

# Pressure switches hex 24

Normally open or normally closed, maximum voltage 42 V

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■ **Low-cost solution for mechanical pressure monitoring.**

■ **Stable switching point even after long use and high load.**

■ **Switching point easily adjustable<sup>1</sup> – also during use.**

■ **High pressure resistance, compact, small switch available as normally closed (nc) or normally open (no).**

■ **Ready-wired versions with the plug that you require – see page 38 following.**

## Technical data

Voltage	max. 42 V
Current rating (resistive):	max. 4 Ampere
Contact rating:	100 VA
Temperature stability for diaphragm / seal materials:	NBR -40 °C – +100 °C EPDM -30 °C – +120 °C FKM -5 °C – +120 °C Silicone -40 °C – +120 °C HNBR -30 °C – +120 °C
Switching frequency:	200 / min.
Mechanical life expectancy:	10 <sup>6</sup> cycles (life expectancy of diaphragm pressure switches only for pressures up to max. 50 bar)
Pressure rise rate:	≤ 1 bar/ms
Hysteresis:	average value 5 – 30 % depending on type, not adjustable
Vibration resistance:	10 g / 5 – 200 Hz sine-wave
Shock resistance:	294 m/s <sup>2</sup> ; 14 ms half-sine-wave
Degree of protection:	IP65 Terminals IP00
Weight in grams:	approx. 90 g

<sup>1)</sup> The pressure switches can also be factory preset. Our preset switches are sealed with lacquer paint and have the set pressure embossed on their body.

# Pressure switches hex 24

With fitted rubber cap: Degree of protection IP54

## Technical data

Type:		0163	0164	0166	0167	0168	0169
Material:	Zinc-plated steel (Cr VI-free)	■		■		■	■
	Stainless steel		■				
	Brass				■		
Overpressure safe up to:	35 bar				■		
	300 bar			■		■	
	600 bar	■	■				■



## Accessories



### Rubber protective cap

with central cable feed for 1.5 - 5 mm diameter cable

#### With fitted cap IP54

Suitable for voltages up to 42 V

**Order number:**

**1-1-66-621-010**



### Rubber protective cap

with central cable feed for 1.5 - 5 mm diameter cable

#### With fitted cap IP54

Suitable for voltages up to 42 V

**Order number:**

**1-1-66-621-003**

### Degree of protection IPXX

The type approval does not apply without restriction to all environmental conditions. It is the responsibility of the user to check whether the electrical connection complies with regulations other than those stated and whether it can be used for special applications which could not be foreseen by us.

### Oxygen warning!

When using oxygen, the relevant safety regulations must be observed. In addition, we recommend that a maximum operating pressure of 10 bar (50 bar series 0164) must not be exceeded.

- Zinc-plated steel body (CrVI-free)
- With spade terminals
- Overpressure safe up to 300 bar<sup>1)</sup>



Adjustment range in bar (tolerance at room temperature)	Thread	Normally open (no) →  :	Normally closed (nc) →  :
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**0166 Diaphragm pressure switches with spade terminals**

0.1 – 1 (± 0.2)	M 10x1 con.	0166	403 01	X	009	0166	404 01	X	013
	M 12x1.5	0166	403 02	X	010	0166	404 02	X	014
	G 1/4	0166	403 03	X	011	0166	404 03	X	015
	NPT 1/8	0166	403 04	X	012	0166	404 04	X	016
	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
1 – 10 (± 0.5)	M 10x1 con.	0166	407 01	X	025	0166	408 01	X	029
	M 12x1.5	0166	407 02	X	026	0166	408 02	X	030
	G 1/4	0166	407 03	X	027	0166	408 03	X	031
	NPT 1/8	0166	407 04	X	028	0166	408 04	X	032
	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
10 – 20 (± 1.0)	M 10x1 con.	0166	411 01	X	041	0166	412 01	X	045
	M 12x1.5	0166	411 02	X	042	0166	412 02	X	046
	G 1/4	0166	411 03	X	043	0166	412 03	X	047
	NPT 1/8	0166	411 04	X	044	0166	412 04	X	048
	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
20 – 50 (± 2.0)	M 10x1 con.	0166	415 01	X	057	0166	416 01	X	061
	M 12x1 5	0166	415 02	X	058	0166	416 02	X	062
	G 1/4	0166	415 03	X	059	0166	416 03	X	063
	NPT 1/8	0166	415 04	X	060	0166	416 04	X	064
	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

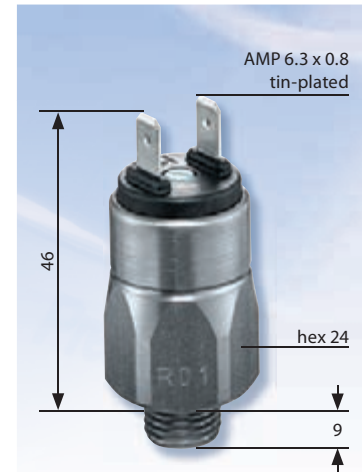
**Diaphragm material – areas of application**

<b>NBR</b>	Hydraulic / machine oil, heating oil, air, nitrogen etc.	<b>1</b>
<b>EPDM</b>	Brake fluid, ozone, acetylene, hydrogen etc.	<b>2</b>
<b>FKM</b>	Hydraulic fluids (HFA, HFB, HFD), petrol/gasoline etc.	<b>3</b>

See page 16 for temperature ranges of diaphragm / seal materials

<b>Order number:</b>	<b>0166 –XXX XX –X –XXX</b>
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**With male thread**



- Our pressure switches are also available with factory preset switching points.
- Ready-wired versions can be found starting on page 38 following.
- We offer other body materials and connecting threads upon request.
- Other diaphragm materials are available on request, e.g. HNBR or silicone.



<sup>1)</sup> Static pressure, dynamic pressures should be 30 to 50% lower. These values refer to the hydraulic or pneumatic part of the pressure switch.

- Zinc-plated steel body (CrVI-free)
- With M3 screw terminals or spade terminals
- Overpressure safe up to 600 bar<sup>1)</sup>



Adjustment range in bar (tolerance at room temperature)	Thread	Normally open (no) →  :	Normally closed (nc) → :
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**0169 Piston pressure switches with M3 screw terminals**

50 – 150 (± 5.0)	M 10x1 con.	0169	417 01	X	001	0169	418 01	X	005
	M 12x1.5	0169	417 02	X	002	0169	418 02	X	006
	G 1/4	0169	417 03	X	003	0169	418 03	X	007
	NPT 1/8	0169	417 04	X	004	0169	418 04	X	008
	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

**0169 Piston pressure switches with spade terminals**

50 – 150 (± 5.0)	M 10x1 con.	0169	419 01	X	009	0169	420 01	X	013
	M 12x1.5	0169	419 02	X	010	0169	420 02	X	014
	G 1/4	0169	419 03	X	011	0169	420 03	X	015
	NPT 1/8	0169	419 04	X	012	0169	420 04	X	016
	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

**Seal material – areas of application**

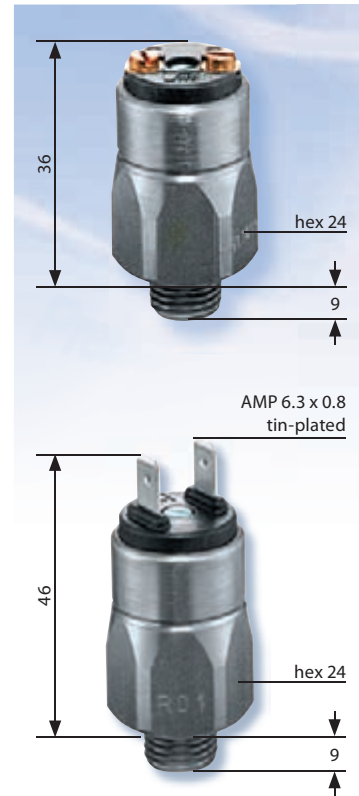
<b>NBR</b>	Hydraulic / machine oil, heating oil, air, nitrogen etc.	<b>1</b>
<b>EPDM</b>	Brake fluid, ozone, acetylene etc.	<b>2</b>
<b>FKM</b>	Hydraulic fluids (HFA, HFB, HFD), petrol/gasoline etc.	<b>3</b>

See page 16 for temperature ranges of diaphragm / seal materials

<b>Order number:</b>	<b>0169 – XXX XX – X – XXX</b>
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Piston pressure switches are only to a limited extent suitable for use with gases. See explanation on page 9.

**With male thread**



- Our pressure switches are also available with factory preset switching points.
- Ready-wired versions can be found starting on page 38 following.
- We offer other body materials and connecting threads upon request.
- Other diaphragm materials are available on request, e.g. HNBR or silicone.



<sup>1)</sup> Static pressure, dynamic pressures should be 30 to 50% lower. These values refer to the hydraulic or pneumatic part of the pressure switch.