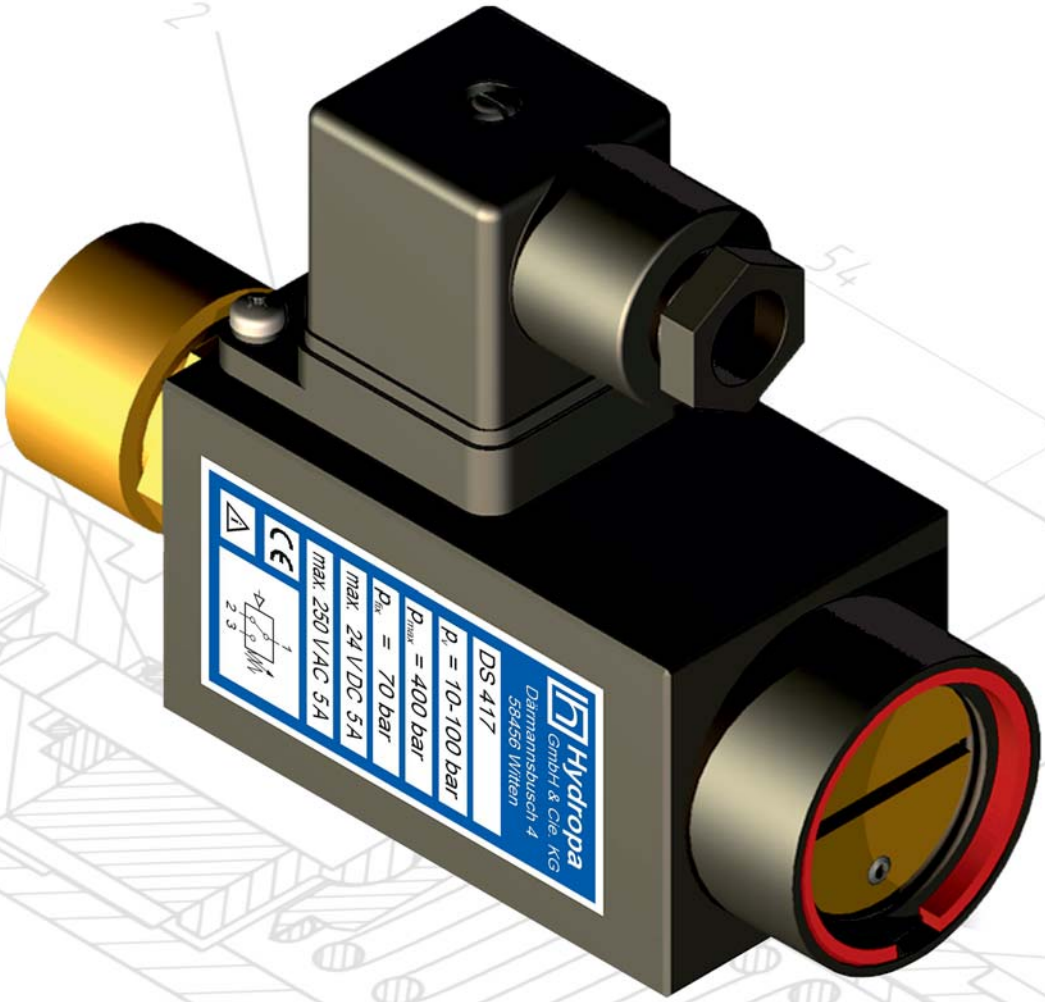
Hydropa GmbH & Cie. KG
Därmannsbusch 4 • D-58456 Witten
Telefon (Phone): +49 2302 7012-0
Telefax: +49 2302 7012-47
info@hydropa.de • www.hydropa.de



PISTON PRESSURE SWITCH

DS-4*7 / DS-4*2

CE

1402-0001-23/2026-GB (1/8)
1407-0001-23/2026-GB (1/8)

Piston pressure switch

DS-4*7 / DS-4*2

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 4*7/4*2 is the most reliable of the series switches. The use of two switching elements minimizes the failure rate associated with microswitches and significantly extends the electrical service life. It is particularly suitable for safety-critical applications such as wind turbines, lifting platforms, etc..

FUNCTION

The pressure switch functions on the basis of the piston-spring principle. The microswitch (2) is actuated if the pressure lies below the configured value. The piston (6) acts against the spring plate (5) when pressure builds up. This braces itself against the continuously-adjustable compression spring (4). The piston (6) transfers the force onto the spring plate (5) when the configured pressure is reached on the nozzle (7), enabling both microswitches (2) and triggering an electrical signal. The pressure to be monitored is determined by the preload tension of the spring (4). Adjustment is achieved by turning the adjusting element (3). Anticlockwise rotation reduces the switching pressure, while turning in a clockwise direction increases the switching pressure. The adjusting element (3) is fixed with the securing screw. A mechanical stop prevents the compression spring (4) from seizing due to excessive turning.

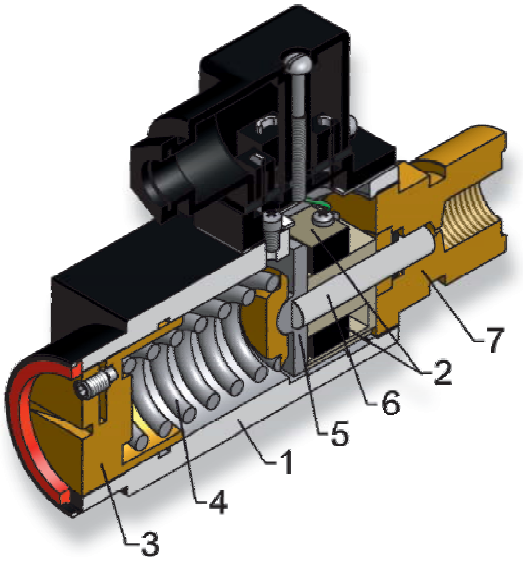
CONTENTS

ADDITIONAL INFORMATION

Contains according to SVHC:

- 6,6'-di-tert-butyl-2,2'-methylenedi-p-cresol
  CAS-no.: 119-47-1 EC-no.: 204-327-1
- Lead (Pb)
  CAS-no.: 7439-92-1 EC-no.: 231-100-4

Further information on the correct handling of our pressure switch range is available under “Operating manual for pressure switches series DS-11*/3*/4*/5*” on our website**:**
www.hydropa.de



1402-0001-23/2026-GB (2/8)
1407-0001-23/2026-GB (2/8)

Piston pressure switch

DS-4*7 / DS-4*2

TECHNICAL DATA

General information	
Design	piston spring-loaded, mechanical stop prevents compression spring seizing due to excessive turning
Connection	internal G 1/4 thread or flange surface
Adjusting	adjusting screw cover or adjusting knurl
Setting protection	fixing cover or lockable adjusting knurl (E10 H2 closure)
Installation	arbitrary
Weight	basic type 0,5 kg

Hydraulic					
Piston diameter	ø 4 mm		ø 5 mm	ø 6 mm	
Switching pressure ranges	20-350 bar	40-240 bar	20-150 bar	10-100 bar	5-55 bar
p max (standard seal)	600 bar	500 bar	500 bar	400 bar	300 bar
p max (SS-Seal[1)])	400 bar	400 bar	-	200 bar	200 bar
Repetitive accuracy	deviation less than 1% (depending on operating range)				
Ambient temperature	- 40 °C to + 90 °C				
Pressure fluid	mineral oil, mineral oil-water-emulsion				
Viscosity range	10 to 800 mm²/s				
Load change	≥5x10⁶				

Electrical	
Switch element(s)	2 electromechanical changeover switches (VDE 0630) pure silver profile contact, gold on silver palladium coated profile contact on request
Voltage type	alternating voltage / direct voltage
Protection class DIN 60529	IP 65 (IP 68 on request)
Electrical connection	cable socket conforming to EN 175301-803, type A, Pg11 (Pg9 on request)
Cable cross-section	0,5 mm² to 1,5 mm²
Cable diameter	4 mm to 8 mm for Pg9 / 6 mm to 10 mm for Pg11
Seal	outer jacket seal

Switching power		
Voltage	250 V/AC	24 V/DC
max. ohmic load	5 A (per switch)	5 A (per switch)
max. inductive load	1 A (per switch)	4 A (per switch)

Other details	
Housing	black painted aluminium
Pressure connection	brass
Switch movement	approx. 0,5 mm - consequently very little wear on seal and tappet guide
Connection plates	for NS 6 and NS 10 valve linking (only for pressure switches suitable for flange connection)

[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.

Notice: 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.

ORDER INFORMATION

DS-4** / [ ] - [ ] (120/ST) / [ ]

Basic type DS-4*7 or DS-4*2

not specified = pipe installation
F = flange connection
F/P = with 90°-subplate
(p max. 350 bar)
SCH = panel installation
V2 = adjusting knurl with scale
AS-H2 [1] = lockable adjusting knurl with scale (E10 H2 closure)
PO [1] = sealable (not for versions with scales)
not spezified = standard (cable socket conforming to EN 175301-803, type A, Pg11 (Pg9 on request))
L-MP 24 = lamp socket 24 V, 4-pole
M12 = M12x1, 4-pole
Attention: only for max. 24 V DC
(available separately on request: socket axial or 90°-version)
MS [1] = brass housing
SS [1] = special low-friction seal
only for following pressure ranges:
5-55 bar 10-100 bar
40-240 bar 20-350 bar

(several additional details separated by slash)

AUX [1] = gold on silver palladium
S [1] = Viton®fluoroelastomers
B = fixing plate with 2 through-holes
(see page 7)

Optional: *(for an additional charge)*
Fixed switching points preset to xxx bar.

standard = rising (ST)
on request = falling (FA)

(example: 120/ST = 120 bar rising)

Pressure ranges	$p_{max.}$ standard	$p_{max.}$ special SS seal
055 = 5 - 55 bar	300 bar	200 bar
100 = 10 - 100 bar	400 bar	200 bar
150 = 20 - 150 bar	500 bar	---
240 = 40 - 240 bar	500 bar	400 bar
350 = 20 - 350 bar	600 bar	400 bar

[1] special versions not in stock!

Viton® is a registered trademark of DuPont Performance Elastomers.

CONNECTION VARIANTS

Cable sockets see order information (Special solutions available on request)

Connector conforming to EN 175301-803

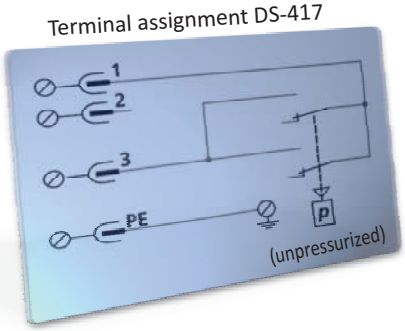
Connector M12x1, 4-pole
(only for max. 24 V DC)

Cable socket M12x1, 4-pole (available separately on request)

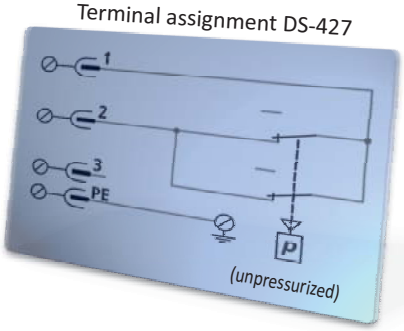
TERMINAL ASSIGNMENT

DS 4*7

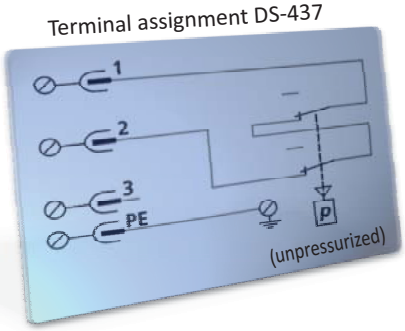
Terminal assignment DS-417



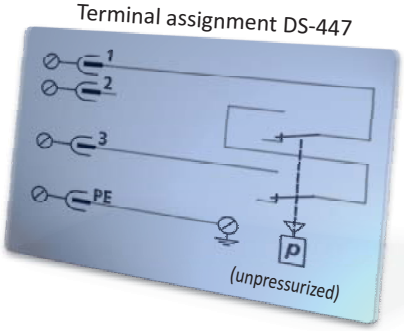
Terminal assignment DS-427



Terminal assignment DS-437

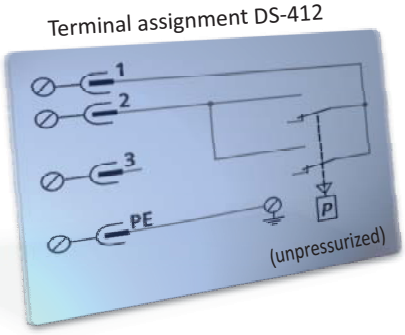


Terminal assignment DS-447

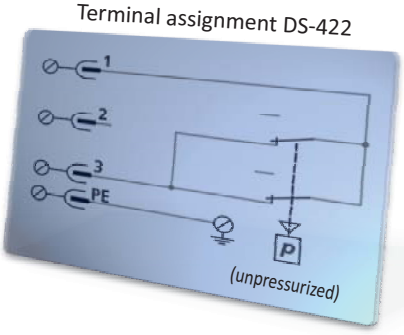


DS 4*2

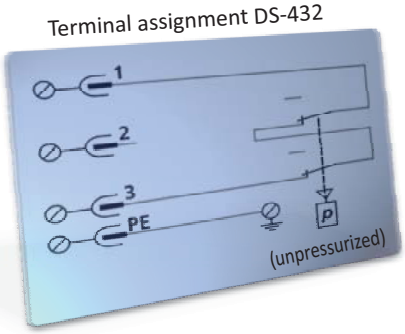
Terminal assignment DS-412



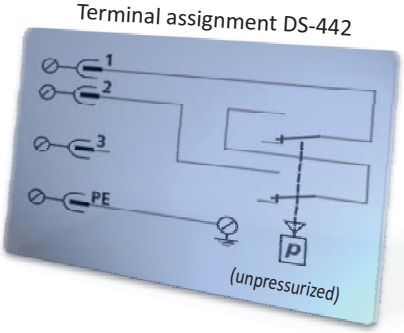
Terminal assignment DS-422



Terminal assignment DS-432



Terminal assignment DS-442



! The protective earth (PE) should be connected in compliance with regulations for the electrical connection. !

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-417-100 pressure switch with a pressure range of 10-100 bar, a hysteresis of approx. 7-12 bar is achieved at a set pressure of 70 bar.

2. Special low-friction seal ("SS" design)

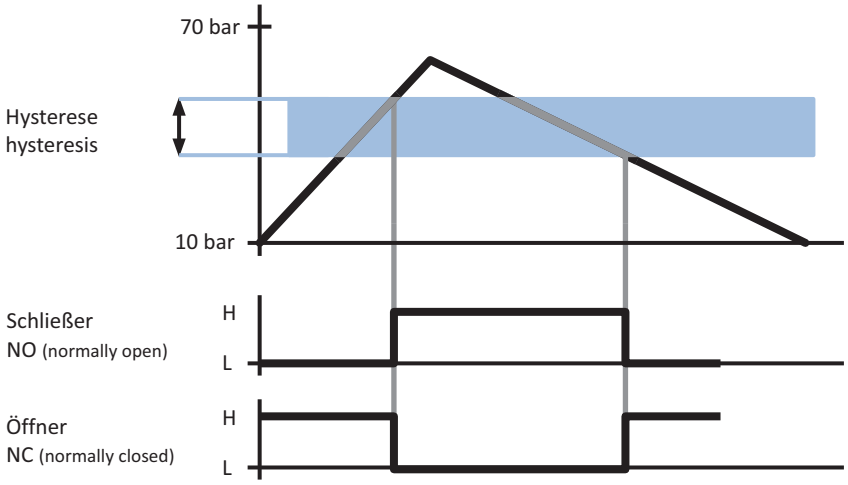
The hysteresis achieved during continuous operation is approx. 3-6 % of the final value at a set pressure of approx. 60-70 % of the max. adjustable switching pressure.

Example: In the case of a DS-417/SS-100 pressure switch with a pressure range of 10-100 bar, a hysteresis of approx. 3 bar is achieved at a set pressure of 70 bar.

In the case of a DS-417/SS-240 pressure switch with a pressure range of 40-240 bar, a hysteresis of approx. 12 bar is achieved at a set pressure of 200 bar.

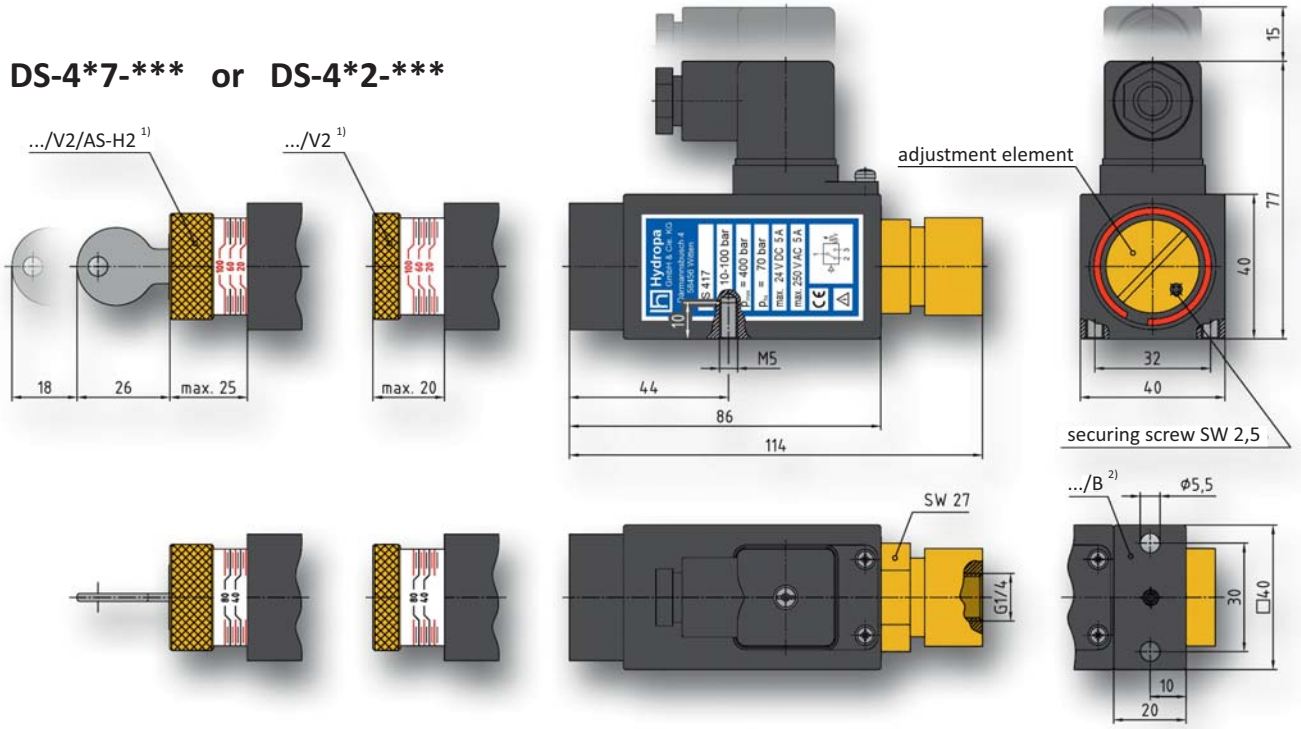
These values depend on the temperature and viscosity or the operating medium.
The pressure ranges with different piston diameters also influence these values.

FUNCTION DIAGRAM



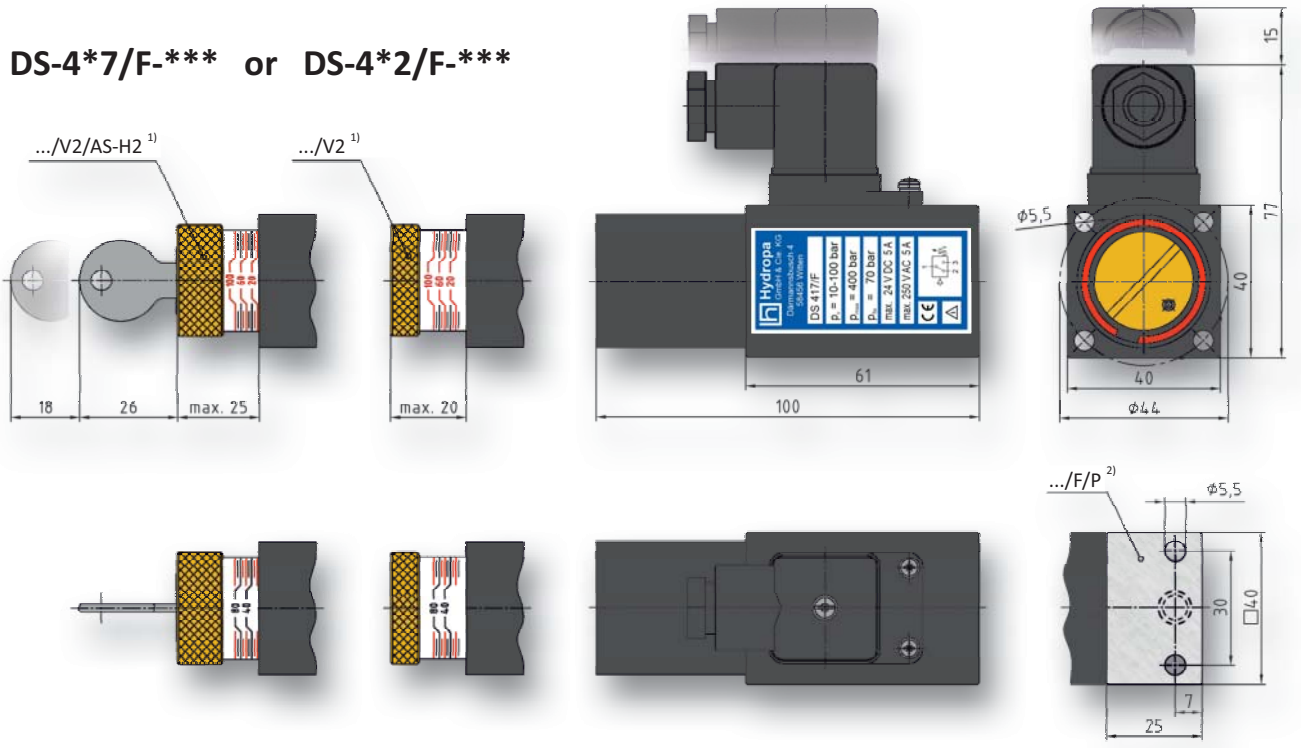
DIMENSIONS

DS-4*7-*** or DS-4*2-***

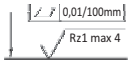


1) The scale is only provided for orientation. The exact configuration of the switching pressure should be realised with a pressure gauge.
2) The .../B version with 2 two through-holes for fixing can be axially offset through 360° (only for pipe connection version).

DS-4*7/F-*** or DS-4*2/F-***



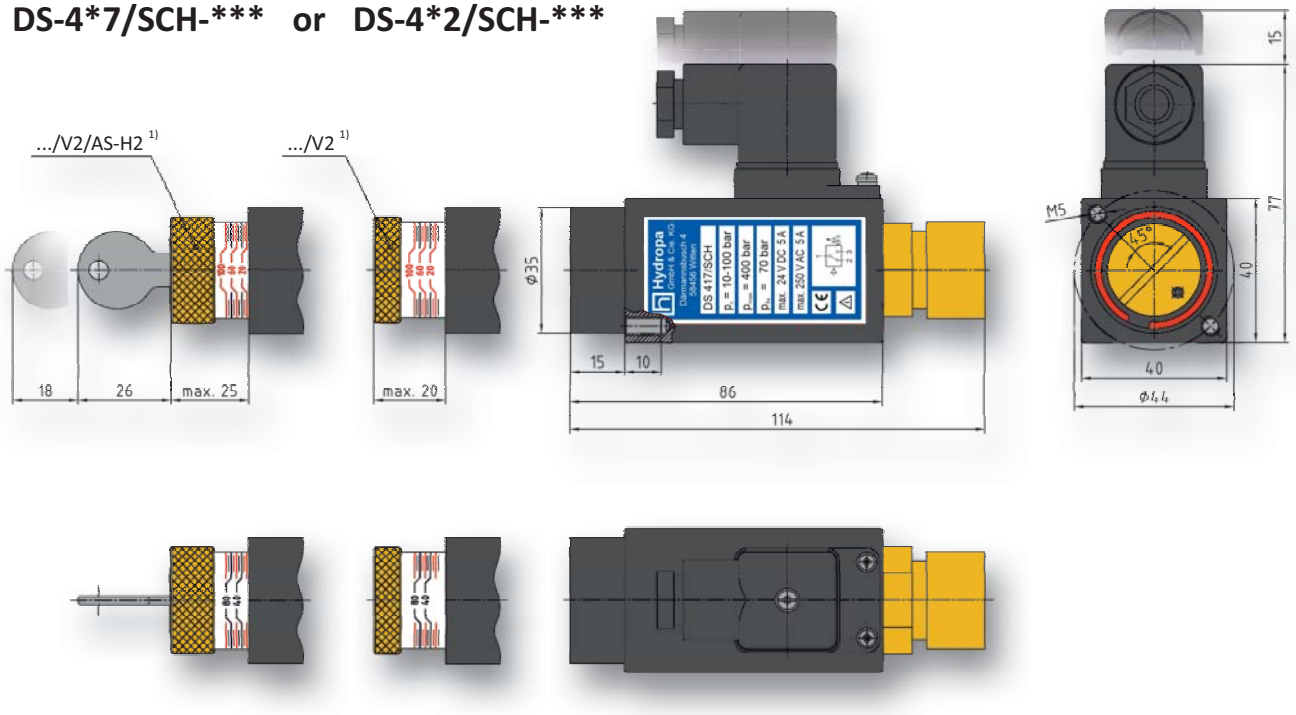
1) The scale is only provided for orientation.
The exact configuration of the switching pressure should be realised with a pressure gauge.
2) The .../F/P version is only available up to **p max. 350 bar** (flange version only).



Required surface quality of unit support surface

DIMENSIONS

DS-4*7/SCH-*** or DS-4*2/SCH-***



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

Cable sockets