

Pressure switches for all-fluid technique
Port sizes G¹/₄ and G¹/₂

- Microswitch with gold-plated contacts (silver plated for outdoor variants)
- Plug-in connection to DIN 43650



Technical Data

Fluid:

Neutral and aggressive gases and liquids

Mounting:

Optional

Port Size:

G¹/₄, G¹/₂ male, 1/4 NPT, 1/2 NPT male

Operating Pressure:

-1 to 100 bar

Ambient Temperature:

-25°C to +80°C (standard)

-40°C to +80°C (outdoor)

Operating Viscosity:

Max. 1000mm²/s

Fluid Temperature:

-10°C to +100°C

Maximum Temperature at Switching Element:

+80°C

Sealing:

> 10⁻⁷ mbar.l.s⁻¹

Repeatability:

±1% of final value (referred to pressure control)

Degree of Protection:

IP65

Materials:

Housing – aluminium die cast (standard)

aluminium die cast, tin plated (outdoor)

Sensor – see table overleaf

Ordering Information

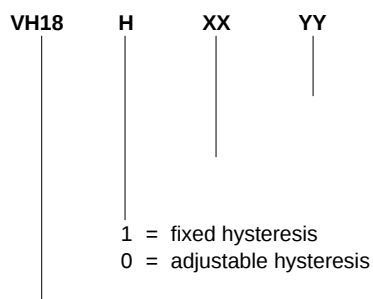
To order, quote model number from table overleaf, e.g. for a pressure switch with a set point of 4 bar, fixed hysteresis, G¹/₂ male connection suitable for demineralised water in an outdoor location, order part number VH 1811611.



General Information

Selecting a Series 20 D Pressure switch

The complete catalogue number consists of 7 digits:



Pressure range codes (XX) for VH181 models

XX Code	Pressure Range	Over Pressure	Hysteresis Values for Sensor Options Codes 00, 03, 10 and 13		Hysteresis Values for Sensor Options Codes 11 and 14	
			Lower Range (bar)	Upper Range (bar)	Lower Range (bar)	Upper Range (bar)
01	-1 – 0	10	0,10	0,12	0,02	0,03
02	-1 – 1	10	0,11	0,13	0,07	0,10
09	-1 – 2,5	10	0,15	0,20	0,09	0,12
11	0,05 – 1	10	0,07	0,10	0,07	0,08
13	0,1 – 2,5	10	0,10	0,13	0,09	0,10
14	0,5 – 4	20	0,25	0,30	0,30	0,33
15	0,5 – 6	20	0,27	0,35	0,30	0,35
16	0,5 – 10	20	0,35	0,50	0,30	0,40
17	1 – 16	50	0,75	0,95	0,70	0,80
18	1 – 25	50	0,85	1,10	0,70	0,90
19*	5 – 63	85	1,30	2,00	1,20	2,00
10*	5 – 100	150	2,50	5,00	3,00	7,00

Pressure range codes (XX) for VH180 models

XX Code	Pressure Range	Over Pressure	Hysteresis Values for Sensor Options Codes 00, 03, 10 and 13			Hysteresis Values for Sensor Options Codes 11 and 14		
			Lower Range (bar)	Upper Range (bar) Minimum	Maximum	Lower Range (bar)	Upper Range (bar) Minimum	Maximum
01	-1 – 0	10	0,12	0,13	0,70	0,20	0,24	0,70
02	-1 – 1	10	0,13	0,14	1,00	0,23	0,25	1,00
09	-1 – 2,5	10	0,17	0,20	2,50	0,24	0,25	2,50
11	0,05 – 1	10	0,08	0,11	0,70	0,15	0,16	0,70
13	0,1 – 2,5	10	0,11	0,15	2,00	0,20	0,25	2,00
14	0,5 – 4	20	0,30	0,40	2,50	0,50	0,75	2,50
15	0,5 – 6	20	0,35	0,50	5,00	0,75	0,95	5,00
16	0,5 – 10	20	0,40	0,80	8,00	0,80	1,50	8,00
17	1 – 16	50	0,80	1,10	12,00	1,50	2,00	12,00
18	1 – 25	50	1,00	1,50	20,00	1,80	2,80	20,00
19*	5 – 63	85	2,00	3,00	20,00	2,30	3,50	20,00
10*	5 – 100	150	3,50	7,00	55,00	4,00	9,00	55,00

Sensor variation codes (YY) for all models

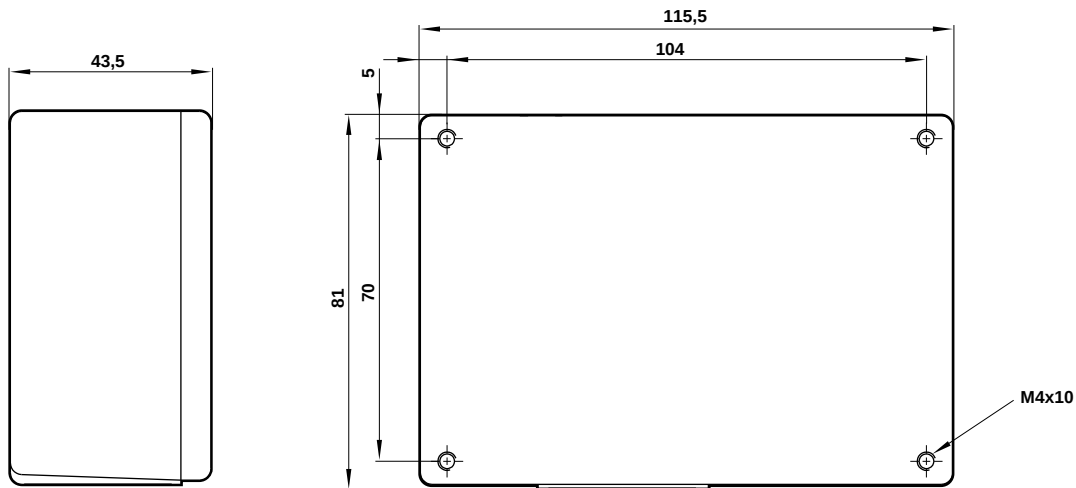
YY Code	Material	Electrical Connection	Fluid Connection	Design
00	Brass/st.st 1.4404/tin	DIN 43650	G1/4 female	-
03	Brass/st.st 1.4404/tin	1/2 NPT	1/4 NPT female	-
10	St.st. 1.4305/1.4404	DIN 43650	G1/2 male	-
11	St.st. 1.4305/1.4404	PG 16	G1/2 male	Outdoor
13	St.st. 1.4305/1.4404	1/2 NPT	1/2 NPT male	-
14	St.st. 1.4305/1.4404	1/2 NPT	1/2 NPT male	Outdoor

* Not available with sensor options 00 and 03

St.st. = Stainless steel



General Dimensions

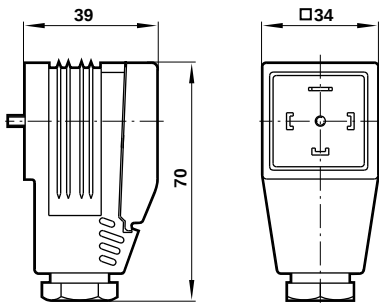


Accessories

Connectors (black) with light indicator

3-pin with protective conductor
Connection acc. to DIN 43650 A
Optionally available for DC or AC

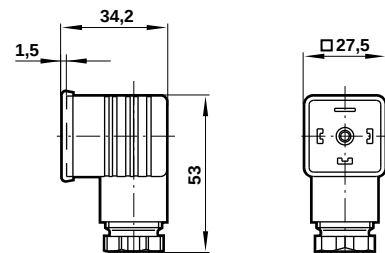
With filament lamp	12 to 28V	Part No. VH 0585418
With glow lamp	90 to 130V	Part No. VH 0585419
With glow lamp	180 to 240V	Part No. VH 0585419



3-pin connector (black) with grounded conductor

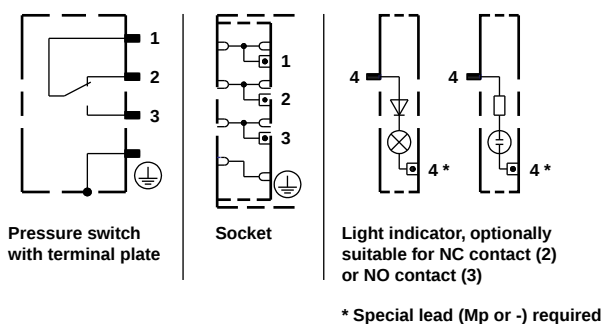
Interface acc. to DIN 43650 A

Part No. VH 0570110



Wiring directions for pressure switch with pilot lamp

The pilot lamp shows the switching position of the connected pressure switch.

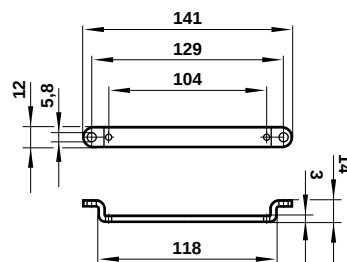


Mountings

Two brackets and four screws

Stainless Steel
1.4301 (AISI 304)
Part No. VH 0551867

Steel
Part No. VH 0574772





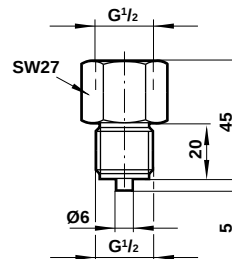
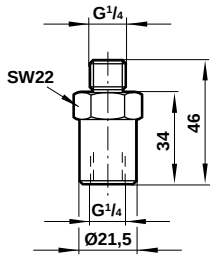
Accessories

Damping Chambers

Stainless Steel
1.4301 (AISI 304)
Part No. VH 0553258

Brass/Steel
Part No. VH 0574773

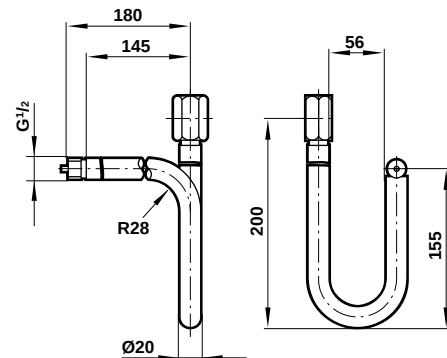
Stainless Steel
1.4301 (AISI 304)
Part No. VH 0551894



Water trap pipes to DIN 16282

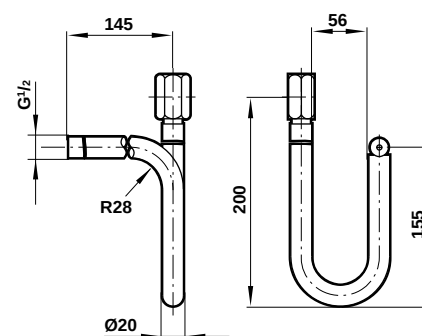
G1/2 U-Style

Stainless Steel
1.4571 (AISI 316Ti)
Part No. VH 0664828



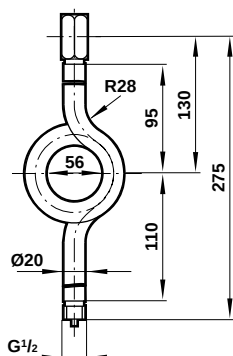
G1/2 U-Style

Steel
Part No. VH 0681711



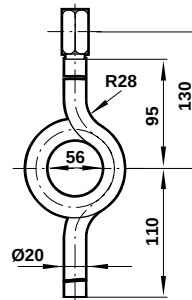
G1/2 Circular

Stainless Steel
1.4571 (AISI 316Ti)
Part No. VH 0681712



G1/2 Circular

Steel
Part No. VH 0681713

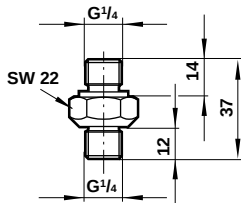




Reducing nipple for pressure connection

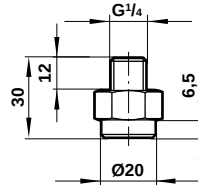
G1/4 male to G1/4 male

Stainless Steel
1.4104 (AISI 430 F)
Part No. VH 0550746



G1/4 male to 1/4 NPT female

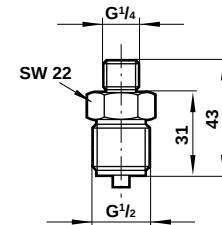
Brass
Part No. VH 0574765



G1/4 male to G1/2 male

Stainless Steel
1.4104 (AISI 430 F)
Part No. VH 0574767

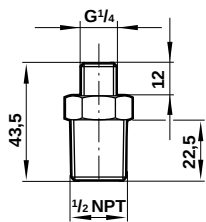
Stainless Steel
1.4571 (AISI 316 Ti)
Part No. VH 0550083



G1/4 male to 1/2 NPT male

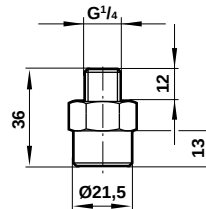
Stainless Steel
1.4305 (AISI 303/304 S)
Part No. VH 0579423

Steel
Part No. 0574766



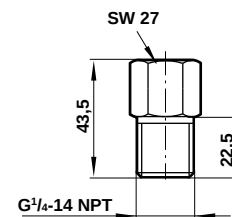
G1/4 male to G3/8 female

Steel
Part No. VH 0574764



G1/2 female to 1/2 NPT male

Stainless Steel
1.4305 (AISI 303/304 S)
Part No. VH 0553831

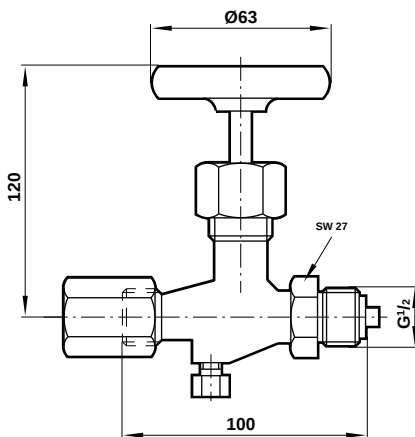


Shut-off valve to DIN 16270

G1/2

Brass
Part No. VH 0681714

Stainless Steel
1.4305 (AISI 303/304 S)
Part No. VH 0681715

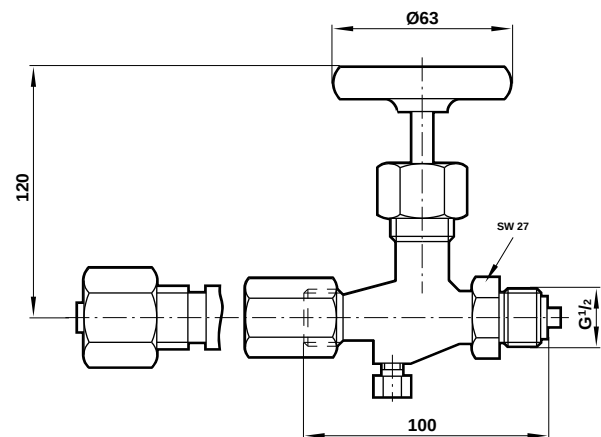


Shut-off valve to DIN 16271 with test plug

G1/2

Brass
Part No. VH 0681716

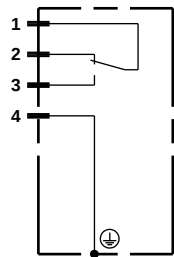
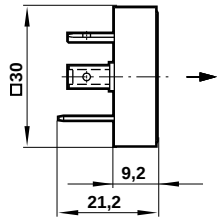
Stainless Steel
1.4305 (AISI 303/304 S)
Part No. VH 0681717



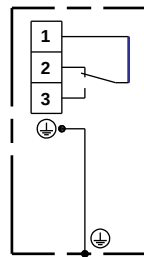
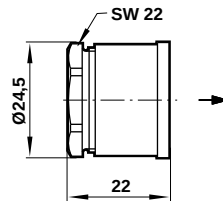


Electrical connections

Connector type DIN 43650



Connector type PG 16



Breaking capacity

Change-over switch with gold plated contacts

Load Level	Current	Load	U _{min} (V)	Maximum permissible continuous Current I _{max} (A) at U (V)					Service Life ^{††}	
				30	48	60	125	250	Electrical at I _{max}	Mechanical at I = 0
Normal* e.g. contractors, solenoids	AC	Resistive	12	5	5	5	5	5	5 x 10 ⁴	≥ 10 ⁷
	AC	Inductive cos φ ≈ 0,7	12	3	3	3	3	3		
	DC	Resistive	12	5	1,2	0,8	0,4	-		
	DC	Inductive L/R ≈ 10ms	12	3	0,5	0,35	0,05	-		
Low ** e.g. electronic circuits	AC	Resistive	5 [†]	0,34	0,2	0,17	0,08	0,04	2 x 10 ⁵	≥ 10 ⁷
	DC	Inductive L/R ≈ 10ms	5 [†]	0,1	0,01	-	-	-		

Number of switchings: 30/min.

Temperature: +30°C

Spark quenching with diode at I/DC and inductive load:

I_{max} = 1,5 x I_{max} of table

I_{max} = 1 (mA)

Creeping and air distances correspond to Insulation Group B of VDE Regulation 0110 (except contact clearance of micro-switch)

* Gold coating not required (would be destroyed). Maximum permissible starting current (approx. 30ms) I/AC ON = 15A.

** Gold coating required (will remain intact)

† Lower critical voltage ensuring a sufficient contact reliability. Smaller voltages are permissible under favourable conditions (contact coating free of foreign substances)

†† reduction of the respective switching current I by 50% approximately doubles service life of contacts

Warning

These products are intended for use in industrial systems only. Do not use these products where *pressures* and *temperatures* can exceed those listed under '**Technical 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