2/2 Directional control valves, s/steel
Actuation: electromagnetic
Directly controlled poppet valves
Port size: G 1/8, G 1/4, 1/4 NPT

Working from 0 bar up

Suited for fine vacuum down $1.33 \cdot 10^{-3}$ mbar·l/s

Assembled free of oil and grease

The solenoids are applicable in the protection class EEx m, EEx me, EEx md for zones 1, 2 (gases), 21, 22 (dust) ATEX cat.II 2 GD, EEx nA for zones 2 (gases), 22 (dust) ATEX cat.II 3 GD
Additional protection class (FM, CSA) XP

Technical data

Medium:
For aggressive gaseous and liquid fluids
With contaminated fluids, upstream installation of a dirt trap is recommended.

Operation:
Solenoid direct operated poppet valves

Mounting position:
Optional, preferably with solenoid on top

Flow direction:
Fixed

Nominal size:
2 to 6 mm

Connection:
G 1/8, G 1/4, 1/4 NPT

Operating pressure:
0 to 50 bar

Ambient temperature:
Depending on solenoid system
-10, -25, -40 to +55, +70, +100°C

Fluid temperature:
-10 to +120°C FKM (Viton)

Materials:
Housing: Stainless steel 1.4404/316
Seat seal: FKM (Viton)
Inner parts: Stainless steel

Ordering information

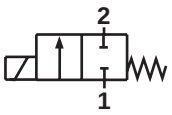
See page 2

Further versions

Valves with ultra-low leakage
Fluid temperature:
-40 to +140°C EPDM
-50 to +180°C PTFE (Teflon)
-10 to +180°C FFKM (Kalrez)

Connectors

See data sheet N(UK) **7.7.**002



Options selector

951X✶X✶.✶✶✶✶.✶✶✶.✶✶

Nominal size	Substitute
2; 3; 4; 6	2, 4, 6

Material Seat seal	Substitute
EPDM	1
FKM (Viton)	2
PTFE (Teflon), O-ring static FKM (Viton)	3
FFKM (Kalrez)	4

Solenoid	Substitute
See solenoid parameters	

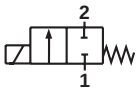
Frequency (Hz)	Substitute
DC	00
AC (40 to 60 Hz)	50

Voltage (V)	Substitute
24	024
230	230

Ordering information

2/2 Directional Control Valve, St. st.,
Connection G1/8,
Solenoid actuator group A,
voltage 24 V DC, Protection class IP 00
Type: 9510202.0700.024.00
Connector: 0570275

General information

Symbol	Type *1) Valve	Solenoid group *2)	Port size	Nominal size	Operating pressure (bar) Min.	Max.	k_v-value (C_v (US) ▼ k_v x 1,2)	Weight (kg)	Dimensions No.
	9510202	13D	G1/8	2	0	50	0,1	0,15	1
	9510202	13B	G1/8	2	0	20	0,1	0,15	1
	9511402	16D	G1/4	4	0	12	0,34	0,21	2
	9514402	16D	1/4 NPT	4	0	12	0,34	0,21	2
	9511402	16C	G1/4	4	0	5	0,34	0,21	2
	9514402	16C	1/4 NPT	4	0	5	0,34	0,21	2
	9511602	16D	G1/4	6	0	5	0,52	0,21	2
	9514602	16D	1/4 NPT	6	0	5	0,52	0,21	2
	9511602	16C	G1/4	6	0	3	0,52	0,21	2
	9514602	16C	1/4 NPT	6	0	3	0,52	0,21	2

*1) When ordering please indicate solenoid, voltage and current type (frequency).
*2) Technical data and ordering information see following pages.

Accessories

Cable gland
protection class EEx e, EEx d (ATEX),
Ms nickel plated brass

Connectors

EEx e 0588819 (for solenoid 42xx / 46xx M20 x 1,5)	0570275
EEx d 0588851 (for solenoid 46xx M20 x 1,5)	0663303 (with rectifier)
EEx d, EEx e 0588925 (for solenoid 46xx 1/2-14 NPT)	

Solenoid actuators group 13B

Foto	Type	Power Consumption 24 V DC (W)	230 V AC (VA)	Rated current 24 V DC (mA)	230 V AC (mA)	Ex-Protection Categorie	Protection class	Temperature Ambient/ Fluid °C	Elektroport size	Weight (kg)	Dimensions No.	Circuit diagram No.
	0246 *7)	8,0	-	331	-	-	IP 65 (with connector)*5)	-25 ... +60 Fluid: max. 80	Connector DIN EN 175301-803 Form A *6)	0,150	5	1
	3206 *7)	-	9,2	-	40	-	IP 65 (with connector)*5)	-25 ... +60 Fluid: max. 80	Connector DIN EN 175301-803 Form A *6)	0,160	6	7
	3216 *7)	8,0	-	331	-	II3G II3D	EEx nA II T4 IP 65 T 110°C	-20 ... +60	Connector DIN EN 175301-803 Form A with special screw	0,160	5	1
	3218 *7)	-	9,2	-	40	II3G II3D	EEx nA II T4 IP 65 T 110°C	-20 ... +60	Connector DIN EN 175301-803 Form A with special screw	0,160	6	6
	0292	6,9	-	289	-	II2G II2D	EEx m II T4 IP 66 T 110°C *1)	-20 ... +60	Cable 3 m long	0,400	9	4
	0293	-	8,7	-	34	II2G II2D	EEx m II T4 IP 66 T 110°C *1)	-20 ... +60	Cable 3 m long	0,400	9	7
	4210 *8)	3,9	-	162	-	II2G II2D	EEx me II T4 IP 66 T 110°C *2)	T6: -40 ...+55 T4: -40 ... +80	M20 x 1,5 *6)	0,500	10	4
	4211 *8)	-	5,3	-	23	II2G II2D	EEx me II T6/T4 IP 66 T 130°C *2)	T6: -40 ...+55 T4: -40 ... +80	M20 x 1,5 *6)	0,500	10	7
	4610 *8)	3,9	-	162	-	II2G II2D	EEx md IIC T6/T4 EEx me II T6/T4 IP 66 T 130°C *3)	T6: -40 ...+55 T4: -40 ... +80	1/2-14 NPT *6)	0,800	11	4
	4611 *8)	-	5,3	-	23	II2G II2D	EEx md IIC T6/T4 EEx me II T6/T4 IP 66 T 130°C *3)	T6: -40 ...+55 T4: -40 ... +80	1/2-14 NPT *6)	0,800	11	7
	4612 *8)	3,9	-	162	-	II2G II2D	EEx md IIC T6/T4 EEx me II T6/T4 IP 66 T 130°C *3)	T6: -40 ...+55 T4: -40 ... +80	M20 x 1,5 *6)	0,800	11	7
	4613 *8)	-	5,3	-	23	II2G II2D	EEx md IIC T6/T4 EEx me II T6/T4 IP 66 T 130°C *3)	T6: -40 ...+55 T4: -40 ... +80	M20 x 1,5 *6)	0,800	11	7
	3722	-	5,3	-	23	-	Div. 1 und 2 Cl.I, Gr.A-D Cl.II, Gr.E-G Cl.III, T3C (160°C) NEMA 4,4X, 6,6P, 7,9 *4)	-20 ... +60	Flying leads 450 mm long	0,500	12	1
	3723	-	5,3	-	23	-	Div. 1 und 2 Cl.I, Gr.A-D Cl.II, Gr.E-G Cl.III, T3C (160°C) NEMA 4,4X, 6,6P, 7,9 *4)	-20 ... +60	flying leads 450 mm long	0,500	12	5

Standardvoltages 24 V DC, 230 V AC.other voltages on request design acc. to VDE 0580, EN50014/50028. 100% duty cycle
*1) EC-Type-Examination-Certificate KEMA 02 ATEX 1347X
*2) EC-Type-Examination-Certificate KEMA 98 ATEX 4452 X
*3) EC-Type-Examination-Certificate PTB 02 ATEX 2085 X
*4) CSA-LR 57643-6, FM approved
*5) Required connector: type 0570275
*6) Connector/Cable gland is not indicated in delivery
*7) IP65 according to DIN 40050/IEC 529 and DIN EN 600068-2-38
*8) This solenoid has a fuse with an appropirate rating

Solenoid actuators group 13D

Foto	Type	Power Consumption 24 V DC (W)	230 V AC (VA)	Rated current 24 V DC (mA)	230 V AC (mA)	Ex-Protection Categorie	Protection class	Temperature Ambient/ Fluid °C	Elektroport size	Weight (kg)	Dimensions No.	Circuit diagram No.
	0700 *7)	16,9	-	703	-	-	IP 65 (with connector) *6)	-25 ... +60 Fluid: max. 80	Connector DIN EN 175301-803 Form A *6)	0,270	7	1
	3703 *7)	-	17,3	-	75	-	IP 65 (with connector) *6)	-25 ... +60 Fluid: max. 80	Connector DIN EN 175301-803 Form A *6)	0,320	8	6
	4230 *8)	11,4	-	475	-	II2G II2D	EEx me II T5/T4 IP66 T 130°C *2)	T5: -40 ... +40 T4: -40 ... +50	M20 x 1,5 *6)	0,500	10	4
	4231 *8)	-	15,2	-	66	II2G II2D	EEx me II T5/T4 IP66 T 130°C *2)	T5: -40 ... +40 T4: -40 ... +50	M20 x 1,5 *6)	0,500	10	7
	4630 *8)	11,4	-	475	-	II2G II2D	EEx md IIC T5/T4 EEx me II T5/T4 IP66 T 130°C *3)	T5: -40 ... +40 T4: -40 ... +50	1/2 x 14 NPT *6)	0,800	11	4
	4631*8)	-	15,2	-	66	II2G II2D	EEx md IIC T5/T4 EEx me II T5/T4 IP66 T 130°C *3)	T5: -40 ... +40 T4: -40 ... +50	1/2 x 14 NPT *6)	0,800	11	7
	4632 *8))	11,4	-	475	-	II2G II2D	EEx md IIC T5/T4 EEx me II T5/T4 IP66 T 130°C *3)	T5: -40 ... +40 T4: -40 ... +50	1/2 x 14 NPT *6)	0,800	11	4
	4633 *8)	-	15,2	-	66	II2G II2D	EEx md IIC T5/T4 EEx me II T5/T4 IP66 T 130°C *3)	T5: -40 ... +40 T4: -40 ... +50	M20 x 1,5 *6)	0,800	11	7
	3726	13,6	-	567	-	-	Div 1 und 2 Cl.I, Gr.A-D Cl.II, Gr. E-G Cl.III T3C (160°C) NEMA 4,4X, 6,6P, 7,9 *4)	-20 ... +60	Flying leads 450 mm long	0,500	12	1
	3727	-	15,7	-	68	-	Div 1 und 2 Cl.I, Gr.A-D Cl.II, Gr. E-G Cl.III T3C (160°C) NEMA 4,4X, 6,6P, 7,9 *4)	-20 ... +60	Flying leads 450 mm long	0,500	12	5

Standardvoltages 24 V DC, 230 V AC.other voltages on request design acc. to VDE 0580, EN50014/50028. 100% duty cycle
*1) EC-Type-Examination-Certificate KEMA 02 ATEX 1347X
*2) EC-Type-Examination-Certificate KEMA 98 ATEX 4452 X
*3) EC-Type-Examination-Certificate PTB 02 ATEX 2085 X
*4) CSA-LR 57643-6, FM approved
*5) Required connector: type 0570275
*6) Connector/Cable gland is not indicated in delivery
*7) IP65 according to DIN 40050/IEC 529 and DIN EN 600068-2-38
*8) This solenoid has a fuse with an appropirate rating

Solenoid actuators group 16C

Foto	Type	Power Consumption 24 V DC (W)	230 V AC (VA)	Rated current 24 V DC (mA)	230 V AC (mA)	Ex-Protection Categorie	Protection class	Temperature Ambient/ Fluid °C	Elektroport size	Weight (kg)	Dimensions No.	Circuit diagram No.
	0827 *7)	6,8	-	284	-	-	IP 65 (with connector) *6)	-25 ... +60 Fluid: max. 80	Connector DIN EN 175301-803 Form A *6)	0,300	7	1
	3805 *7)	-	10,6	-	46	-	IP 65 (with connector) *6)	-25 ... +60 Fluid: max. 80	Connector DIN EN 175301-803 Form A *6)	0,350	8	6
	3818 *7)	-	10,6	-	46	II3G II3D	EEx nA II T4 IP 65 T 110°C	T4: -20 ... +60	Connector DIN EN 175301-803 Form A, with special screw	-	8	6
	4270 *8)	8,9	-	369	-	II2G II2D	EEx me II T5/T4 IP66 T 130°C *2)	T5: -40 ... +55 T4: -40 ... +65	M20 x 1,5 *6)	0,500	10	4
	4271 *8)	-	10,0	-	43	II2G II2D	EEx me II T5/T4 IP66 T 130°C *2)	T5: -40 ... +55 T4: -40 ... +65	M20 x 1,5 *6)	0,500	10	7
	4670 *8)	8,9	-	369	-	II2G II2D	EEx md IIC T6/T4 EEx me II T6/T4 IP66 T 130°C *3)	T6: -40 ... +40 T4: -40 ... +70	1/2 - 14 NPT *6)	0,800	11	4
	4671*8)	-	10,0	-	43	II2G II2D	EEx md IIC T6/T4 EEx me II T6/T4 IP66 T 130°C *3)	T6: -40 ... +40 T4: -40 ... +70	1/2 - 14 NPT *6)	0,800	11	7
	4672 *8)	8,9	-	369	-	II2G II2D	EEx md IIC T6/T4 EEx me II T6/T4 IP66 T 130°C *3)	T6: -40 ... +40 T4: -40 ... +70	M20 x 1,5 *6)	0,800	11	4
	4673 *8)	-	10,0	-	43	II2G II2D	EEx md IIC T6/T4 EEx me II T6/T4 IP66 T 130°C *3)	T6: -40 ... +40 T4: -40 ... +70	M20 x 1,5 *6)	0,800	11	7
	3824	8,9	-	369	-	-	Div 1 und 2 Cl.I, Gr.A-D Cl.II, Gr. E-G Cl.III T3C (160°C) NEMA 4,4X, 6,6P,	-20 ... +60	Flying leads 450 mm long	0,500	12	1
	3825	-	9,5	-	41	-	Div 1 und 2 Cl.I, Gr.A-D Cl.II, Gr. E-G Cl.III T3C (160°C) NEMA 4,4X, 6,6P, 7,9 *4)	-20 ... +60	Flying leads 450 mm long	0,500	12	5

Standardvoltages 24V DC, 230V AC.other voltages on requestDesign acc. to VDE 0580, EN50014/50028.100% duty cycle.
*1) EC-Type-Examination-Certificate KEMA 02 ATEX 1347X.
*2) EC-Type-Examination-Certificate KEMA 98 ATEX 4452 X
*3) EC-Type-Examination-Certificate PTB 02 ATEX 2085 X
*4) CSA-LR 57643-6, FM approved, for hazardous locations: Div. 1 and 2, Class I, II, III
*5) Required connector: type 0570275
*6) Connector / Cable gland is not indicated in delivery
*7) IP65 according to DIN 40050/IEC 529 and DIN EN 600068-2-38
*8) This solenoid has a fuse with an appropirate rating.

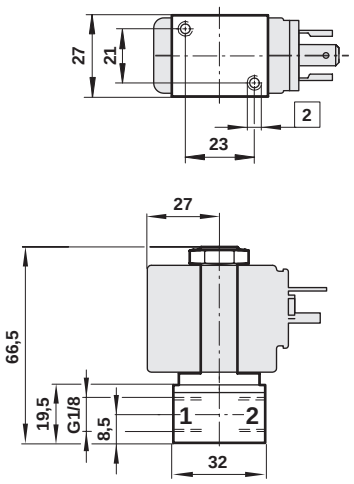
Solenoid actuators group 16D

Foto	Type	Power Consumption 24 V DC (W)	230 V AC (VA)	Rated current 24 V DC (mA)	230 V AC (mA)	Ex-Protection Categorie	Protection class	Temperature Ambient/ Fluid °C	Elektroport size	Weight (kg)	Dimensions No.	Circuit diagram No.
	0800 *7)	16,9	-	703	-	-	IP 65 (with connector) *6)	-25 ... +60 Fluid: max. 80	Connector DIN EN 175301-803 Form A *6)	0,260	7	1
	3803 *7)	-	17,3	-	75	-	IP 65 (with connector) *6)	-25 ... +60 Fluid: max. 80	Connector DIN EN 175301-803 Form A *6)	0,350	8	6
	3817 *7)	16,9	-	703	-	II3G II3D	EEx nA II T4 IP 65 T 130°C	T4: -20 ... +60	Connector DIN EN 175301-803 Form A, with special screw	0,270	7	1
	3819 *7)	-	17,3	-	75	II3G II3D	EEx nA II T4 IP 65 T 120°C	T4: -20 ... +50	Connector DIN EN 175301-803 Form A, with special screw	0,360	8	6
	4280 *8)	11,4	-	475	-	II2G II2D	EEx me II T5/T4 IP66 T 130°C *2)	T5: -40 ... +40 T4: -40 ... +50	M20 x 1,5 *6)	0,500	10	4
	4281 *8)	-	15,2	-	66	II2G II2D	EEx me II T5/T4 IP66 T 130°C *2)	T5: -40 ... +40 T4: -40 ... +50	M20 x 1,5 *6)	0,500	10	7
	4680 *8)	11,4	-	475	-	II2G II2D	EEx md IIC T5/T4 EEx me II T5/T4 IP66 T 130°C *3)	T5: -40 ... +40 T4: -40 ... +50	1/2 x 14 NPT *6)	0,800	11	4
	4681*8)	-	15,2	-	66	II2G II2D	EEx md IIC T5/T4 EEx me II T5/T4 IP66 T 130°C *3)	T5: -40 ... +40 T4: -40 ... +50	1/2 x 14 NPT *6)	0,800	11	7
	4682 *8)	11,4	-	475	-	II2G II2D	EEx md IIC T5/T4 EEx me II T6/T4 IP66 T 130°C *3)	T5: -40 ... +40 T4: -40 ... +50	M20 x 1,5 *6)	0,800	11	4
	4683 *8)	-	15,2	-	66	II2G II2D	EEx md IIC T5/T4 EEx me II T6/T4 IP66 T 130°C *3)	T5: -40 ... +40 T4: -40 ... +50	M20 x 1,5 *6)	0,800	11	7
	3826	13,6	-	567	-	-	Div 1 und 2 Cl.I, Gr.A-D Cl.II, Gr. E-G Cl.III T3C (160°C) NEMA 4,4X, 6,6P, 7,9 *4)	-20 ... +60	Flying leads 450 mm long	0,500	12	1
	3827	-	15,7	-	68	-	Div 1 und 2 Cl.I, Gr.A-D Cl.II, Gr. E-G Cl.III T3C (160°C) NEMA 4,4X, 6,6P, 7,9 *4)	-20 ... +60	Flying leads 450 mm long	0,500	12	5

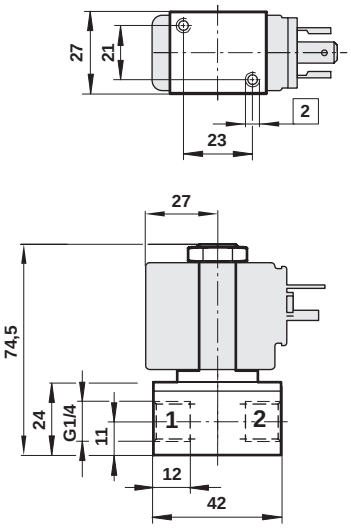
Standardvoltages 24 V DC, 230 V AC.other voltages on request design acc. to VDE 0580, EN50014/50028. 100% duty cycle
*1) EC-Type-Examination-Certificate KEMA 02 ATEX 1347X
*2) EC-Type-Examination-Certificate KEMA 98 ATEX 4452 X
*3) EC-Type-Examination-Certificate PTB 02 ATEX 2085 X
*4) CSA-LR 57643-6, FM approved
*5) Required connector: type 0570275
*6) Connector/Cable gland is not indicated in delivery
*7) IP65 according to DIN 40050/IEC 529 and DIN EN 600068-2-38
*8) This solenoid has a fuse with an appropirate rating

Dimensional drawings for valves

①



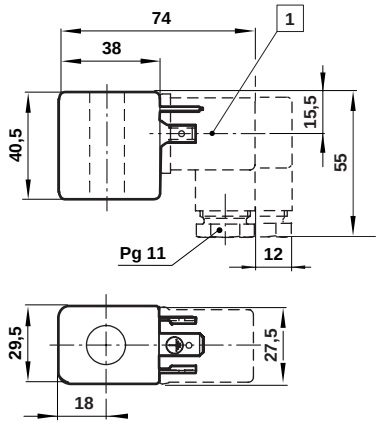
②



2 M4 x 6 deep

Dimensional drawings for solenoid operators

⑤



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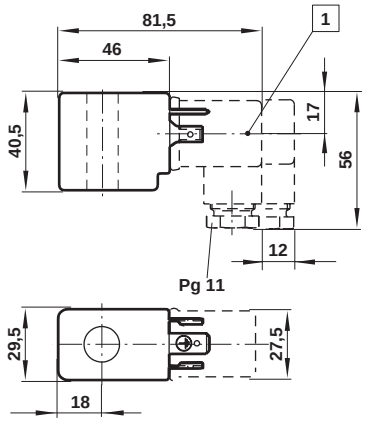
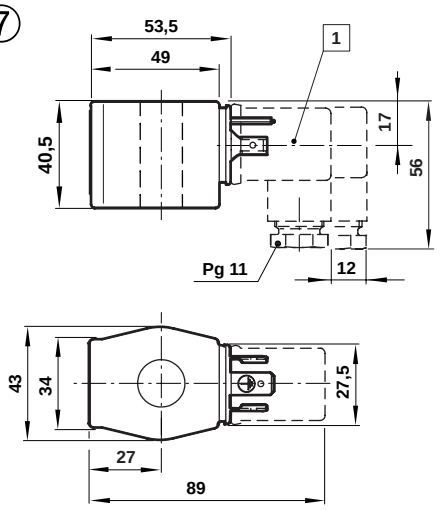


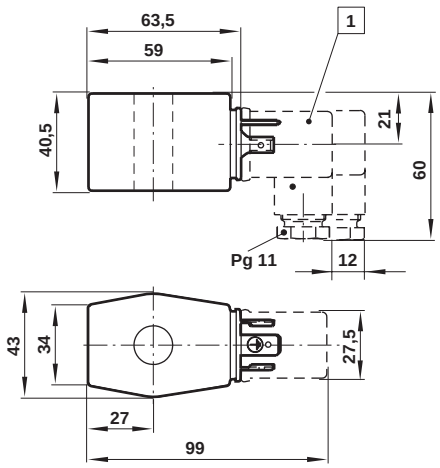
1 Connector can be indexed by 4 x 90°

Dimensional drawings for solenoid operators

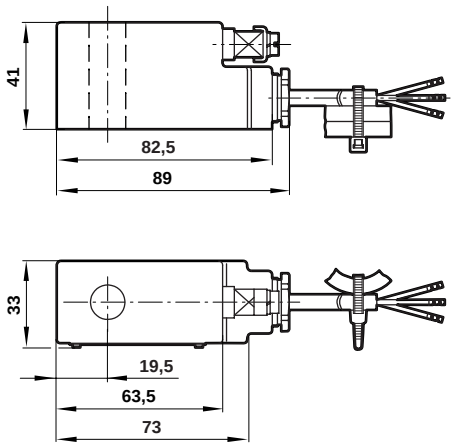
⑦



⑧



⑨



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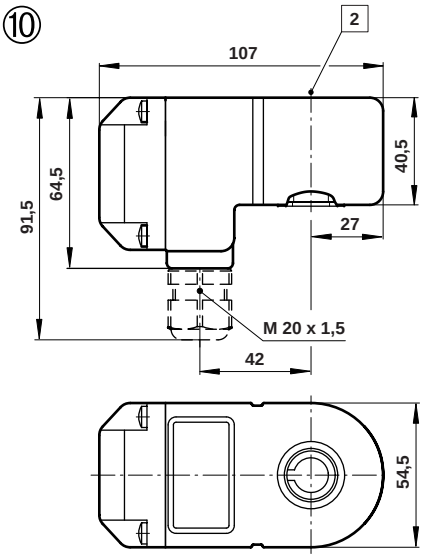
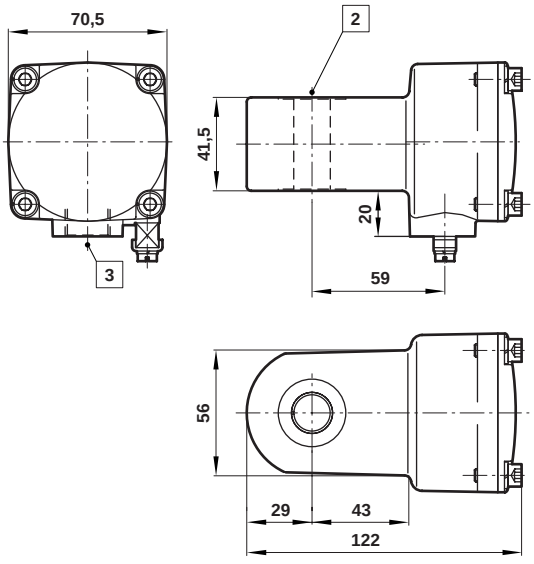


⑪

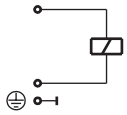


⑫

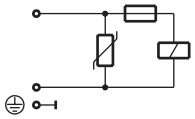
1	Connector can be indexed by 4 x 90°
2	Ø 13 (with spacer tube)
3	M20 x 1,5 or 1/2 - 14 NPT
4	Flying leads AWG 18 (450 mm long)

Circuit diagrams

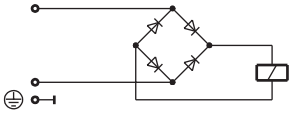
①



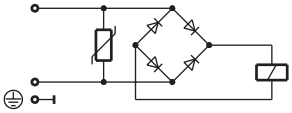
④



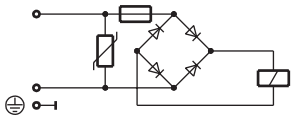
⑤



⑥



⑦



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 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 where applicable.