR	Hydraulic/machine oil, air, nitrogen, etc.	1
EPDM	Water, Brake fluid, hydrogen, oxygen, acetylene, etc.	2
EPDM-TW[2)]	Drinking water (p_{max} ≤ 35 bar)	5
FKM	Hydraulic fluids (HFA, HFB, HFD), petrol/gasoline, etc.	3
FFKM	Hot water, chemical acids, diluted alkalis, ketones, esters, alcohols	6
Silicone[2)3)]	Water, food products, air, etc. (p_{max} ≤ 35 bar)	8
HNBR	Hydraulic/machine oil, ester-based bio-oils	9

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

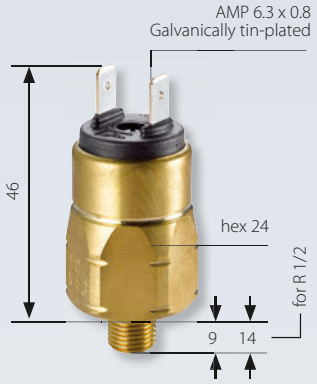
Article number:	**0164 – XXX XX – X – XXX**

[1)] Static value. Dynamic value is 30-50 % lower. Values pertain to the hydraulic/pneumatic part of the pressure switch.
[2)] Functional safety and reliability only up to max. 35 bar with EPDM-TW and silicone diaphragm.
[3)] The G 1/4-E thread has an EPDM sealing ring if the silicone membrane is selected.

0167

Diaphragm pressure switches up to 42 V with brass housing

- Brass housing
- Spade terminal
- Overpressure safety up to 35 bar[1)]



0167 Diaphragm pressure switches with spade terminal

Adjustment range (Tolerance at room temperature)	Male thread	Article number NO —› |:	Article number NC —› :|
0.1 - 1 (± 0.2) bar	G 1/4	0167 - 403 03 - X - 039	0167 - 404 03 - X - 040
	G 1/8	0167 - 403 28 - X - 003	0167 - 404 28 - X - 004
	R 1/8	0167 - 403 12 - X - 008	0167 - 404 12 - X - 011
	R 1/2	0167 - 403 07 - X - 009	0167 - 404 07 - X - 012
	M 10x1 con.	0167 - 403 01 - X - 007	0167 - 404 01 - X - 010
	NPT 1/8	0167 - 403 04 - X - 012	0167 - 404 04 - X - 016
0.5 - 3 (± 0.3) bar	G 1/4	0167 - 423 03 - X - 070	0167 - 424 03 - X - 070
	G 1/8	0167 - 423 28 - X - 070	0167 - 424 28 - X - 070
	R 1/8	0167 - 423 12 - X - 070	0167 - 424 12 - X - 070
	R 1/2	0167 - 423 07 - X - 070	0167 - 424 07 - X - 070
	M 10x1 con.	0167 - 423 01 - X - 070	0167 - 424 01 - X - 070
	NPT 1/8	0167 - 423 04 - X - 070	0167 - 424 04 - X - 070
1 - 10 (± 0.5) bar	G 1/4	0167 - 407 03 - X - 043	0167 - 408 03 - X - 044
	G 1/8	0167 - 407 28 - X - 007	0167 - 408 28 - X - 008
	R 1/8	0167 - 407 12 - X - 020	0167 - 408 12 - X - 023
	R 1/2	0167 - 407 07 - X - 021	0167 - 408 07 - X - 024
	M 10x1 con.	0167 - 407 01 - X - 019	0167 - 408 01 - X - 022
	NPT 1/8	0167 - 407 04 - X - 028	0167 - 408 04 - X - 032
10 - 20 (± 1.0) bar	G 1/4	0167 - 411 03 - X - 047	0167 - 412 03 - X - 048
	G 1/8	0167 - 411 28 - X - 011	0167 - 412 28 - X - 012
	R 1/8	0167 - 411 12 - X - 032	0167 - 412 12 - X - 035
	R 1/2	0167 - 411 07 - X - 033	0167 - 412 07 - X - 036
	M 10x1 con.	0167 - 411 01 - X - 031	0167 - 412 01 - X - 034
	NPT 1/8	0167 - 411 04 - X - 044	0167 - 412 04 - X - 048

Seal material – Application areas

NBR	Hydraulic/machine oil, air, nitrogen, etc.	1
EPDM	Water, Brake fluid, hydrogen, oxygen, acetylene, etc.	2
EPDM-TW	Drinking water ($p_{max} \leq 35$ bar)	5
FKM	Hydraulic fluids (HFA, HFB, HFD), petrol/gasoline, etc.	3
FFKM	Hot water, chemical acids, diluted alkalis, ketones, esters, alcohols	6
Silicone	Water, food products, air, etc. ($p_{max} \leq 35$ bar)	8

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

Article number:	0167 – XXX XX – X – XXX

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

0167

Diaphragm pressure switches up to 42 V with brass housing

- Brass housing
- M3 screw terminal
- Overpressure safety up to 35 bar[1)]

Adjustment range (Tolerance at room temperature)	Male thread	Article number NO ⟶ |:	Article number NC ⟶ :|

0167 Diaphragm pressure switches with M3 screw terminal

0.1 - 1 (± 0.2) bar	G 1/4	0167 - 401 03 - X - 037	0167 - 402 03 - X - 038
	G 1/8	0167 - 401 28 - X - 001	0167 - 402 28 - X - 002
	R 1/8	0167 - 401 12 - X - 002	0167 - 402 12 - X - 005
	R 1/2	0167 - 401 07 - X - 003	0167 - 402 07 - X - 006
	M 10x1 con.	0167 - 401 01 - X - 001	0167 - 402 01 - X - 004
	NPT 1/8	0167 - 401 04 - X - 004	0167 - 402 04 - X - 008
0.5 - 3 (± 0.3) bar	G 1/4	0167 - 421 03 - X - 070	0167 - 422 03 - X - 070
	G 1/8	0167 - 421 28 - X - 070	0167 - 422 28 - X - 070
	R 1/8	0167 - 421 12 - X - 070	0167 - 422 12 - X - 070
	R 1/2	0167 - 421 07 - X - 070	0167 - 422 07 - X - 070
	M 10x1 con.	0167 - 421 01 - X - 070	0167 - 422 01 - X - 070
	NPT 1/8	0167 - 421 04 - X - 070	0167 - 422 04 - X - 070
1 - 10 (± 0.5) bar	G 1/4	0167 - 405 03 - X - 041	0167 - 406 03 - X - 042
	G 1/8	0167 - 405 28 - X - 005	0167 - 406 28 - X - 006
	R 1/8	0167 - 405 12 - X - 014	0167 - 406 12 - X - 017
	R 1/2	0167 - 405 07 - X - 015	0167 - 406 07 - X - 018
	M 10x1 con.	0167 - 405 01 - X - 013	0167 - 406 01 - X - 016
	NPT 1/8	0167 - 405 04 - X - 020	0167 - 406 04 - X - 024
10 - 20 (± 1.0) bar	G 1/4	0167 - 409 03 - X - 045	0167 - 410 03 - X - 046
	G 1/8	0167 - 409 28 - X - 009	0167 - 410 28 - X - 010
	R 1/8	0167 - 409 12 - X - 026	0167 - 410 12 - X - 029
	R 1/2	0167 - 409 07 - X - 027	0167 - 410 07 - X - 030
	M 10x1 con.	0167 - 409 01 - X - 025	0167 - 410 01 - X - 028
	NPT 1/8	0167 - 409 04 - X - 036	0167 - 410 04 - X - 040



Seal material – Application areas

NBR	Hydraulic/machine oil, air, nitrogen, etc.	1
EPDM	Water, Brake fluid, hydrogen, oxygen, acetylene, etc.	2
EPDM-TW	Drinking water ($p_{max} \leq 35$ bar)	5
FKM	Hydraulic fluids (HFA, HFB, HFD), petrol/gasoline, etc.	3
FFKM	Hot water, chemical acids, diluted alkalis, ketones, esters, alcohols	6
Silicone	Water, food products, air, etc. ($p_{max} \leq 35$ bar)	8

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

Article number:	0167 – XXX XX – X – XXX

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