

series SV03-AS2



AVENTICS™ series SV03-AS2

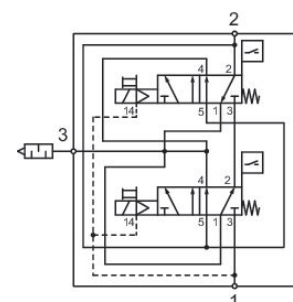


3/2 directional safety valve, Series SV03-AS2

R412027220

General series information
series SV03

- The AVENTICS Series SV01/03/05 double valves are redundant 3/2 and 5/2 valves for external monitoring that are designed to meet the needs and requirements of safe air supply and exhaust 3/2 valves and safe cylinder return 5/2 valves applications for machinery with pneumatic controls according to the requirements of ISO 13849-1-2 for safety functions.



Technical data

Industry	Industrial
Activation	Electrically
Switching principle	3/2
Compressed air connection output	Ø 13
DC operating voltage	24 V
Voltage tolerance DC	-10% / +10%
Actuating control	Single Solenoid
Sealing principle	soft seal
Pilot	Internal
Standards	ISO 13849-1, category 4, performance level: e (possible)
Return	With spring return

Compressed air connection input	Ø 13
Compressed air connection, exhaust	G 1/2
Power consumption DC	1.5 W
Working pressure min. internal	3 bar
Working pressure max. internal	10 bar
Working pressure min. external	0 bar
Working pressure max. external	10 bar
Control pressure min.	3 bar
Control pressure max.	10 bar
Min. ambient temperature	4 °C
Max. ambient temperature	50 °C
Min. medium temperature	4 °C
Max. medium temperature	50 °C
Medium	Compressed air
Max. particle size	5 µm
Oil content of compressed air min.	0 mg/m ³
Oil content of compressed air max.	5 mg/m ³
Connector standard	EN 175301-803, form C
Nominal flow Qn 1 to 2	1050 l/min
Nominal flow Qn 2 to 3	2650 l/min
Protection class with connection	IP65
Duty cycle	100 %
Typ. switch-on time	35 ms
Typ. switch-off time	80 ms
Type sensor	PNP
Electrical connection for sensor	Plug
Sensor port size	M8
Sensor number of poles	3-pin
Weight	1.9 kg
Housing material	Die-cast aluminum
Seal material	Acrylonitrile butadiene rubber
Part No.	R412027220

Technical information

silencer (not included in scope of delivery)

The min. control pressure must be adhered to, since otherwise faulty switching and valve failure may result!

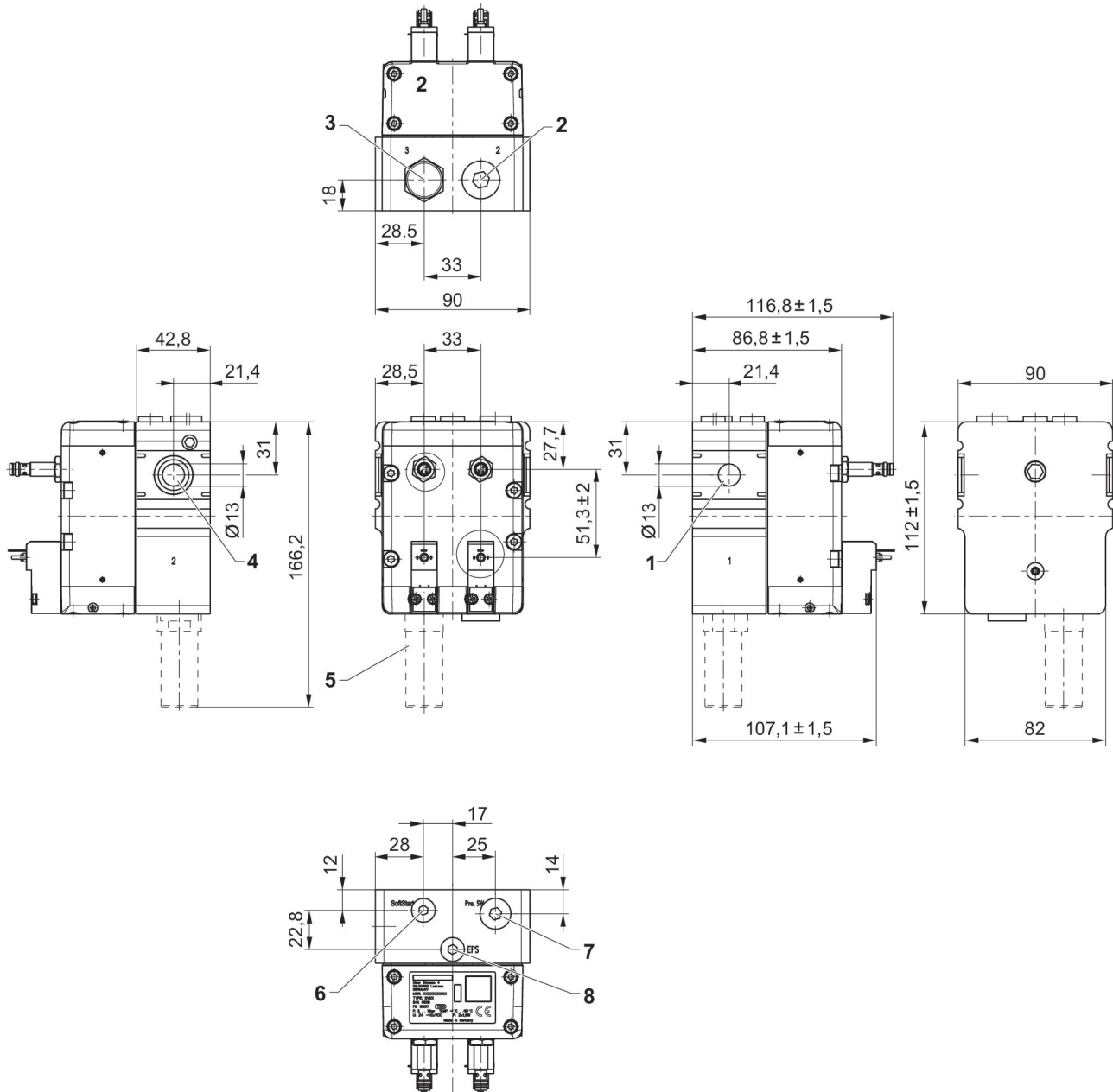
The pressure dew point must be at least 15 °C less than ambient and medium temperature and may not exceed 3 °C.

The oil content of compressed air must remain constant during the life cycle.

Use only the approved oils from AVENTICS. Further information can be found in the "Technical information" document (available in <https://www.emerson.com/en-us/support>).

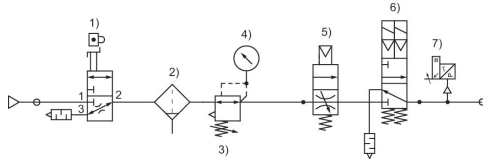
The safety valves are designed in accordance with the requirements listed in ISO 13849-1 and -2. The safety function of the 3/2 safety valve is not only to supply compressed air (pneumatic energy) to the machine/system when the two valve elements are actuated simultaneously, but also to shut off the supply and to exhaust any downstream compressed air when both valves are switched off. A fault in the system where only one valve actuates when switching on or only one de-actuates when switching off prevents air from being supplied downstream and simultaneously exhausts any air that is already downstream. Monitoring of the two proximity sensors by the user's external safety monitoring system makes it possible to detect these fault situations and to shut off and prevent further electrical energization of the solenoids.

Dimensions



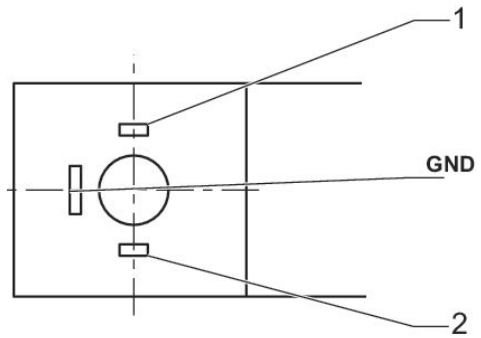
- 1) Port 1 (Input)
- 2) Port 2 (Output)
- 3) Port 3 (Exhaust)
- 4) Silencer
- 5) silencer (not included in scope of delivery)
- 6) Connection for soft start with plug G1/8
- 7) Connection for pressure switch with plug G1/4
- 8) Connection for external pilot supply with plug G1/8

Safe air supply and exhaust valve compatible with soft-start function



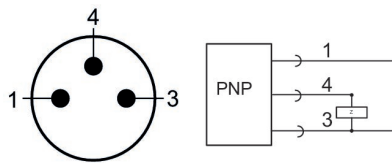
- 1) Lockout valve
- 2) Filter
- 3) Pressure regulator
- 4) Pressure gauge
- 5) Soft-start valve
- 6) Safety exhaust valve SV03-AS2
- Soft-start function
- 7) Pressure Switches

Valve plug connector form C



- 1) + 24 / 0 VDC
- 2) 0 / + 24 VDC

PIN assignment sensor, plug M8 3-pin



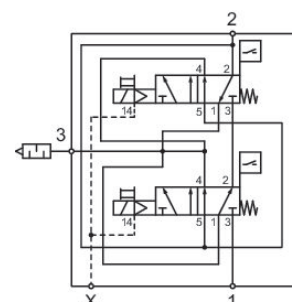
- 1) + 20 ... + 28 VDC
- 3) 0 VDC
- 4) OUT

3/2 directional safety valve, Series SV03-AS2

R412028207

General series information
series SV03

- The AVENTICS Series SV01/03/05 double valves are redundant 3/2 and 5/2 valves for external monitoring that are designed to meet the needs and requirements of safe air supply and exhaust 3/2 valves and safe cylinder return 5/2 valves applications for machinery with pneumatic controls according to the requirements of ISO 13849-1-2 for safety functions.
- 3/2 directional safety valve
- According to ISO 13849-1, Cat. 4, PL e



Technical data

Industry	Industrial
Activation	Electrically
Switching principle	3/2
Compressed air connection output	Ø 13
DC operating voltage	24 V
Voltage tolerance DC	-10% / +10%
Actuating control	Single Solenoid
Sealing principle	soft seal
Pilot	External
Standards	ISO 13849-1, category 4, performance level: e (possible)
Return	With spring return

Compressed air connection input	Ø 13
Compressed air connection, exhaust	G 1/2
Power consumption DC	1.5 W
Working pressure min. internal	3 bar
Working pressure max. internal	10 bar
Working pressure min. external	0 bar
Working pressure max. external	10 bar
Control pressure min.	3 bar
Control pressure max.	10 bar
Min. ambient temperature	4 °C
Max. ambient temperature	50 °C
Min. medium temperature	4 °C
Max. medium temperature	50 °C
Medium	Compressed air
Max. particle size	5 µm
Oil content of compressed air min.	0 mg/m ³
Oil content of compressed air max.	5 mg/m ³
Connector standard	EN 175301-803, form C
Nominal flow Qn 1 to 2	1050 l/min
Nominal flow Qn 2 to 3	2650 l/min
Protection class with connection	IP65
Duty cycle	100 %
Typ. switch-on time	30 ms
Typ. switch-off time	70 ms
Type sensor	PNP
Electrical connection for sensor	Plug
Sensor port size	M8
Sensor number of poles	3-pin
Weight	1.9 kg
Housing material	Die-cast aluminum
Seal material	Acrylonitrile butadiene rubber
Part No.	R412028207

Technical information

silencer (not included in scope of delivery)

The min. control pressure must be adhered to, since otherwise faulty switching and valve failure may result!

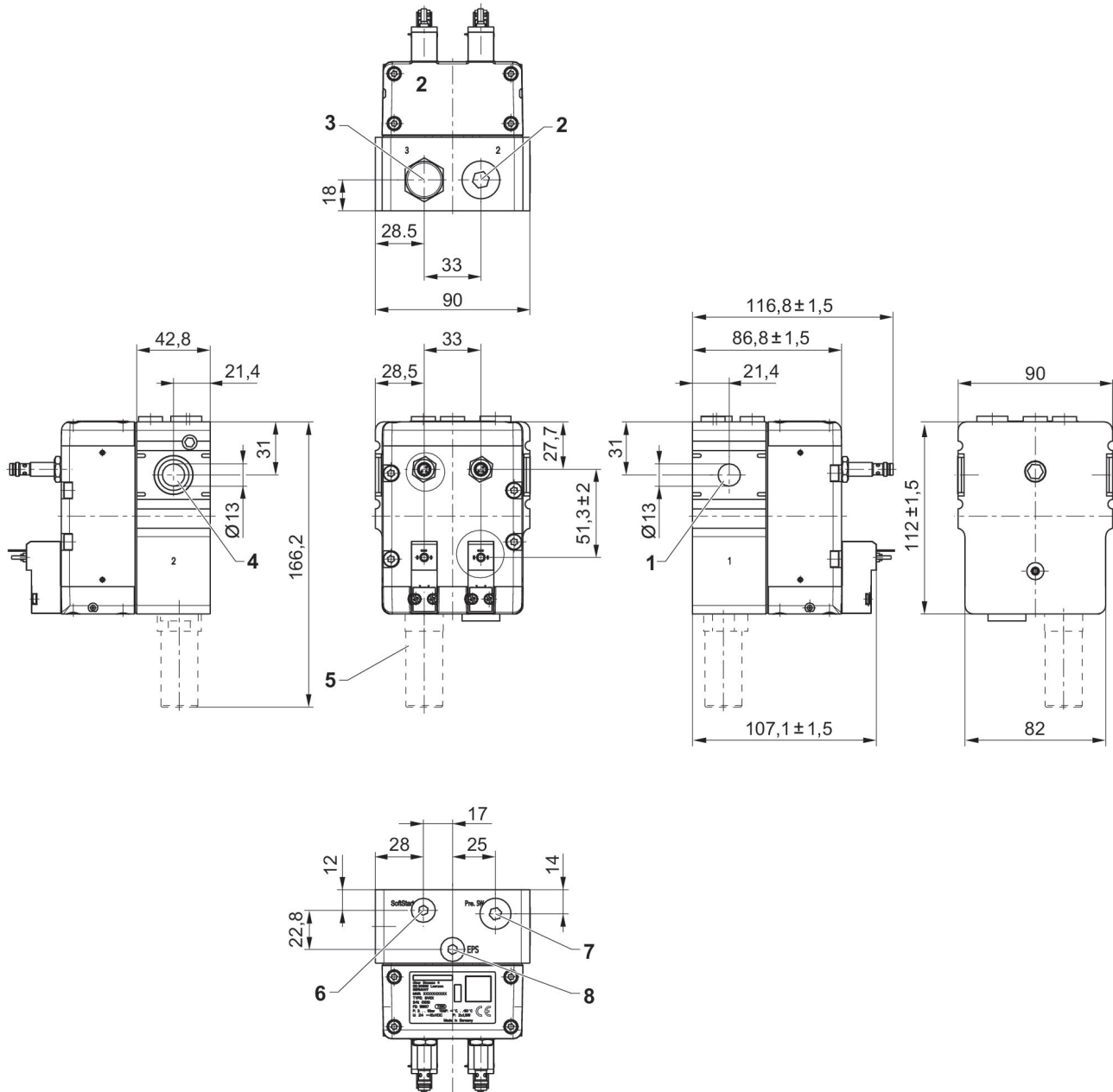
The pressure dew point must be at least 15 °C less than ambient and medium temperature and may not exceed 3 °C.

The oil content of compressed air must remain constant during the life cycle.

Use only the approved oils from AVENTICS. Further information can be found in the "Technical information" document (available in <https://www.emerson.com/en-us/support>).

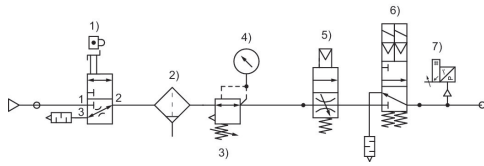
The safety valves are designed in accordance with the requirements listed in ISO 13849-1 and -2. The safety function of the 3/2 safety valve is not only to supply compressed air (pneumatic energy) to the machine/system when the two valve elements are actuated simultaneously, but also to shut off the supply and to exhaust any downstream compressed air when both valves are switched off. A fault in the system where only one valve actuates when switching on or only one de-actuates when switching off prevents air from being supplied downstream and simultaneously exhausts any air that is already downstream. Monitoring of the two proximity sensors by the user's external safety monitoring system makes it possible to detect these fault situations and to shut off and prevent further electrical energization of the solenoids.

Dimensions



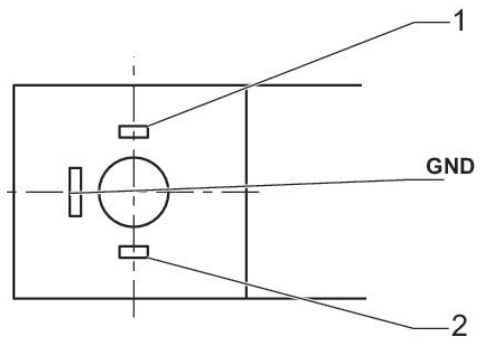
- 1) Port 1 (Input)
- 2) Port 2 (Output)
- 3) Port 3 (Exhaust)
- 4) Silencer
- 5) silencer (not included in scope of delivery)
- 6) Connection for soft start with plug G1/8
- 7) Connection for pressure switch with plug G1/4
- 8) Connection for external pilot supply with plug G1/8

Safe air supply and exhaust valve compatible with soft-start function



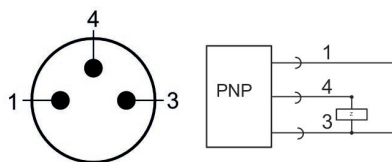
- 1) Lockout valve
- 2) Filter
- 3) Pressure regulator
- 4) Pressure gauge
- 5) Soft-start valve
- 6) Safety exhaust valve SV03-AS2
- Soft-start function
- 7) Pressure Switches

Valve plug connector form C



- 1) + 24 / 0 VDC
- 2) 0 / + 24 VDC

PIN assignment sensor, plug M8 3-pin



- 1) + 20 ... + 28 VDC
- 3) 0 VDC
- 4) OUT


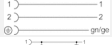

Valve plug connector, series CON-VP

- Socket, form C, 2+E, angled, 90°
- ISO 15217
- unshielded
- with LED Green



Connection type	Screws
Ambient temperature min./max.	-40 ... 90 °C
Operational voltage	See table below
Protection class	IP65
Mounting screw tightening torque	0.4 Nm
Weight	See table below

Technical data

Part No.		Operational voltage	Max. current	Protective circuit	Contact assignment
1834484187		250 / 300 V AC/DC	6 A	-	2+E
8941012202		250 / 300 V AC/DC	6 A	-	2+E
4402050330		24 V AC/DC	-	Z-diode	2+E

Part No.	LED status display	suitable cable-Ø min./max	Seal	Weight
1834484187	-	4 / 8 mm	caoutchouc/butadiene caoutchouc	0.012 kg
8941012202	-	4 / 8 mm	-	0.012 kg
4402050330	Green	-	-	0.014 kg

Part No.	Fig.	
1834484187	Fig. 1	-
8941012202	Fig. 2	-
4402050330	Fig. 3	1)

1)

Technical information

The specified protection class is only valid in assembled and tested state.

Technical information

Material

Seals

caoutchouc/butadiene caoutchouc

Dimensions

Fig. 1

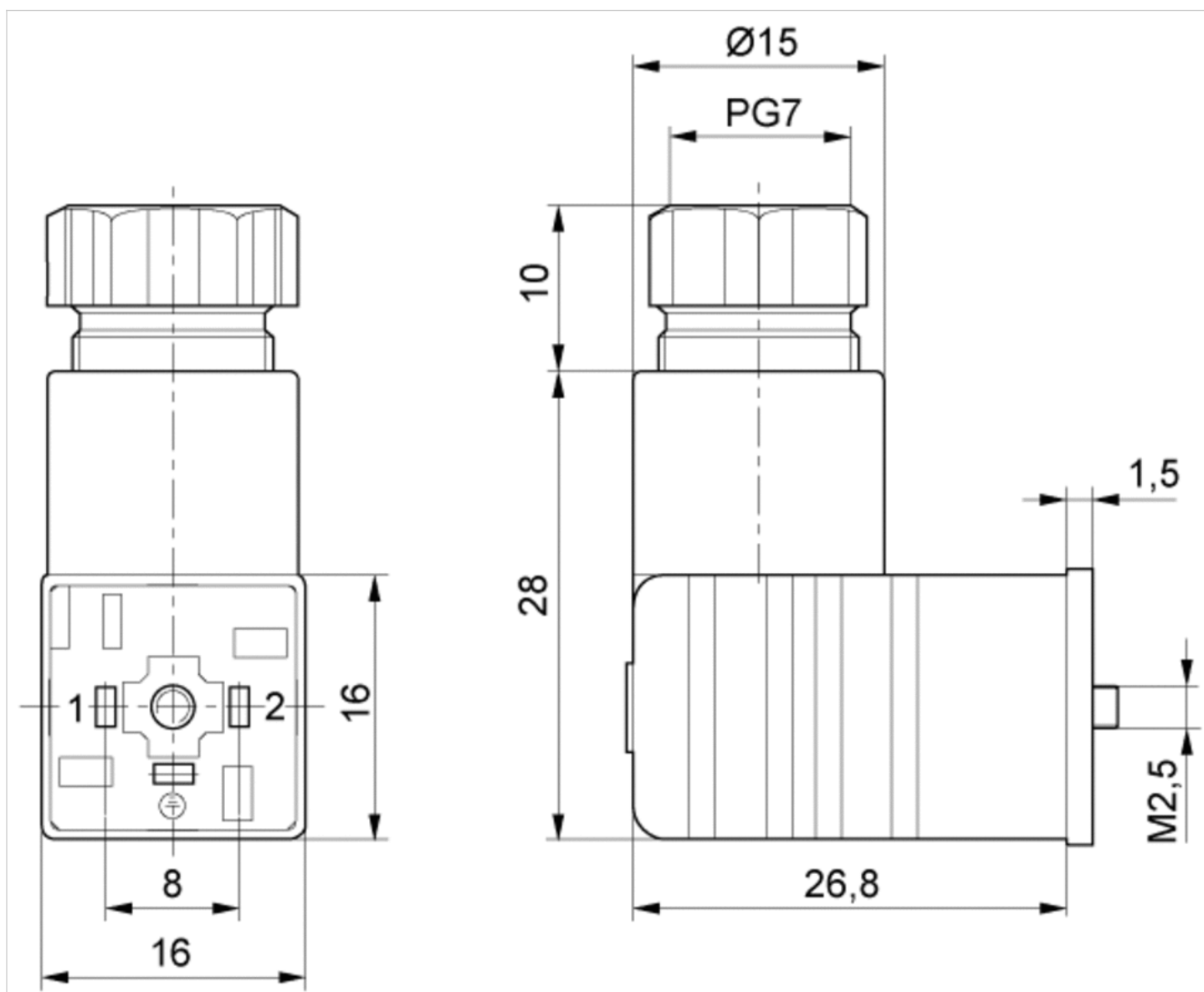


Fig. 2

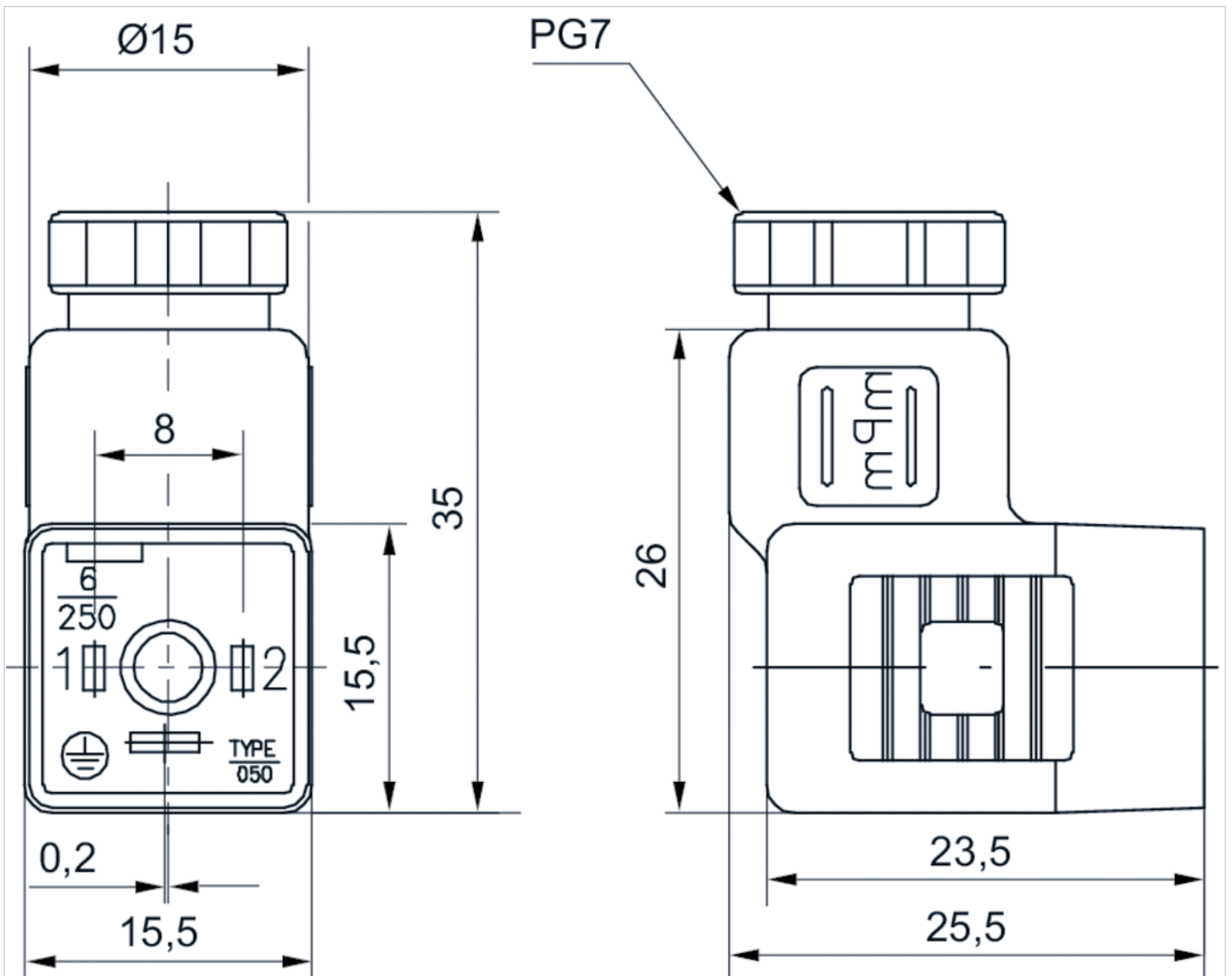
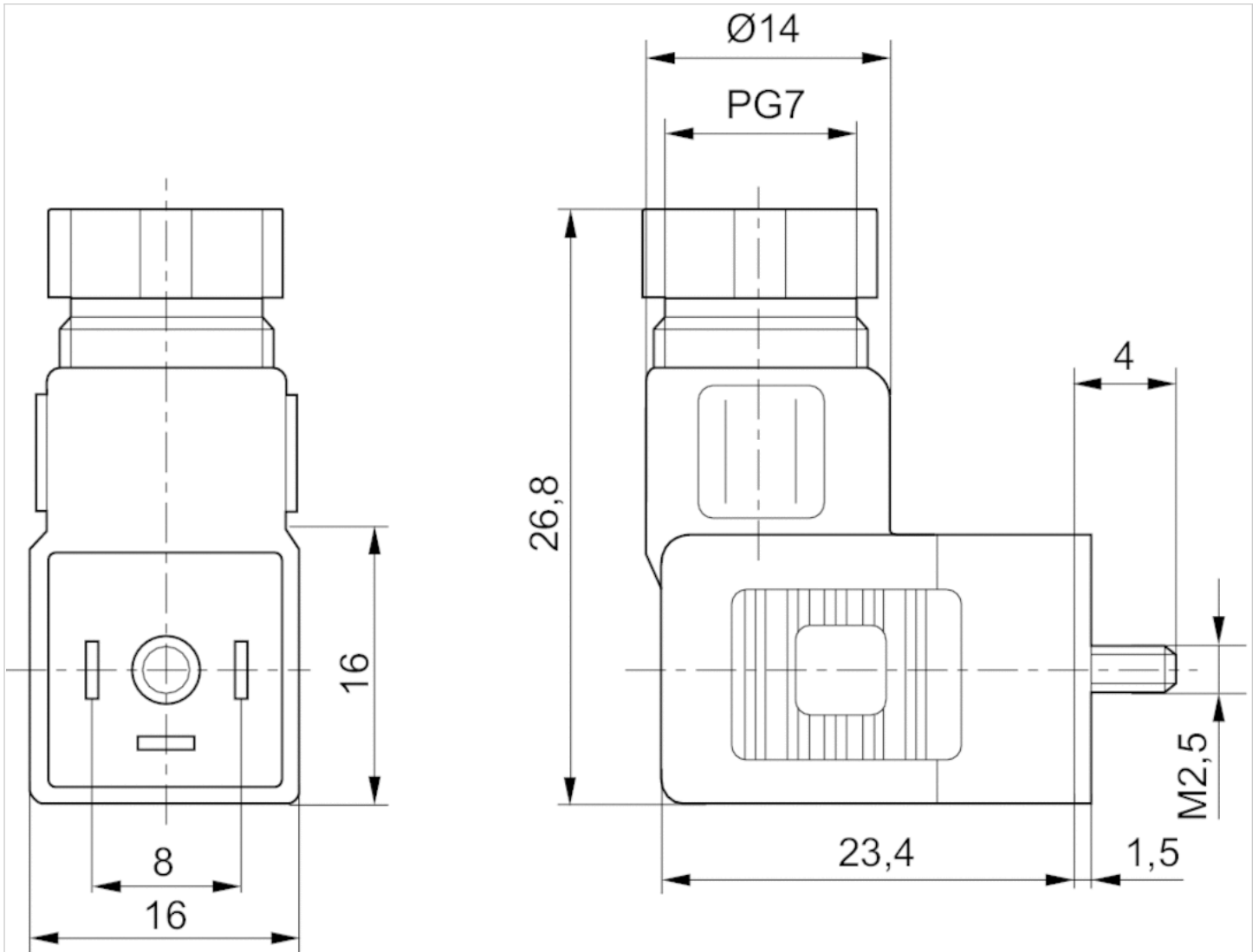


Fig. 3

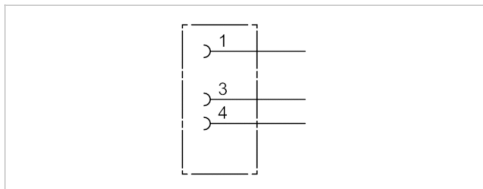


Round plug connector, Series CON-RD

- Socket, M8x1, 3-pin, A-coded, straight, 180°
- UL (Underwriters Laboratories)
- unshielded



Connection type	Soldering
Ambient temperature min./max.	-25 ... 80 °C
Operational voltage	48 V AC/DC
Protection class	IP67
Weight	0.009 kg



Technical data

Part No.	Max. current	suitable cable-Ø min./max
1834484173	4 A	3.5 / 5 mm

Technical information

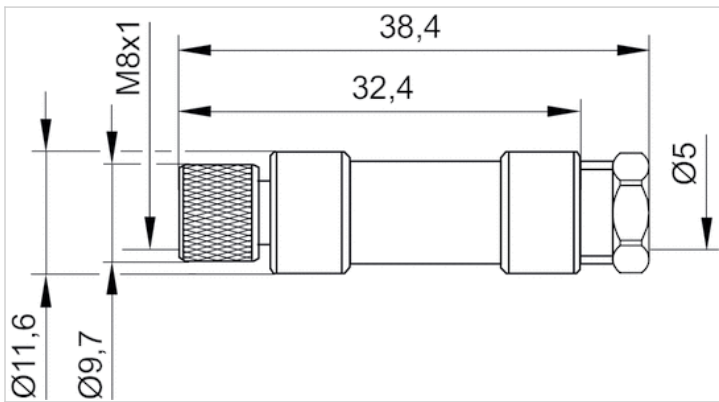
The specified protection class is only valid in assembled and tested state.

Technical information

Material	
Housing	Polyamide

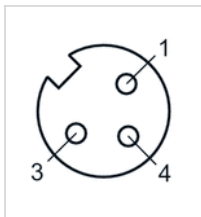
Dimensions

Dimensions



Pin assignments

Pin assignment, socket

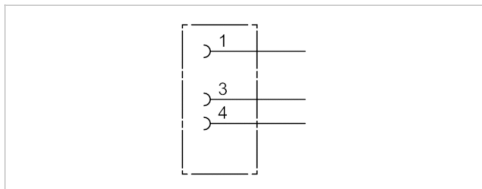


Round plug connector, Series CON-RD

- Socket, M8x1, 3-pin, A-coded, angled, 90°
- UL (Underwriters Laboratories)
- unshielded



Connection type	Soldering
Ambient temperature min./max.	-40 ... 85 °C
Operational voltage	48 V AC/DC
Protection class	IP67
Weight	0.01 kg



Technical data

Part No.	Max. current	Contact assignment	suitable cable-Ø min./max
1834484174	4 A	3	3.5 / 5 mm

Technical information

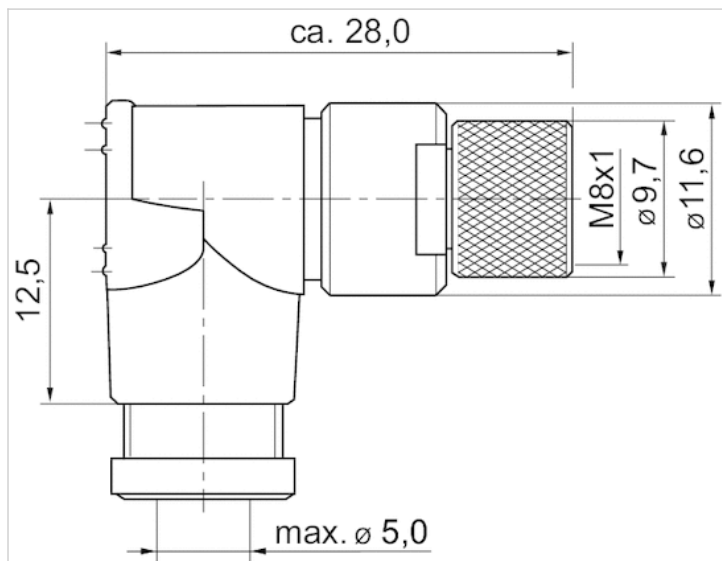
The specified protection class is only valid in assembled and tested state.

Technical information

Material	
Housing	Polyamide

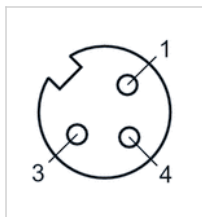
Dimensions

Dimensions



Pin assignments

Pin assignment, socket

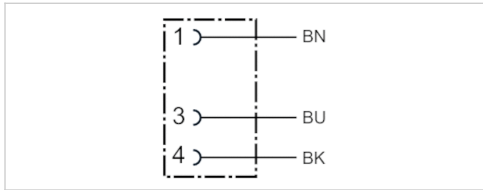


Round plug connector, Series CON-RD

- Socket M8x1 3-pin A-coded straight 180°
- open cable ends
- with cable
- unshielded



Operational voltage	30 / 36 V AC/DC
Protection class	IP67
Wire cross-section	0.34 mm ²
Weight	See table below



Technical data

Part No.	Max. current	Number of wires	Cable-Ø	Cable length	Weight
8946201312	2.5 A	3	3.5 mm	2 m	0.066 kg
8946201332	2.5 A	3	3.5 mm	15 m	0.466 kg

Technical information

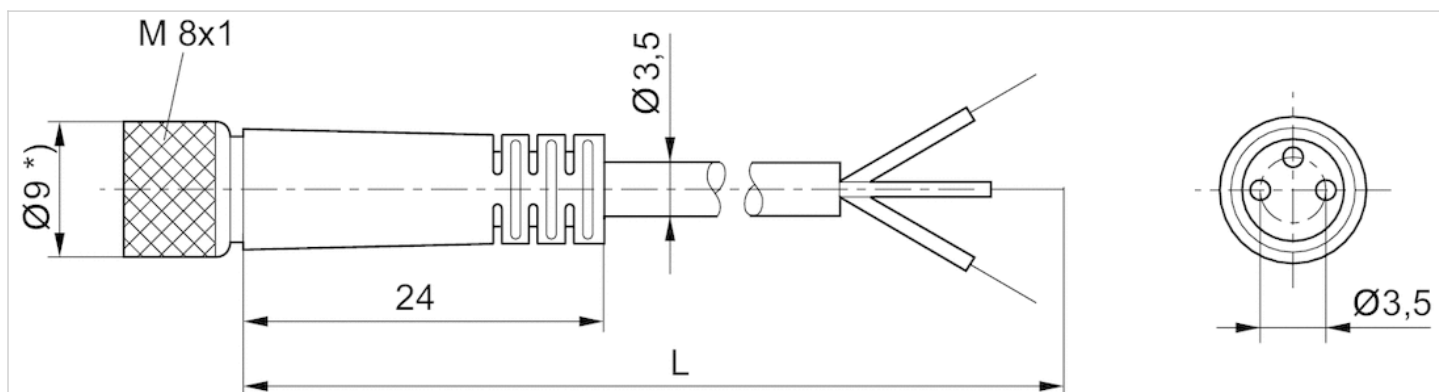
The specified protection class is only valid in assembled and tested state.

Technical information

Material	
Cable sheath	Polyvinyl chloride

Dimensions

Dimensions

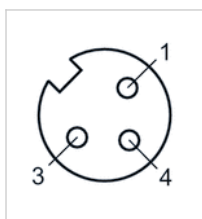


L = length

*) With 15 m cable length Ø12

Pin assignments

Pin assignment, socket



(1) BN=brown

(3) BU=blue

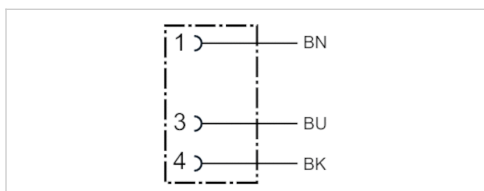
(4) BK=black

Round plug connector, Series CON-RD

- Socket M8x1 3-pin A-coded angled 90°
- open cable ends
- with cable
- unshielded



Ambient temperature min./max.	-40 ... 85 °C
Operational voltage	48 V AC/DC
Protection class	IP67
Wire cross-section	0.24 mm ²
Weight	See table below



Technical data

Part No.	Max. current	Number of wires	Cable-Ø	Cable length	Weight
1834484167	4 A	3	4.5 mm	3 m	0.087 kg
1834484169	4 A	3	4.5 mm	5 m	0.139 kg
1834484248	4 A	3	4.5 mm	10 m	0.279 kg

Technical information

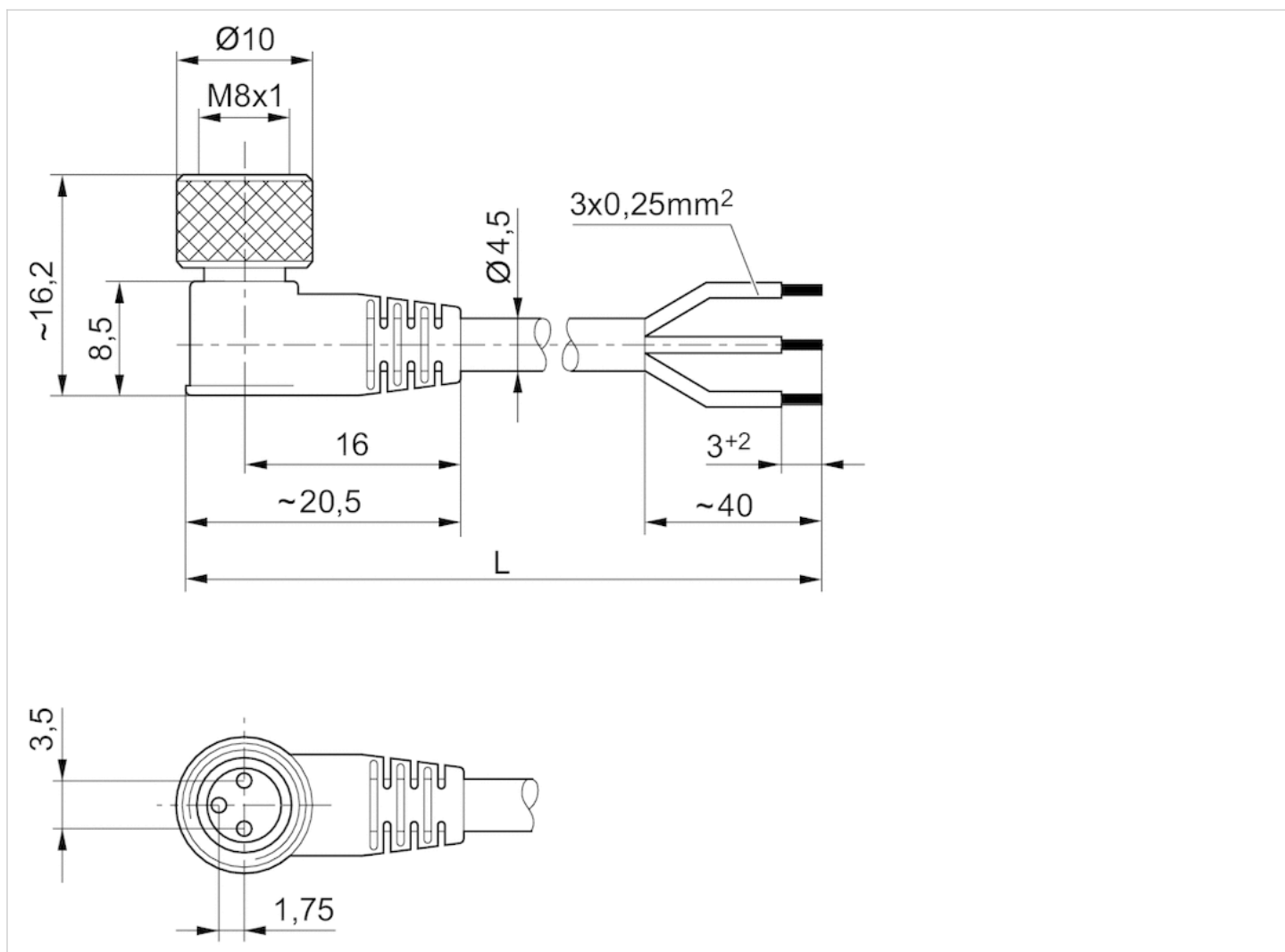
The specified protection class is only valid in assembled and tested state.

Technical information

Material	
Housing	Polyurethane
Cable sheath	Polyurethane

Dimensions

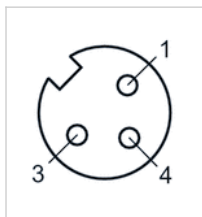
Dimensions



L = length

Pin assignments

Pin assignment, socket



- (1) BN=brown
- (3) BU=blue
- (4) BK=black

Valve plug connector, series CON-VP

- Socket form C 2+E angled 90°
- open cable ends 3-pin
- with cable
- unshielded



Ambient temperature min./max.	-20 ... 80 °C
Operational voltage	See table below
Protection class	IP67
Wire cross-section	0.75 mm ²
Mounting screw tightening torque	0.4 Nm
Weight	See table below

Technical data

Part No.		Operational voltage	Max. current	Protective circuit	Contact assignment
1834484212		230 V AC/DC	6 A	-	2+E
1834484213		230 V AC/DC	6 A	-	2+E
1834484214		230 V AC/DC	6 A	-	2+E
1834484215		230 V AC/DC	6 A	-	2+E
1834484204		24 V AC/DC	6 A	Z-diode	2+E
1834484205		24 V AC/DC	6 A	Z-diode	2+E
1834484206		24 V AC/DC	6 A	Z-diode	2+E
1834484207		24 V AC/DC	6 A	Z-diode	2+E
1834484208		230 V AC/DC	6 A	Varistor	2+E
1834484209		230 V AC/DC	6 A	Varistor	2+E
1834484210		230 V AC/DC	6 A	Varistor	2+E
1834484211		230 V AC/DC	6 A	Varistor	2+E
1834484236		24 V AC/DC	6 A	Z-diode	2+E

Part No.	LED status display	Number of wires	Cable-Ø	Cable length	Weight	Fig.	
1834484212	-	3	5.9 mm	3 m	0.183 kg	Fig. 1	-
1834484213	-	3	5.9 mm	3 m	0.183 kg	Fig. 2	-
1834484214	-	3	5.9 mm	5 m	0.308 kg	Fig. 1	-
1834484215	-	3	5.9 mm	5 m	0.308 kg	Fig. 2	-
1834484204	Yellow	3	5.9 mm	3 m	0.185 kg	Fig. 1	1)
1834484205	Yellow	3	5.9 mm	3 m	0.185 kg	Fig. 2	1)
1834484206	Yellow	3	5.9 mm	5 m	0.292 kg	Fig. 1	1)
1834484207	Yellow	3	5.9 mm	5 m	0.298 kg	Fig. 2	1)
1834484208	Yellow	3	5.9 mm	3 m	0.171 kg	Fig. 1	1)
1834484209	Yellow	3	5.9 mm	3 m	0.194 kg	Fig. 2	1)
1834484210	Yellow	3	5.9 mm	5 m	0.297 kg	Fig. 1	1)

Part No.	LED status display	Number of wires	Cable-Ø	Cable length	Weight	Fig.	
1834484211	Yellow	3	5.9 mm	5 m	0.285 kg	Fig. 2	1)
1834484236	Yellow	3	5.9 mm	10 m	0.571 kg	Fig. 2	1)

1) Scope of delivery incl. flat gasket

Technical information

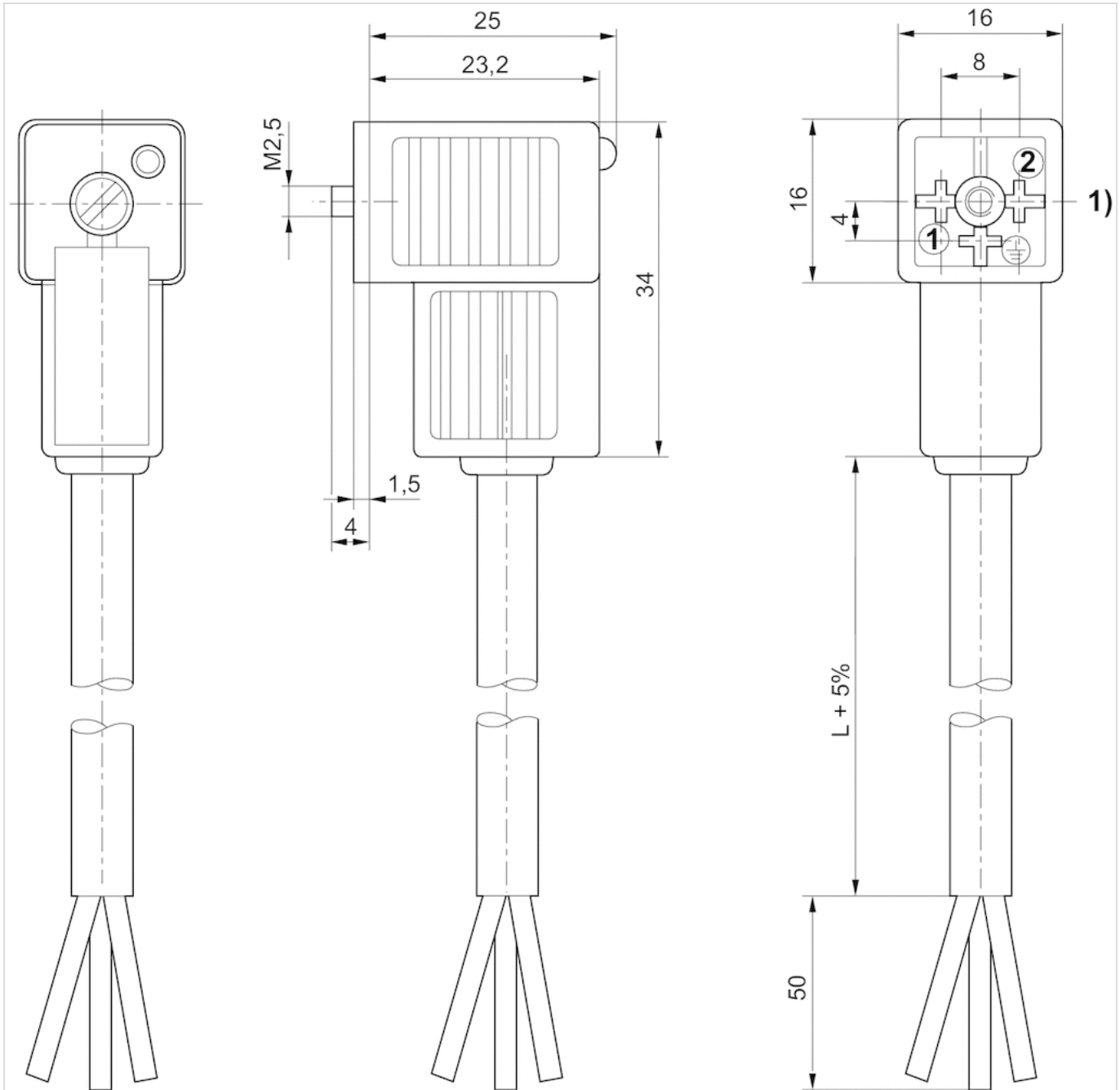
The specified protection class is only valid in assembled and tested state.

Technical information

Material	
Seals	caoutchouc/butadiene caoutchouc
Cable sheath	Polyvinyl chloride

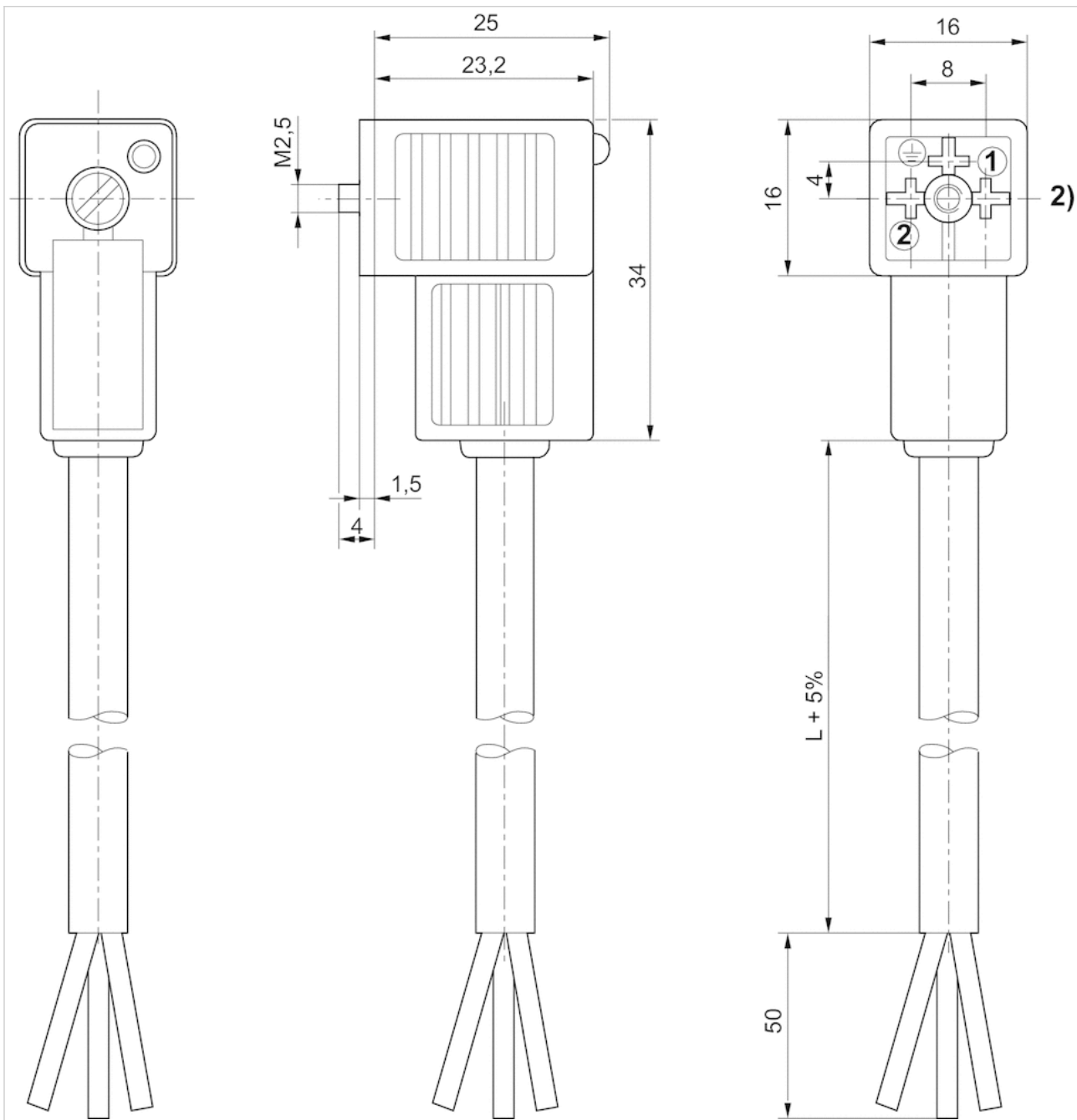
Dimensions

Fig. 1



1) 0° female insert

Fig. 2



2) 180° female insert

Silencers, series SI1

- G 1/4
- Metal braiding



Working pressure min./max.

0 ... 15 bar

Ambient temperature min./max.

-10 ... 150 °C

Medium

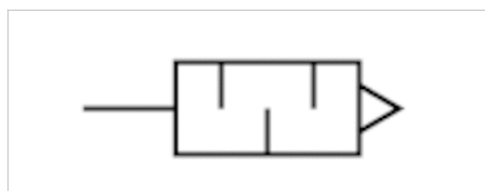
Compressed air

Sound pressure level

96 dB

Comment

Flow characteristic curves can be found under "Diagrams".



Technical data

Part No.	Compressed air connection	Flow	Delivery unit
		Qn	
R412010245	G 1/4	2687 l/min	10 piece

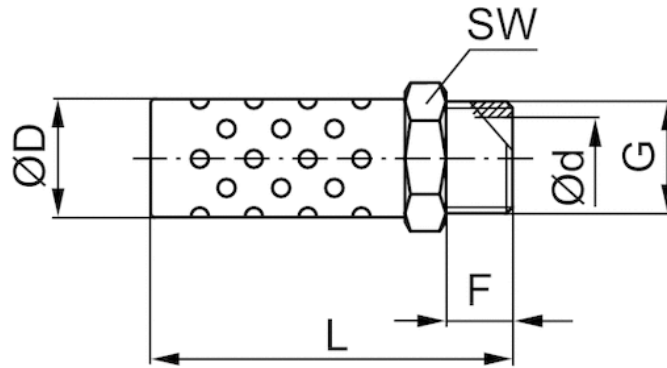
Nominal flow Qn at p1 = 6 bar (absolute) freely discharged. Sound pressure level measured at 6 bar against atmosphere at 1 m distance.

Technical information

Material	
Silencer	Metal braiding
Thread	Aluminum

Dimensions

Dimensions



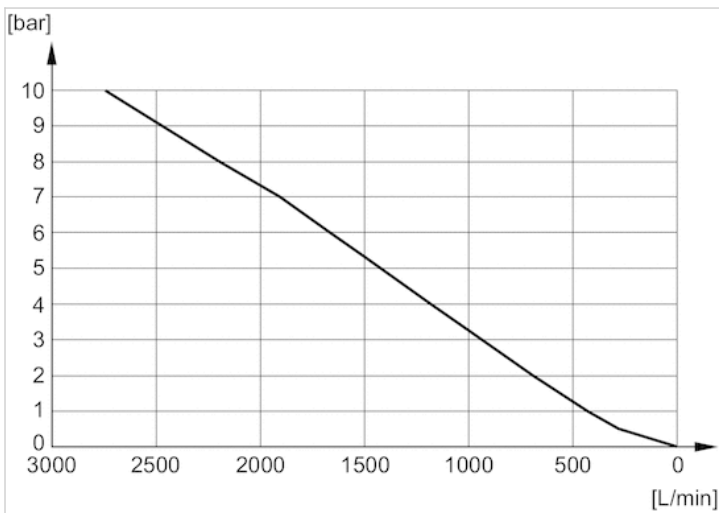
Dimensions

Part No.	Port G	L	F	D	d	SW
R412010245	G 1/4	42.5	8.5	13.4	8.5	14

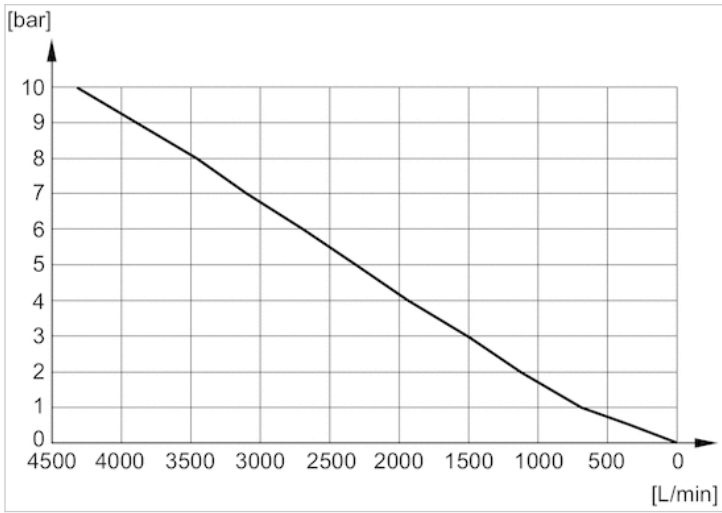
Sound pressure level measured at 6 bar at 1 m distance

Diagrams

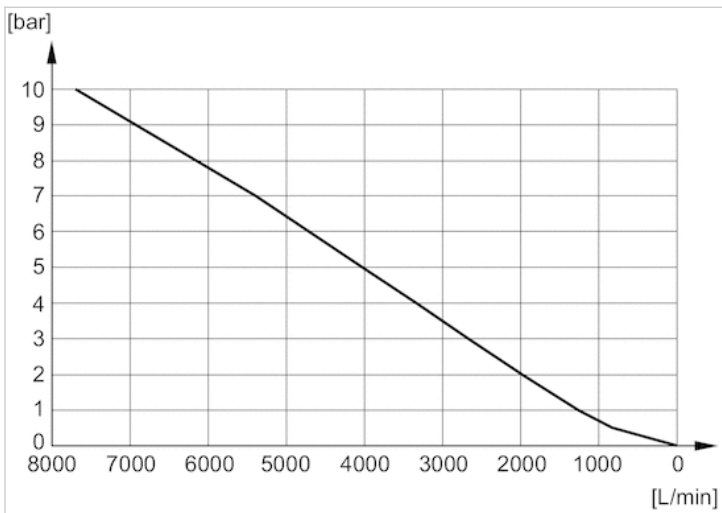
Flow diagram, R412010283



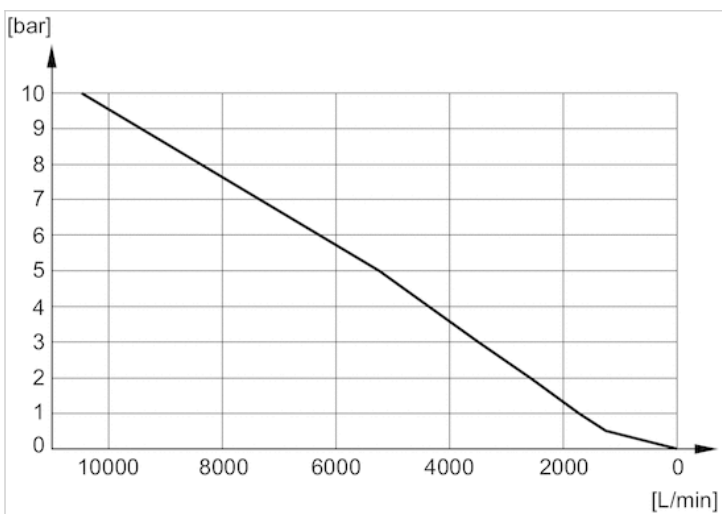
Flow diagram, R412010245



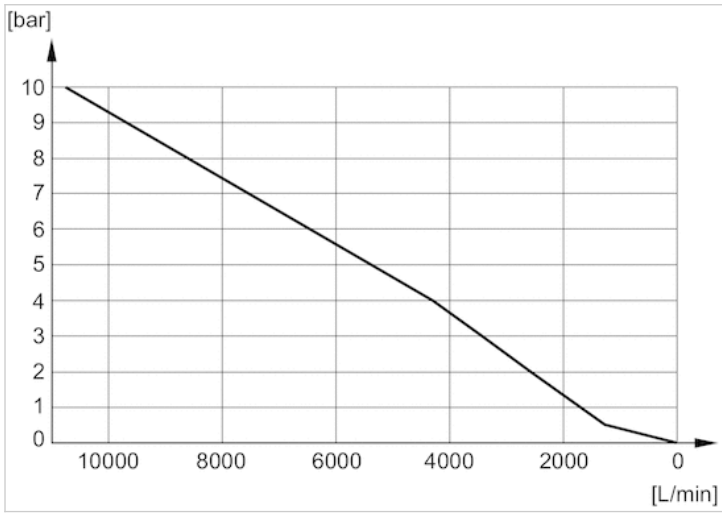
Flow diagram, R412010246



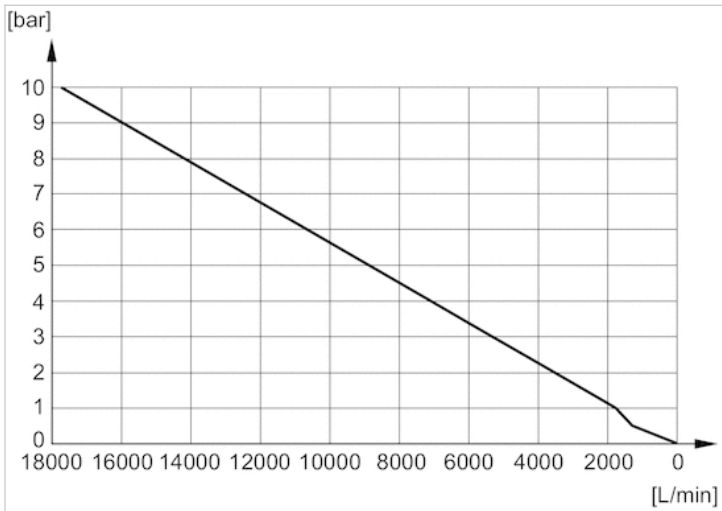
Flow diagram, R412010247



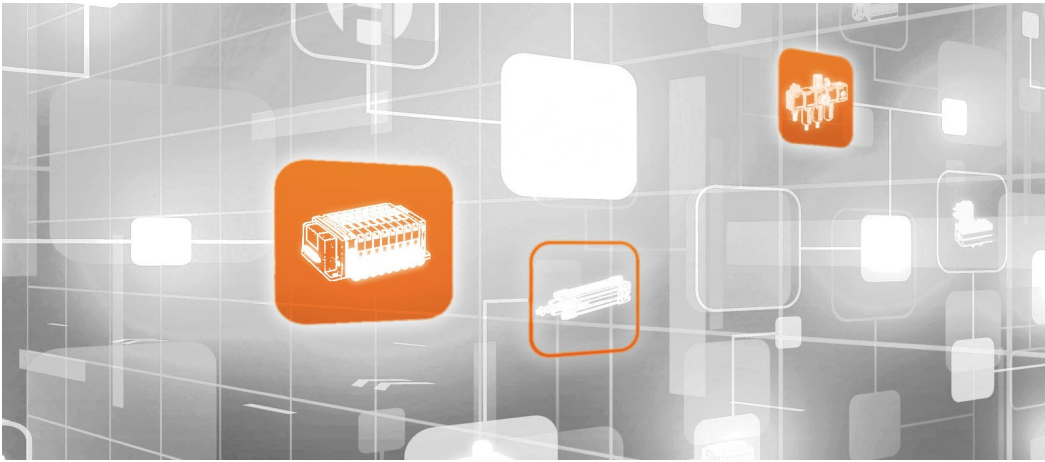
Flow diagram, R412010248



Flow diagram, R412010249



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