

3/2-, 5/2- and 5/3 Directional Control Valves
Actuation: Electromagnetic
Indirectly controlled soft seal spool valves
Connection G 1/4 or 1/4 NPT
NAMUR interface

- For single and double operated actuators
- Exhaust air recirculation (3/2 way function)
- Crossover-free switching, switch-over function guaranteed even with small cross section
- Safety function in the event of power failure provided by mechanical return spring (monostable design)
- Reversible seal allows 3/2 or 5/2 way function
- Add-on manual override
- Suitable for outdoor installation if equipped with corresponding solenoid
- Minimal electrical power consumption – therefore many safety ratings possible, e.g. EEx i



Technical data

Medium:

Filtered, lubricated or non-lubricated compressed air, instrument air, nitrogen or other neutral, dry fluids

Actuation:

Solenoid operated, indirectly controlled

Mounting position:

Optional

Nominal diameter:

ND 6 mm

Port size:

G 1/4, 1/4 NPT female thread

Operating pressure:

2 to 8 bar with internal air supply

Temperatures:

Valve: -40* to +65 °C

Solenoid: See solenoid table

* With minus temperatures, use conditioned dry air. If installed in the open protect all connections against the penetration of moisture!

Material:

Body

aluminium with surface treatment for rough environmental conditions
 condensate test with alternating temperatures in sulphuric environment,
 salt spray test with different sodium chloride solutions,
 tested in ammonia environment,
 brass, stainless steel 1.4305

Seals NBR (Perbunan)

Ordering example

5/2 directional control valve with spring return,
 Port size G 1/4, solenoid in protection class
 EEx me, 24 V DC,

Type: 9710505.4200.024.00

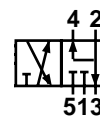
EEx e cable gland M 20x1,5

Type: 0588819

Connectors

See data sheet 7503364

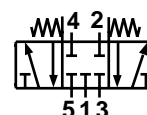
3/2



5/2



5/3





3/2, 5/2 and 5/3 directional valves

(3/2 way or 5/2 way function by reversible seal)

Aluminium anodized

Symbol	Type	Port size 1, 3, (5)	2, 4	Actuation	Operating pressure (bar)	Flow (l/min)	Weight (kg)	Dimensional drawing
	9710505*	G 1/4	Flange	Solenoid/Spring	2 ... 8	1300	0,45	M02
	9710515*	1/4 NPT						
	9711505*	G 1/4	Flange	Solenoid/Solenoid	2 ... 8	1300	0,65	M03
	9711515*	1/4 NPT						
	9712505*	G 1/4	Flange	Solenoid/Solenoid mid position APB	2 ... 8	950	0,7	M04
	9712515*	1/4 NPT						

3/2 directional valves with NAMUR interface DIN 3845/Nov. 98; Port P and auxiliary power supply in flange surface

Symbol	Type	Port size 1, 2, 3	3	Actuation	Operating pressure (bar)	Flow (l/min)	Weight (kg)	Dimensional drawing
	9710525*	Flange	G 1/4	Solenoid/Spring	2 ... 8	1300	0,9	M01

Brass

Symbol	Type	Port size 1, 3, (5)	2, 4	Actuation	Operating pressure (bar)	Flow (l/min)	Weight (kg)	Dimensional drawing
	9710605*	G 1/4	Flange	Solenoid/Spring	2 ... 8	1300	0,45	M02
	9710615*	1/4 NPT						
	9711605*	G 1/4	Flange	Solenoid/Solenoid	2 ... 8	1300	0,65	M03
	9711615*	1/4 NPT						
	9712605*	G 1/4	Flange	Solenoid/Solenoid mid position APB	2 ... 8	950	0,7	M04
	9712615*	1/4 NPT						

3/2 directional valves with NAMUR interface DIN 3845/Nov. 98; Port P and auxiliary power supply in flange surface

Symbol	Type	Port size 1, 2, 3	3	Actuation	Operating pressure (bar)	Flow (l/min)	Weight (kg)	Dimensional drawing
	9710625*	Flange	G 1/4	Solenoid/Spring	2 ... 8	1300	0,9	M01

Stainless steel

Symbol	Type	Port size 1, 3, (5)	2, 4	Actuation	Operating pressure (bar)	Flow (l/min)	Weight (kg)	Dimensional drawing
	9710705*	G 1/4	Flange	Solenoid/Spring	2 ... 8	1300	0,45	M02
	9710715*	1/4 NPT						
	9711705*	G 1/4	Flange	Solenoid/Solenoid	2 ... 8	1300	0,65	M03
	9711715*	1/4 NPT						
	9712705*	G 1/4	Flange	Solenoid/Solenoid mid position APB	2 ... 8	950	0,7	M04
	9712715*	1/4 NPT						

3/2 directional valves with NAMUR interface DIN 3845/Nov. 98; Port P and auxiliary power supply in flange surface






Symbol	Type	Port size 1, 2, 3	3	Actuation	Operating pressure (bar)	Flow (l/min)	Weight (kg)	Dimensional drawing
	9710725*	Flange	G 1/4	Solenoid/Spring	2 ... 8	1300	0,9	M01

*When ordering please indicate solenoid, voltage and current type (frequency)

Valve function: APB = All Ports Blocked




Actuation solenoids

	Type	Current draw		Rated current at		Protection class	Temperature		Weight (kg)	Dimensional drawing	Circuit diagram
		24V DC (W)	230V AC (VA)	24V DC (mA)	230V AC (mA)		Fluid max. (°C)	Ambience (°C)			
	0253 ⁴⁾	1,6	-	67	-	IP00 w/o connector IP65 with connector DIN 43650 Form A	+80	-25 ... +60	0,14	M09	SB01
	0763 ⁴⁾	1,9	-	78	-	IP00 w/o connector IP65 with connector DIN 43650 Form A	+80	-25 ... +60	0,3	M10	SB01
	0278	3,2	-	135	-	EEx m II T4 ¹⁾ with cable 3 m	+70	-20 ... +70	0,4	M11	SB04
	0279	-	3,5	-	15						SB07
	4200 ⁵⁾	0,7	-	26	-	EEx me II T5/T6 ²⁾	-20 ... +80 (T5) -40 ... +70 (T6)		0,85	M14	SB04
	4201 ⁵⁾	-	1,3	-	24	EEx me II T5/T6 ²⁾	-20 ... +80 (T5) -40 ... +60 (T6)		0,85	M14	SB07
	3720	1,4	-	59	-	NEMA 4, 4X, 6, 6P, 7, 9 ³⁾ stranded wire 460 mm long	+60		0,4	M15	SB01

Standard voltages 24V DC, 230V AC. Other voltages on request.
Design acc. to VDE 0580, EN 50014/50028. 100% duty cycle.

- 1) Certificate of Conformity KEMA No. Ex-93.C.8283 X
2) Category II2G, EC Type Examin. Certificate KEMA 98 ATEX 4452X
3) CSA-LR 57643-6, FM approved, for hazardous locations: Div. 1 and 2, Class I, II, III
4) Required connector for DC: Type 0570275.
Connector with rectifier for AC or universal current: Type 0663303
5) Cable gland is not included in delivery

Solenoid actuators for intrinsically-safe circuits, protection class EEx ia IIC T6** zone 1 and 2


	Type	Nominal resist. R _v Coil (Ω)	Min. required switching current (mA)	Resistance R _{w 65} Coil* (Ω)	Required voltage at terminal R _{w 65}	Ambient temperature (°C)	Max. Fluid-temperature (°C)	Weight (kg)	Dimensional drawing	Circuit diagram
	2030	124	43	150	6,4	-40 ... +65	+65	0,83	M12	SB10
	2031	159	38	193	7,3					
	2032	198	34	240	8,2					
	2033	248	30	301	9,0					
	2034	306	27	371	10,0					
	2035	378	25	458	11,5					
	2036	467	23	566	13,0					
	2037	566	21	686	14,4					
	2038	692	19	839	15,9					

When selecting an intrinsically safe power supply, the permissible maximum values according to the Certificate of Conformity PTB No. Ex-95.D.2178 should be taken into account. On the other hand, the low effective inductivity and capacity can be ignored.

Solenoid actuators with FM-approval

Intrinsically safe: IS/I, II, III/1/ABCDEFGF/ T6 Ta = 65 °C; I/O AEx ia IIC/ T6 Ta = 65 °C - 0588672/B; Entity

Nonincendive: NI/II/2/ABCD/ T6 Ta = 65 °C; S/II,III/2/FG/T6 Ta = 65 °C; NEMA Type 4

	Type	Nominal resist. R _v Coil (Ω)	Min. required switching current (mA)	Resistance R _{w 65} Coil* (Ω)	Required voltage at terminal R _{w 65}	Ambient temperature (°C)	Max. Fluid-temperature (°C)	Weight (kg)	Dimensional drawing	Circuit diagram
	2040	124	43	150	6,4	-40 to +65	+65	0,83	M13	SB10
	2041	159	38	193	7,3					
	2042	198	34	240	8,2					
	2043	248	30	301	9,0					
	2044	306	27	371	10,0					
	2045	378	25	458	11,5					
	2046	467	23	566	13,0					
	2047	566	21	686	14,4					
	2048	692	19	839	15,9					

When selecting an intrinsically safe power supply, the permissible maximum values according to the FM-approval should be taken into account. On the other hand, the low effective inductivity and capacity can be ignored.

* R_{w 65} is the solenoid coil resistance at an ambient temperature of +65°C, including internal heat generation, with max. permissible power.

** Certificate of Conformity PTB No. Ex-95.D.2178



3/2, 5/2 and 5/3 directional valves with pilot 50 mW / 5 mW
(3/2 way or 5/2 way function by reversible seal)

Symbol	Type	Port size 1, 3, (5)	2, 4	Actuation	Material	Operating pressure (bar)	Flow (l/min)	Weight (kg)	Dimensional drawing
	9710509	G 1/4	Flange	Solenoid/Spring	Aluminium	2 ... 8	1300	0,45	M06
	9710519	1/4 NPT							
	9711509	G 1/4	Flange	Solenoid/Solenoid	Aluminium	2 ... 8	1300	0,65	M07
	9711519	1/4 NPT							
	9712509	G 1/4	Flange	Solenoid/Solenoid mid position APB	Aluminium	2 ... 8	950	0,7	M08
	9712519	1/4 NPT							

3/2 directional valves with NAMUR interface DIN 3845/Nov. 98; Port P and auxiliary power supply in flange surface

Symbol	Type	Port size 1, 3, (5)	2, 4	Actuation	Material	Operating pressure (bar)	Flow (l/min)	Weight (kg)	Dimensional drawing
	9710529	G 1/4	Flange	Solenoid/Spring	Aluminium	2 ... 8	1300	0,425	M05

Ordering example

9710509. 2080. 001. 00
Valve Pilot 5 mW Electr. connection -

* Please insert code for electrical connection:

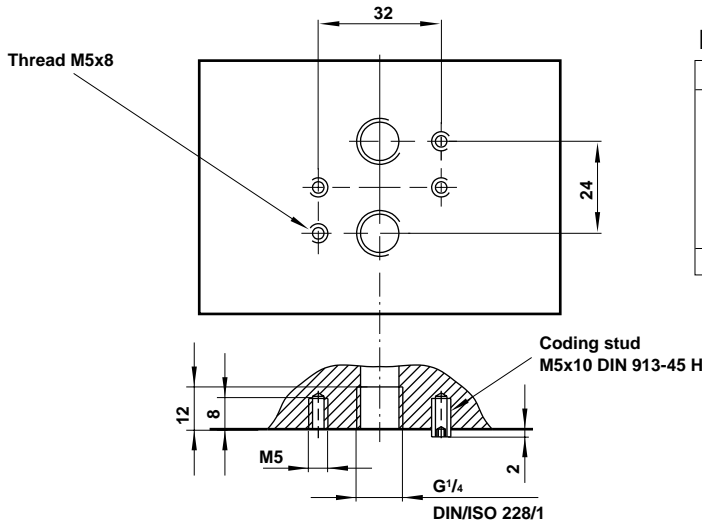
- 001 Pg 9
- 002 Pg 11
- 003 M 12 x 1,5
- 004 Round connector
- 005 M 16 x 1,5

Pilot system

	Type	Rated power P _N	Voltage at terminal U _N	Rated current I _{on}	Rated current I _{off}	Resistance coil R _N	Max. values EEx i			Type of protection #	Ambient temperature	Circuit diagram No.
							U _i	I _i	P _i			
2080	5 mW	≥ 5 V	≥ 1 mA	≤ 0,1 mA	5100 Ω	28 V	120 mA	0,75 W	EEx ia IIC T4	-40 ... +65 °C	SB10	
						25,2 V	155 mA	0,75 W	EEx ia IIC T6			
2081	50 mW	≥ 10 V	≥ 2,7 mA	≤ 1,3 mA	3700 Ω	28 V	120 mA	0,75 W	EEx ia IIC T4	-40 ... +65 °C	SB10	
						25,2 V	155 mA	0,75 W	EEx ia IIC T6			

Category 2IIIG, EC Type Examination Certificate No. PTB 00 ATEX 2050

NAMUR interface



Manual overrides

Not lockable	Lockable
Type 0553886	Type 0553887

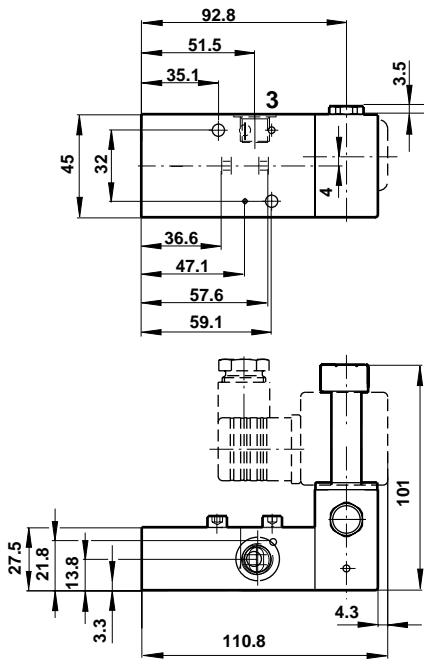
Accessories

Designation	Type	Application	Weight (kg)	Ref. Data Sheet
Manual override	0553886	Add-on manual override, not lockable		
Manual override	0553887	Add-on manual override, lockable		
Flange plate	0559857	Direct attachment to pneumatic linear actuators with NAMUR ribbing and for wall mounting, depending on the tubing position	0,49	7502242.06
Yoke	0540593	In conjunction with a flange plate for attachment to pneumatic linear actuators with NAMUR pillar (round)	0,10	
Silencer	0014600	Pressure connection G1/4. Maximum back pressure = 6 bar.	0,01	7501080.06
Cable gland	0588819	For solenoid 42XX, M20x1,5, Protection class EEx e (ATEX), Material: nickel plated brass		
Flow regulator	0611746	For outdoor use		

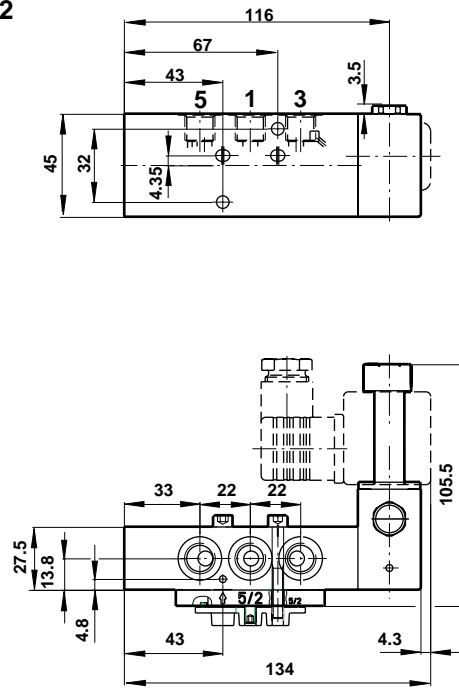


General dimensions valves

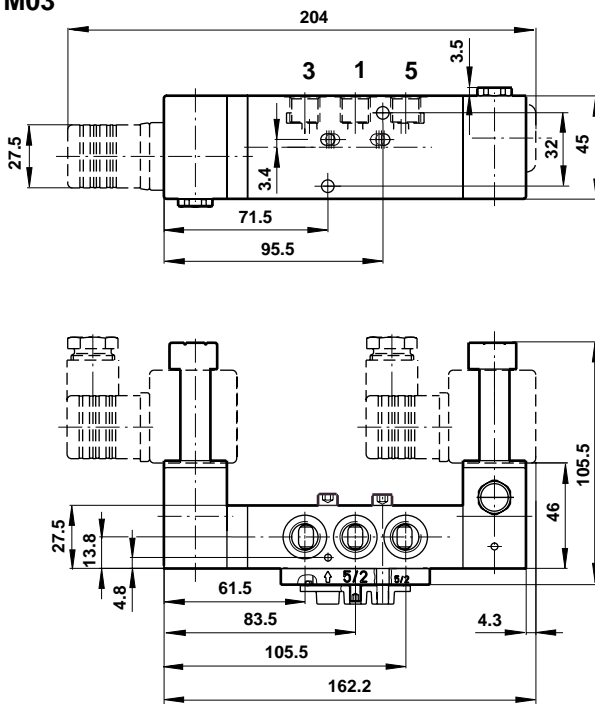
M01



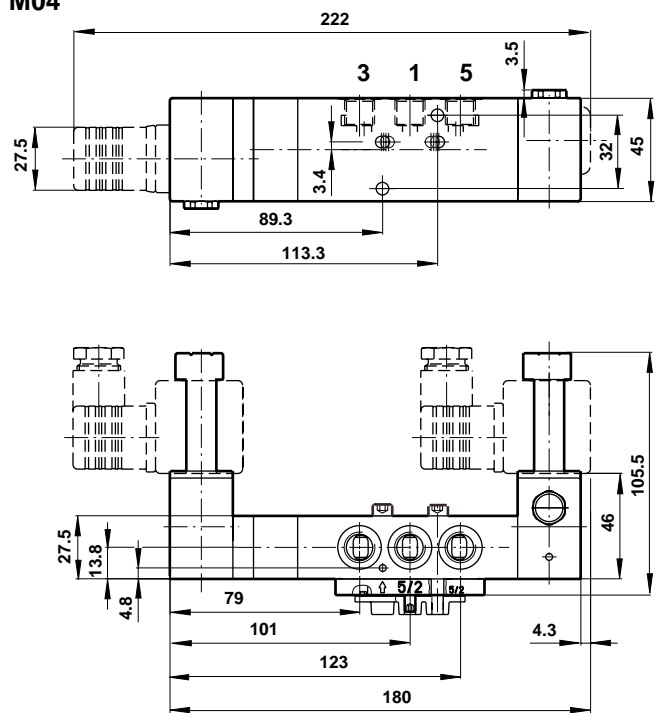
M02



M03

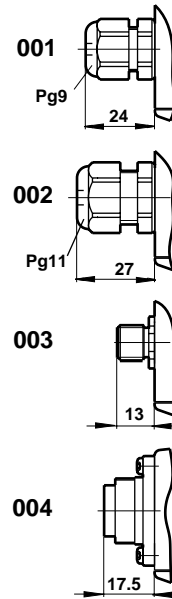
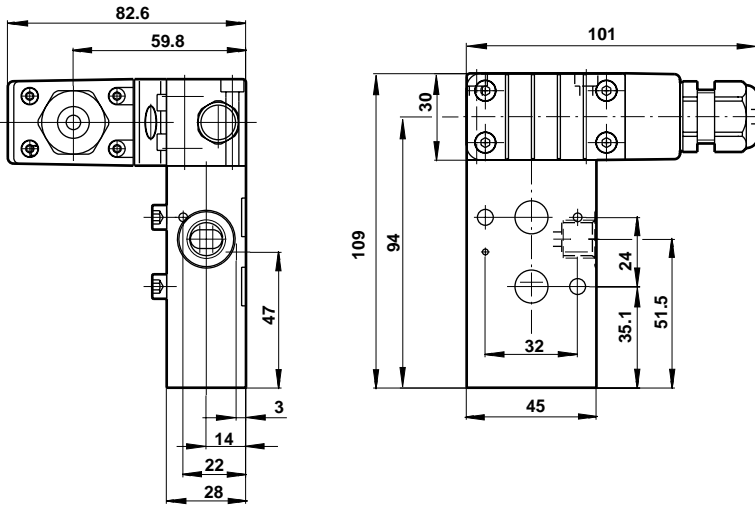


M04

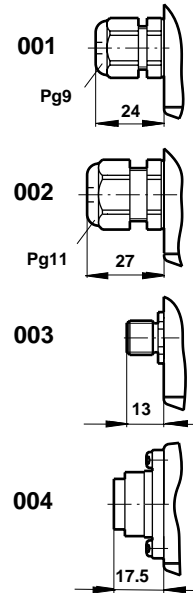
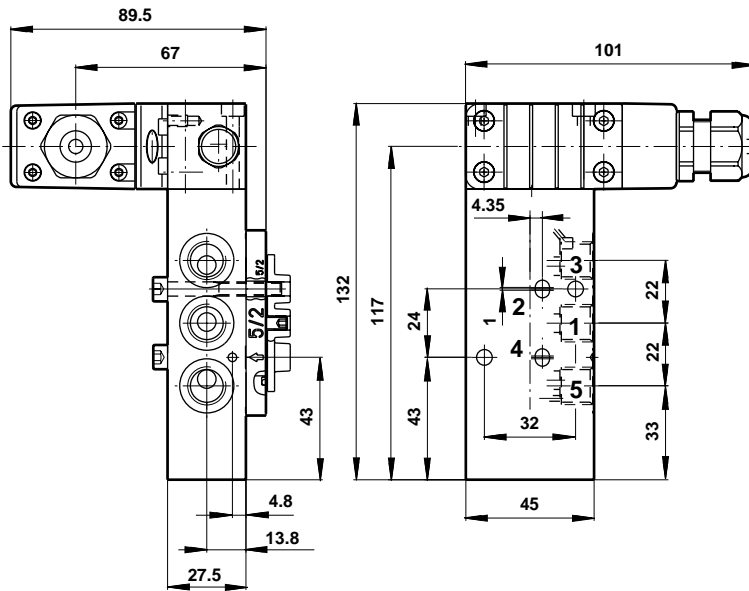




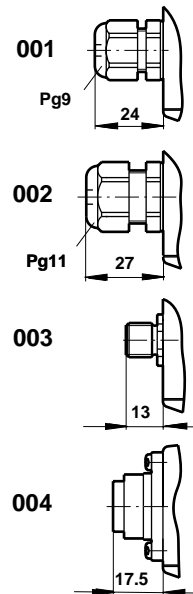
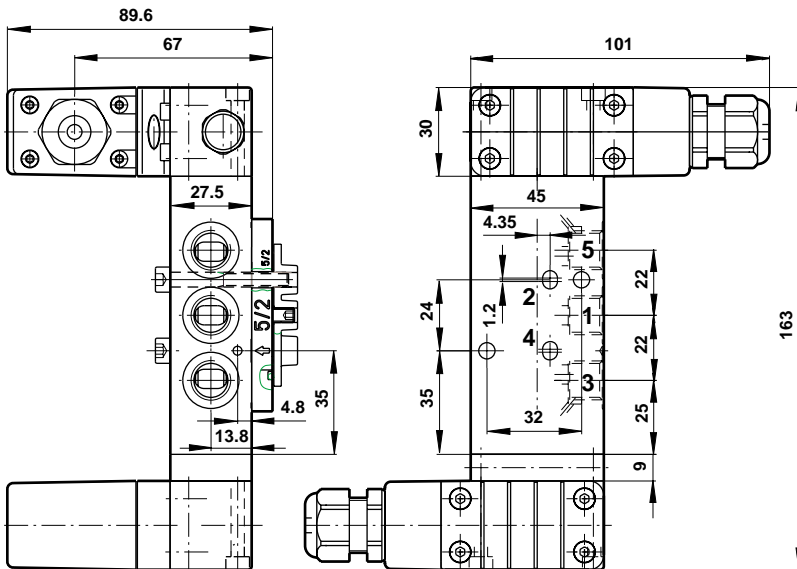
M05



M06

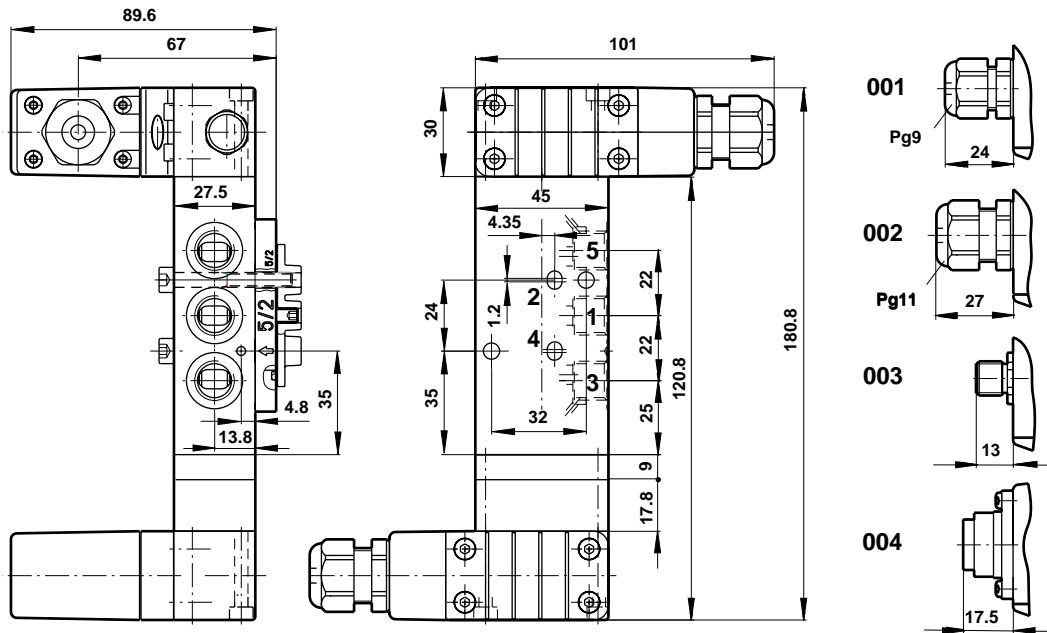


M07



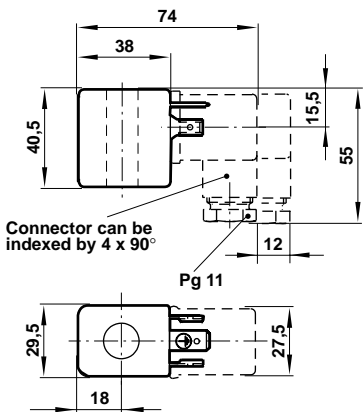


M08

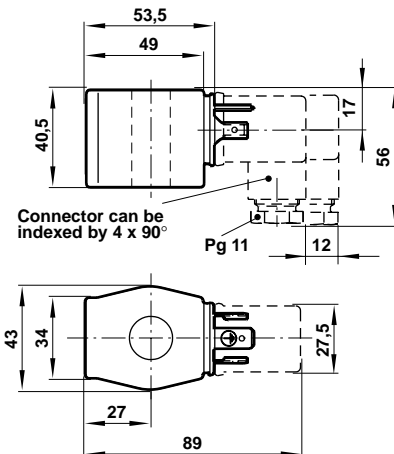


General dimensions solenoids

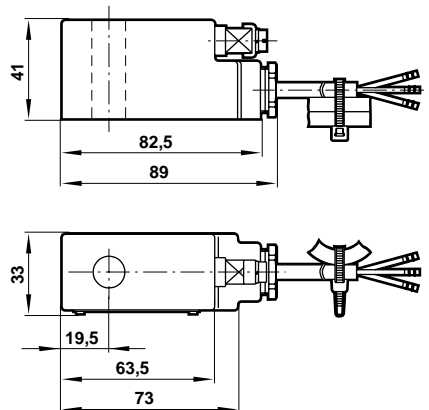
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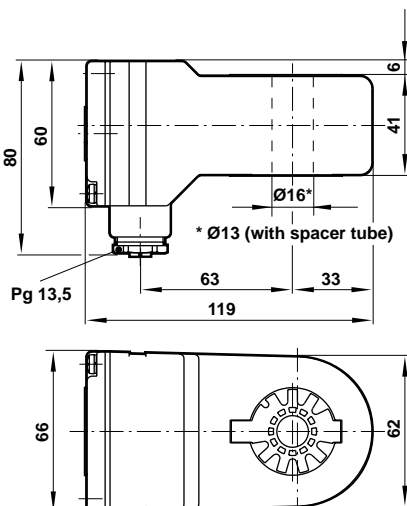
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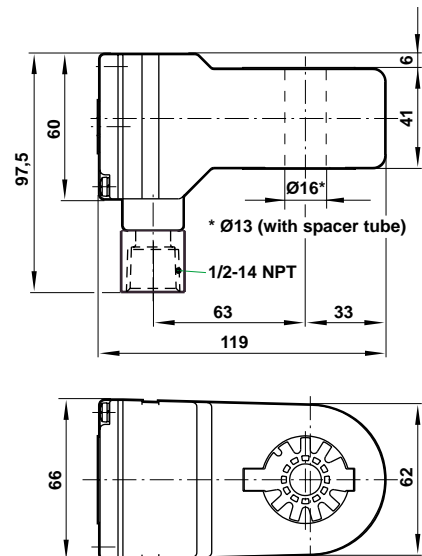
M11



M12



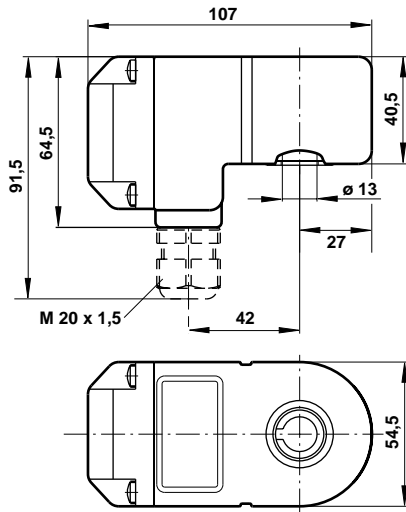
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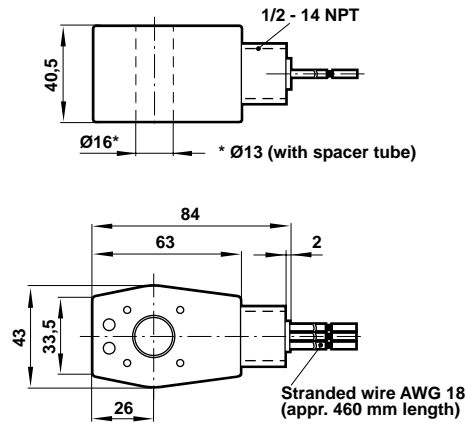


General dimensions solenoids

M14

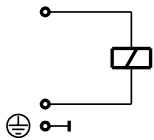


M15

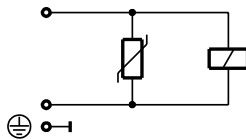


Circuit diagrams

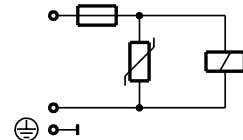
SB01



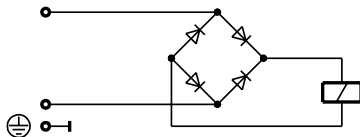
SB02



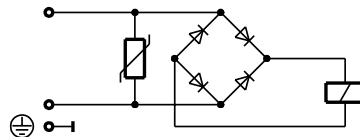
SB04



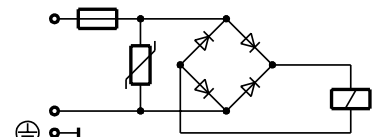
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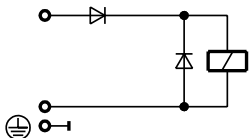
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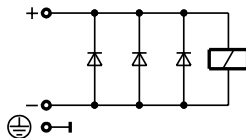
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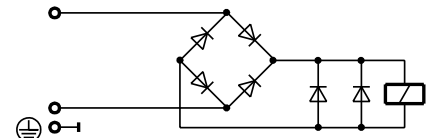
SB08



SB10



SB13



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 NORGRÉN.

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.