

CE Marking

Directives of the
European Council

Machinery Directive
EMC Directive
Low Voltage Directive

Pressure Switches 30 A/F

Changeover switch



Equipment that falls under these directives must have a declaration of conformity and carry the CE marking.

SUCO pressure switches are electrical equipment and therefore fall under the Low Voltage Directive 73/23/EC.

An EC Declaration of Conformity has been prepared for all products that fall under these directives and is kept on our premises. The catalogue pages for the relevant switches carry the CE marking.



TECHNICAL DATA

Degree of protection:	IP65 valve connector fitted	
Switching frequency:	200 / min.	
Temperature stability for diaphragm/seal materials:	NBR	-30 °C – +100 °C
	EPDM	-30 °C – +120 °C
	FKM	-5 °C – +120 °C
Mechanical life expectancy:	10 ⁶ cycles (life expectancy of diaphragm pressure switches only for pressures up to max. 50 bar)	
Pressure rise rate:	≤ 1 bar/ms	
Vibration resistance:	10 g / 5–200 Hz sine-wave	
Shock resistance:	294 m/s ² ; 14 ms half-sine-wave	
Body material:	AlMgSi1 F28	
Switching performance:	see page 7	
Hysteresis:	Type 0159:	approx. 10–30% (not adjustable)
	Type 0161, 0162, 0175:	approx. 10–30% (adjustable at works)

- Panel or manifold mounting for clear, maintenance-friendly installation
- Easily adjustable by user
- High-quality micro-switch for reliable switching
- High overpressure safety
- Connection plug for simple installation on site

0159

Diaphragm/piston pressure switches 250 V

Aluminium body

With changeover switch and silver contacts

Overpressure safe to 200/600 bar ¹⁾

Max. voltage 250 V

- See page 7 for electrical properties

- Switching point steplessly adjustable with switch in operating condition by turning knurled screw

0159 Diaphragm pressure switches

Adjustment range in bar	Tolerance in bar (room temperature)	p _{max.} in bar	Thread	Order number
0.2 – 2	± 0.2 – 0.3	200 ¹⁾	G 1/4 internal	0159 426 14 001
0.5 – 5	± 0.2 – 0.5			0159 427 14 001
1 – 10	± 0.5			0159 428 14 001
2 – 20	± 1.0			0159 429 14 001
5 – 50	± 3.0			0159 430 14 001
10 – 100	± 3.0 – 5.0			0159 431 14 001

0159 Piston pressure switches

Adjustment range in bar	Tolerance in bar (room temperature)	p _{max.} in bar	Thread	Order number
10 – 100	± 3.0 – 5.0	600 ¹⁾	G 1/4 internal	0159 432 14 001
25 – 250	± 5.0 – 7.0			0159 433 14 001
40 – 400	± 5.0 – 9.0			0159 434 14 001

! Order number
Add figure for diaphragm/seal material

0159 XXX XX **X** XXX

NBR	Hydraulic / machine oil, turpentine, heating oil, air etc.	=	1
EPDM	Brake fluid, ozone, acetylene, hydrogen etc.	=	2
FKM	Hydraulic fluids (HFA, HFB, HFC, HFD), petrol/gasoline etc.	=	3
See page 38 for temperature ranges of diaphragm / seal materials			

Warning!

When using with oxygen, the relevant accident-prevention regulations must be observed. In addition, we recommend that a maximum operating pressure of 10 bar is not exceeded.

Piston-type pressure switches are only to a limited extent suitable for use with gases and oxygen. See explanation on page 5.

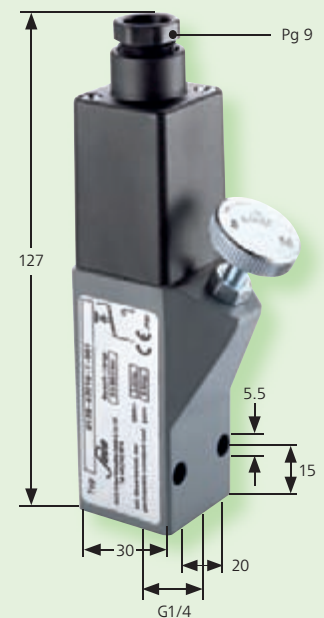
¹⁾ Static pressure, dynamic pressures should be 30 to 50% lower. These values refer to the hydraulic or pneumatic part of the pressure switch.

Degree of protection IP65

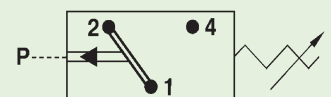
The type approval does not apply without restriction to all environmental conditions. It is the responsibility of the user to check whether the connection complies with regulations other than those stated, and whether it can be used for special applications which could not be foreseen by us in advance.



With female thread



- Also available with switching point preset in our works.



- For further technical data see page 38



0161/0162

Diaphragm/piston pressure switches 250 V

Aluminium body

With changeover switch and silver contacts

Max. voltage 250 V

Overpressure safe to 200/600 bar ¹⁾

With connector plug similar to DIN EN 175301 (DIN 43650)

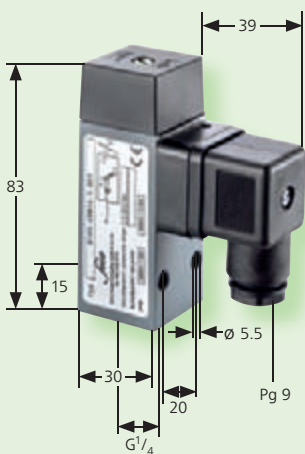
Adjustable hysteresis at works

- See page 7 for electrical properties



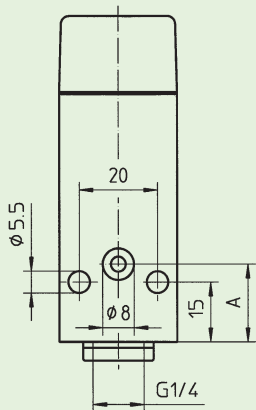
0161

With female thread

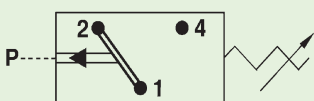


0162

Manifold mounting



- Also available with switching point preset in our works.



- For further technical data see page 38

Diaphragm pressure switches

Adjustment range in bar	Tolerance in bar (room temperature)	Dim."A" in mm	P _{max.} in bar	0161		0162 ²⁾	
				Female thread G 1/4	Manifold mounting		
0.5 – 1	± 0.2	15	200 ¹⁾	0161 436 14	001	0162 436 14	001
0.5 – 5	± 0.2 – 0.5			0161 437 14	001	0162 437 14	001
1 – 10	± 0.5			0161 438 14	001	0162 438 14	001
10 – 50	± 3.0			0161 439 14	001	0162 439 14	001
50 – 100	± 3.0 – 5.0			0161 440 14	001	0162 440 14	001

Piston pressure switches

Adjustment range in bar	Tolerance in bar (room temperature)	Dim."A" in mm	P _{max.} in bar	0161		0162 ²⁾	
				Female thread G 1/4	Manifold mounting		
100 – 400	± 5.0 – 9.0	19.5	600 ¹⁾	0161 441 14	001	0162 441 14	001

Order number
Add figure for diaphragm/
seal material

0161 XXX XX **X** XXX 0162 XXX XX **X** XXX

NBR	Hydraulic / machine oil, turpentine, heating oil, air etc.	=	1	=	1
EPDM	Brake fluid, ozone, acetylene, hydrogen etc.	=	2	=	2
FKM	Hydraulic fluids (HFA, HFB, HFC, HFD), petrol/gasoline etc.	=	3	=	3
See page 38 for temperature ranges of diaphragm/seal materials					

²⁾ 0162 Diaphragm pressure switches: scope of supply includes O-ring NBR 5 x 1.5

Warning!

When using with oxygen, the relevant accident-prevention regulations must be observed. In addition, we recommend that a maximum operating pressure of 10 bar is not exceeded.

Piston-type pressure switches are only to a limited extent suitable for use with gases and oxygen. See explanation on page 5.

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

Degree of protection IP65

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

0175

Diaphragm pressure switches 250 V

Aluminium body

With changeover switch and silver contacts

Max. voltage 250 V

Overpressure safe to 25 bar ¹⁾

With connector plug similar to DIN EN 175301 (DIN 43650)

Adjustable hysteresis at works

- See page 7 for electrical properties

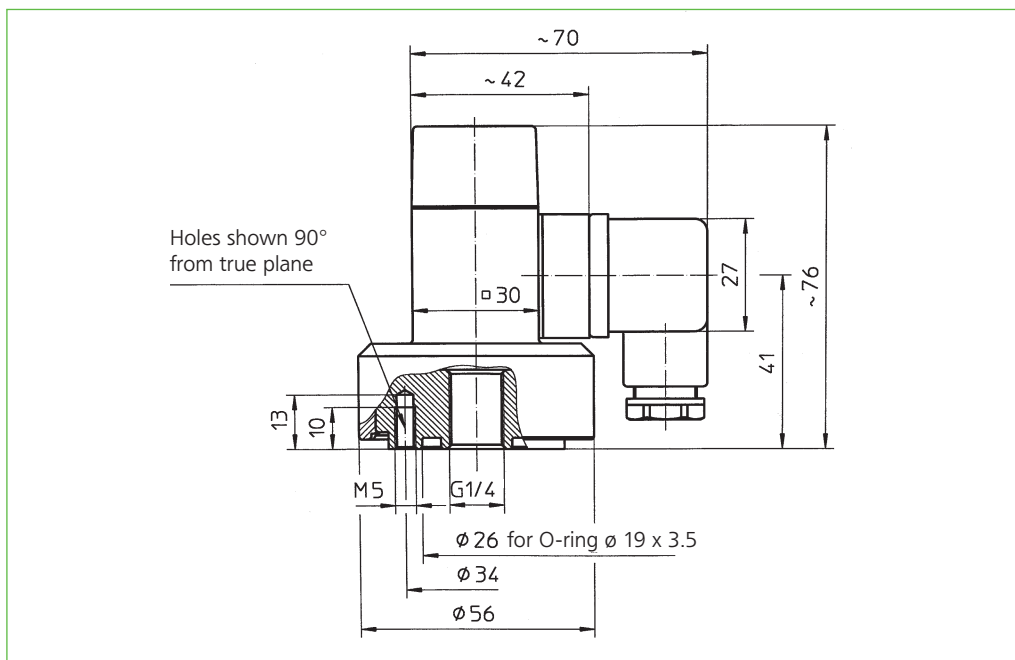
0175 Diaphragm pressure switches

Adjustment range in bar	Tolerance in bar (room temperature)	P _{max.} in bar	Thread	Order number
0.1 – 1	± 0.1 – 0.2	25 ¹⁾	G 1/4 internal	0175 435 14 X 001

! Order number
Add figure for diaphragm material

0175 XXX XX **X** XXX

NBR	Hydraulic / machine oil, turpentine, heating oil, air etc.	=	1
EPDM	Brake fluid, ozone, acetylene, hydrogen etc.	=	2
FKM	Hydraulic fluids (HFA, HFB, HFC, HFD), petrol/gasoline etc.	=	3
See page 38 for temperature ranges of diaphragm/seal materials			



Warning!

When using with oxygen, the relevant accident-prevention regulations must be observed. In addition, we recommend that a maximum operating pressure of 10 bar is not exceeded.

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

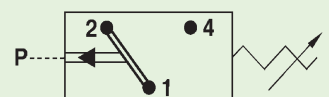
Degree of protection IP65

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

With female thread



- Also available with switching point preset in our works.



- For further technical data see page 38

SUCO

Electrical Data

Rated operating voltage U_e	Rated operating current I_e	Utilisation category	Model ranges:
250 volt AC 50 / 60 Hz	4 amp (2 amp)*	AC 12	0140 0141 0180 0181 0183 0184 0185 0186 0187
250 volt AC 50 / 60 Hz	1 amp	AC 14	
24 volt DC	4 / 2 amp (2 / 1 amp)*	DC 12 / DC 13	
50 volt DC	2 / 1 amp (1 / 0.5 amp)*	DC 12 / DC 13	
75 volt DC	1 / 0.5 amp (0.5 / 0.25 amp)*	DC 12 / DC 13	
125 volt DC	0.3 / 0.2 amp (0.2 / 0.1 amp)*	DC 12 / DC 13	
250 volt DC	0.25 / 0.2 amp (0.15 / 0.1 amp)*	DC 12 / DC 13	
Rated insulation voltage U_i :	300 volt		
Rated surge capacity U_{imp} :	2.5 kV (4 kV)*		
Rated thermal current I_{the} :	5 amp		
Switching overvoltage:	< 2.5 kV		
Rated frequency:	DC und 50 / 60 Hz		
Rated current of short-circuit protection:	Up to 5 amp (up to 3.5 amp)*		
Conditional short-circuit current:	< 350 amp		
IP degree of protection to EN60529:1991+A1:1999:	IP65 with plug		
Tightening torque of terminal screws:	< 0.35 Nm		
Conductor cross-section:	0.5 – 1.5 mm ²		
Rated operating voltage U_e	Rated operating current I_e	Utilisation category	Model ranges:
250 volt AC 50 / 60 Hz	5 amp	AC 12	0150 0161 0162 0175
250 volt AC 50 / 60 Hz	1 amp	AC 14	
30 volt DC	3.5 / 3.5 amp	DC 12 / DC 13	
50 volt DC	2 / 1 amp	DC 12 / DC 13	
75 volt DC	1 / 0.5 amp	DC 12 / DC 13	
125 volt DC	0.3 / 0.2 amp	DC 12 / DC 13	
250 volt DC	0.35 / 0.2 amp	DC 12 / DC 13	
Rated insulation voltage U_i :	300 volt		
Rated surge capacity U_{imp} :	2.5 kV		
Rated thermal current I_{the} :	6 amp		
Switching overvoltage:	< 2.5 kV		
Rated frequency:	DC and 50 / 60 Hz		
Rated current of short-circuit protection:	Up to 6.3 amp		
Conditional short-circuit current:	< 350 amp		
IP degree of protection to EN60529:1991+A1:1999:	IP65 with plug		
Tightening torque of terminal screws:	< 0.35 Nm		
Conductor cross-section:	0.5 – 1.5 mm ²		
Rated operating voltage U_e	Rated operating current I_e	Utilisation category	Model ranges:
250 volt AC 50 / 60 Hz	2.5 amp	AC 12	0159
250 volt AC 50 / 60 Hz	1 amp	AC 14	
30 volt DC	2 / 2 amp	DC 12 / DC 13	
50 volt DC	1 / 0.5 amp	DC 12 / DC 13	
75 volt DC	0.75 / 0.4 amp	DC 12 / DC 13	
125 volt DC	0.3 / 0.2 amp	DC 12 / DC 13	
250 volt DC	0.3 / 0.2 amp	DC 12 / DC 13	
Rated insulation voltage U_i :	300 volt		
Rated surge capacity U_{imp} :	2.5 kV		
Rated thermal current I_{the} :	6 amp		
Switching overvoltage:	< 2.5 kV		
Rated frequency:	DC and 50 / 60 Hz		
Rated current of short-circuit protection:	Up to 2.5 amp		
Conditional short-circuit current:	< 350 amp		
IP degree of protection to EN60529:1991+A1:1999:	IP65 with plug		
Tightening torque of terminal screws:	< 0.5 Nm		
Conductor cross-section:	0.5 – 1.5 mm ²		

* Figures in brackets apply to types 0140 and 0141

The utilisation category describes among other things the voltages and currents and the way of load for our pressure switches according DIN EN 60947-5-1	Utilisation category
AC 12 : Drive of resistive loads and semiconductor input circuits of optoelectronic couplers (e.g. PLC inputs)	
AC 14 : Drive of electromagnetic loads up to 72 VA	
DC 12 : Drive of resistive loads and semiconductor input circuits of optoelectronic couplers (e.g. PLC inputs)	
DC 13 : Drive of electromagnet	