Absolute pressure gauge with switch contacts
For the process industry, NS 100 and 160
Models 532.52, 532.53 and 532.54

for further approvals see page 4

Applications

- Control and regulation of process values
- Monitoring of plants and switching of circuits
- Pressure measurement independent of fluctuations in the atmospheric pressure
- Monitoring of vacuum pumps, packaging machines and condensation pressures, determination of vapour pressure in liquids

Special features

- High overload safety, long service life due to metal media chamber sealing
- Media chamber protected against unauthorised access
- Also available with liquid-filled case for high dynamic pressure loads or vibrations
- Instruments with inductive contacts for use in hazardous areas with ATEX approval
- Instruments with electronic contact for PLC applications

Absolute pressure gauge model 532.53.100 with switch contact model 831.21

Description

Wherever the process pressure has to be indicated locally and, at the same time, circuits need to be switched, the model 532.53 switchGAUGE finds its use.

Switch contacts (electrical alarm contacts) make or break an electric control circuit dependent upon the pointer position of the indicating instrument. The switch contacts are adjustable over the full extent of the scale range (see DIN 16085), and are mounted predominantly below the dial, though also partly on top of the dial. The instrument pointer (actual value pointer) moves freely across the entire scale range, independent of the setting.
The set pointer can be adjusted using a removable adjustment key in the window.

Switch contacts consisting of several contacts can also be set to a single set point. Contact actuation is made when the actual value pointer travels beyond or below the desired set point.

The pressure gauge is manufactured in accordance with DIN 16085 and fulfils all requirements of the relevant standards (EN 837-3) and regulations for the on-site display of the working pressure of pressure vessels.
As switch contacts, magnetic snap-action contacts, reed switches, inductive contacts – for requirements to ATEX – or electronic contacts for triggering a PLC are available.

Standard version

Nominal size in mm
100, 160

Accuracy class
Model 532.52: 1,0 (application test required)
Model 532.53: 1,6
Model 532.54: 2,5
The measurement accuracy is ensured for ambient pressure fluctuations between 955 and 1,065 mbar (min. and max. of atmospheric pressure).

Scale ranges
0 ... 25 mbar to 0 ... 25 bar absolute pressure

Pressure limitation
Steady: Full scale value
Fluctuating: 0.9 x full scale value

Overload safety
Minimum 1 bar absolute pressure (atmospheric pressure), in addition 10 x full scale value, max. 25 bar absolute pressure

Permissible temperature
Ambient: -20 … +60 °C
Medium: +100 °C maximum

Temperature effect
When the temperature of the measuring system deviates from the reference temperature (+20 °C): max. ±0.8 %/10 K of full scale value

Process connection (wetted)
Stainless steel 1.4571, lower mount, G ½ B (male), SW 22

Pressure element (wetted)
≤ 0.25 bar: Stainless steel 1.4571
> 0.25 bar: NiCr-alloy (Inconel)

Measuring chamber (wetted)
Stainless steel 1.4571

Movement
Stainless steel

Dial
Aluminium, white, black lettering

Pointer
Aluminium, black

Case
Stainless steel, blow-out device
Instruments with liquid filling with compensating valve to vent case

Window
Laminated safety glass

Ring
Bayonet ring, stainless steel

Mounting
- Rigid measuring lines
- Instrument mounting bracket for wall or pipe mounting (option)
- Panel or surface mounting flange (option)

Electrical connection
Cable socket

Ingress protection per IEC/EN 60529
IP54

Options

- Other process connection
- Model 910.17 sealings, see data sheet AC 09.08
- Liquid filling (ingress protection IP65)
- Safety version
- Overload safety: > 10 x full scale value
- Wetted parts from Monel (models 56x.3x, 56x.5x, application test required)
- Medium temperature stability > 100 °C
- Permissible ambient temperature -40 ... +60 °C (silicone oil filling)
- Open connecting flanges DN 15/50 PN 16/40 (wetted)
- Small flange for vacuum applications DN 10/32 DIN 28403 (wetted)
- Panel or surface mounting flange (consider measuring cell!)
- Instrument mounting bracket for wall or pipe mounting, see data sheet AC 09.07
- Inductive contacts also in safety version (SN, S1N)
- Absolute pressure gauge with electrical output signal, see model APGT43, data sheet PV 15.02

Switch contacts

Magnetic snap-action contact model 821

- No control unit and no power supply required
- Direct switching up to 250 V, 1 A
- Up to 4 switch contacts per measuring instrument

Inductive contact model 831

- Long service life due to non-contact sensor
- Additional control unit required (model 904.xx)
- With corresponding control unit suitable for use in zone 1 / 21 (2 GD) hazardous areas
- Low influence on the indication accuracy
- Fail-safe switching at high switching frequency
- Insensitive to corrosion
- Up to 3 switch contacts per measuring instrument

Electronic contact model 830 E

- For direct triggering of a programmable logic controller (PLC)
- 2-wire system (option: 3-wire system)
- Long service life due to non-contact sensor
- Low influence on the indication accuracy
- Fail-safe switching at high switching frequency
- Insensitive to corrosion
- Up to 3 switch contacts per measuring instrument

Reed switch model 851

- No control unit and no power supply required
- Direct switching up to 250 V, 1 A
- Also suitable for direct triggering of a programmable logic controller (PLC)
- Free from wear as without contact
- Up to two change-over contacts per measuring instrument

Switching function

The switching function of the switch is indicated by index 1, 2 or 3.

Model 8xx.1: Normally open (clockwise pointer motion)
Model 8xx.2: Normally closed (clockwise pointer motion)
Models 821.3 and 851.3: Change-over; one contact breaks and one contact makes simultaneously when pointer reaches set point

For further information on switch contacts see data sheet AC 08.01.

Approvals

Logo	Description	Country
CE Ex	**EU declaration of conformity** ■ EMC directive ■ Low voltage directive ■ RoHS directive ■ ATEX directive (option) Ignition protection type “c”, constructive safety	European Union
EAC Ex	**EAC (option)** ■ EMC directive ■ Pressure equipment directive ■ Low voltage directive ■ Hazardous areas	Eurasian Economic Community
	GOST (option) Metrology, measurement technology	Russia
	KazInMetr (option) Metrology, measurement technology	Kazakhstan
-	**MTSCHS (option)** Permission for commissioning	Kazakhstan
	BelGIM (option) Metrology, measurement technology	Belarus
-	**CPA** Metrology, measurement technology	China
-	**CRN** Safety (e.g. electr. safety, overpressure, ...)	Canada

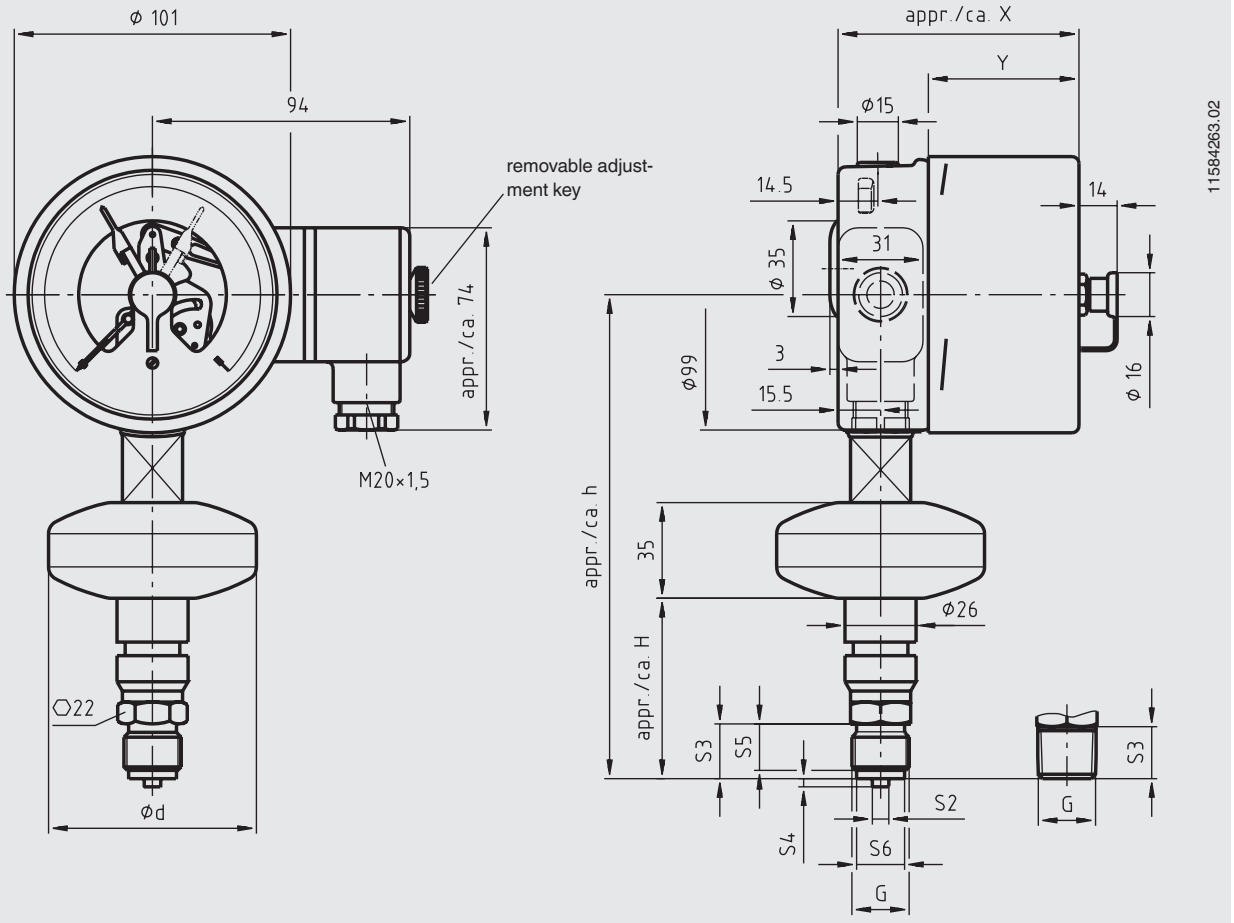
Certificates (option)

- 2.2 test report per EN 10204 (e.g. state-of-the-art manufacturing, indication accuracy)
- 3.1 inspection certificate per EN 10204 (e.g. indication accuracy)

Approvals and certificates, see website

Dimensions in mm

switchGAUGE model 532.53.100 with switch contact model 821, 831 or 830 E



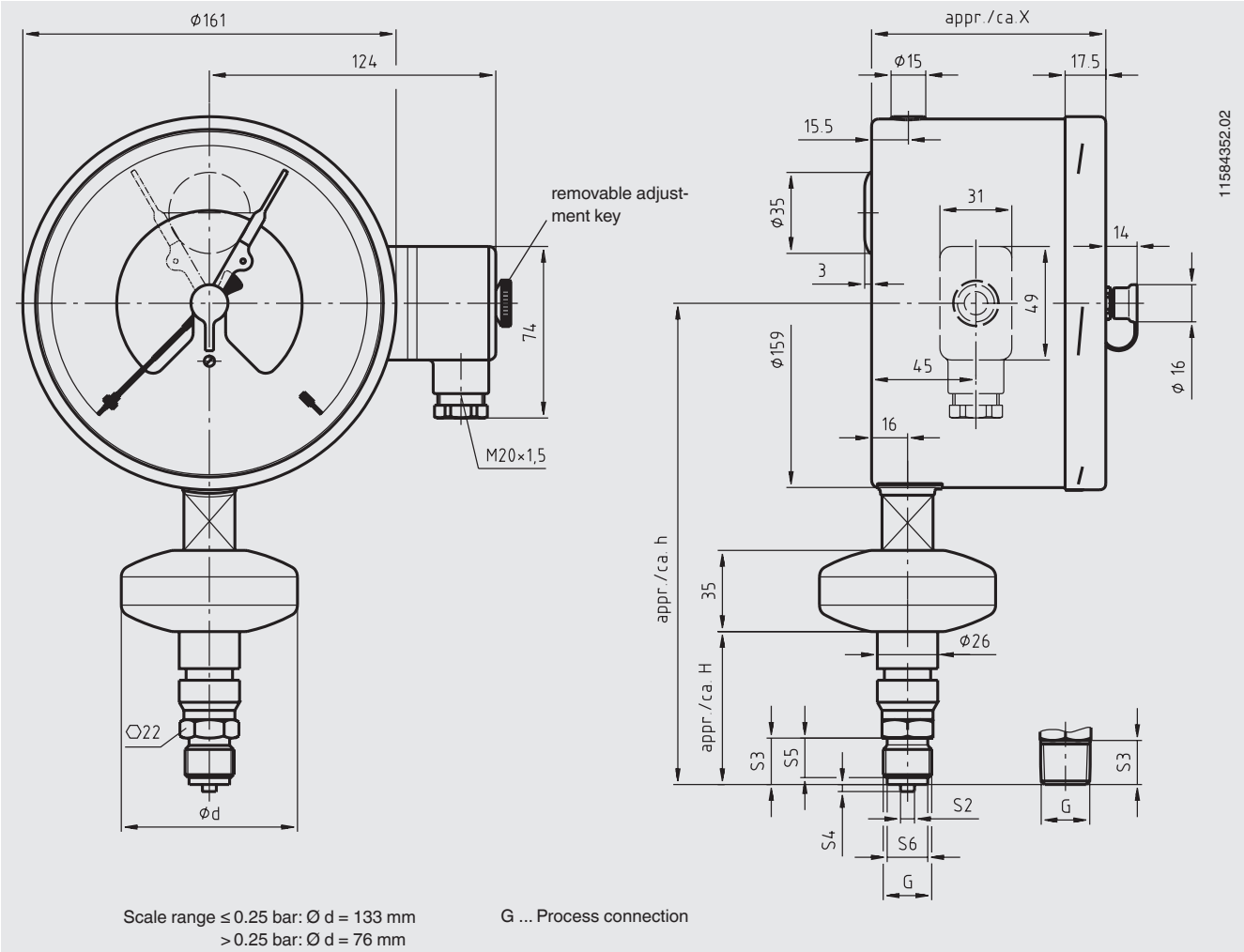
Scale range ≤ 0.25 bar: Ø d = 133 mm
> 0.25 bar: Ø d = 76 mm

G ... Process connection

Process connection	Dimensions in mm						
	h ±1	H	S2	S3	S4	S5	S6
G ½ B	177	66	6	20	3	17	17.5
½ NPT	176	65	-	19	-	-	-

Type of contact	Dimensions in mm	
	X	Y
Single or double contact	88	55
Double (change-over) contact	113	80
Triple contact	96	63
Quadruple contact	113	80

switchGAUGE model 532.53.160 with switch contact model 821, 831 or 830 E



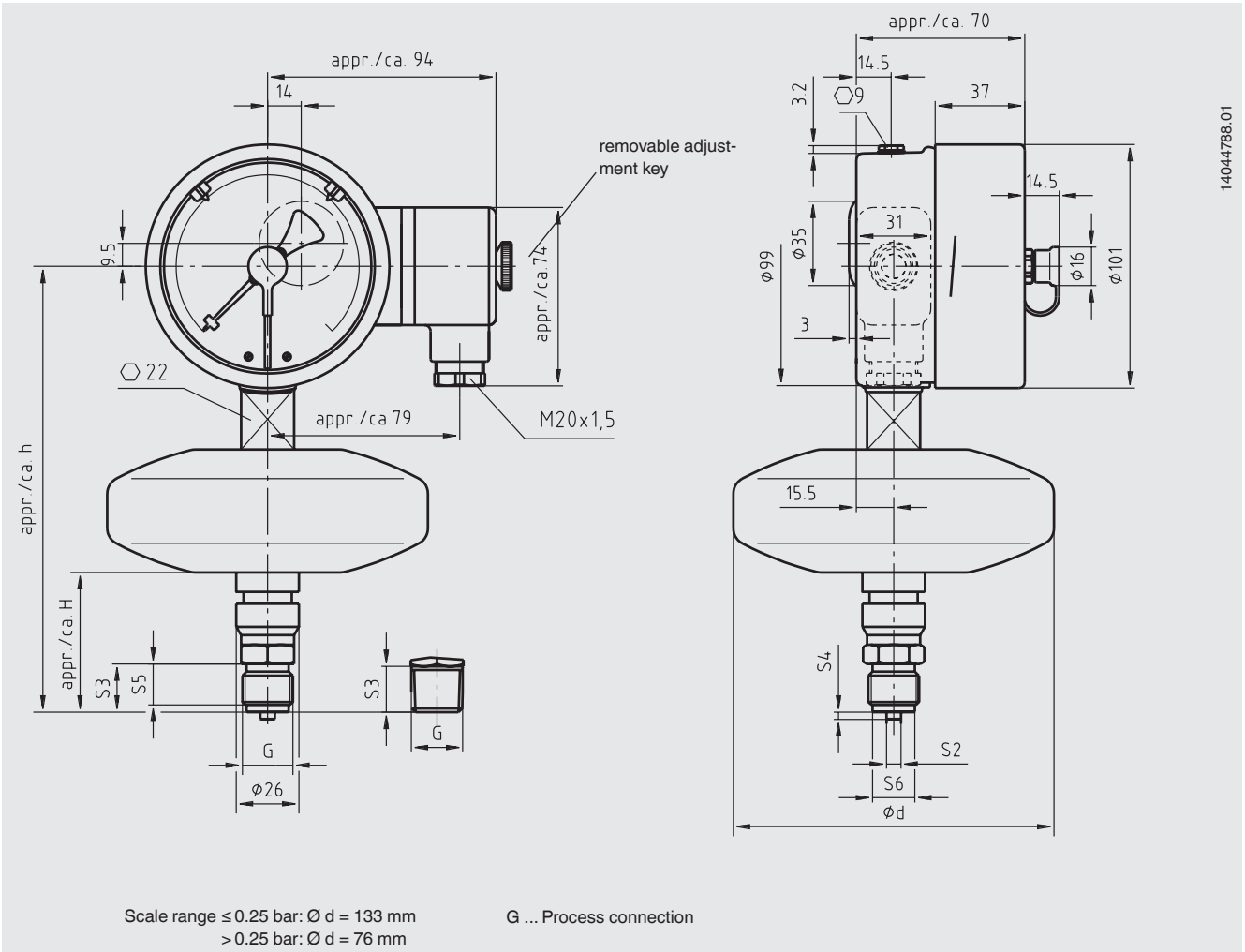
Scale range ≤ 0.25 bar: Ø d = 133 mm
> 0.25 bar: Ø d = 76 mm

G ... Process connection

Process connection	Dimensions in mm						
	h ±1	H	S2	S3	S4	S5	S6
G ½ B	207	66	6	20	3	17	17.5
½ NPT	206	65	-	19	-	-	-

Type of contact	Dimensions in mm
	X
Single or double contact	102
Double (change-over) contact	116
Triple contact	102
Quadruple contact	116

switchGAUGE model 532.53.100 with switch contact model 851.3 or 851.33

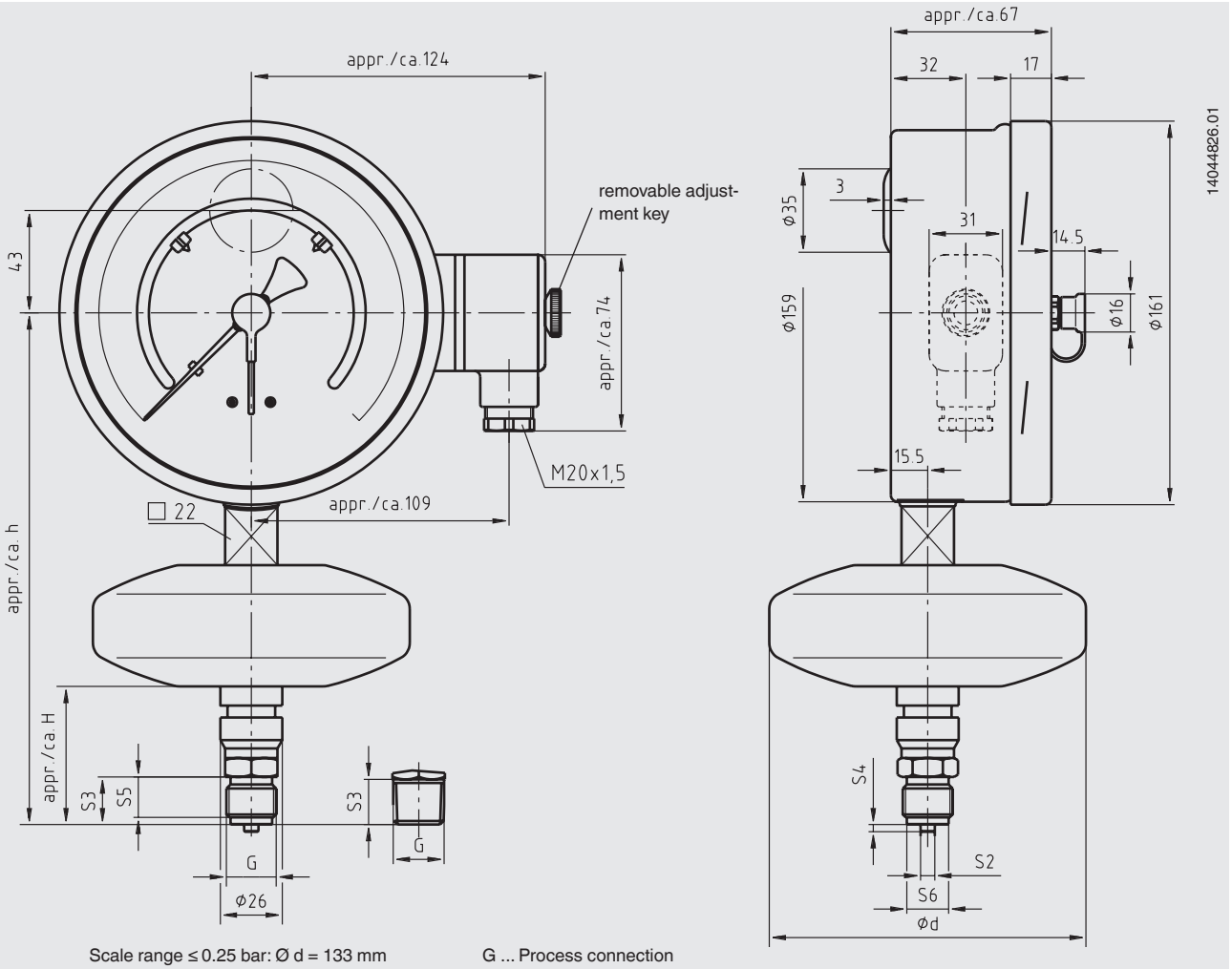


Scale range ≤ 0.25 bar: Ø d = 133 mm
> 0.25 bar: Ø d = 76 mm

G ... Process connection

Process connection	Dimensions in mm						
	h ±1	H	S2	S3	S4	S5	S6
G ½ B	185	58	6	20	3	17	17.5
½ NPT	184	57	-	19	-	-	-

switchGAUGE model 532.53.160 with switch contact model 851.3 or 851.33



Scale range ≤ 0.25 bar: Ø d = 133 mm
> 0.25 bar: Ø d = 76 mm

G ... Process connection

Process connection	Dimensions in mm						
	h ±1	H	S2	S3	S4	S5	S6
G ½ B	215	58	6	20	3	17	17.5
½ NPT	214	57	-	19	-	-	-

Ordering information

Model / Nominal size / Type of contact and switching function / Scale range / Process connection / Options

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