



PISTON PRESSURE SWITCH DS-104/EX/***

according to directive 2014/34/EU (ATEX)

Ex II 2G IIC T6 -20°C ≤ta≤ +70°C
contains

Ex II 2G Ex d IIC Gb T6

INTRODUCTION

We are known throughout Europe as a leading specialist for piston pressure switches and provide our customers with a broad range of pressure switch designs.

Many years of experience with material combinations, processing techniques and production tolerances enable us to meet the most varied requirements in a targeted and flexible manner.

Our pressure switches are distinguished by their durable precision, a broad spectrum of applications and uncompromising reliability.

The DS-104 / EX has been developed for potentially explosive atmosphere (Zone 1) specifically.

The identification of the pressure switch is:

Ex II 2G IIC T6 -20°C ≤ta≤ +70°C
contains

Ex II 2G Ex d IIC Gb T6

FUNCTION

The pressure switch functions on the basis of the piston-spring principle. The microswitch is actuated if the pressure lies below the configured value. The piston acts against the spring plate when pressure builds up. This braces itself against the continuously-adjustable compression spring. The piston transfers the force of onto the spring plate when the configured pressure is reached on the nozzle, enabling the microswitch and triggering an electrical signal. The pressure to be monitored is determined by the preload tension of the spring. Adjustment is achieved by turning the adjusting element. Anticlockwise rotation reduces the switching pressure, while turning in a clockwise direction increases the switching pressure. The adjusting element is fixed with the securing screw. A mechanical stop prevents the compression spring from seizing due to excessive turning.

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ADDITIONAL INFORMATION

Further information on the correct handling of our pressure switch range is available under "Operating manual for piston pressure switches" on our website:
www.hydropa.de.



TECHNICAL DATA

General information	
design	piston spring-loaded, mechanical stop prevents compression spring seizing due to excessive turning
connection	internal G 1/4 thread
adjusting	adjusting screw cover
setting protection	fixing cover
installation	arbitrary
weight	basic type 0,8 kg

Hydraulic				
piston diameter	ø 4 mm		ø 5 mm	
switching pressure ranges	20–350 bar	20–240 bar	10–150 bar	5–70 bar
P max. (standard seal)	500 bar	500 bar	400 bar	200 bar
P max. (SS-seal ¹⁾)	400 bar	400 bar	–	–
repetitive accuracy	deviation less than 1% (depending on operating range)			
ambient temperature	Ta – 20 °C to + 70 °C			
pressure fluid	oil			
viscosity range	10 bis 800 mm ² /s			
load change	>2x10 ⁶			

Electrical	
switch element	end-switch Typ 07-2501 (BARTEC) pure silver profile contact, gold on silver palladium coated profile contact on request
voltage type	alternating voltage / direct voltage
protection type DIN 60529	IP 65
electrical connection	cable, 4 m long
cable cross-section	0,75 mm ²
seal	outer jacket seal

Switching power			
voltage	250 V/AC	0–15 V/DC	16–30 V/DC
max. ohmic load	5 A	5 A	3 A
max. inductive load	5 A	5 A	3 A

Other details	
housing	painted aluminium
pressure connection	brass
switch movement	approx. 0.5 mm consequently very little wear on seal and tappet guide

¹⁾ special low-friction seal

SERVICE LIFE

The service life of a piston pressure switch depends on numerous factors. Minimum and maximum pressures, cycle rate, load change, hydraulic vibration, the load (amp.) on the electrical switch, etc. Where a pressure switch needs to meet special requirements, we are in a position to address the most varied requirements in a flexible and targeted manner, thanks to our years of experience with material pairings, machining processes and production tolerances.

Note:

The pressure switches must be installed so that the device is not exposed to damaging vibrations during operation and eventually cause a failure.

The use of suitable damping materials can significantly extend the service life.

ORDERING INFORMATION

DS-104 - EX / / /

basic type DS-104

- undeign. = pipe installation
- SCH¹⁾ = panel installation
- V2¹⁾ = adjusting knurl with scale
- AS-H2¹⁾ = lockable adjusting knurl with scale (E10 H2 closure)
- MS¹⁾ = brass housing
- SS¹⁾ = special low-friction seal

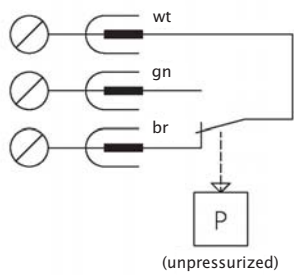
Fixed switching points
preset by manufacturer:
- standard pressure rising
- falling if desired

switching pressure ranges:	p _{max.} standard	p _{max.} special SS seal
055 = 5- 55 bar	300 bar	200 bar
100 =10- 100 bar	400 bar	300 bar
150 =20- 150 bar	500 bar	400 bar
240 =40- 240 bar	500 bar	400 Bar
350 =20- 350 bar	600 bar	400 bar
420 =50- 420 bar	600 bar	-
600 =50- 600 bar	800 bar	-

AUX¹⁾ = gold on silver palladium

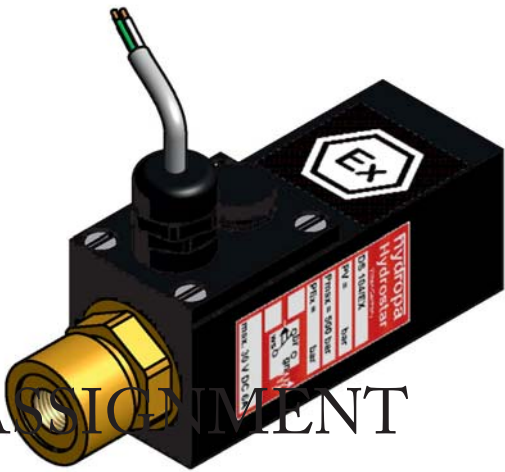
¹⁾Special versions not in stock!

TERMINAL ASSIGNMENT



NOC/NCC-Contact

TERMINAL ASSIGNMENT



The earthing (potential equalization) must be guaranteed separately e.g. via the pipeline.

RESET DIFFERENTIAL PRESSURE

1. Standard seal (normal version):

The hysteresis achieved during continuous operation is approx. 7–12% of the final value at a set pressure of approx. 60–70% of the max. adjustable switching pressure.

Example:

In the case of a DS-104/EX-150 pressure switch with a pressure range of 10–150 bar, a hysteresis of approx. 8–15 bar is achieved at a set pressure of 100 bar.

2. Special low-friction seal (SS design)

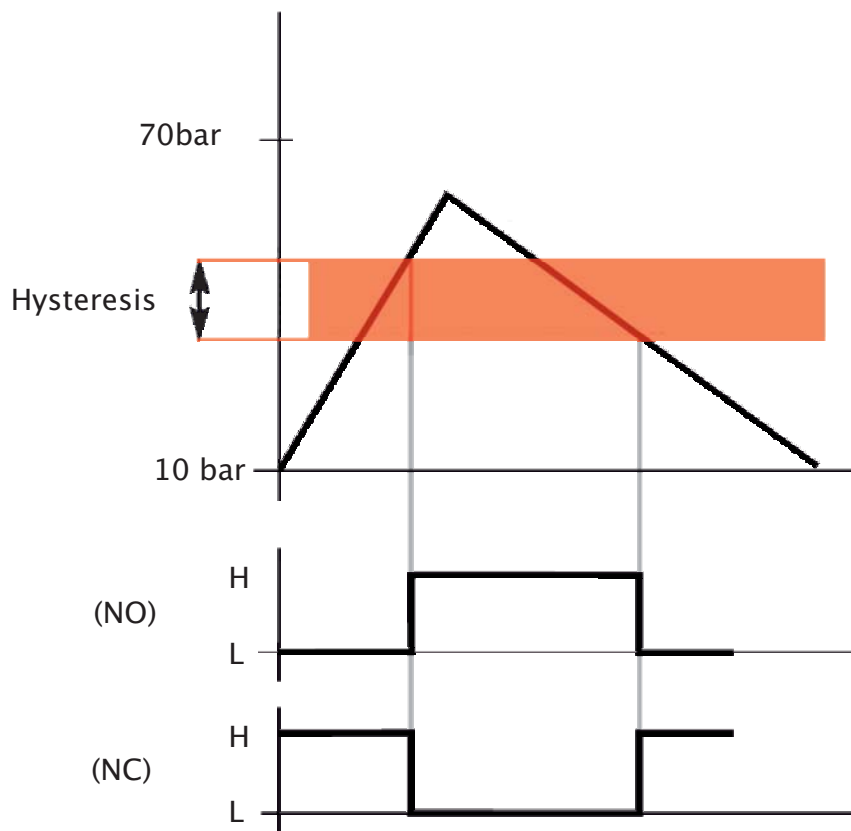
The hysteresis achieved during continuous operation is approx. 3–6 % of the final value at a set pressure of approx. 60–70 % of the max. adjustable switching pressure.

Example:

DS-104/EX/SS-240 set pressure: 200 bar --> hysteresis: ca. 12 bar

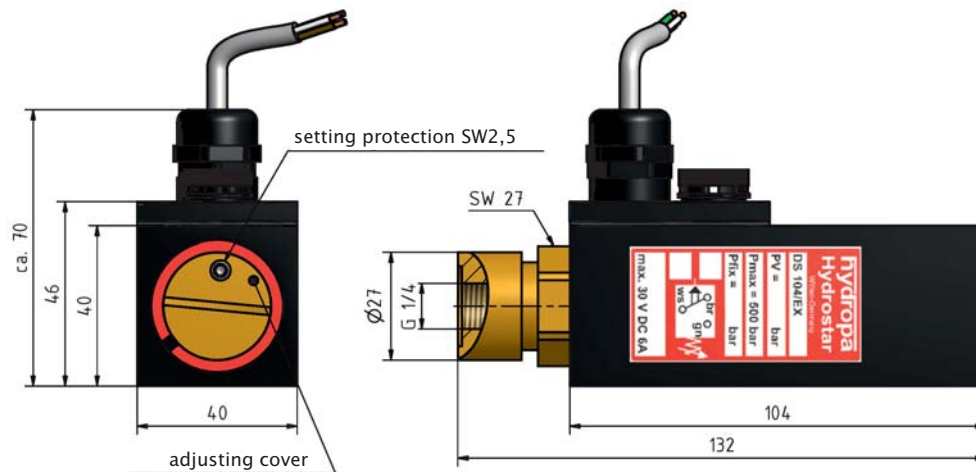
These values depend of course on the temperature and viscosity of the operating medium. The pressure ranges with different piston diameters also influence these values.

FUNCTION DIAGRAM

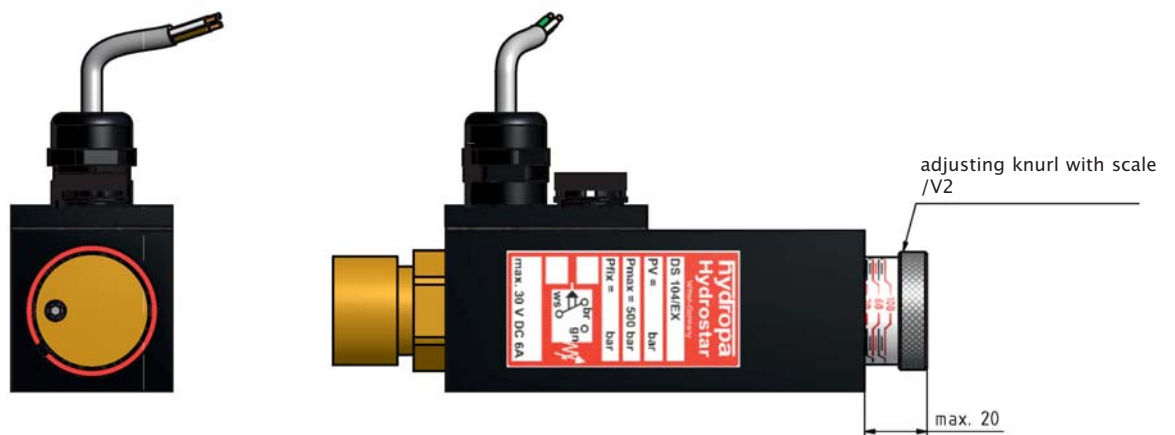


DIMENSIONS

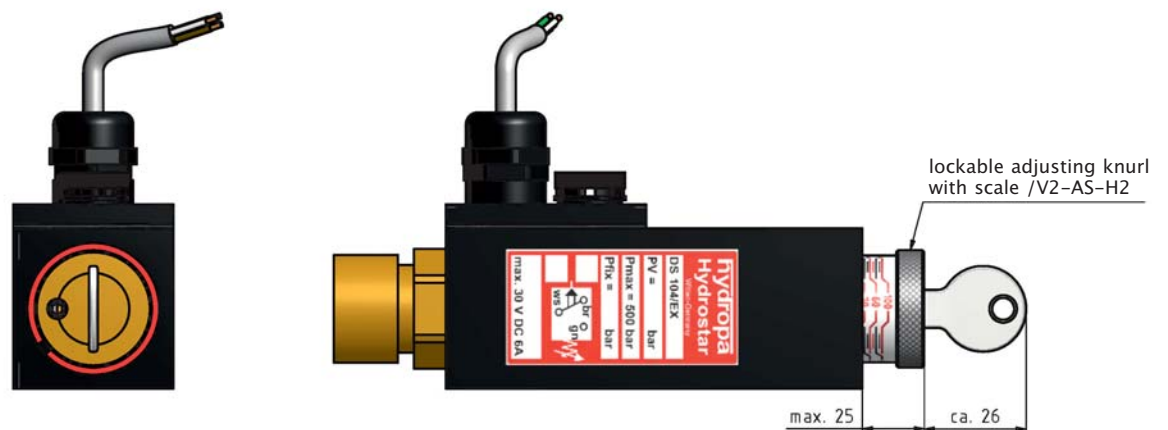
Type DS-104/EX/-**



Type DS-104/EX/V2-***



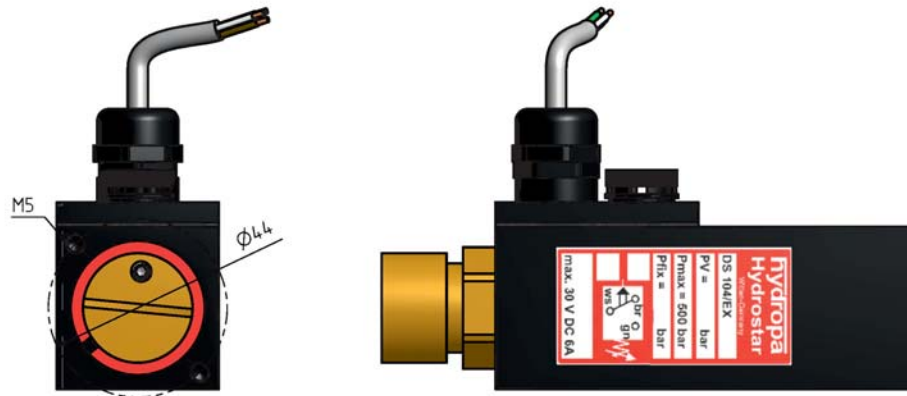
Type DS-104/EX/V2/AS-H2-***



¹⁾The scale is only provided for orientation. The exact configuration of the switching pressure should be realised with a pressure gauge.

DIMENSIONS

Type DS-104/EX/SCH-***



Pressure switch type DS-104/EX is fitted with a special end switch from BARTEC. This end switch type 07-2501 has the approval acc. EPS 14 ATEX 1689 X.

ATEX-Identification of the end switch: **Ex II 2G Ex d IIC Gb T6**

The whole device consists of a non-electrical part and an electrical part. The documentation is deposited at a notified body, as requested with Directive 2014/34/EU (ATEX).



NOTE !

The unit may only be installed by technical specialists. Please also notice the operating instructions. Comply with the national and international regulations for the installation of electro-technical equipment. Voltage supply in compliance with EN 50178, SELV, PELV. Ensure that the equipment is not energized before connecting the unit.

