For single and double operated actuators

Closed crossover design

Add-on manual override

Rectified solenoid coils

Suited for outdoor use under critical environment conditions (see solenoid list)

Ex e mb, Ex d mb, Ex mb, Ex ia for zones 1 & 2 (gas), 21 & 22 (dust), ATEX cat. II 2GD

International approvals: IEC Ex, FM, CSA

TÜV
DIN EN 61508
IEC 61508

Approval depends on magnetic system

Technical data

Medium:
Filtered, non-lubricated and dried compressed air, instrument air, nitrogen and other non-flammable neutral, dry fluids

Operating pressure:
2,5 ... 8 bar (36 ... 116 psi) with internal air supply
0 ... 8 bar (0 ... 116 psi) with external air supply

Ambient temperature:
-40 ... +65°C (SNBR)
(-40...+149°F)
-25 ... +80°C (HNBR)
(-13...+176°F)
Depending on solenoid system.

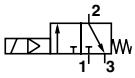
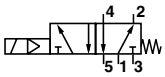
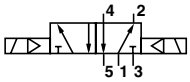
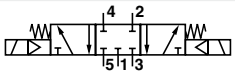
Air supply must be dry enough to avoid ice formation at temperatures below +2°C (+35°F).

For outdoor installations all connections must be protected against the penetration of moisture and a solenoid with IP66 protection must be used!

Materials:
Body: Aluminum 3.0615 with surface treatment for rough environmantal conditions. (
Stainless steel DIN 50018: Condensate test with alternating temperatures in sulphuric atmosphere, DIN 50021/ASTM B117-73:
Salt spray test with different sodium chloride solutions, tested in ammonia atmosphere).
Stainless steel 1.4404 (316 L)
Seals: SNBR (special NBR) or HNBR

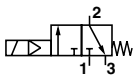
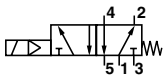
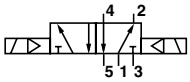
The solenoid valves are used in ATEX-zones, resulting from Protection Class Atex-category of solenoids (see table of solenoids).

Housing: Aluminum anodized: SNBR -40...+65C *3)

Symbol	Valve model *1)	Port size	Function	Actuation/Return	Operating pressure (bar)	Flow (l/min)	Test certificate IEC 61508 *2)
	9713535*	G 1/4	3/2	Solenoid/Spring	2.5 ... 8	1300	x
	9713545*	1/4 NPT	3/2	Solenoid/Spring	2.5 ... 8	1300	x
	9713555*	G 1/2	3/2	Solenoid/Spring	2.5 ... 8	2600	
	9713565*	1/2 NPT	3/2	Solenoid/Spring	2.5 ... 8	2600	
	9710535*	G 1/4	5/2	Solenoid/Spring	2.5 ... 8	1300	x
	9710545*	1/4 NPT	5/2	Solenoid/Spring	2.5 ... 8	1300	x
	9710555*	G 1/2	5/2	Solenoid/Spring	2.5 ... 8	2600	
	9710565*	1/2 NPT	5/2	Solenoid/Spring	2.5 ... 8	2600	
	9711535*	G 1/4	5/2	Solenoid/Solenoid	2.5 ... 8	1300	
	9711545*	1/4 NPT	5/2	Solenoid/Solenoid	2.5 ... 8	1300	
	9712535*	G 1/4	5/3	Solenoid/Solenoid, APB	2.5 ... 8	950	
	9712545*	1/4 NPT	5/3	Solenoid/Solenoid, APB	2.5 ... 8	950	

*1) Order example: To order a series 97105 Inline valve, aluminum, G ¼" port with a 24 Vdc, IP65, DIN Form A coil, Model Number: 9713535076302400.
Valve model code 9713535 + Coil code 076302400 = Model Number: 971353576302400.
To order the valve only, replace the * after the Valve model code from the table with 9 zero's, i.e. 9713535000000000.

Housing: Stainless steel: SNBR -40...+65C *3)

Symbol	Valve model *1)	Port size	Function	Actuation/Return	Operating pressure (bar)	Flow (l/min)	Test certificate IEC 61508 *2)
	9713735*	G 1/4	3/2	Solenoid/Spring	2.5 ... 8	1300	x
	9713745*	1/4 NPT	3/2	Solenoid/Spring	2.5 ... 8	1300	x
	9713755*	G 1/2	3/2	Solenoid/Spring	2.5 ... 8	2600	
	9713765*	1/2 NPT	3/2	Solenoid/Spring	2.5 ... 8	2600	
	9710735*	G 1/4	5/2	Solenoid/Spring	2.5 ... 8	1300	x
	9710745*	1/4 NPT	5/2	Solenoid/Spring	2.5 ... 8	1300	x
	9710755*	G 1/2	5/2	Solenoid/Spring	2.5 ... 8	2600	
	9710765*	1/2 NPT	5/2	Solenoid/Spring	2.5 ... 8	2600	
	9711735*	G 1/4	5/2	Solenoid/Solenoid	2.5 ... 8	1300	
	9711745*	1/4 NPT	5/2	Solenoid/Solenoid	2.5 ... 8	1300	

*1) Order example: To order a series 97105 Inline valve, stainless steel, G ¼" port with a 24 Vdc, IP65, DIN Form A coil, Model Number: 9713735076302400.
Valve model code 9713735 + Coil code 076302400 = Model Number: 9713735076302400.
To order the valve only, replace the * after the Valve model code from the table with 9 zero's, i.e. 9713735000000000.

*2) Since May 2008, Date code A8192
*3) For operation in plants according to IEC 61511/61508 -40 ... +40°C see test certificate (on request)

Solenoid operators

	Power consumption 24 VDC (W)	Power consumption 230 VAC (VA)	Rated current 24 VDC (m A)	Rated current 230 VAC (m A)	Ex-Protection	Protection Class (ATEX-Category) Nominal resistance (according to EN60529)	Temperature Ambient/ Medium (°C)	Electrical connection	Order separately	Coil code
	1.9		78		-	IP00 without Connector IP65 (with Connector)	-25 ... +60	DIN EN 175 301-803 Form A *5) *6)	0000000076302400	076302400
		2.1 *5)		11					0000000076323060	076323060
	0.8	-	38	-	II2G II2D	Ex e mb IIC T5/T6 Gb Ex tb IIIC T130°C Db IP 66 (with cable gland)	-40 ... +80 T5 -40 ... +70 T6 -40 ... +80	M20 X 1.5 *6)	0000000420002400	420002400
	-	1.3	-	6	II2G II2D	Ex e mb IIC T5/T6 Gb Ex tb IIIC T130°C Db IP 66 (with cable gland)	-40 ... +80 T5 -40 ... +70 T6 -40 ... +80	M20 X 1.5 *6)	0000000420123050	420123050
	0.8	-	33	-	II2G II2D	Ex d mb IIC T5/T6 Gb Ex e mb IIC T5/T6 Gb Ex tb IIIC T130°C Db IP 66 (with cable gland)	-40 ... +80 T5 -40 ... +70 T6 -40 ... +80	1/2 NPT *6)	0000000460002400	460002400
	0.8	-	33	-	II2G II2D	Ex d mb IIC T5/T6 Gb Ex e mb IIC T5/T6 Gb Ex tb IIIC T130°C Db IP 66 (with cable gland)	-40 ... +80 T5 -40 ... +70 T6 -40 ... +80	M20 X 1.5 *6)	0000000460202400	460202400
	-	1.3	-	6	II2G II2D	Ex d mb IIC T5/T6 Gb Ex e mb IIC T5/T6 Gb Ex tb IIIC T130°C Db IP 66 (with cable gland)	-40 ... +80 T5 -40 ... +70 T6 -40 ... +80	1/2 NPT *6)	0000000460123050	460123050
	-	1.3	-	6	II2G II2D	Ex d mb IIC T5/T6 Gb Ex e mb IIC T5/T6 Gb Ex tb IIIC T130°C Db IP 66 (with cable gland)	-40 ... +80 T5 -40 ... +70 T6 -40 ... +80	M20 X 1.5 *6)	0000000460323050	460323050
Stainless Steel 	0.8	–	33	–	II2G	Ex mb d IIC T4/T6 Gb Ex mb e II T4/T6 Gb IP 66 (with cable gland)	-40 ... +50 T4 -40 ... +40 T6	M20 X 1.5 *6)	0000000480202400	480202400
		1.3	–	6	II2G	Ex mb d IIC T4/T6 Gb Ex mb e II T4/T6 Gb IP 66 (with cable gland)	-40 ... +50 T4 -40 ... +40 T6	M20 X 1.5 *6)	0000000480323050	480323050

Standard voltages (±10%) 24 V d.c., 230 V a.c., other voltages on request. Design according to VDE 0580, EN 50014/50028. 100% duty cycle.
*5) Required connector: model 0570275 for V DC; model 0663303 for V AC, to be ordered Solenoid Voltage 200V DC!
*6) Connector cable gland not supplied, see table »Accessories«

Attention: The protection class for coil series 46xx and 48xx is determined by the choice of cable gland.

Example: if an ATEX-certified cable gland is used that has Ex d type of protection, the solenoid will have the protection class Ex d mb; if a cable gland with Ex e type of proteciton is used, the solenoid will have protection class Ex e mb.

Approvals

Model	Approvals ATEX	IECEx
42xx	KEMA 98 ATEX 4452 X	IECEx KEM 09.0068X
46xx	PTB 02 ATEX 2085 X	IECEx PTB 11.0094X
48xx	PTB 06 ATEX 2054 X	IECEx PTB 07.0039X

Solenoid actuators for intrinsically-safe circuits

	Nominal-resistance RN coil (Ω)	Min. required switching current (mA)	Resistance RW 60 Coil (Ω)	Required voltage-at terminal Rw 60 (V)	Protection Class *1) (ATEX-Categorie) IP-Protection*1) (class according to EN60529)	Temperature Ambient/Medium (°C)	Order Separately	Coil code
	200	33	240	8	II2G Ex ia IIC T6 Gb II2G Ex ia IIC T4 Gb II2D Ex iaD 21 T80°C Db II2D Ex iaD 21 T100°C Db IP 66 (with cable gland)	-40 ... +60 -40 ... +80 -40 ... +60 -40 ... +80	0000000205000000	205000000
	391	24	460	11	II2G Ex ia IIC T6 Gb II2G Ex ia IIC T4 Gb II2D Ex iaD 21 T80°C Db II2D Ex iaD 21 T100°C Db IP 66 (with cable gland)	-40 ... +60 -40 ... +80 -40 ... +60 -40 ... +80	0000000205100000	205100000
	736	17	880	15	II2G Ex ia IIC T6 Gb II2G Ex ia IIC T4 Gb II2D Ex iaD 21 T80°C Db II2D Ex iaD 21 T100°C Db IP 66 (with cable gland)	-40 ... +60 -40 ... +80 -40 ... +60 -40 ... +80	0000000205200000	205200000
	1220	13	1460	19	II2G Ex ia IIC T6 Gb II2G Ex ia IIC T4 Gb II2D Ex iaD 21 T80°C Db II2D Ex iaD 21 T100°C Db IP 66 (with cable gland)	-40 ... +60 -40 ... +80 -40 ... +60 -40 ... +80	0000000205300000	205300000

IP-Protection class *1) (to EN 60529) T
*1) Ex protection classes and temperature values are valid for all solenoid.

When selecting an intrinsically safe power supply, the permissible maximum values according to the Certificate of Conformity should be taken into account.

Ui = 45 V Ii = 500 mA according to Tab. A. 208x PTB 06 ATEX 2001U — — N/en 7.1.540

Accessories

Cable gland Protection Ex e, Ex d (ATEX), Nickel plated brass/ stainless steel	Model	Thread	Cable Ø	Material	Protection class (ATEX)
	0588819000000000	M 20x1.5	5.0...8.0 mm	Nickel plated brass	II2GD Ex e
	0588851000000000	M 20x1.5	10...14 mm	Nickel plated brass	II2GD Ex d
	0588925000000000	1/2-14-NPT	7.5...11.9 mm	Nickel plated brass	II2GD Ex d
	0589385000000000	M 20x1.5	9.0...13 mm	Model Approvals 1.4571 (316 Ti)	II2GD Ex e
	0589395000000000	M 20x1.5	7.0...12 mm	Model Approvals 1.4571 (316 Ti)	II2GD Ex d
	0589387000000000	M 20x1.5	10...14 mm	Model Approvals 1.4571 (316 Ti)	II2GD Ex d

Connector

0570275000000000
0663303000000000 (with rectifier)

Adaptor complete (Adaptor, inlet filter and seal ring)	Silencer (plastic) *1)	Silencer (stainless steel) *1)	Exhaust guard *2)	Filter cartridge	Add-on manual override	Add-on manual override (for start-up only)
						
0613487000000000	M/S2 (G1/4)	0014613000000000 (G 1/4)	0613422000000000 (1/4")	0681173000000000 (1/4")	0553886000000000 (without detent)	0613379000000000 (without detent)
	C/S2 (1/4 NPT)	0613678000000000 (1/4 NPT)	0613423000000000 (1/2")		0553887000000000 (with detent)	
	M/S4 (G1/2)	0014813000000000 (G 1/2)				
	C/S4 (1/2 NPT)	0613679000000000 (1/2 NPT)				

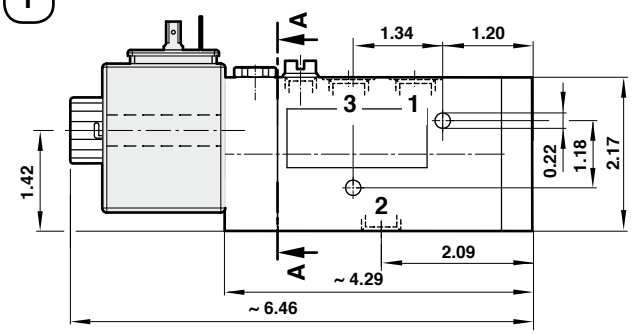
*1) For indoors use only
*2) For outdoors use ~ 0,2 (bar)

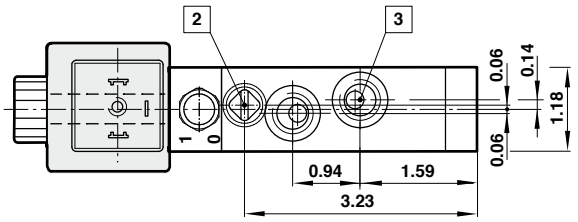
Approvals

Model	Approvals ATEX	IECEx	FM
205x	PTB 07 ATEX 2019 X	IECEx PTB 07.0017	—

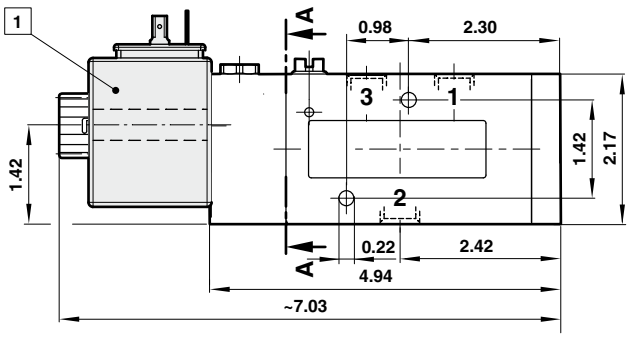
Valves

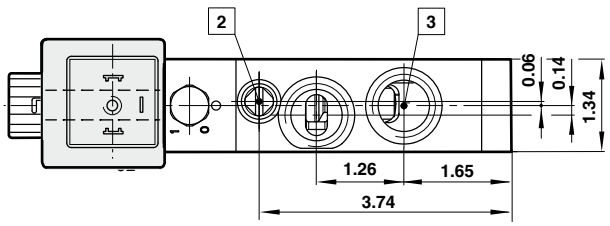
1



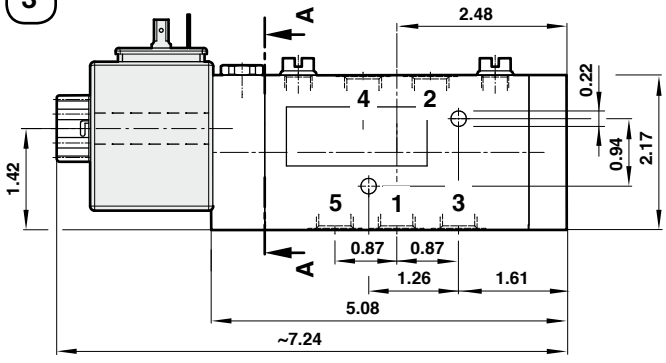


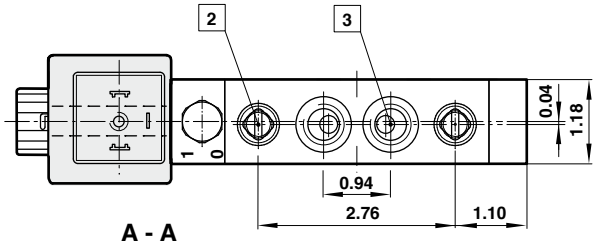
2



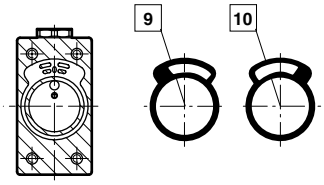


3

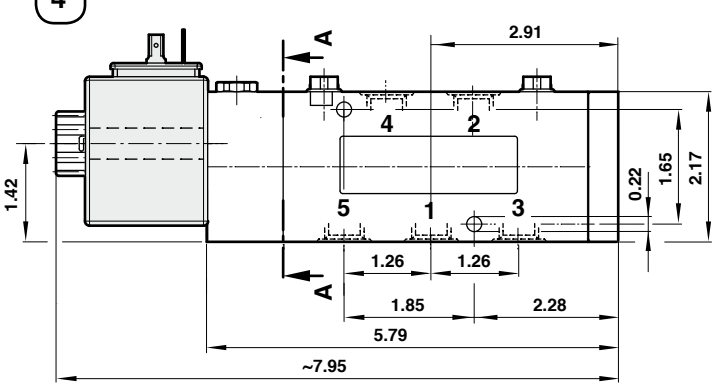


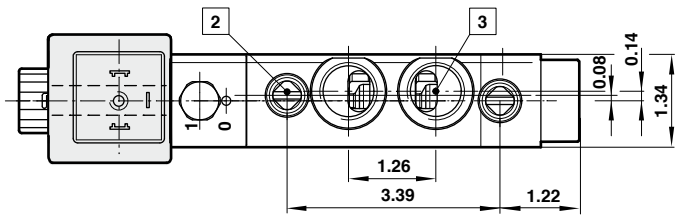


A - A



4





2 External pilot pressure connection G1/8, 1/8 NPT

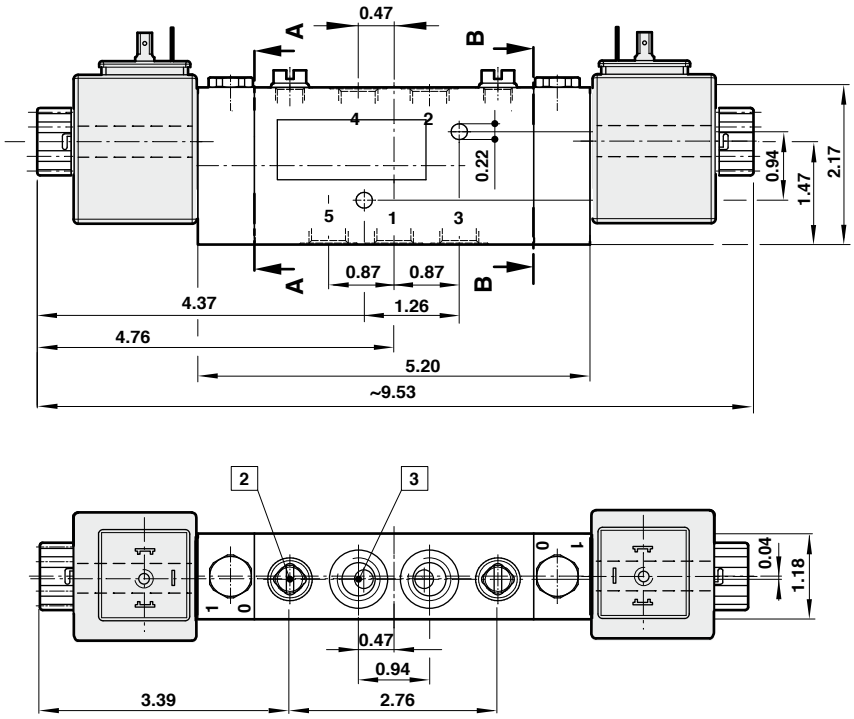
3 Working port G1/4, G1/2 or 1/4 NPT, 1/2 NPT

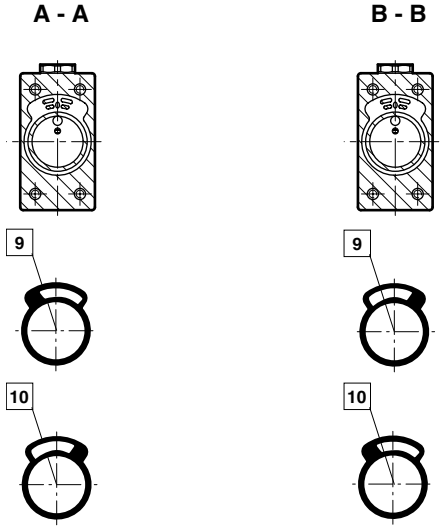
9 Position of gasket internal pilot air

10 Position of gasket external pilot air

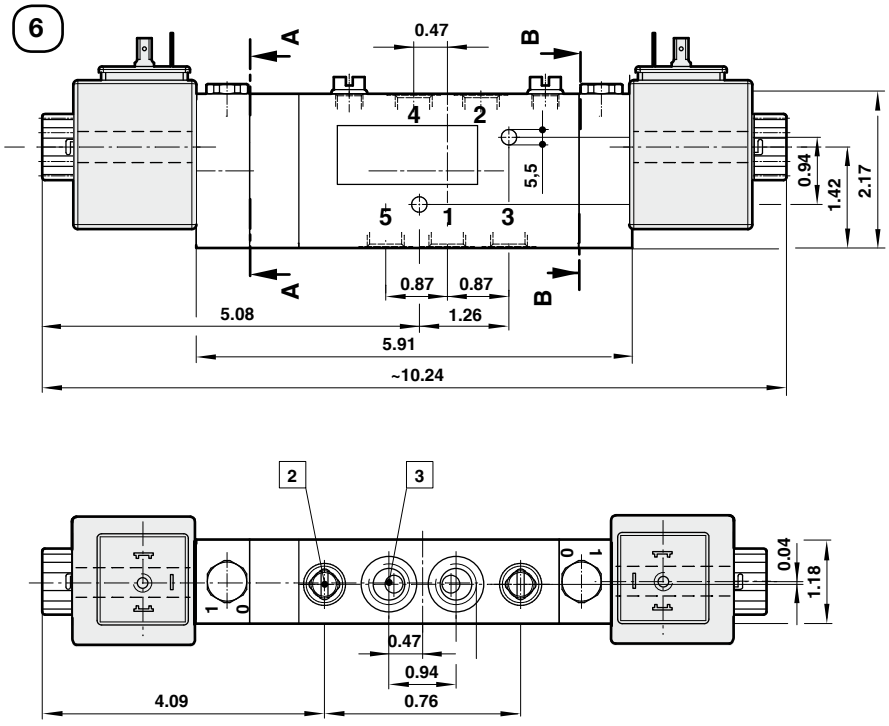
Dimensions in inches

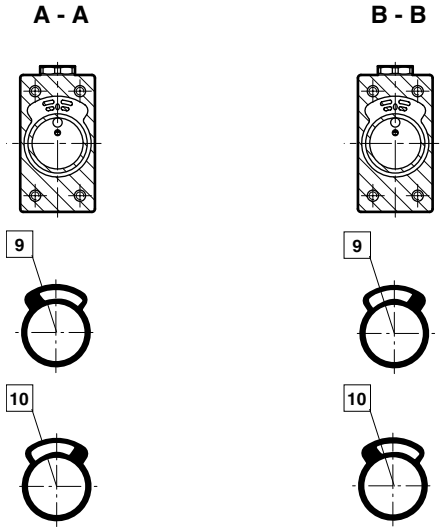
5





6





2 External pilot pressure connection G1/8, 1/8 NPT

3 Working port G1/4, G1/2 or 1/4 NPT, 1/2 NPT

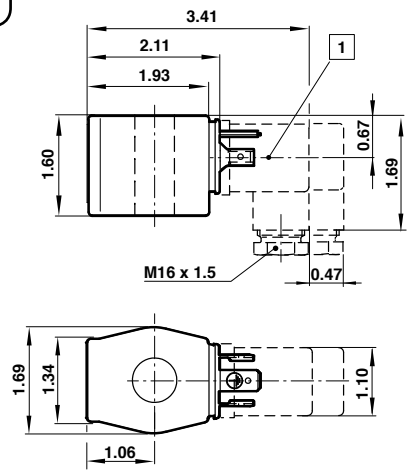
9 Position of gasket internal pilot air

10 Position of gasket external pilot air

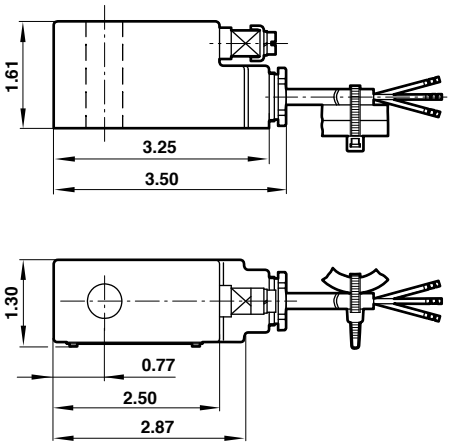
Dimensions in inches

Solenoid operators

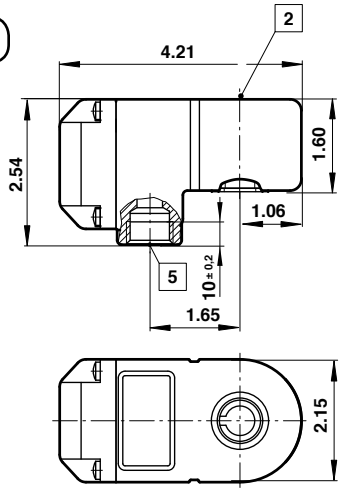
3



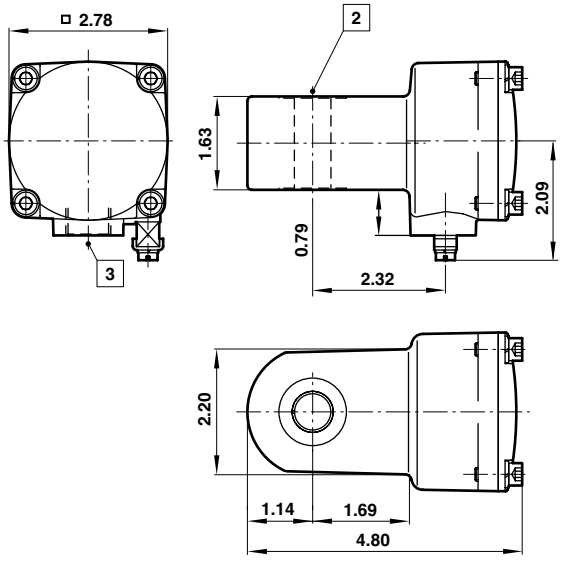
5



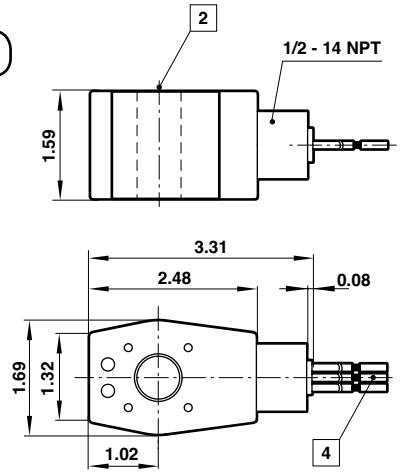
6



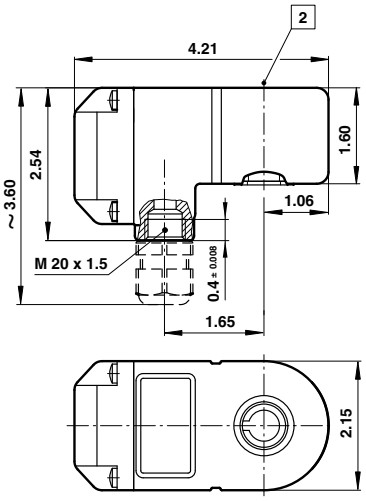
7



8



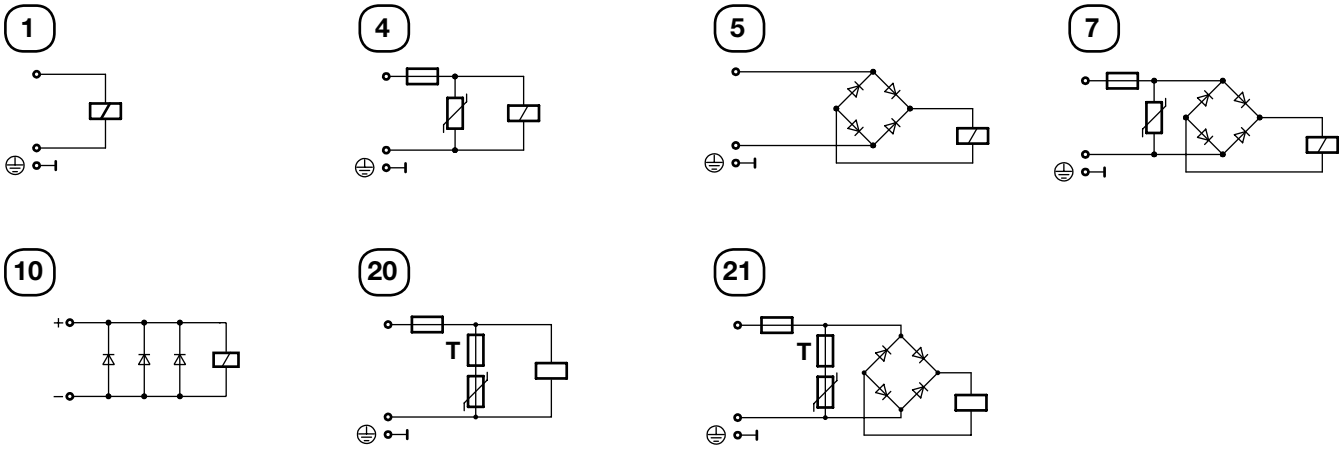
17



1 Connector 4 x 90° rotateable
2 Ø 13 (with spacer tube)
3 M20 x 1.5 or 1/2 - 14 NPT
4 Flying leads 450 mm long
5 M20 x 1.5

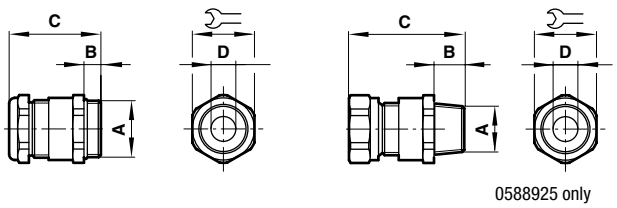
Dimensions in inches

Circuit diagrams



Cable gland

(Dimensions in mm)



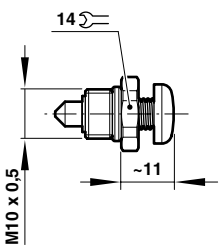
0588925 only

A	B	C	ø D		Model
M20 x 1.5	9	36	5 to 8	22	0588819000000000
M20 x 1.5	6,5	27.5	9 to 13	22	0589385000000000
M20 x 1.5	14	39	10 to 14	24	0588851000000000
1/2-14 NPT	15	58	7.5 to 11.9	24	0588925000000000
M20 x 1.5	14	39	7 to 12	24	0589395000000000
M20 x 1.5	10	34	10 to 14	24	0589387000000000

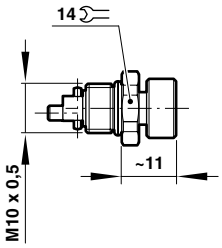
Manual override

Model: 0553886 (without detent)

(Dimensions in mm)



Model: 0553887 (with detent)



Dimensions in mm