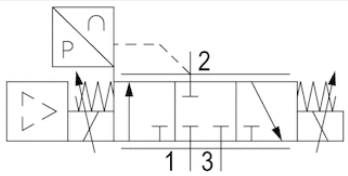
E/P pressure regulator, Series ED12

- Qn = 2.64 Cv
- Electr. connection via signal connection
- Signal connection input and output, Plug, M12, 5-pin



Version	Poppet valve
Mounting orientation	α = 0 ... 90° ±β = 0 ... 90°
Certificates	CE declaration of conformity
Working pressure max	See table below
Ambient temperature min./max.	41 ... 122 °F
Medium temperature min./max.	41 ... 122 °F
Medium	Compressed air
Max. particle size	50 µm
Oil content of compressed air	0 ... 1 mg/m³
Nominal flow Qn	2.64 Cv
Control	Analog
DC operating voltage	24 V
Voltage tolerance DC	-20% / +30%
Permissible ripple	5%
Max. power consumption	1400 mA
Protection class	IP65
Weight	5.07 lbs

Technical data

Part No.	Working pressure max	Pressure setting range min./max.	Nominal input value Min./max.
R414002794	43 psi	0 ... 145 psi	0 ... 20 mA
R414009658	43 psi	0 ... 145 psi	0 ... 20 mA
R414009659	43 psi	0 ... 145 psi	4 ... 20 mA
R414009661	43 psi	0 ... 145 psi	0 ... 10 V
R414009662	43 psi	0 ... 145 psi	0 ... 20 mA
R414009663	43 psi	0 ... 145 psi	4 ... 20 mA
R414009665	43 psi	0 ... 145 psi	0 ... 10 V
R414009570	116 psi	0 ... 145 psi	0 ... 20 mA
R414009571	116 psi	0 ... 145 psi	4 ... 20 mA
R414009573	116 psi	0 ... 145 psi	0 ... 10 V
R414001635	174 psi	0 ... 145 psi	0 ... 20 mA
R414001636	174 psi	0 ... 145 psi	4 ... 20 mA
R414002867	174 psi	0 ... 145 psi	0 ... 10 V

Part No.	Actual output value Min./max.	Control	Hysteresis	Fig.
R414002794	0 ... 20 mA	Analog	0.218 psi	Fig. 1
R414009658	0 ... 20 mA	Analog	0.218 psi	Fig. 1
R414009659	4 ... 20 mA	Analog	0.218 psi	Fig. 1
R414009661	0 ... 10 V	Analog	0.218 psi	Fig. 2
R414009662	0 ... 20 mA	Analog	0.218 psi	Fig. 1
R414009663	4 ... 20 mA	Analog	0.218 psi	Fig. 1

Part No.	Actual output value Min./max.	Control	Hysteresis	Fig.
R414009665	0 ... 10 V	Analog	0.218 psi	Fig. 2
R414009570	0 ... 20 mA	Analog	0.435 psi	Fig. 1
R414009571	4 ... 20 mA	Analog	0.435 psi	Fig. 1
R414009573	0 ... 10 V	Analog	0.435 psi	Fig. 2
R414001635	0 ... 20 mA	Analog	0.435 psi	Fig. 1
R414001636	4 ... 20 mA	Analog	0.435 psi	Fig. 1
R414002867	0 ... 10 V	Analog	0.435 psi	Fig. 2

Minimum working pressure = 7.25 psi + max. required secondary pressure, Additional pressure setting ranges available on request

Technical information

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 27 °F under ambient and medium temperature and may not exceed 5.4 °F .
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 the MediaCentre).

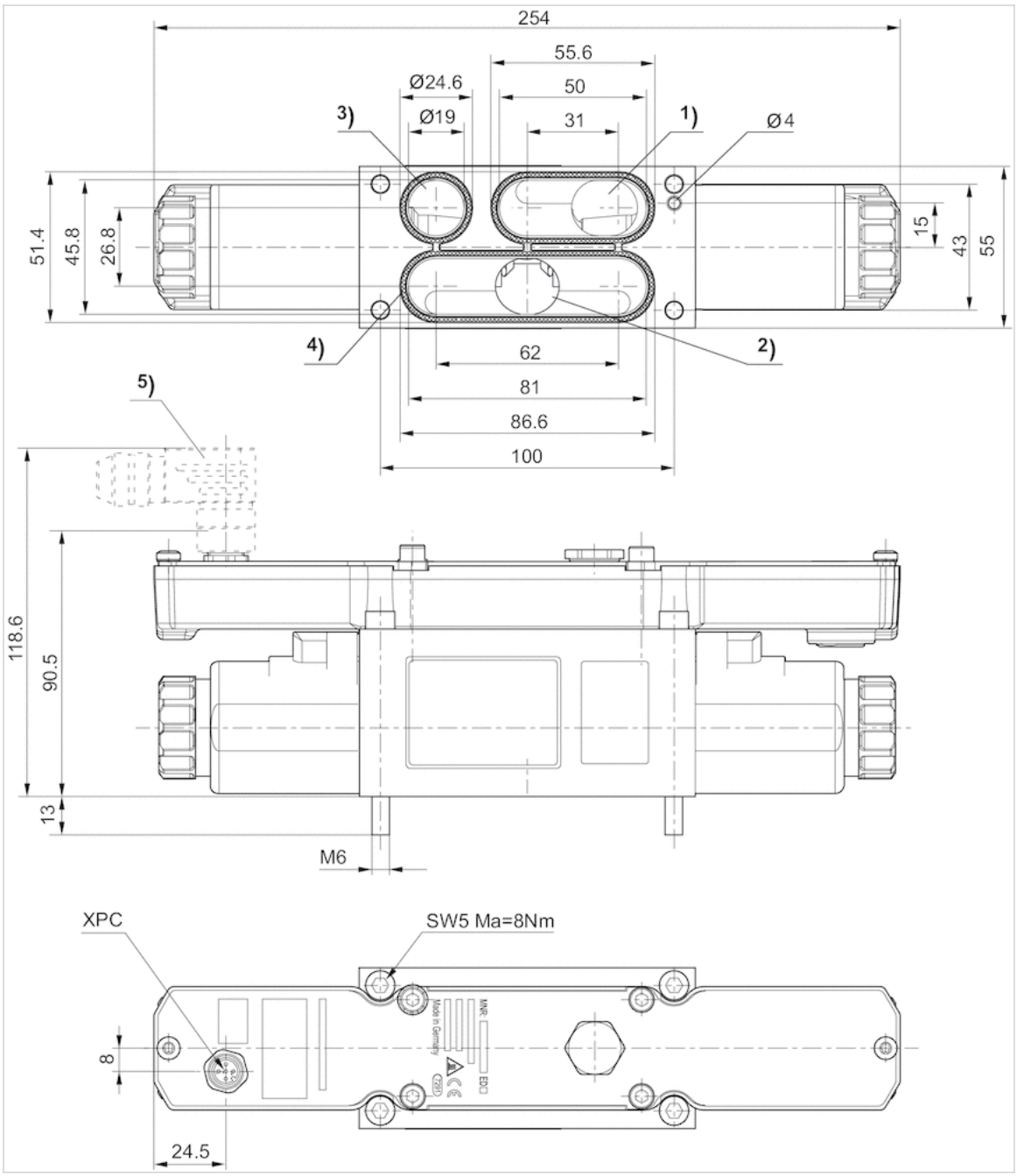
With oil-free, dry air, other installation positions are possible on request.
Nominal flow Qn with working pressure 101.5 psi , with secondary pressure 87 psi and Δp = 2.9 psi
The protection class is only ensured when the plug is mounted properly. For detailed information, see operating instructions.

Technical information

Material	
Housing	Aluminum, Steel
Seals	Hydrogenated acrylonitrile butadiene rubber

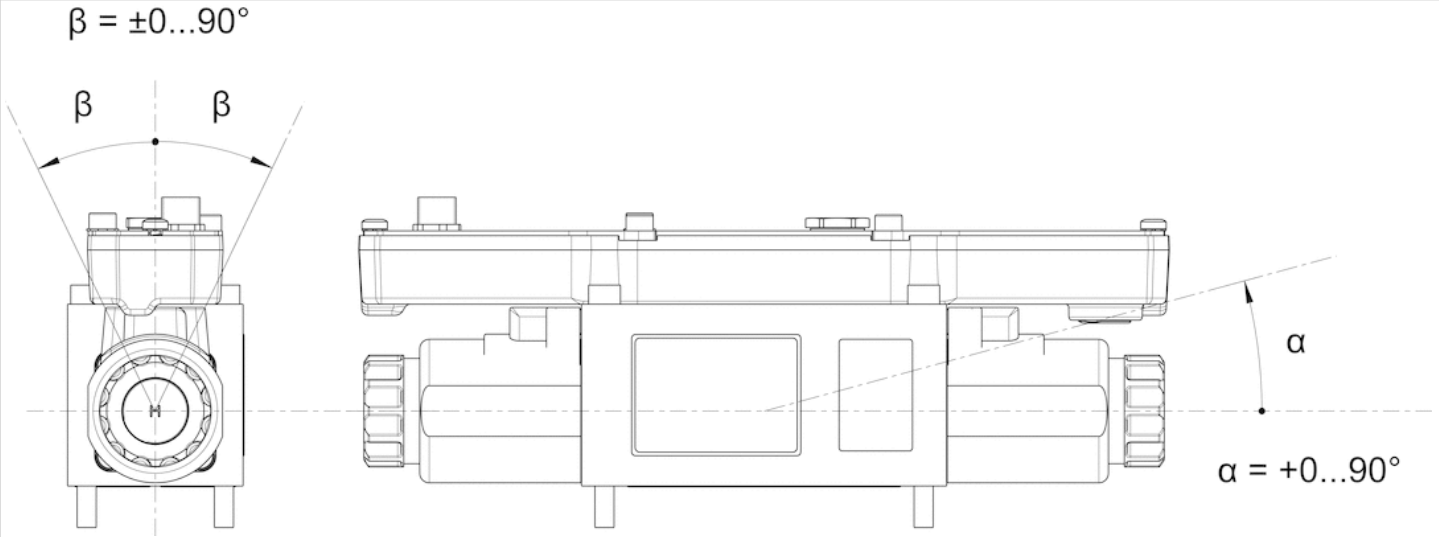
Dimensions

Dimensions



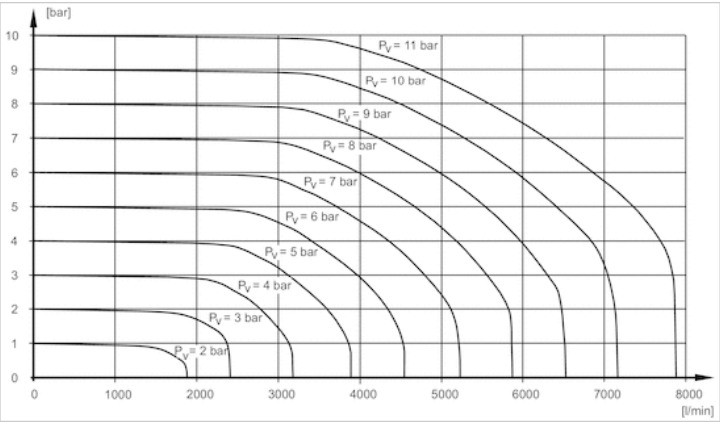
1) Operating pressure
2) Working pressure
3) Exhaust
4) Seal (not assembled)
5) Accessories not supplied

Mounting orientation



Diagrams

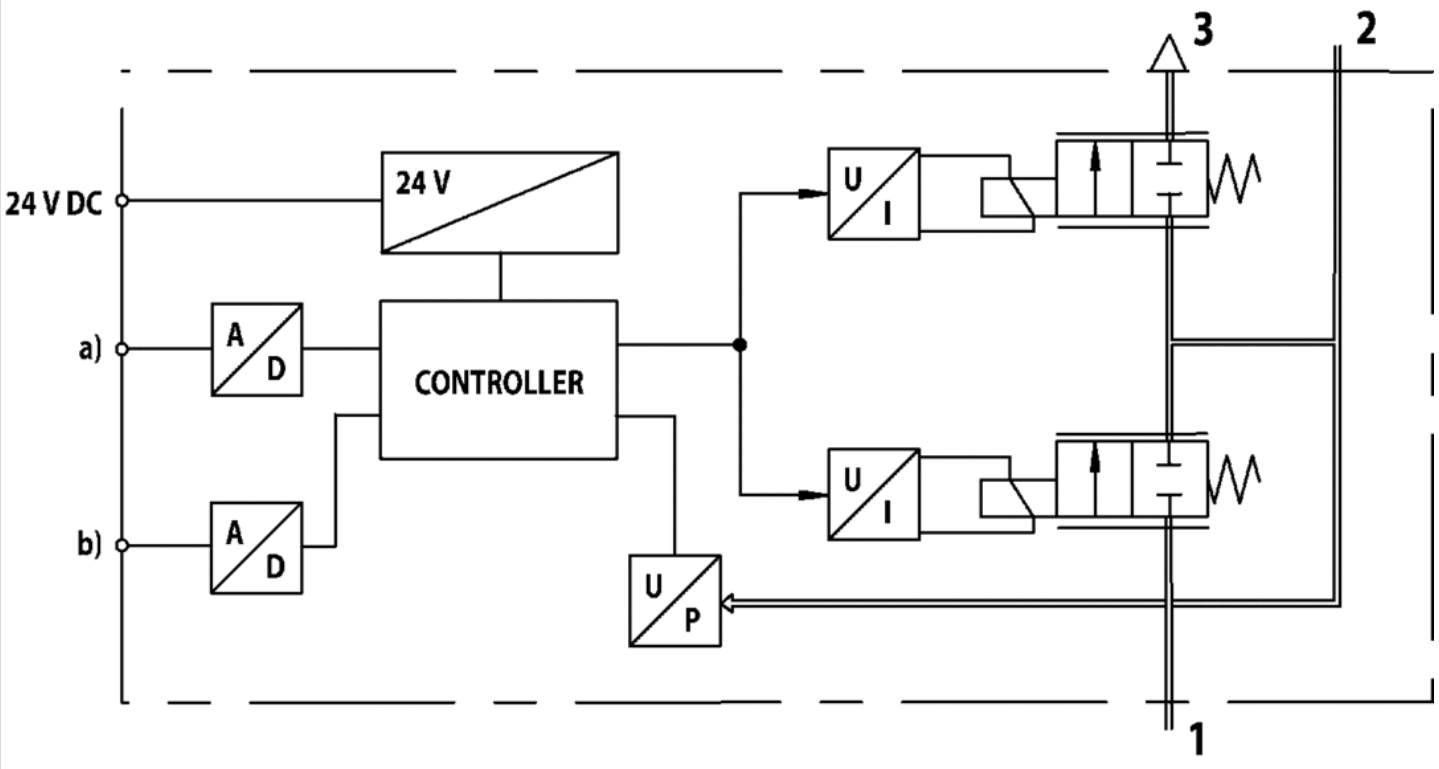
Flow diagram



Pv = Supply pressure

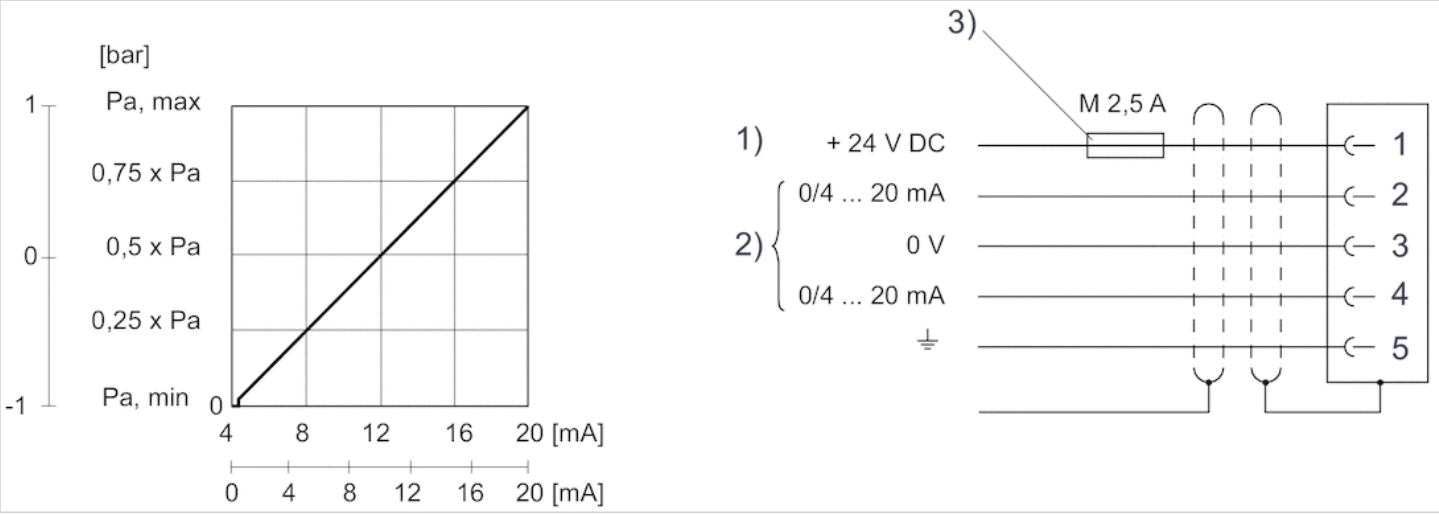
Circuit diagram

Functional diagram



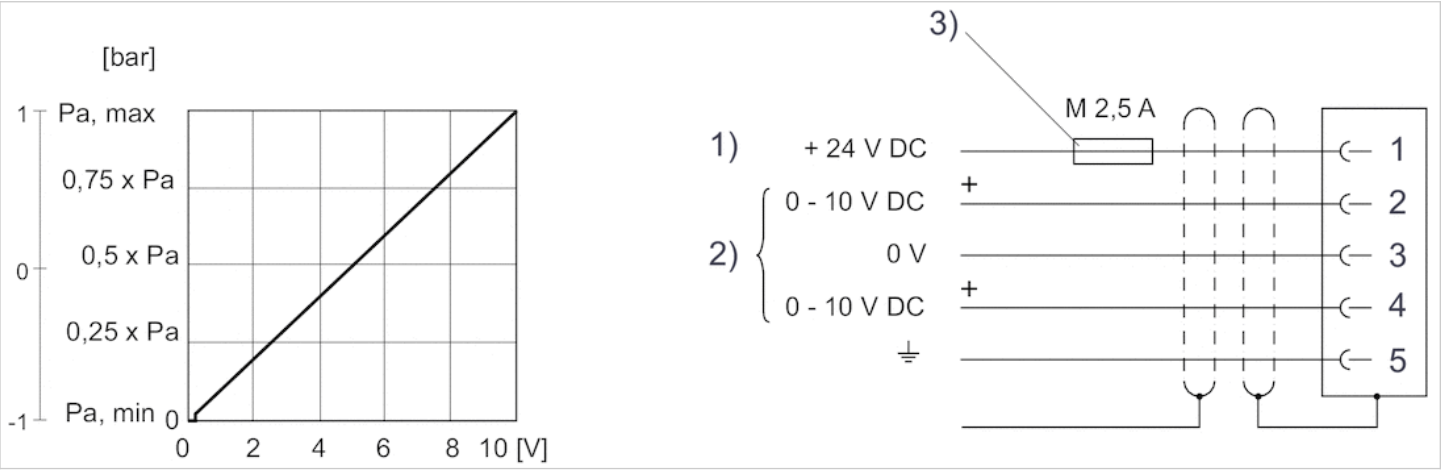
a) Nominal input value b) Actual output value
The E/P pressure control valve modulates the pressure corresponding to an analog electrical nominal input value.
1) Operating pressure
2) Working pressure
3) Exhaust

Fig. 1 Characteristic and pin assignment for current control with actual output value



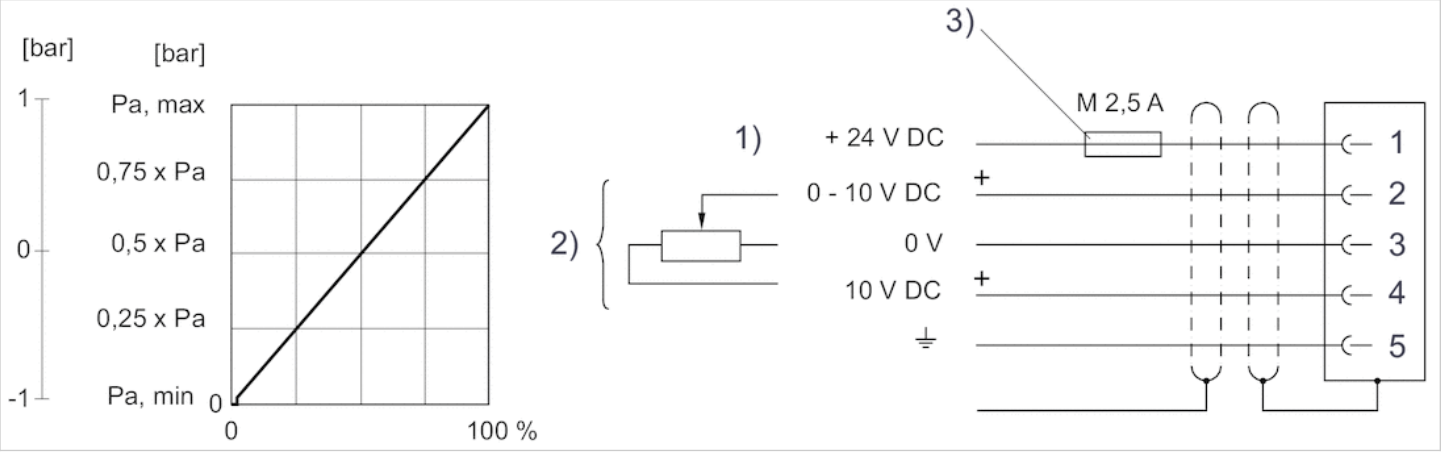
1) Supply Voltage
2) Actual value (pin 4) and nominal value (pin 2) are related to 0 V (control voltage).
Nominal input value current (ohmic load 100 Ω). Actual output value (max. total resistance of downstream devices 300 Ω).
3) The operating voltage must be protected by an external M 2.5 A fuse.
Connect the plug via a shielded cable to ensure EMC.

Fig. 2 Characteristic and pin assignment for voltage control with actual output value



1) Supply Voltage
2) Actual value (pin 4) and target value (pin 2) are related to 0 V.
If the supply voltage is switched off, the voltage input value is high-ohmic.
Input resistance under supply voltage: 1 MΩ
Voltage output (actual value): external working resistance 10 kΩ
3) The operating voltage must be protected by an external M 2.5 A fuse.
Connect the plug via a shielded cable to ensure EMC.

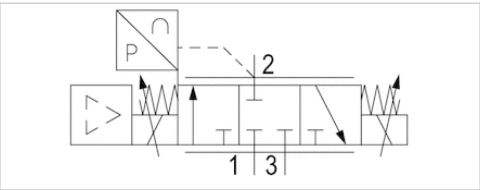
Fig. 3 Characteristic and pin assignment for potentiometer control without actual output value



1) Supply Voltage
2) Actual value (pin 2) is related to 0 V.
If the supply voltage is switched off, the voltage input value is high-ohmic.
Input resistance under supply voltage: 1 MΩ
3) The operating voltage must be protected by an external M 2.5 A fuse.
Connect the plug via a shielded cable to ensure EMC.

E/P pressure regulator, Series ED12

- Qn = 2.64 Cv
- Electr. connection Plug, M12, 5-pin
- Signal connection input and output, Socket, M12, 5-pin



Version	Poppet valve
Mounting orientation	α = 0 ... 90° ±β = 0 ... 90°
Certificates	CE declaration of conformity
Working pressure max	See table below
Ambient temperature min./max.	41 ... 122 °F
Medium temperature min./max.	41 ... 122 °F
Medium	Compressed air
Max. particle size	50 µm
Oil content of compressed air	0 ... 1 mg/m³
Nominal flow Qn	2.64 Cv
Control	Analog
DC operating voltage	24 V
Voltage tolerance DC	-20% / +30%
Permissible ripple	5%
Max. power consumption	1400 mA
Protection class	IP65
Weight	5.07 lbs

Technical data

Part No.	Working pressure max	Pressure setting range min./max.	Nominal input value Min./max.
R414009666	43 psi	0 ... 145 psi	0 ... 20 mA
R414009667	43 psi	0 ... 145 psi	4 ... 20 mA
R414009668	43 psi	0 ... 145 psi	0 ... 10 V
R414009669	43 psi	0 ... 145 psi	0 ... 10 V
R414009670	43 psi	0 ... 145 psi	0 ... 20 mA
R414009671	43 psi	0 ... 145 psi	4 ... 20 mA
R414009672	43 psi	0 ... 145 psi	0 ... 10 V
R414009673	43 psi	0 ... 145 psi	0 ... 10 V
R414009574	116 psi	0 ... 145 psi	0 ... 20 mA
R414009575	116 psi	0 ... 145 psi	4 ... 20 mA
R414009576	116 psi	0 ... 145 psi	0 ... 10 V
R414002870	116 psi	0 ... 145 psi	0 ... 10 V
R414000728	174 psi	0 ... 145 psi	0 ... 20 mA
R414000729	174 psi	0 ... 145 psi	4 ... 20 mA
R414000730	174 psi	0 ... 145 psi	0 ... 10 V
R414000731	174 psi	0 ... 145 psi	0 ... 10 V

Part No.	Actual output value Min./max.	Control	Hysteresis	Fig.	
R414009666	0 ... 20 mA	Analog	0.218 psi	Fig. 1	-
R414009667	4 ... 20 mA	Analog	0.218 psi	Fig. 1	-
R414009668	-	Analog	0.218 psi	Fig. 3	1)

Part No.	Actual output value Min./max.	Control	Hysteresis	Fig.	
R414009669	0 ... 10 V	Analog	0.218 psi	Fig. 2	-
R414009670	0 ... 20 mA	Analog	0.218 psi	Fig. 1	-
R414009671	4 ... 20 mA	Analog	0.218 psi	Fig. 1	-
R414009672	-	Analog	0.218 psi	Fig. 3	1)
R414009673	0 ... 10 V	Analog	0.218 psi	Fig. 2	-
R414009574	0 ... 20 mA	Analog	0.435 psi	Fig. 1	-
R414009575	4 ... 20 mA	Analog	0.435 psi	Fig. 1	-
R414009576	-	Analog	0.435 psi	Fig. 3	1)
R414002870	0 ... 10 V	Analog	0.435 psi	Fig. 2	-
R414000728	0 ... 20 mA	Analog	0.435 psi	Fig. 1	-
R414000729	4 ... 20 mA	Analog	0.435 psi	Fig. 1	-
R414000730	-	Analog	0.435 psi	Fig. 3	1)
R414000731	0 ... 10 V	Analog	0.435 psi	Fig. 2	-

Minimum working pressure = 7.25 psi + max. required secondary pressure, Additional pressure setting ranges available on request

1) Output 10V constant to supply a set point potentiometer.

Technical information

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 27 °F under ambient and medium temperature and may not exceed 5.4 °F .
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 the MediaCentre).

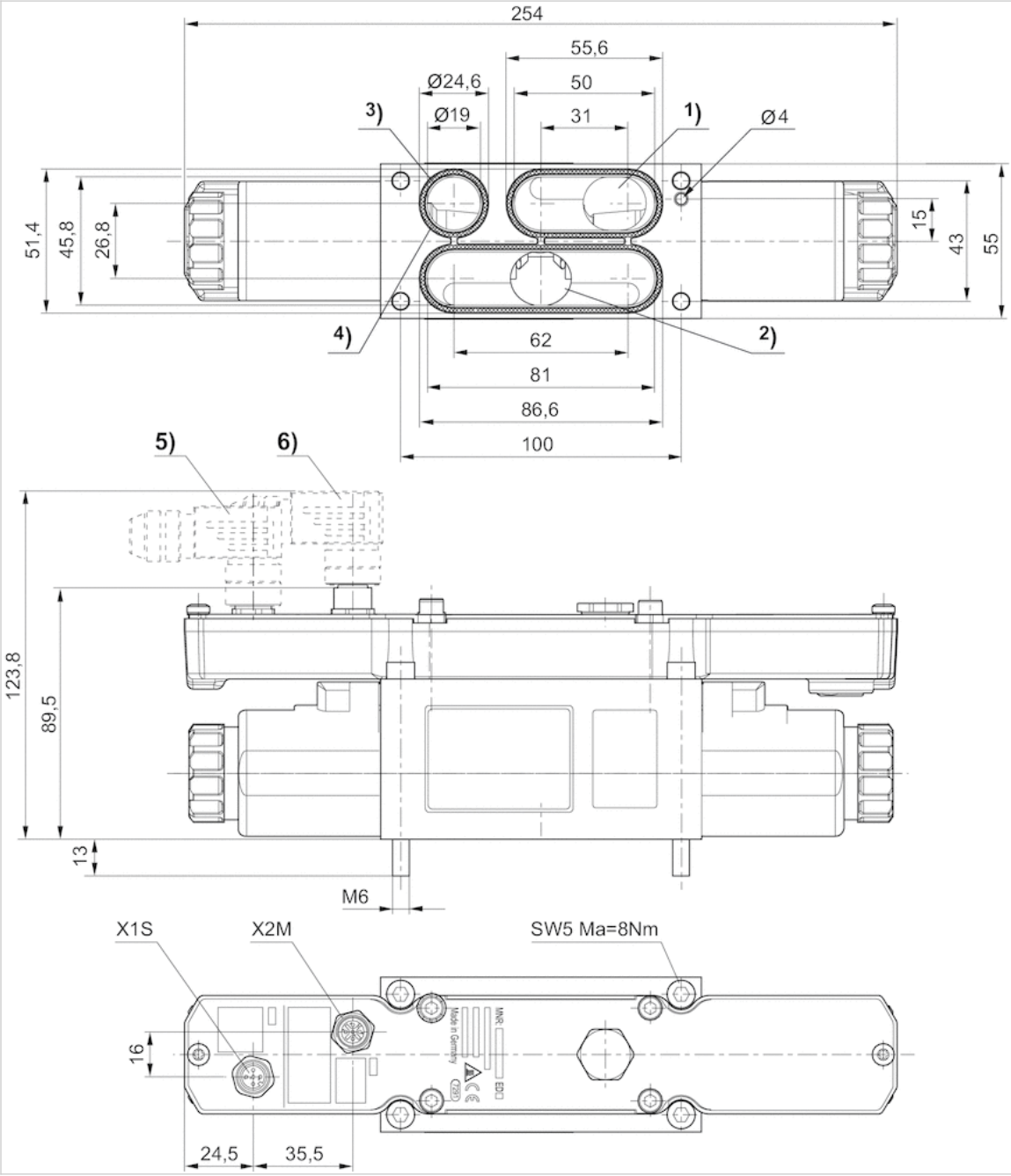
With oil-free, dry air, other installation positions are possible on request.
Nominal flow Qn with working pressure 101.5 psi , with secondary pressure 87 psi and Δp = 2.9 psi
The protection class is only ensured when the plug is mounted properly. For detailed information, see operating instructions.

Technical information

Material	
Housing	Aluminum, Steel
Seals	Hydrogenated acrylonitrile butadiene rubber

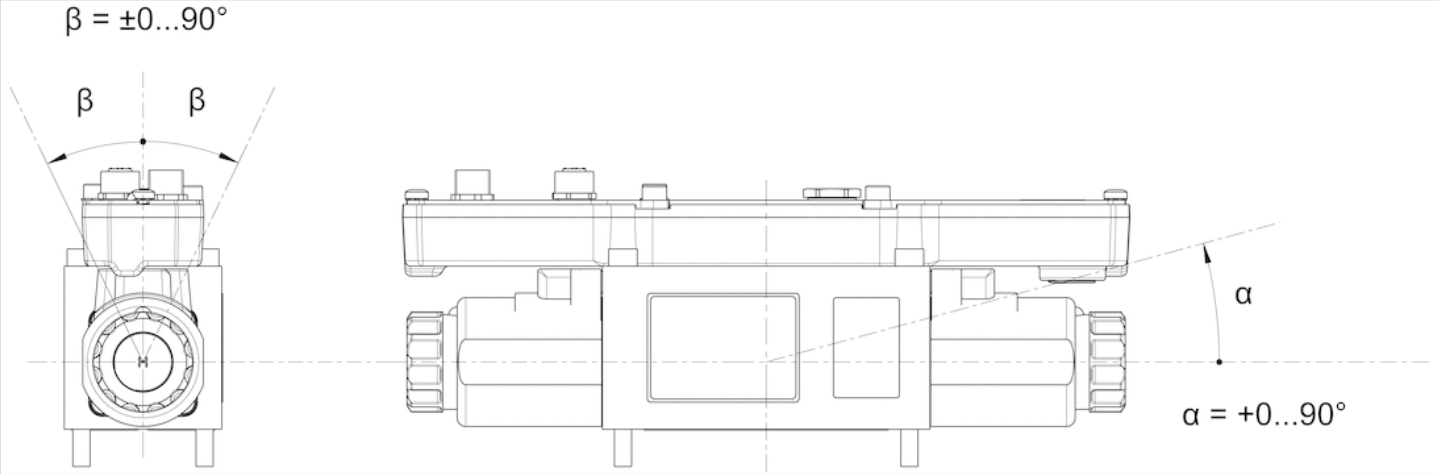
Dimensions

Dimensions



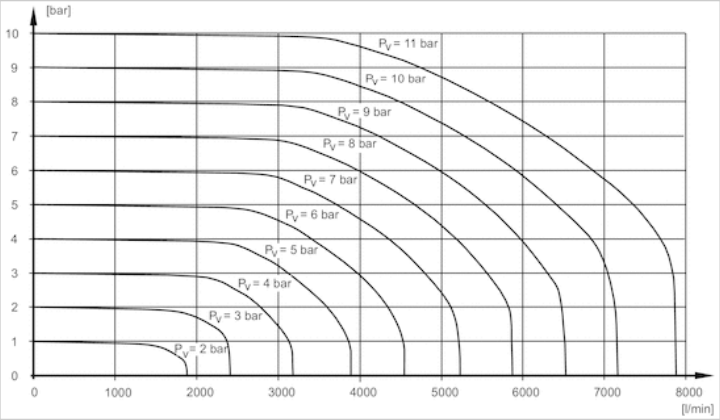
1) Operating pressure
2) Working pressure
3) Exhaust
4) Seal (not assembled)
5) + 6) Accessories not supplied

Mounting orientation



Diagrams

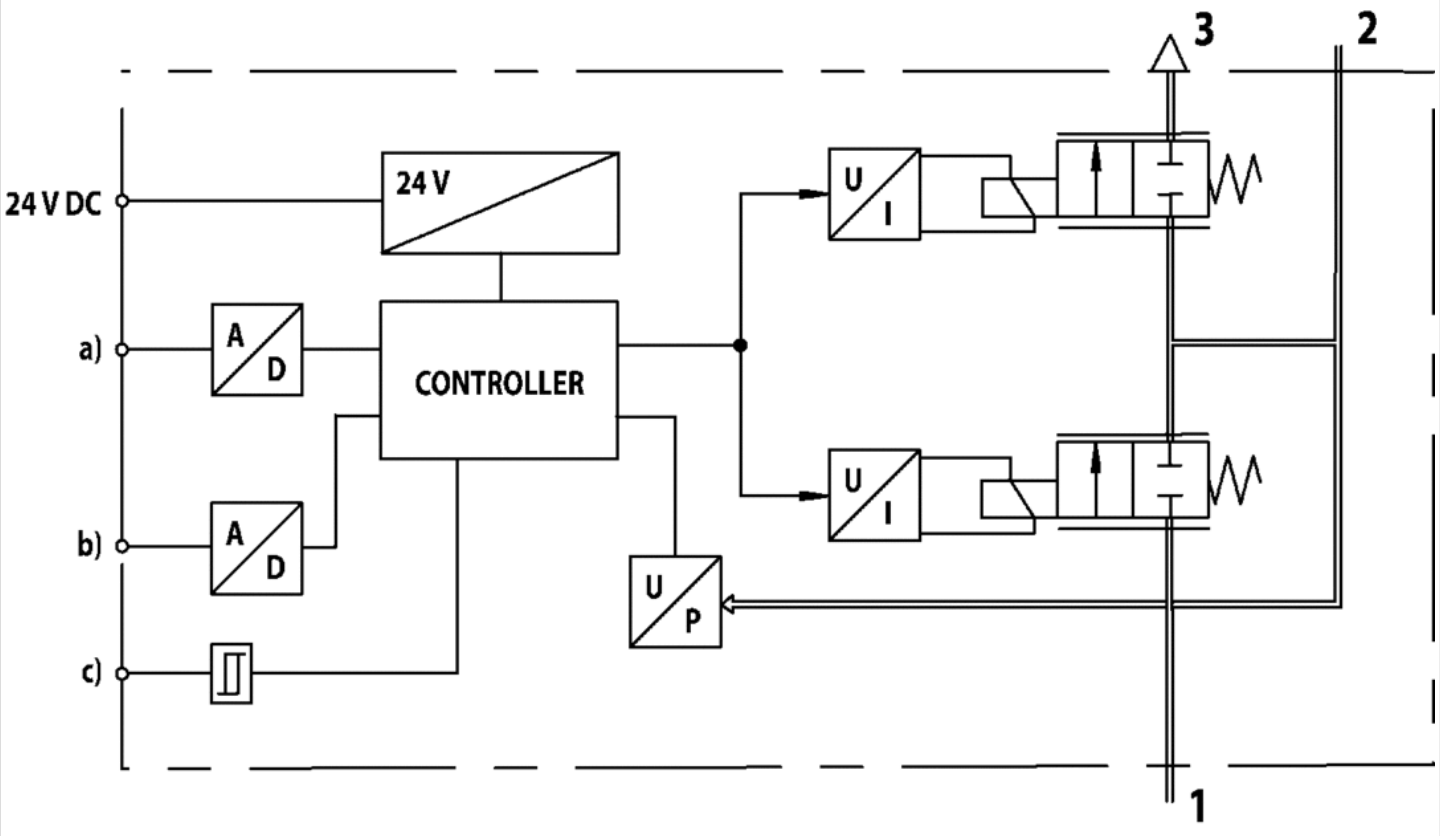
Flow diagram



Pv = Supply pressure

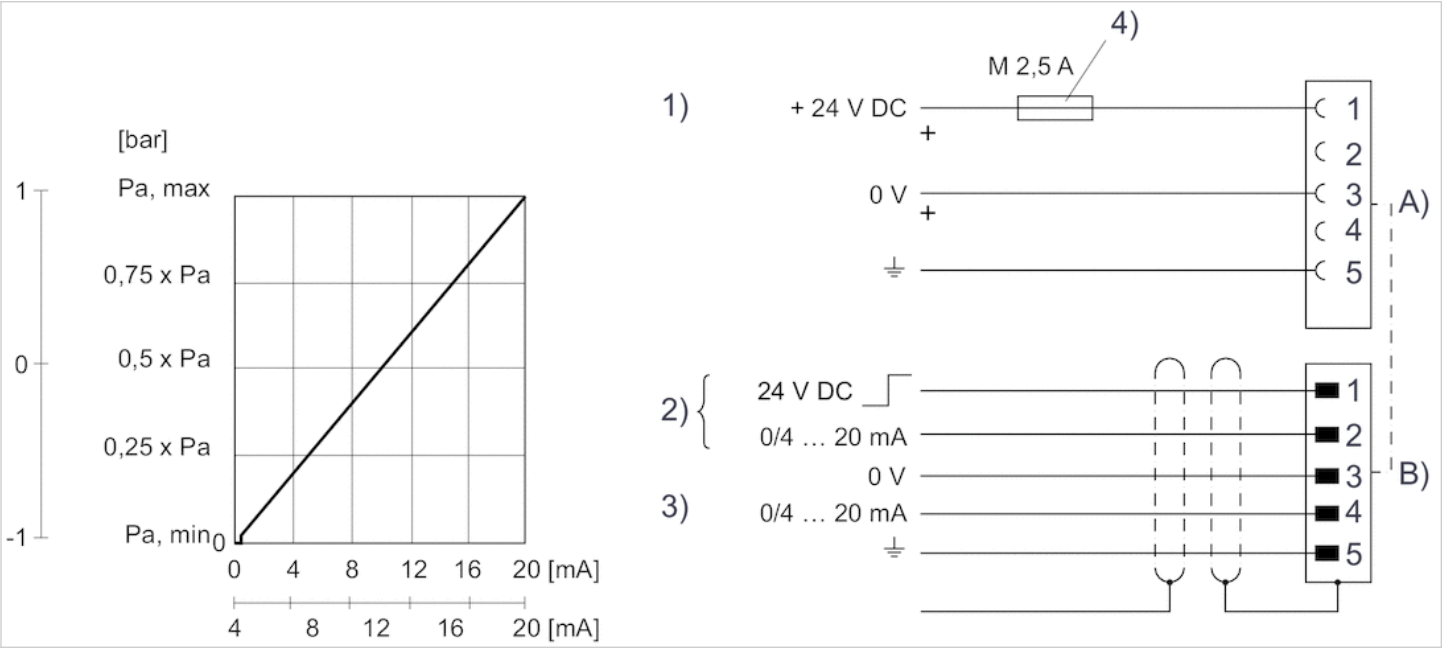
Circuit diagram

Functional diagram



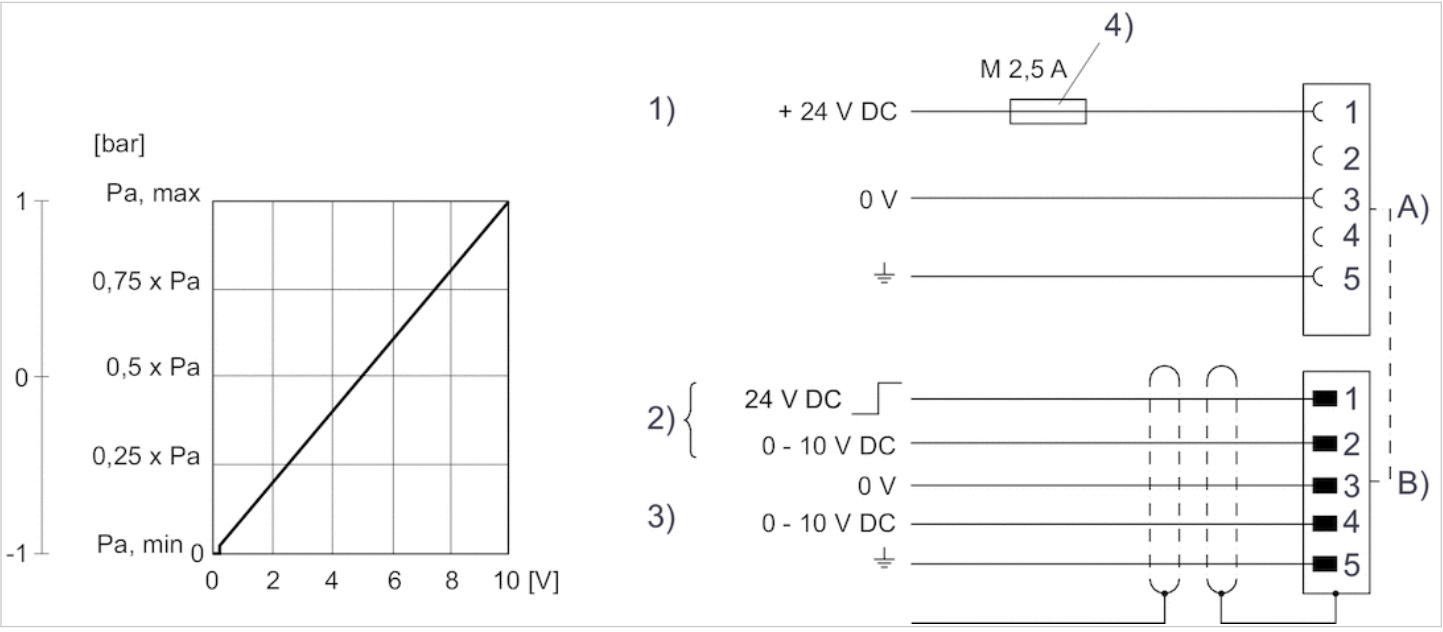
a) Nominal input value
b) Actual output value
c) Switch output (acknowledge signal)
The E/P pressure control valve modulates the pressure corresponding to an analog electrical nominal input value.
1) Operating pressure
2) Working pressure
3) Exhaust

Fig. 1 Characteristic and pin assignment for current control with actual output value



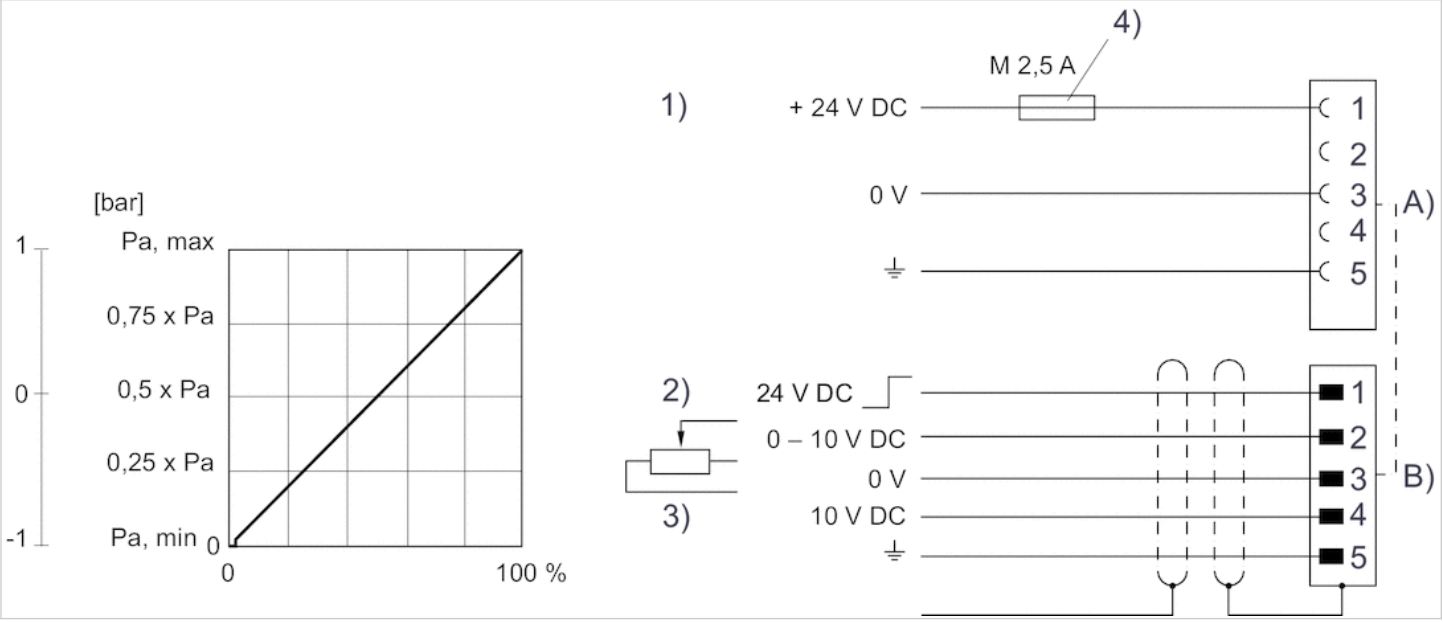
1) Supply Voltage
2) Switch output (pin 1) and nominal value (pin 2) are related to 0 V. Input current nominal value (ohmic load 100 Ω).
3) Actual value (pin 4) is related to 0 V (max. total resistance of downstream devices 300 Ω).
4) The operating voltage must be protected by an external M 2.5 A fuse.
Connect plug X2M via a shielded cable to ensure EMC.
A) Plug X1S B) Plug X2M

Fig. 2 Characteristic and pin assignment for voltage control with actual output value



1) Supply Voltage
2) Switch output (pin 1) and nominal value (pin 2) are related to 0 V.
3) Actual value (pin 4) is related to 0 V (min. load resistance 1 kΩ).
4) The operating voltage must be protected by an external M 2.5 A fuse.
Connect plug X2M via a shielded cable to ensure EMC.
A) Plug X1S B) Plug X2M

Fig. 3 Characteristic and pin assignment for potentiometer control without actual output value



1) Supply Voltage
2) Switch output (pin 1) and nominal value (pin 2) are related to 0 V.
3) Potentiometer control (min. 0-2 kΩ, max. 0-10 kΩ)
4) The operating voltage must be protected by an external M 2.5 A fuse.
Connect plug X2M via a shielded cable to ensure EMC.
A) Plug X1S B) Plug X2M

Single subbase, Series ED12

Medium	Compressed air
Weight	2.49 lbs

Technical data

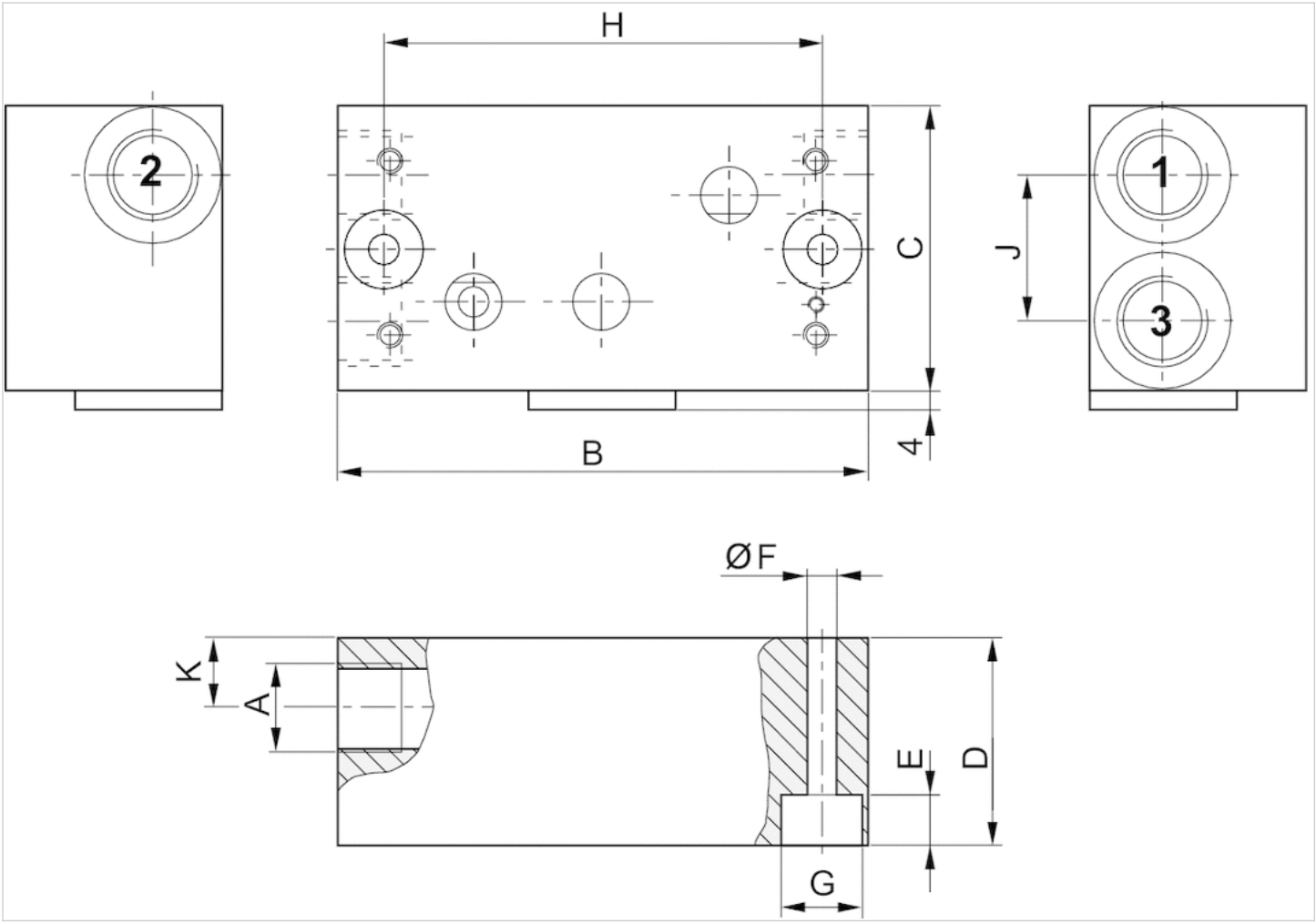
Part No.	Type
5610221012	ISO 5599-1, size 3

Technical information

Material	
Base plate	Aluminum

Dimensions

Dimensions



Dimensions

Part No.	A	B	C	D	E	F	G	H	J	K
5610221012	G 3/4	120	80	54	14	8.5	18	100	43	18

Stacking assembly subplate, ISO size 3

Medium	Compressed air
Weight	3.59 lbs

Technical data

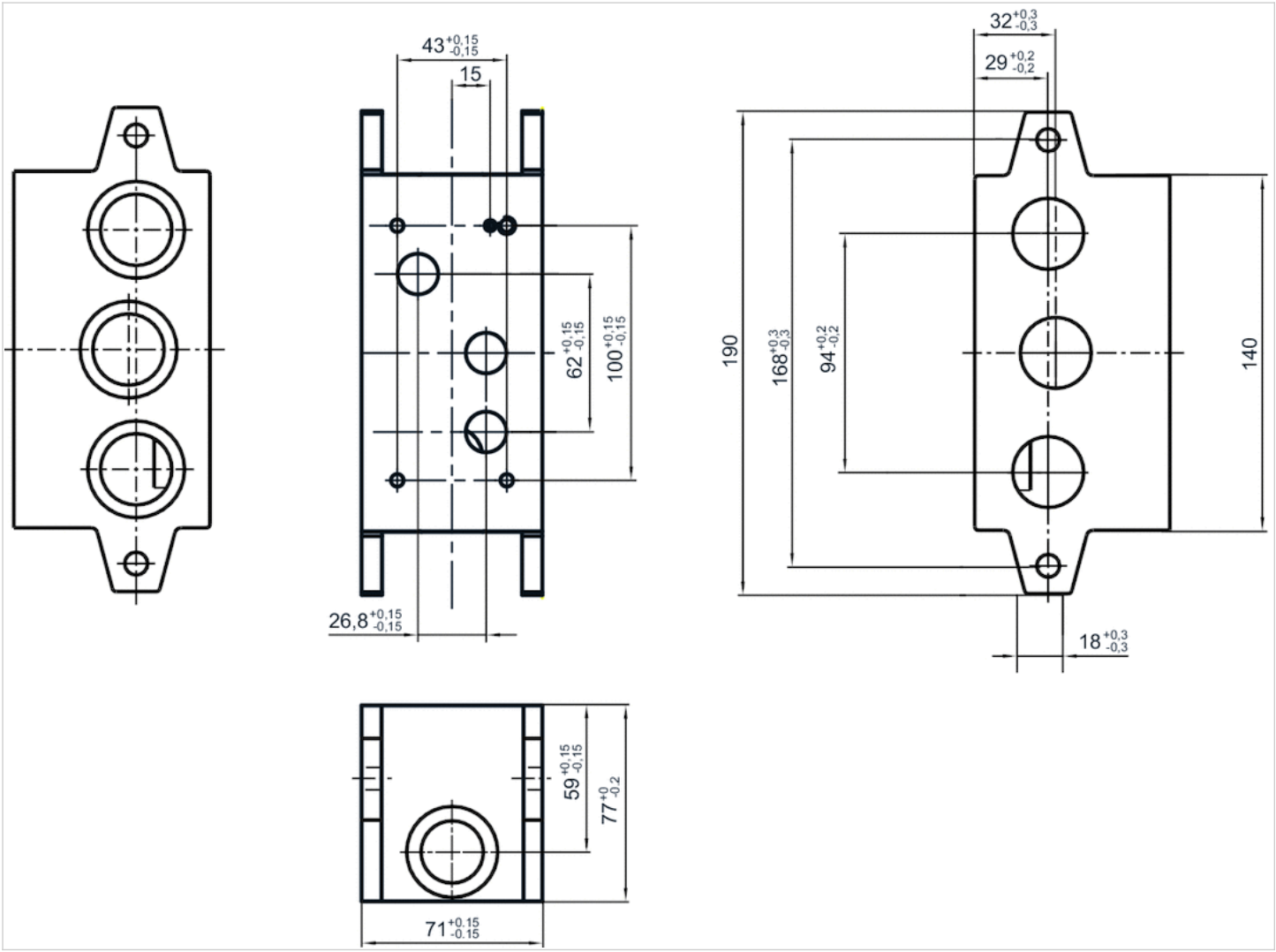
Part No.	Type
8985049912	ISO 5599-1, size 3

Technical information

Material	
Base plate	Aluminum

Dimensions

Dimensions



Round plug connector, Series CON-RD

- Socket, M12x1, 5-pin, A-coded, angled, 90°
- for CANopen
- UL (Underwriters Laboratories)
- shielded

Connection type	Screws
Ambient temperature min./max.	-40 ... 185 °F
Operational voltage	48 V, AC/DC
Protection class	IP67
Weight	0.159 lbs

Technical data

Part No.	Max. current	suitable cable-Ø min./max
1824484029	4 A	0.24 / 0.31 inch

Technical information

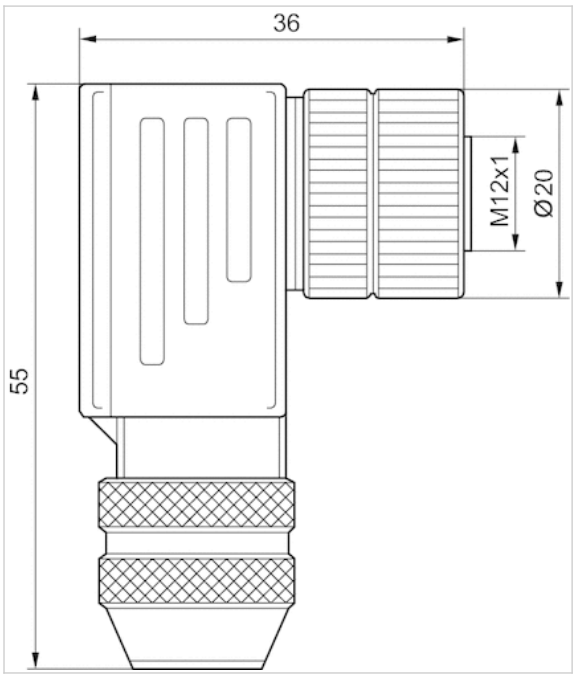
The specified protection class is only valid in assembled and tested state.

Technical information

Material	
Housing	Die cast zinc

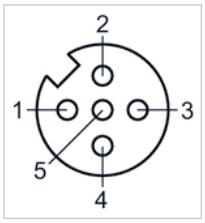
Dimensions

Dimensions



Pin assignments

Pin assignment socket



Round plug connector, Series CON-RD

- Plug, M12x1, 5-pin, A-coded, angled, 90°
- for CANopen
- UL (Underwriters Laboratories)
- shielded

Connection type	Screws
Ambient temperature min./max.	-40 ... 185 °F
Operational voltage	48 V, AC/DC
Protection class	IP67
Weight	0.15 lbs

Technical data

Part No.	Max. current	suitable cable-Ø min./max
1824484028	4 A	0.24 / 0.31 inch

Technical information

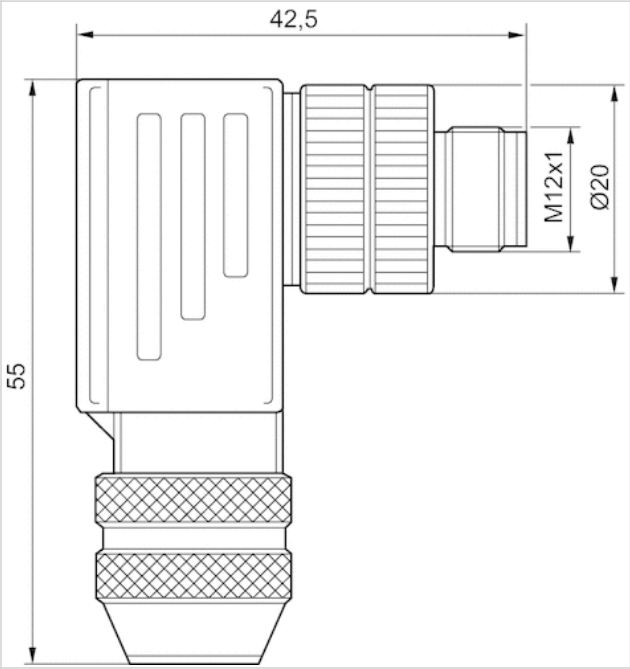
The specified protection class is only valid in assembled and tested state.

Technical information

Material	
Housing	Brass, nickel-plated

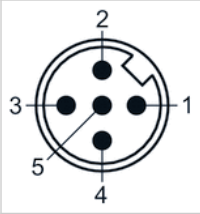
Dimensions

Dimensions



Pin assignments

Plug pin assignment



Round plug connector, Series CON-RD

- Socket, M12x1, 5-pin, A-coded, angled, 90°
- open cable ends
- with cable
- shielded

Ambient temperature min./max.	-13 ... 176 °F
Operational voltage	48 V, AC/DC
Protection class	IP67
Wire cross-section	0 in²
Weight	See table below

Technical data

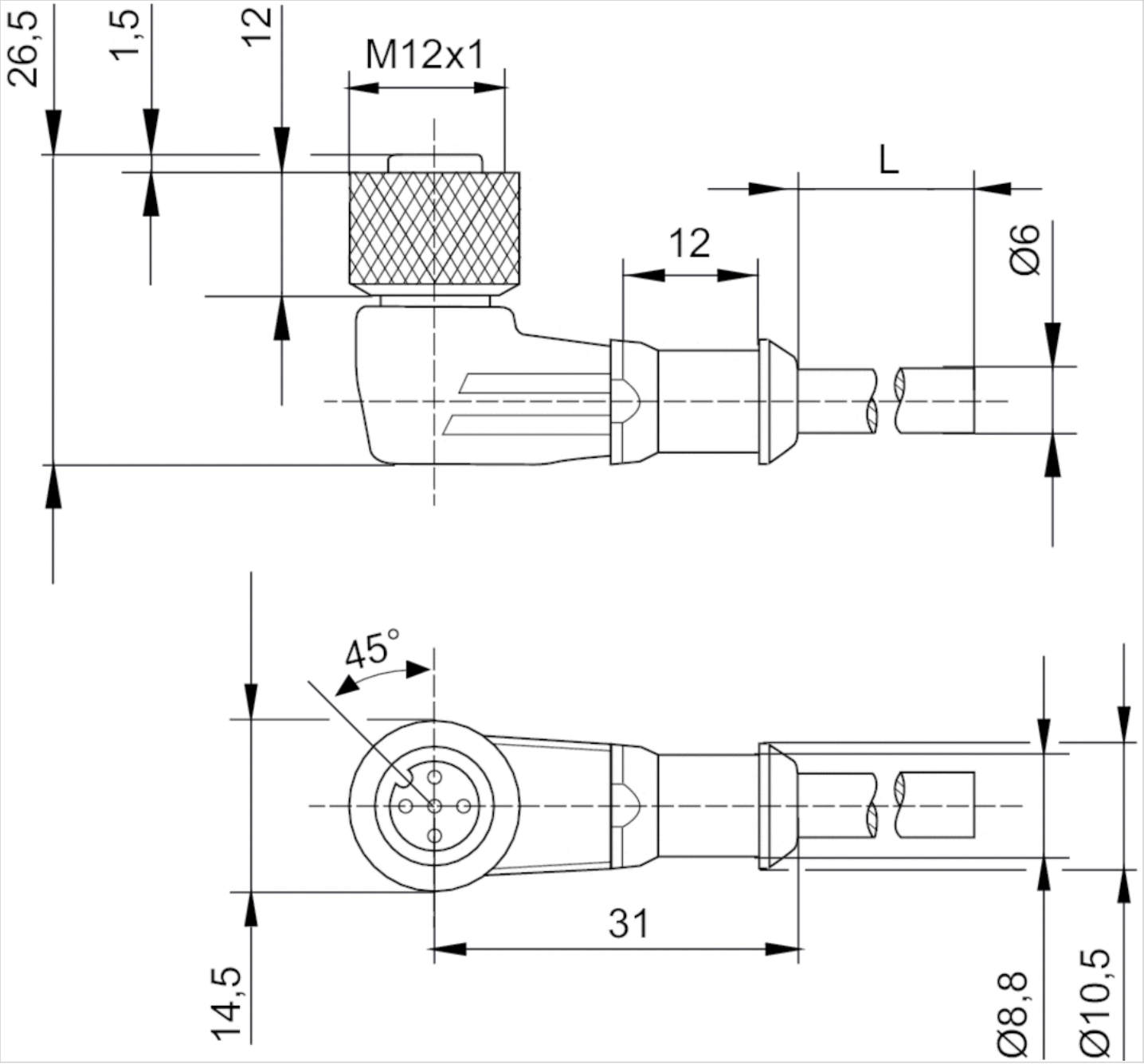
Part No.	Max. current	Number of wires	Cable-Ø	Cable length	Weight
R419800109	4 A	5	0.24 inch	8.2 ft.	0.337 lbs
R419800110	4 A	5	0.24 inch	16.4 ft.	0.628 lbs
R419800546	4 A	5	0.24 inch	32.81 ft.	1.19 lbs

Technical information

Material	
Housing	Thermoplastic elastomer
Cable sheath	Polyurethane

Dimensions

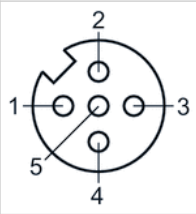
Dimensions



L = length

Pin assignments

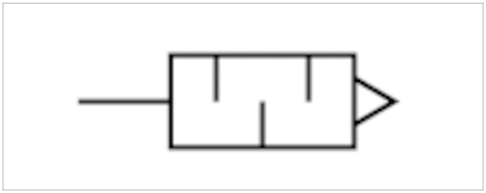
Pin assignment socket



(1) BN=brown
(2) WH=white
3) BU=blue
(4) BK=black
(5) GRN-Y=green-yellow

Silencers, series SI1

- Sintered bronze



Working pressure min./max.	0 ... 145 psi
Ambient temperature min./max.	-13 ... 176 °F
Medium	Compressed air
Sound pressure level	92 dB
Weight	0.286 lbs
Comment	Flow characteristic curves can be found under “Diagrams”.

Technical data

Part No.	Compressed air connection	Flow	Delivery unit
		Qn	
1827000004	G 3/4	8.8 Cv	1 piece

Weight per piece

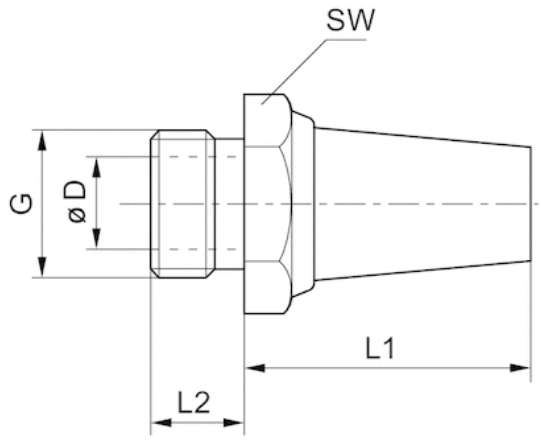
Nominal flow Qn at p1 = 87 psi (absolute) freely discharged. Sound pressure level measured at 87 psi against atmosphere at 3.281 ft. distance.

Technical information

Material	
Silencers	Sintered bronze
Thread	Brass

Dimensions

Dimensions

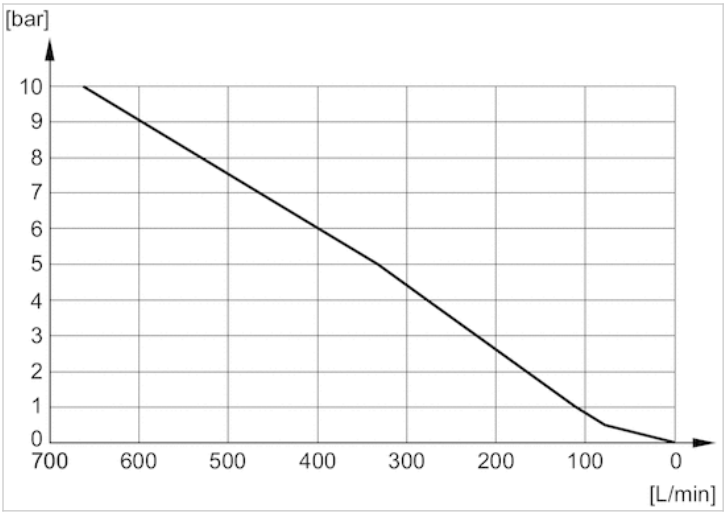


Dimensions

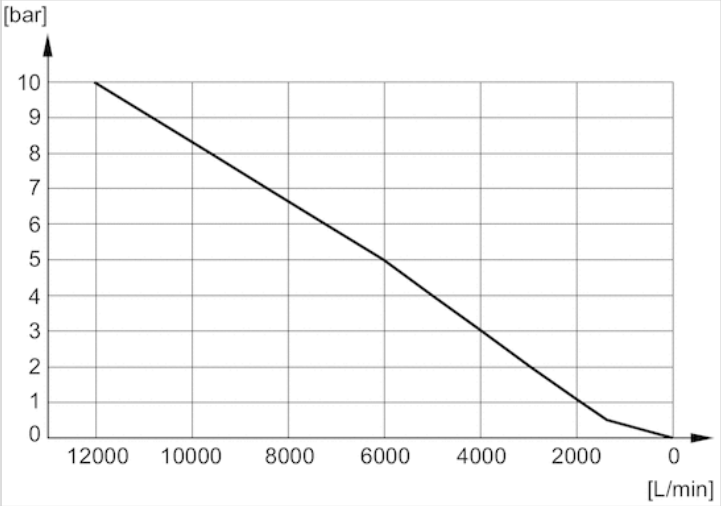
Part No.	Port G	SW	Ø D	L1	L2
1827000004	G 3/4	32	19	66	14

Diagrams

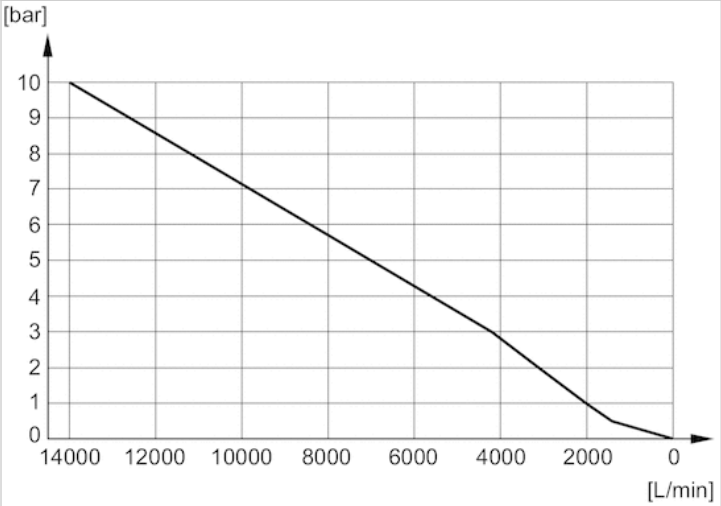
Flow diagram 1827000006



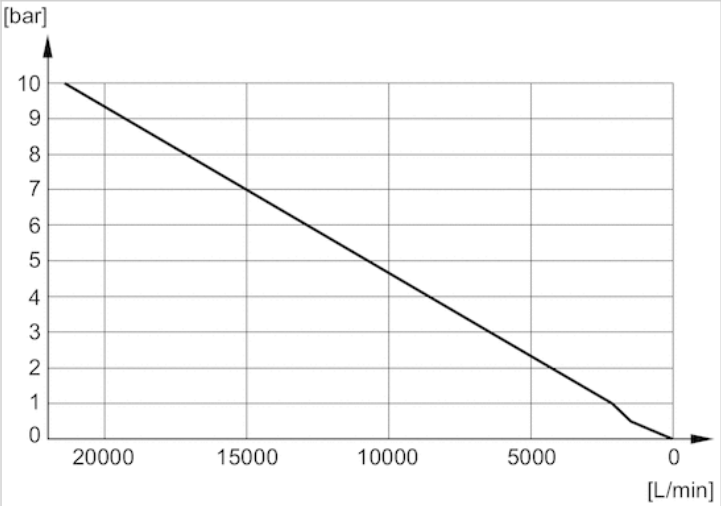
Flow diagram 1827000003



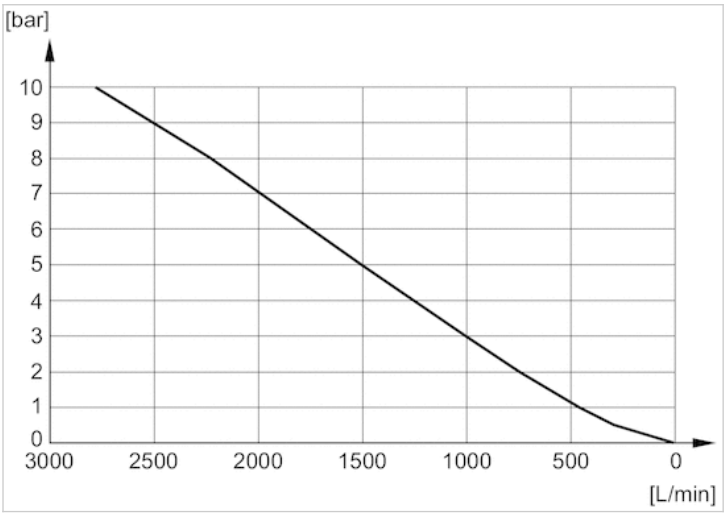
Flow diagram 1827000004



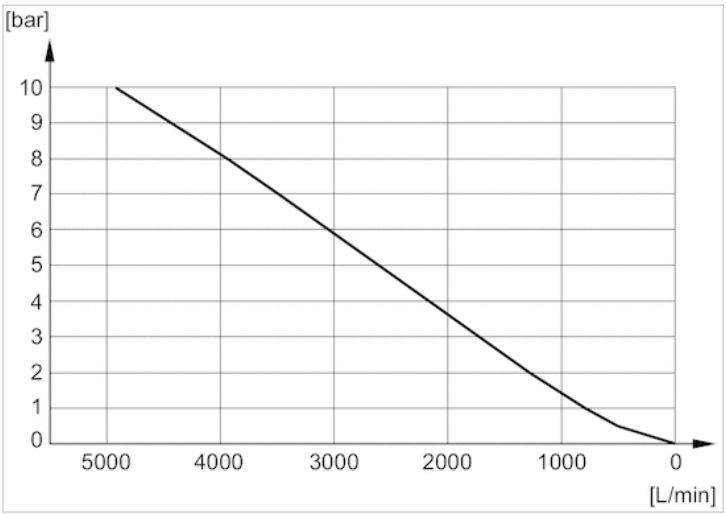
Flow diagram 1827000005



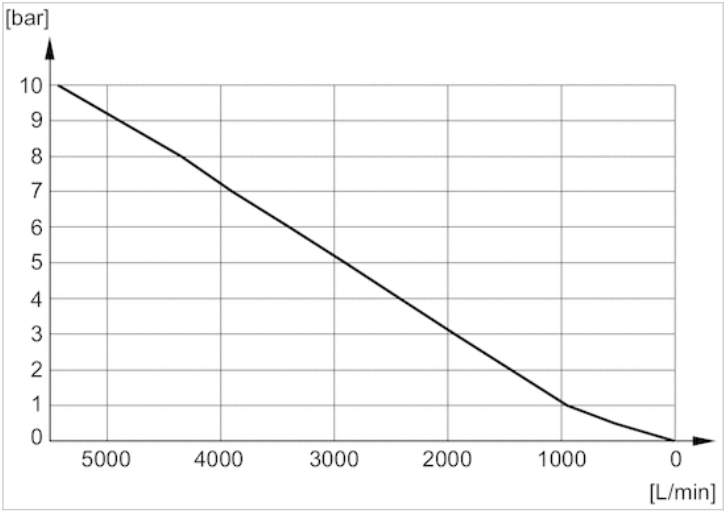
Flow diagram 5324001110



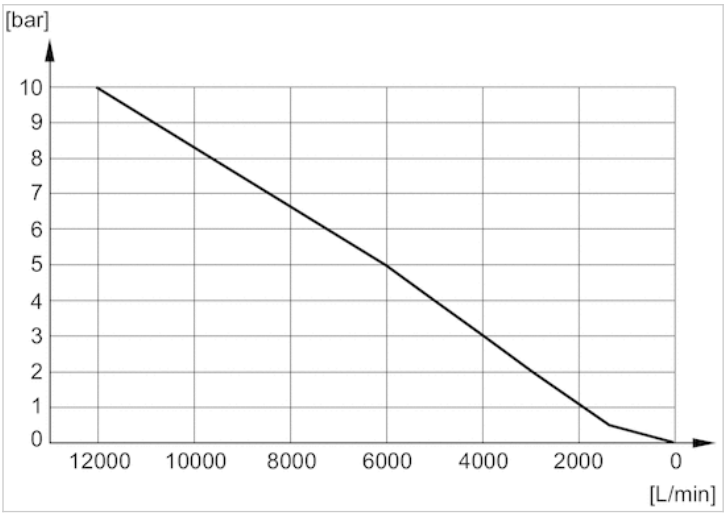
Flow diagram 5324001170



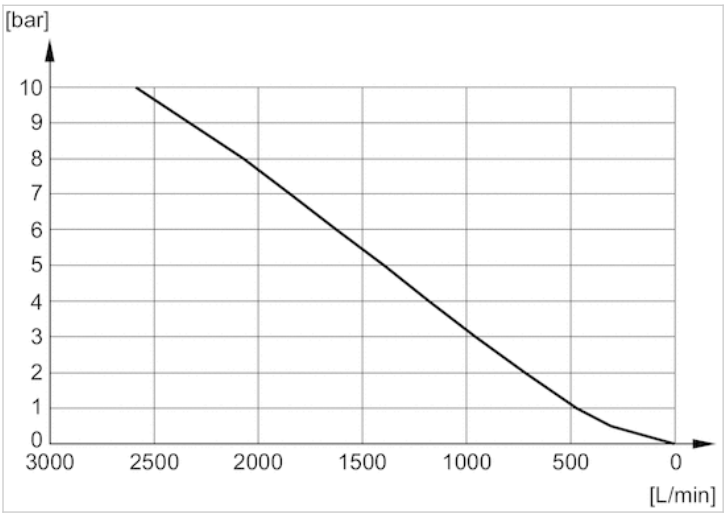
Flow diagram 5324001120



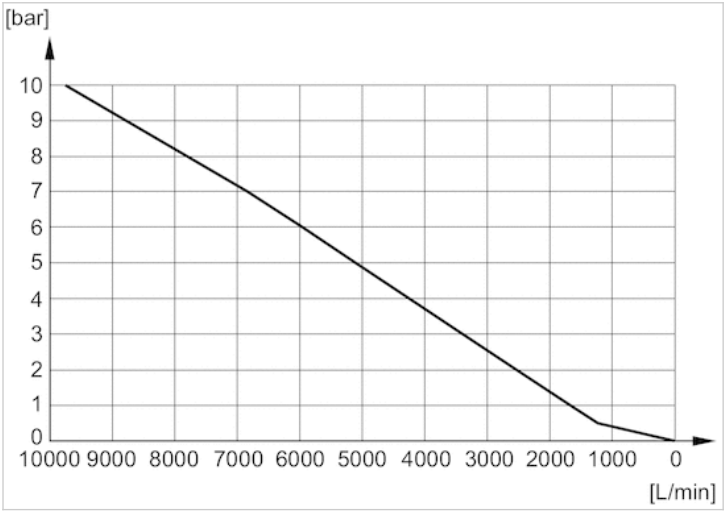
Flow diagram 5324001140



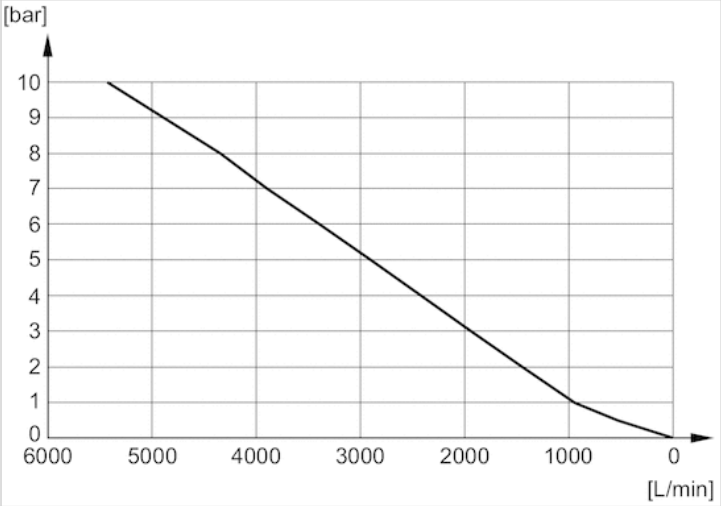
Flow diagram 1827000000



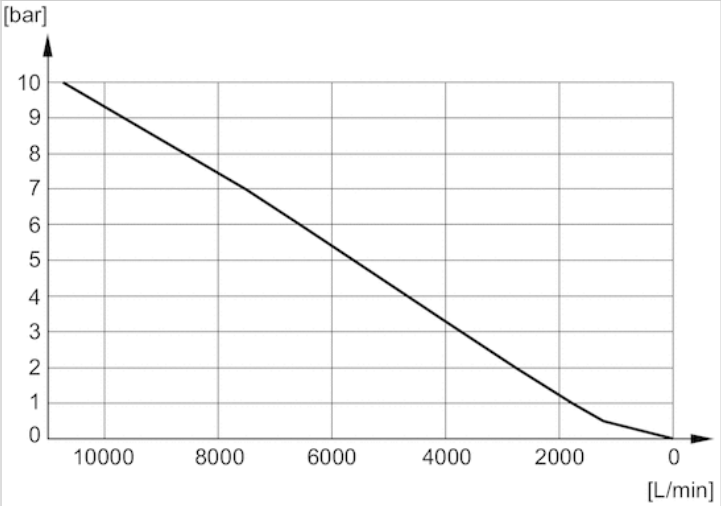
Flow diagram R412004817



Flow diagram 1827000001



Flow diagram 1827000002



Base plate gasket, Series ED12

Weight	0.154 lbs

Technical data

Part No.	Type
5610220092	4 mounting screws according to DIN 912 - M6x70 and base plate gasket

Dimensions