20D (ATEX) Electro-mechanical hydraulic pressure switches

- 10 ... 400 bar
  Port size: G1/4
- For Ex zones 1 and 2 (gases) category II2G type of protection Ex db eb IIC T6 Gb
- For Ex zones 21 and 22 (dusts) category II2D type of protection Ex tb IIIC T80°C Db
- Microswitch with gold plated contacts
- Robust metal housing in weather-resisting version

Technical features

Medium:
For neutral, self lubricating fluids, e.g. hydraulic oil, lube oil, light fuel oil

Operating pressure:
10 ... 400 bar (145 ... 5801 psi)

Operation:
Piston

Repeatability:
±1% of final value (depending on regulating pressure)

Port size:
G1/4

Media viscosity:
Up to 1000 mm^2/s

Sealing:
$\leq 10^{-7}$ mbar · l · s^{-1}

Pulsation:
Not permitted

Switching pressure difference:
Optional: fixed or adjustable

Switching element:
Microswitch with gold plated contacts

Mounting position:
Vertical down

Degree of protection:
IP65

Electrical connection:
Cable gland M20 x 1,5

Shock-/vibrationproof:
4 g max. (sinusoidal)/5 Hz max

Switching cycles:
20/min. maximum

Ambient/Media temperature:
-10°/0° ... +60°C (+14°/32° ... +140°F)
Air supply must be dry enough to avoid ice formation at temperatures below +2°C (+35°F).

Material:
Housing: Aluminium diecast
Sensor: Brass or stainless steel
Sealing: steel piston with NBR, lip seal or o-ring

Technical data
20D Hydraulic ATEX - fixed switching pressure difference

Symbol	Pressure range *1)		Over pressure *2)		Switching pressure difference Lower range minimum		Upper range maximum		Fluid contact parts	Model
	(bar)	(psi)	(bar)	(psi)	(bar)	(psi)	(bar)	(psi)		
	10 ... 400	145 ... 5801	550	7977	32	464	48	696	Brass, steel, FPM	1846705

20D Hydraulic ATEX - adjustable switching pressure difference

Symbol	Pressure range *1)		Over pressure *2)		Switching pressure difference Lower range minimum		Upper range minimum		maximum		Fluid contact parts	Model
	(bar)	(psi)	(bar)	(psi)	(bar)	(psi)	(bar)	(psi)	(bar)	(psi)		
	10 ... 400	145 ... 5801	550	7977	15	217	40	580	300	4351	Brass, steel, FPM	1856705

*1) Atmospheric air pressure.

*2) Short-term pressure peaks are not allowed to exceed this limit value during operation. Operative utilization of the limit value is not permitted. The limit value corresponds to the maximum testing pressure

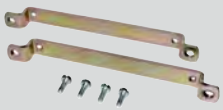
Option selector

18★★★05

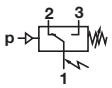
Switching pressure difference	Substitute
Fixed	4
Adjustable	5

Pressure range (bar)	Substitute
10 ... 400	67

Accessories

Surge damper	Pressure port – reducing nipple	Brackets
		
Page 4	Page 4	Page 4
0553258 (stainless steel G1/4)	0550083 (G1/4 » G1/2)	0574772 (steel)
0574773 (brass/steel G1/4)	0574765 (G1/4 » 1/4 NPT)	0553908 (stainless steel)

Switching function



Microswitch SPDT
Terminals 1 - 3:
Contacts close
on rising pressure.
Terminals 1 - 2:
Contacts open
on rising pressure.

Switching capacity
Commutator with gold plated contacts

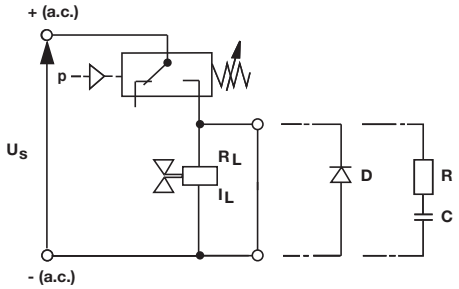
Load level	Current type	Load type	Max. permissible persistent current Imax [A] at U *1); *2) 30 V	250 V	Electrical life-time
Standard *3) (contractors, solenoids)	a.c.	Ohmic	7 *3)	5	≥ 2 x 10^5 Switching cycles
	a.c.	Inductive, cos φ ≈ 0,6	5	3	
	d.c.	Ohmic	7 *3)	0,4	
	d.c.	Inductive, L/R ≈ 3 µs	5	0,03	

Creepage and air paths correspond to insulation group B according to VDE Reg. 0110 (except contact clearance of microswitch).
*1) Futhermore additional measures has to be taken to fulfil the EMV regulation 2004/108/EG by the manufacturer
*2) Spark quenching/overload protection will be necessary using inductive loads.
*3) Ambient temperature at +50 ... +60°C limited to 6 A;

Recommended circuit
Spark quenching and EMV intrinsically safe

1. Diode D in parallel to inductive load.
   Observance of correct polarity (positive pole to cathode).
   Dimensioning specifications for quenching diode:
   Rated voltage at diode: UD ≥ 1,4 x Us
   Rated current at diode: IN ≥ ILoad
   Selection of a quick switching diode (recovery time trr ≤ 200 ms)

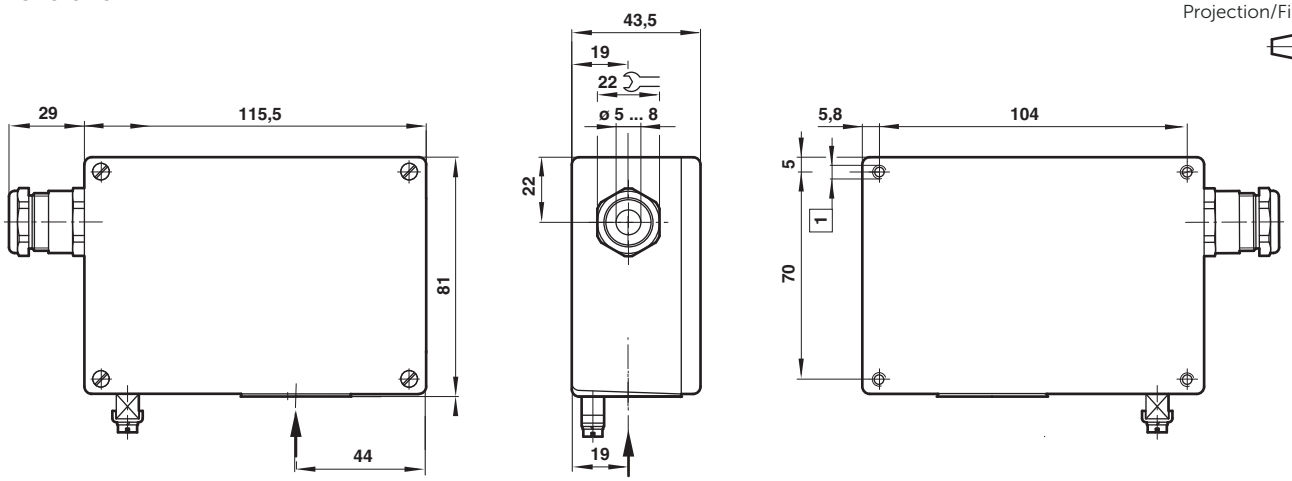
2. RC link in parallel to load in parallel to switching contact.
   Dimensioning principles:
   RL in Ω ≈ 0,2 x RLoad in Ω
   C in [µF] ≈ ILoad in [A]

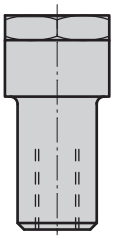


R_L = Load resistance
I_L = Load current

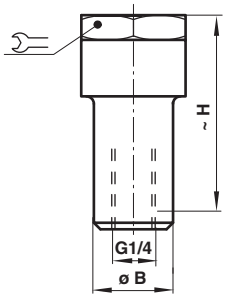
Dimensions

Dimensions in mm
Projection/First angle





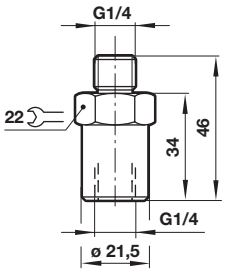
Sensor



Switching pressure code	B	H	
67	37	66	32

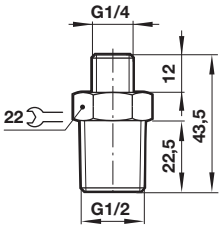
Surge damper

Model:
0574773 (brass)
0553258 (stainless steel 1.4301 AISI 304)

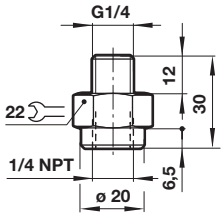


Pressure port/reducing nipple

Model: 0550083 (stainless steel 1.4305 AISI 303/304 S)

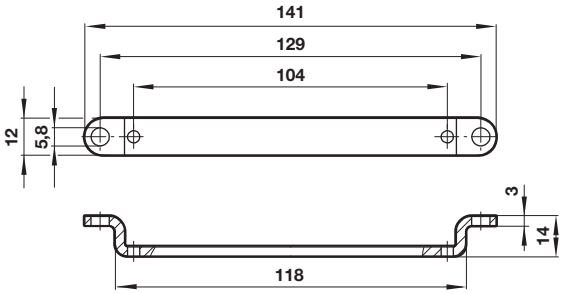


Model: 0574765 (brass)



Brackets (2 brackets and 4 screws)

Model:
0574772 (steel)
0553908 (stainless steel 1.4301 AISI 304)



Warning

These products are intended for use in industrial compressed air systems only. Do not use these products where pressures and temperatures can exceed those listed under **»Technical features/ data«**.
Before using these products with fluids other than those specified, for non-industrial applications, life-support systems or other applications not within published specifications, consult Norgren.
Through misuse, age, or malfunction, components used in fluid power systems can fail in various modes.

The system designer is warned to consider the failure modes of all component parts used in fluid power systems and to provide adequate safeguards to prevent personal injury or damage to equipment in the event of such failure.
System designers must provide a warning to end users in the system instructional manual if protection against a failure mode cannot be adequately provided.
System designers and end users are cautioned to review specific warnings found in instruction sheets packed and shipped with these products.