

97105 Inline
3/2, 5/2 & 5/3 way spool valves
electromagnetic actuated, indirectly controlled
G1/4, 1/4 NPT, G1/2, 1/2 NPT

Main application: single and double operated actuators

TÜV-approval based on type examination
DIN EN 161, DIN 3394 and IEC 61 508

Valves for safety systems multi-channel
up to SIL 4

Crossover-free switching

Add-on manual override

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

The solenoid valves are applicable in the
protection classes 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
others on request

Technical features

Medium:

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

Operation:

Indirect solenoid operated spool valves

Operating pressure:

2,5 ... 8 bar with internal air supply
 0 ... 8 bar with external air supply

Orifice:

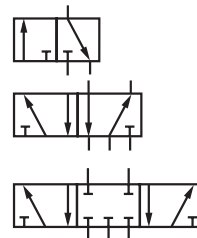
DN 6 mm, DN 8 mm

Port size:

G1/4, 1/4 NPT, G1/2, 1/2 NPT

Mounting position:

Optional, impulse valves preferably horizontally



Approval depends on magnetic system, see pages 4,5 and 8!

Fluid/Ambient temperature:

-40 ... +65°C (special NBR),
 -25 ... +80°C (HNBR)
 Depending on solenoid system

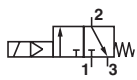
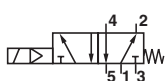
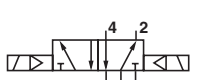
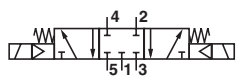
Air supply must be dry enough to avoid ice formation at temperatures below +2°C.

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

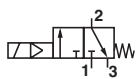
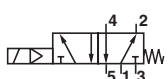
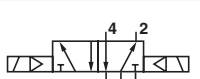
Materials:

Body: aluminium 3.0615 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 2.0401 (Ms 58), stainless steel 1.4404 (316 L)
 Seals: special NBR or HNBR

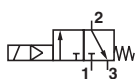
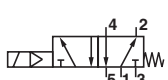

Technical data
Valves with seals NBR -40 ... +65°C *3), housing: aluminium anodized

Symbol	Port size	Function	Actuation/return	Operating pressure (bar)	Flow (l/min)	Test certificate IEC 61508 *2)	Weight (kg)	Dimension No.	Model *1)
	G 1/4	3/2	Solenoid/spring	2,5 ... 8 bar	1300	x	0,5	1	9713535
	1/4 NPT	3/2	Solenoid/spring	2,5 ... 8 bar	1300	x	0,5	1	9713545
	G 1/2	3/2	Solenoid/spring	2,5 ... 8 bar	2600		0,5	2	9713555
	1/2 NPT	3/2	Solenoid/spring	2,5 ... 8 bar	2600		0,5	2	9713565
	G 1/4	5/2	Solenoid/spring	2,5 ... 8 bar	1300	x	0,7	3	9710535
	1/4 NPT	5/2	Solenoid/spring	2,5 ... 8 bar	1300	x	0,7	3	9710545
	G 1/2	5/2	Solenoid/spring	2,5 ... 8 bar	2600		0,7	4	9710555
	1/2 NPT	5/2	Solenoid/spring	2,5 ... 8 bar	2600		0,7	4	9710565
	G 1/4	5/2	Solenoid/solenoid	2,5 ... 8 bar	1300		0,7	5	9711535
	1/4 NPT	5/2	Solenoid/solenoid	2,5 ... 8 bar	1300		0,7	5	9711545
	G 1/4	5/3	Solenoid/solenoid, APB	2,5 ... 8 bar	950		0,7	6	9712535
	1/4 NPT	5/3	Solenoid/solenoid, APB	2,5 ... 8 bar	950		0,7	6	9712545

Housing: brass

Symbol	Port size	Function	Actuation/return	Operating pressure (bar)	Flow (l/min)	Test certificate IEC 61508 *2)	Weight (kg)	Dimension No.	Model *1)
	G 1/4	3/2	Solenoid/spring	2,5 ... 8 bar	1300	x	1,0	1	9713635
	1/4 NPT	3/2	Solenoid/spring	2,5 ... 8 bar	1300	x	1,0	1	9713645
	G 1/2	3/2	Solenoid/spring	2,5 ... 8 bar	2600		1,0	2	9713655
	1/2 NPT	3/2	Solenoid/spring	2,5 ... 8 bar	2600		1,0	2	9713665
	G 1/4	5/2	Solenoid/spring	2,5 ... 8 bar	1300	x	1,7	3	9710635
	1/4 NPT	5/2	Solenoid/spring	2,5 ... 8 bar	1300	x	1,7	3	9710645
	G 1/2	5/2	Solenoid/spring	2,5 ... 8 bar	2600		1,7	4	9710655
	1/2 NPT	5/2	Solenoid/spring	2,5 ... 8 bar	2600		1,7	4	9710665
	G 1/4	5/2	Solenoid/solenoid	2,5 ... 8 bar	1300		1,7	5	9711635
	1/4 NPT	5/2	Solenoid/solenoid	2,5 ... 8 bar	1300		1,7	5	9711645

Housing: stainless steel

Symbol	Port size	Function	Actuation/return	Operating pressure (bar)	Flow (l/min)	Test certificate IEC 61508 *2)	Weight (kg)	Dimension No.	Model *1)
	G 1/4	3/2	Solenoid/spring	2,5 ... 8 bar	1300	x	1,1	1	9713735
	1/4 NPT	3/2	Solenoid/spring	2,5 ... 8 bar	1300	x	1,1	1	9713745
	G 1/2	3/2	Solenoid/spring	2,5 ... 8 bar	2600		1,1	2	9713755
	1/2 NPT	3/2	Solenoid/spring	2,5 ... 8 bar	2600		1,1	2	9713765
	G 1/4	5/2	Solenoid/spring	2,5 ... 8 bar	1300	x	1,8	3	9710735
	1/4 NPT	5/2	Solenoid/spring	2,5 ... 8 bar	1300	x	1,8	3	9710745
	G 1/2	5/2	Solenoid/spring	2,5 ... 8 bar	2600		1,8	4	9710755
	1/2 NPT	5/2	Solenoid/spring	2,5 ... 8 bar	2600		1,8	4	9710765
	G 1/4	5/2	Solenoid/solenoid	2,5 ... 8 bar	1300		1,8	5	9711735
	1/4 NPT	5/2	Solenoid/solenoid	2,5 ... 8 bar	1300		1,8	5	9711745

In order to ensure full flow and proper function make sure that sufficient pressure supply with feed pipe diameters according to the port size is available.

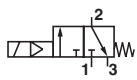
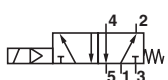
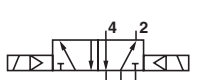
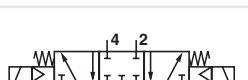
*1) When ordering please indicate solenoid, voltage and current type (frequency)

*2) Since May 2008, Date code A8192

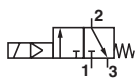


*3) For operation in plants according to IEC 61511/61508 -40 ... +40°C see test certificate (on request)

Valve function: APB = All Ports Blocked

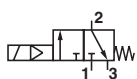

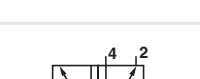
Valves with seals HNBR -25 ... +80°C *3), housing: aluminium anodized

Symbol	Port size	Function	Actuation/return	Operating pressure (bar)	Flow (l/min)	Test certificate IEC 61508 *2)	Weight (kg)	Dimension No.	Model *1)
	G 1/4	3/2	Solenoid/spring	2,5 ... 8 bar	1300	x	0,5	1	9713235
	1/4 NPT	3/2	Solenoid/spring	2,5 ... 8 bar	1300	x	0,5	1	9713245
	G 1/2	3/2	Solenoid/spring	2,5 ... 8 bar	2600	x	0,5	2	9713255
	1/2 NPT	3/2	Solenoid/spring	2,5 ... 8 bar	2600	x	0,5	2	9713265
	G 1/4	5/2	Solenoid/spring	2,5 ... 8 bar	1300	x	0,7	3	9710235
	1/4 NPT	5/2	Solenoid/spring	2,5 ... 8 bar	1300	x	0,7	3	9710245
	G 1/2	5/2	Solenoid/spring	2,5 ... 8 bar	2600	x	0,7	4	9710255
	1/2 NPT	5/2	Solenoid/spring	2,5 ... 8 bar	2600	x	0,7	4	9710265
	G 1/4	5/2	Solenoid/solenoid	2,5 ... 8 bar	1300		0,7	5	9711235
	1/4 NPT	5/2	Solenoid/solenoid	2,5 ... 8 bar	1300		0,7	5	9711245
	G 1/4	5/3	Solenoid/solenoid, APB	2,5 ... 8 bar	950		0,7	6	9712235
	1/4 NPT	5/3	Solenoid/solenoid, APB	2,5 ... 8 bar	950		0,7	6	9712245

Housing: Brass

Symbol	Port size	Function	Actuation/return	Operating pressure (bar)	Flow (l/min)	Test certificate IEC 61508 *2)	Weight (kg)	Dimension No.	Model *1)
	G 1/4	3/2	Solenoid/spring	2,5 ... 8 bar	1300	x	1,0	1	9713335
	1/4 NPT	3/2	Solenoid/spring	2,5 ... 8 bar	1300	x	1,0	1	9713345
	G 1/2	3/2	Solenoid/spring	2,5 ... 8 bar	2600	x	1,0	2	9713355
	1/2 NPT	3/2	Solenoid/spring	2,5 ... 8 bar	2600	x	1,0	2	9713365
	G 1/4	5/2	Solenoid/spring	2,5 ... 8 bar	1300	x	1,7	3	9710335
	1/4 NPT	5/2	Solenoid/spring	2,5 ... 8 bar	1300	x	1,7	3	9710345
	G 1/2	5/2	Solenoid/spring	2,5 ... 8 bar	2600	x	1,7	4	9710355
	1/2 NPT	5/2	Solenoid/spring	2,5 ... 8 bar	2600	x	1,7	4	9710365
	G 1/4	5/2	Solenoid/solenoid	2,5 ... 8 bar	1300		1,7	5	9711335
	1/4 NPT	5/2	Solenoid/solenoid	2,5 ... 8 bar	1300		1,7	5	9711345

Housing: Stainless steel

Symbol	Port size	Function	Actuation/return	Operating pressure (bar)	Flow (l/min)	Test certificate IEC 61508 *2)	Weight (kg)	Dimension No.	Model *1)
	G 1/4	3/2	Solenoid/spring	2,5 ... 8 bar	1300	x	1,1	1	9713435
	1/4 NPT	3/2	Solenoid/spring	2,5 ... 8 bar	1300	x	1,1	1	9713445
	G 1/2	3/2	Solenoid/spring	2,5 ... 8 bar	2600	x	1,1	2	9713455
	1/2 NPT	3/2	Solenoid/spring	2,5 ... 8 bar	2600	x	1,1	2	9713465
	G 1/4	5/2	Solenoid/spring	2,5 ... 8 bar	1300	x	1,8	3	9710435
	1/4 NPT	5/2	Solenoid/spring	2,5 ... 8 bar	1300	x	1,8	3	9710445
	G 1/2	5/2	Solenoid/spring	2,5 ... 8 bar	2600	x	1,8	4	9710455
	1/2 NPT	5/2	Solenoid/spring	2,5 ... 8 bar	2600	x	1,8	4	9710465
	G 1/4	5/2	Solenoid/solenoid	2,5 ... 8 bar	1300		1,8	5	9711435
	1/4 NPT	5/2	Solenoid/solenoid	2,5 ... 8 bar	1300		1,8	5	9711445

In order to ensure full flow and proper function make sure that sufficient pressure supply with feed pipe diameters according to the port size is available.

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

*3) For operation in plants according to IEC 61511/61508 -25...+65°C or 0...+80°C see test certificate (on request)

Valve function: APB = All Ports Blocked

Solenoid operators, standard voltages

	Power consumption		Rated current		Ex-Protection	IP-Protection class (to EN 60529)	Temperature Ambient/Fluid (°C)	Electrical connection	Weight (kg)	Dimension Nr.	Circuit diagram Nr.	Model
	24 V d.c. (W)	230 V a.c. (VA)	24 V d.c. (mA)	230 V a.c. (mA)								
	1,9	2,1 *5)	78	11	—	IP 65 (with connector)	-25 ... +60	Connector DIN EN 175 301-803 form A *5), *6)	0,3	7	1/5	0763
	3,6	—	150	—	II2G II2D	Ex mb IIC T4 Gb Ex mb IIIC T110°C Db IP 66	-20 ... +70	Cable 3 m	0,4	5	4	0298
	—	4,6	—	18	II2G II2D	Ex mb IIC T4 Gb Ex mb IIIC T110°C Db IP 66	-20 ... +70	Cable 3 m	0,4	5	7	0299
	0,8	—	38	—	II2G II2D	Ex e mb IIC T4/T5 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)	0,6	6	4	4200
	—	1,3	—	6	II2G II2D	Ex e mb IIC T4/T5 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)	0,6	6	7	4201
	0,8	—	33	—	II2G II2D	Ex d mb IIC T4/T6 Gb Ex e mb IIC T4/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)	0,8	7	20	4600
	0,8	—	33	—	II2G II2D	Ex d mb IIC T4/T6 Gb Ex e mb IIC T4/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)	0,8	7	21	4602
	—	1,3	—	6	II2G II2D	Ex d mb IIC T4/T6 Gb Ex e mb IIC T4/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)	0,8	7	20	4601
	—	1,3	—	6	II2G II2D	Ex d mb IIC T4/T6 Gb Ex e mb IIC T4/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)	0,8	7	21	4603
Stainless steel 	0,8	—	33	—	II2G II2D	Ex mb d IIC T4/T6 Gb Ex mb e II T4/T6 Gb Ex tD A21 T100° IP 66 (with cable gland))	-40 ... +50 T4 -40 ... +40 T6 -40 ... +80	M20 X 1,5 *6)	1,2	10	4	4802
	—	1,3	—	6	II2G II2D	Ex mb d IIC T4/T6 Gb Ex mb e II T4/T6 Gb Ex tD A21 T100° IP 66 (with cable gland))	-40 ... +50 T4 -40 ... +40 T6 -40 ... +80	M20 X 1,5 *6)	1,2	10	7	4803
	1,4	—	59	—	—	XP/DIP, Div. 1 & 2 Cl. I, Gr. A-D Cl. II / III, Gr. E-G T3 (160°C) NEMA 4, 4X, 6, 6P, 7, 9	-20 ... +60	Flying leads 450 mm	0,4	8	1	3720

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: type 0570275 for d.c. and 0663303 for a.c., to be ordered solenoid voltage 200 V d.c.

*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 protection is used, the solenoid will have protection class Ex e mb.

Approvals

Model	Approvals ATEX	IECEX		FM	Datasheet
		IECEX	FM		
029x	KEMA 02 ATEX 1347 X	—	—	—	N/en 7.1.505
372x, 382x	—	—	—	CSA-LR 57643-6	N/en 7.1.575
42xx	KEMA 98 ATEX 4452 X	IECEX KEM 09.0068X	—	—	N/en 7.1.580
46xx	PTB 02 ATEX 2085 X	IECEX PTB 11.0094X	—	—	N/en 7.1.585
48xx	PTB 06 ATEX 2054 X	IECEX PTB 07.0039X	—	—	N/en 7.1.590

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)	IP-Protection class (to EN 60529)	Temperature Ambient/Fluid (°C)	Weight (kg)	Dimension No.	Circuit diagram No.	Model
					Ex-Protection (ATEX-Category)					
	200	33	240	8	Ex ia IIC T6 IP 66 (with cable gland)	-40 ... +60	0,85	10	10	2050
	391	24	460	11	Ex ia IIC T4 IP 66 (with cable gland)	-40 ... +80	0,85	10	10	2051
	736	17	880	15	Ex iaD 21 T80°C IP 66 (with cable gland)	-40 ... +60	0,85	10	10	2052
	1220	13	1460	19	Ex iaD 21 T100°C IP 66 (with cable gland)	-40 ... +80	0,85	10	10	2053

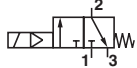
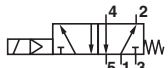

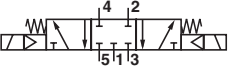
Cable gland is included in delivery

When selecting an intrinsically safe power supply, the permissible maximum values according to the Certificate of Conformity should be taken into account.
 $U_i = 45\text{ V}$, $I_i = 500\text{ mA}$ according to Tab. A. 1, EN 60079-11
 $P_i = 2,0\text{ W}$, L_i and C_i can be ignored.

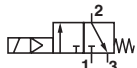
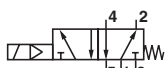
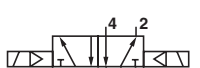
Approvals

Model	Approvals ATEX	IECEX		FM	Datasheet
		IECEX	FM		
205x	PTB 07 ATEX 2019	IECEX PTB 07.0017	—		N/en 7.1.535

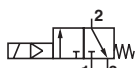
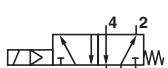

Valves, indirect solenoid operated using low-power pilot system in protection class Ex ia IIC T4/T6, seals NBR -40 ... +65° C, housing: aluminium anodized, suitable solenoid operators see page 8 only

Symbol	Port size	Function	Actuation/return	Operating pressure (bar)	Flow (l/min)	Weight (kg)	Dimension No.	Model *1)
	G 1/4	3/2	Solenoid/spring	2,5 ... 8	1300	0,5	7	9713539
	1/4 NPT	3/2	Solenoid/spring	2,5 ... 8	1300	0,5	7	9713549
	G 1/2	3/2	Solenoid/spring	2,5 ... 8	2600	0,5	8	9713559
	1/2 NPT	3/2	Solenoid/spring	2,5 ... 8	2600	0,5	8	9713569
	G 1/4	5/2	Solenoid/spring	2,5 ... 8	1300	0,7	9	9710539
	1/4 NPT	5/2	Solenoid/spring	2,5 ... 8	1300	0,7	9	9710549
	G 1/2	5/2	Solenoid/spring	2,5 ... 8	2600	0,7	10	9710559
	1/2 NPT	5/2	Solenoid/spring	2,5 ... 8	2600	0,7	10	9710569
	G 1/4	5/2	Solenoid/solenoid	2,5 ... 8	1300	0,7	11	9711539
	1/4 NPT	5/2	Solenoid/solenoid	2,5 ... 8	1300	0,7	11	9711549
	G 1/4	5/3	Solenoid/solenoid, APB	2,5 ... 8	950	0,7	12	9712539
	1/4 NPT	5/3	Solenoid/solenoid, APB	2,5 ... 8	950	0,7	12	9712549

Housing: Brass

Symbol	Port size	Function	Actuation/return	Operating pressure (bar)	Flow (l/min)	Weight (kg)	Dimension No.	Model *1)
	G 1/4	3/2	Solenoid/spring	2,5 ... 8 bar	1300	1,0	7	9713639
	1/4 NPT	3/2	Solenoid/spring	2,5 ... 8 bar	1300	1,0	7	9713649
	G 1/2	3/2	Solenoid/spring	2,5 ... 8 bar	2600	1,0	8	9713659
	1/2 NPT	3/2	Solenoid/spring	2,5 ... 8 bar	2600	1,0	8	9713669
	G 1/4	5/2	Solenoid/spring	2,5 ... 8 bar	1300	1,7	9	9710639
	1/4 NPT	5/2	Solenoid/spring	2,5 ... 8 bar	1300	1,7	9	9710649
	G 1/2	5/2	Solenoid/spring	2,5 ... 8 bar	2600	1,7	10	9710659
	1/2 NPT	5/2	Solenoid/spring	2,5 ... 8 bar	2600	1,7	10	9710669
	G 1/4	5/2	Solenoid/solenoid	2,5 ... 8 bar	1300	1,7	11	9711639
	1/4 NPT	5/2	Solenoid/solenoid	2,5 ... 8 bar	1300	1,7	11	9711649

Housing: Stainless steel

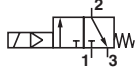
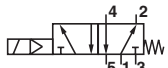

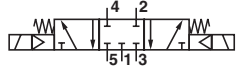
Symbol	Port size	Function	Actuation/return	Operating pressure (bar)	Flow (l/min)	Weight (kg)	Dimension No.	Model *1)
	G 1/4	3/2	Solenoid/spring	2,5 ... 8 bar	1300	1,1	7	9713739
	1/4 NPT	3/2	Solenoid/spring	2,5 ... 8 bar	1300	1,1	7	9713749
	G 1/2	3/2	Solenoid/spring	2,5 ... 8 bar	2600	1,1	8	9713759
	1/2 NPT	3/2	Solenoid/spring	2,5 ... 8 bar	2600	1,1	8	9713769
	G 1/4	5/2	Solenoid/spring	2,5 ... 8 bar	1300	1,8	9	9710739
	1/4 NPT	5/2	Solenoid/spring	2,5 ... 8 bar	1300	1,8	9	9710749
	G 1/2	5/2	Solenoid/spring	2,5 ... 8 bar	2600	1,8	10	9710759
	1/2 NPT	5/2	Solenoid/spring	2,5 ... 8 bar	2600	1,8	10	9710769
	G 1/4	5/2	Solenoid/solenoid	2,5 ... 8 bar	1300	1,8	11	9711739
	1/4 NPT	5/2	Solenoid/solenoid	2,5 ... 8 bar	1300	1,8	11	9711749

In order to ensure full flow and proper function make sure that sufficient pressure supply with feed pipe diameters according to the port size is available.

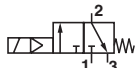
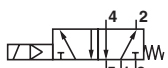
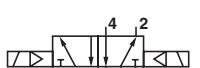
*1) When ordering please indicate solenoid, voltage and electrical connection, see page 8

Valve function: APB = All Ports Blocked

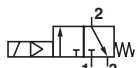
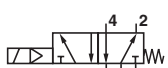

Valves, Indirect solenoid actuated using low-power pilot system in protection class Ex ia IIC T4/T6, seals HNBR -25 ... +80°C, housing: aluminium anodized, suitable solenoid operators see page 8 only

Symbol	Port size	Function	Actuation/return	Operating pressure (bar)	Flow (l/min)	Weight (kg)	Dimension No.	Model *1)
	G 1/4	3/2	Solenoid/spring	2,5 ... 8	1300	0,5	7	9713239
	1/4 NPT	3/2	Solenoid/spring	2,5 ... 8	1300	0,5	7	9713249
	G 1/2	3/2	Solenoid/spring	2,5 ... 8	2600	0,5	8	9713259
	1/2 NPT	3/2	Solenoid/spring	2,5 ... 8	2600	0,5	8	9713269
	G 1/4	5/2	Solenoid/spring	2,5 ... 8	1300	0,7	9	9710239
	1/4 NPT	5/2	Solenoid/spring	2,5 ... 8	1300	0,7	9	9710249
	G 1/2	5/2	Solenoid/spring	2,5 ... 8	2600	0,7	10	9710259
	1/2 NPT	5/2	Solenoid/spring	2,5 ... 8	2600	0,7	10	9710269
	G 1/4	5/2	Solenoid/solenoid	2,5 ... 8	1300	0,7	11	9711239
	1/4 NPT	5/2	Solenoid/solenoid	2,5 ... 8	1300	0,7	11	9711249
	G 1/4	5/3	Solenoid/solenoid, APB	2,5 ... 8	950	0,7	12	9712239
	1/4 NPT	5/3	Solenoid/solenoid, APB	2,5 ... 8	950	0,7	12	9712249

Housing: brass

Symbol	Port size	Function	Actuation/return	Operating pressure (bar)	Flow (l/min)	Weight (kg)	Dimension No.	Model *1)
	G 1/4	3/2	Solenoid/spring	2,5 ... 8 bar	1300	1,0	7	9713339
	1/4 NPT	3/2	Solenoid/spring	2,5 ... 8 bar	1300	1,0	7	9713349
	G 1/2	3/2	Solenoid/spring	2,5 ... 8 bar	2600	1,0	8	9713359
	1/2 NPT	3/2	Solenoid/spring	2,5 ... 8 bar	2600	1,0	8	9713369
	G 1/4	5/2	Solenoid/spring	2,5 ... 8 bar	1300	1,7	9	9710339
	1/4 NPT	5/2	Solenoid/spring	2,5 ... 8 bar	1300	1,7	9	9710349
	G 1/2	5/2	Solenoid/spring	2,5 ... 8 bar	2600	1,7	10	9710359
	1/2 NPT	5/2	Solenoid/spring	2,5 ... 8 bar	2600	1,7	10	9710369
	G 1/4	5/2	Solenoid/solenoid	2,5 ... 8 bar	1300	1,7	11	9711339
	1/4 NPT	5/2	Solenoid/solenoid	2,5 ... 8 bar	1300	1,7	11	9711349

Housing: stainless steel

Symbol	Port size	Function	Actuation/return	Operating pressure (bar)	Flow (l/min)	Weight (kg)	Dimension No.	Model *1)
	G 1/4	3/2	Solenoid/spring	2,5 ... 8 bar	1300	1,1	7	9713439
	1/4 NPT	3/2	Solenoid/spring	2,5 ... 8 bar	1300	1,1	7	9713449
	G 1/2	3/2	Solenoid/spring	2,5 ... 8 bar	2600	1,1	8	9713459
	1/2 NPT	3/2	Solenoid/spring	2,5 ... 8 bar	2600	1,1	8	9713469
	G 1/4	5/2	Solenoid/spring	2,5 ... 8 bar	1300	1,8	9	9710439
	1/4 NPT	5/2	Solenoid/spring	2,5 ... 8 bar	1300	1,8	9	9710449
	G 1/2	5/2	Solenoid/spring	2,5 ... 8 bar	2600	1,8	10	9710459
	1/2 NPT	5/2	Solenoid/spring	2,5 ... 8 bar	2600	1,8	10	9710469
	G 1/4	5/2	Solenoid/solenoid	2,5 ... 8 bar	1300	1,8	11	9711439
	1/4 NPT	5/2	Solenoid/solenoid	2,5 ... 8 bar	1300	1,8	11	9711449

In order to ensure full flow and proper function make sure that sufficient pressure supply with feed pipe diameters according to the port size is available.

*1) When ordering please indicate solenoid, voltage and electrical connection, see page 8

Valve function: APB = All Ports Blocked

Low-power pilot system in protection class Ex ia IIC T4/T6 Suitable valves see page 6 and 7 only

	Power P (+20°C)	Switch-on voltage U on (+20°C)	Switch-on voltage U on (+80°C)	Switch-off voltage U off (+20°C)	Switch-off voltage U off (-25°C)	Rated current I on	Resistance coil R (+20°C)	IP-Protection class (to EN 60529) Ex-Protection (ATEX-Category)	Temperature Ambient	Circuit diagram No.	Model
	6,3 mW	≥ 4,3 V	≥ 5,2 V	≤ 1,44 V	≤ 1,2 V	≥ 1,45 mA	2800 Ω	Ex ia IIC T4 IP 65 (with cable gland)	-40 ... +80°C	11	2085
	23,2 mW	≥ 16 V	≤ 16,8 V	≤ 5,4 V	≤ 4,7 V	≥ 1,45 mA	10900 Ω	Ex ia IIC T6 IP 65 (with cable gland)	-40 ... +60°C	11	2086

Max. values Ex i

Ui (V)	Ii (mA)	Pi *5) (mW)
25	150	250
27	125	250
28	115	250
30	100	250
32	85	250

Air consumption: home position ≤ 60 l/h, operating position ≤ 15 l/h
*5) Model 2086 without Pi limiting. Ci and Li can be ignored.

Ordering example

9802509.	2085.	005.	00
Valve	Pilot 6,3 mW	Electrical connection 005 M16 x 1,5 cable gland	00 internal air supply 0Z external air supply

Approvals

Model	Approvals ATEX	IECEX	FM	Datasheet
208x	PTB 06 ATEX 2001U	—	—	N/en 7.1.540

Option selector

971*****.*****

Function	Substitute		Air supply	Substitute
5/2 way valve with spring return	0		Internal	0
5/2 way inputs	1		External	Z
5/3 way valve with spring return (APB)	2		Voltage	Substitute
3/2 way valve with spring return	3		24 V d.c.	024.0
			230 V a.c.	230.5
Materials: Housing/Seals	Substitute		Solenoid	Substitute
Aluminium/HNBR (-25...+ 80°C)*	2		See solenoid table	
Brass/HNBR (-25...+ 80°C)*	3		Version	Substitute
Stainless steel/HNBR (-25...+ 80°C)*	4		Without manual override (retrofit)	5
Aluminium/NBR (-40...+ 65°C)*	5		Semi automatic (on request)	7
Brass/NBR (-40...+ 65°C)*	6		low power pilot (see page 6 and 7)	9
Stainless steel/NBR (-40...+ 65°C)*	7			
Port size	Substitute			
G 1/4	3			
1/4 NPT	4			
G 1/2	5			
1/2 NPT	6			

Accessories

Cable gland
Protection class Ex e, Ex d
(ATEX),
Nickel plated brass/
stainless steel



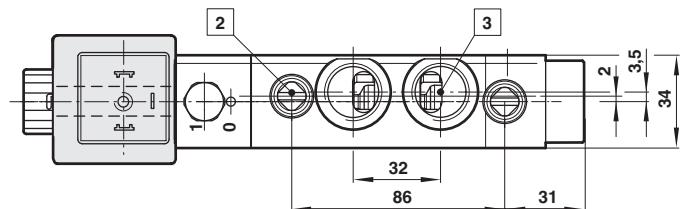
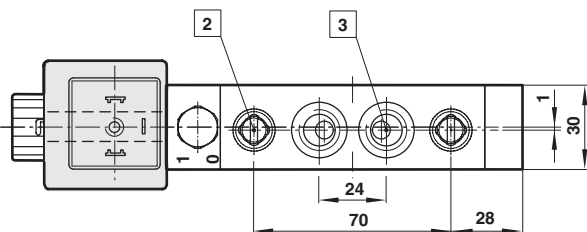
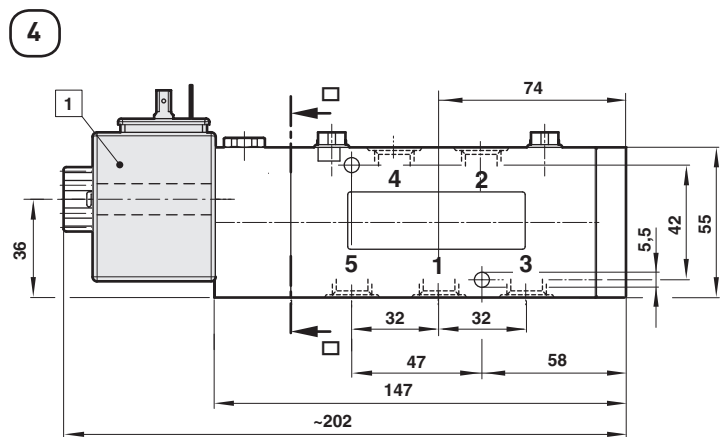
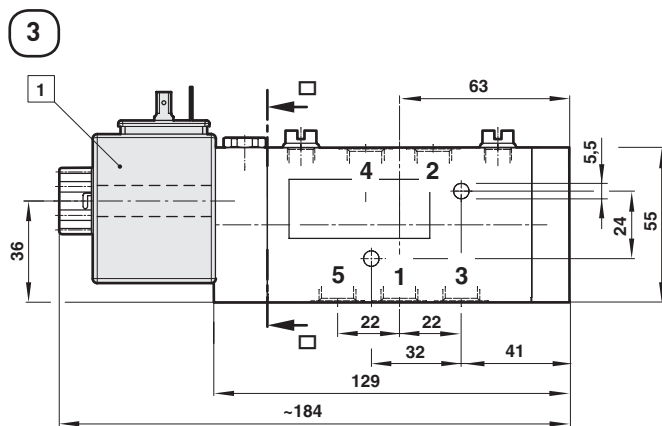
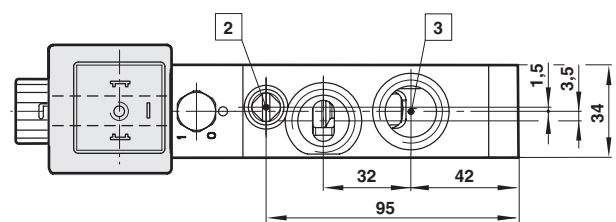
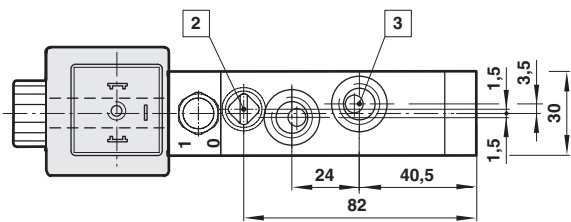
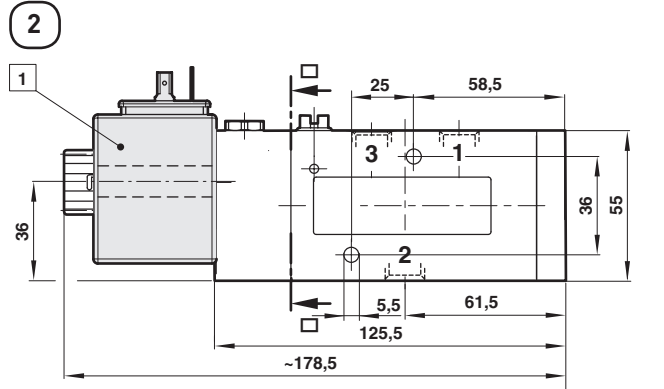
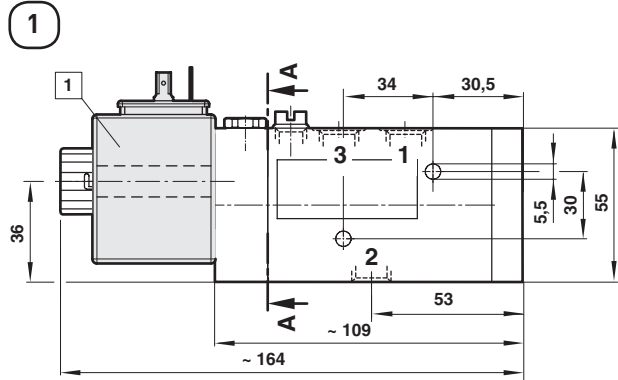
Page 15 Thread	Cable Ø	Material	Protection class (ATEX)	Model
M 20x1,5	5,0...8,0 mm	Nickel plated brass	II2GD Ex e	0588819
M 20x1,5	10...14 mm	Nickel plated brass	II2GD Ex d	0588851
1/2-14-NPT	7,5...11,9 mm	Nickel plated brass	II2GD Ex d	0588925
M 20x1,5	9,0...13 mm	Stainless steel 1.4571 (316 Ti)	II2GD Ex e	0589385
M 20x1,5	7,0...12 mm	Stainless steel 1.4404 (316 L)	II2GD Ex d	0589395
M 20x1,5	10...14 mm	Stainless steel 1.4404 (316 L)	II2GD Ex d	0589387

Connector	Silencer *1)	Exhaust guard *2)	Manual override)
	 Page 15	 Page 15	 Page 15
0570275	M/S2 (G1/4)	0613422 (G1/4, 1/4 NPT)	0553886 (without detent)
0663303 (with rectifier)	C/S2 (1/4 NPT)	0613423 (G1/2, 1/2 NPT)	0553887 (with detent)
	M/S4 (G1/2)		
	C/S4 (1/2 NPT)		

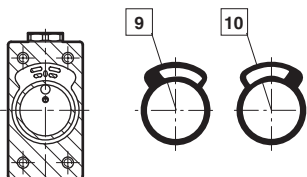
*1) For indoors use only

*2) For outdoors use, opening pressure ~ 0,2 bar

Dimensions
Valves

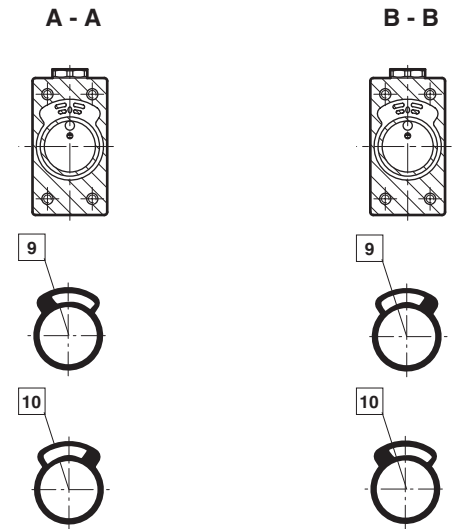
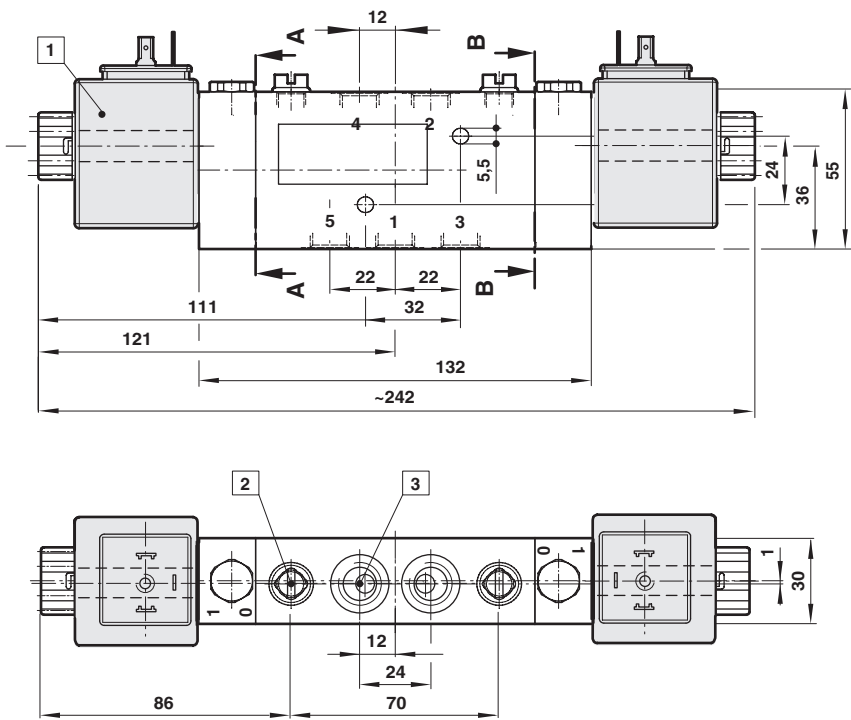


A - A

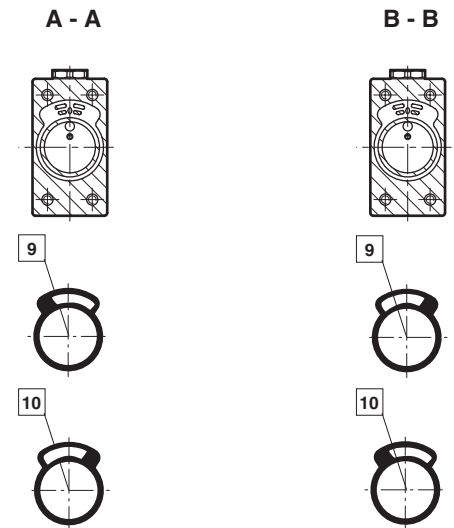
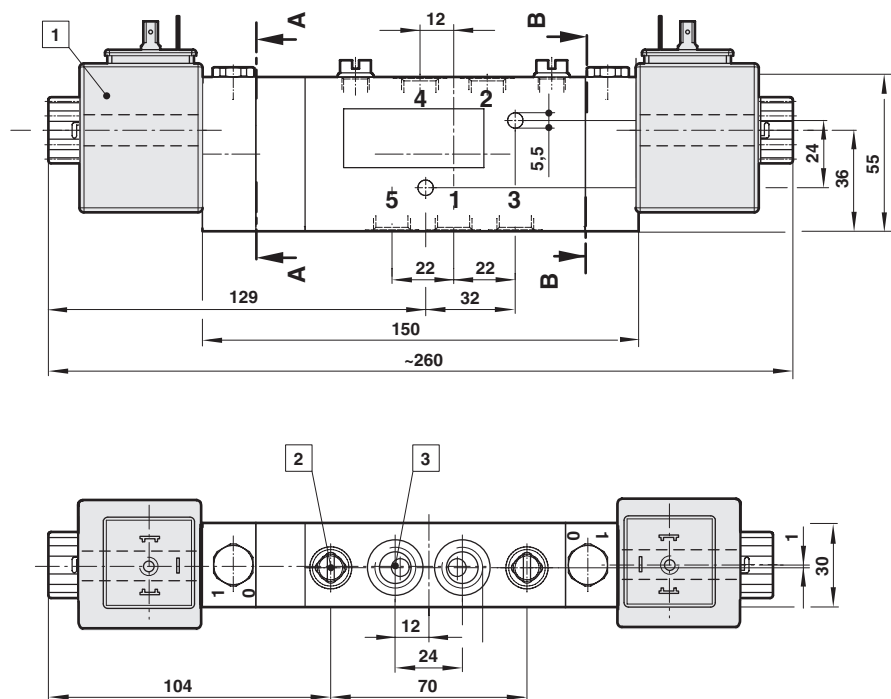


- 1 Solenoid dimensions see page 14
- 2 External control pressure connection G1/8, 1/8 NPT
- 3 Working port G1/4, G1/2 or 1/4 NPT, 1/2 NPT
- 9 Position of gasket internal pilot air
- 10 Position of gasket external pilot air

5

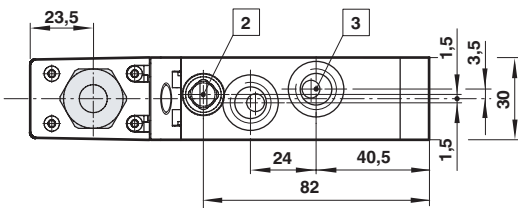
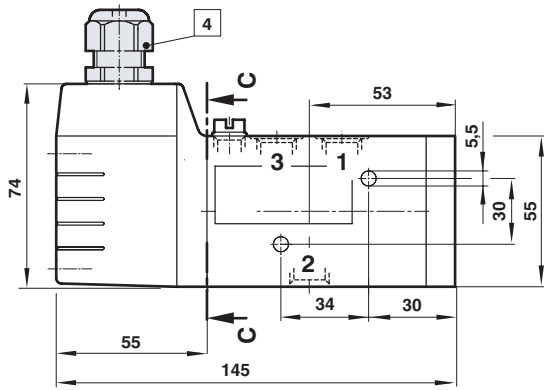


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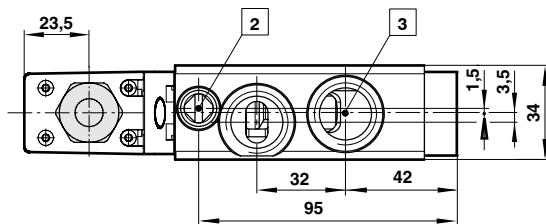
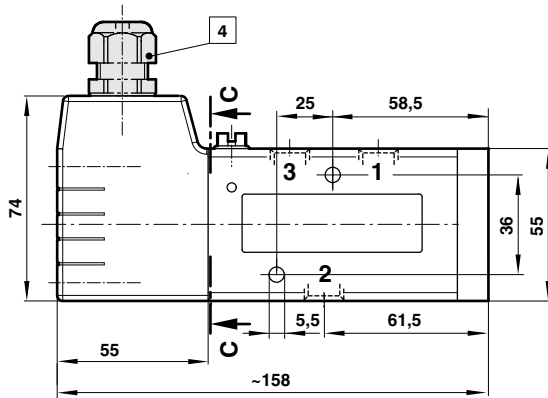


- 1 Solenoid dimensions see page 14
- 2 External control pressure connection G1/8, 1/8 NPT
- 3 Working port G1/4, G1/2 or 1/4 NPT, 1/2 NPT
- 9 Position of gasket internal pilot air
- 10 Position of gasket external pilot air

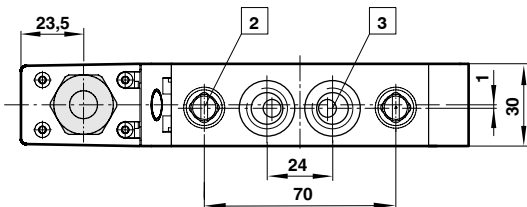
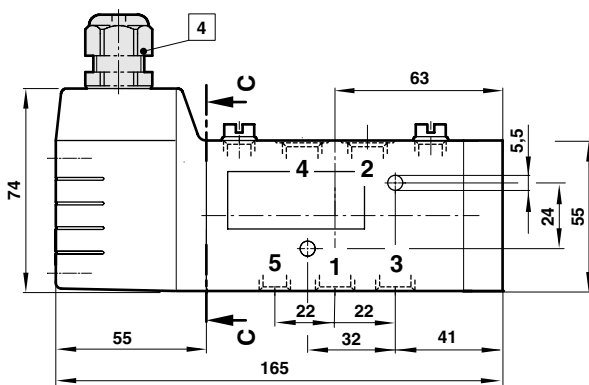
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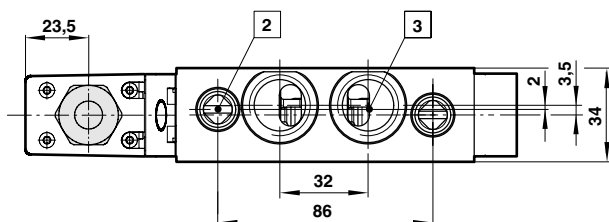
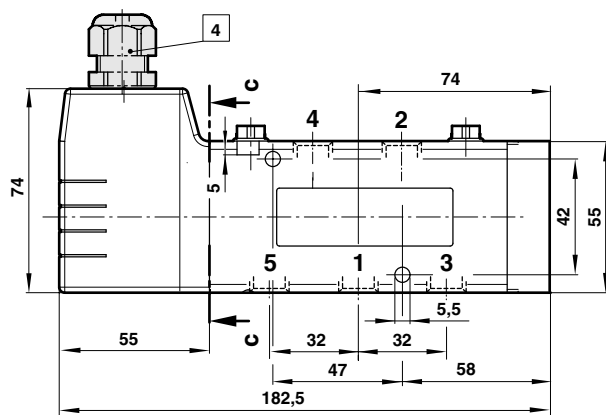
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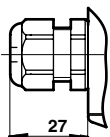
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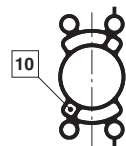
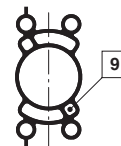
Electrical connection

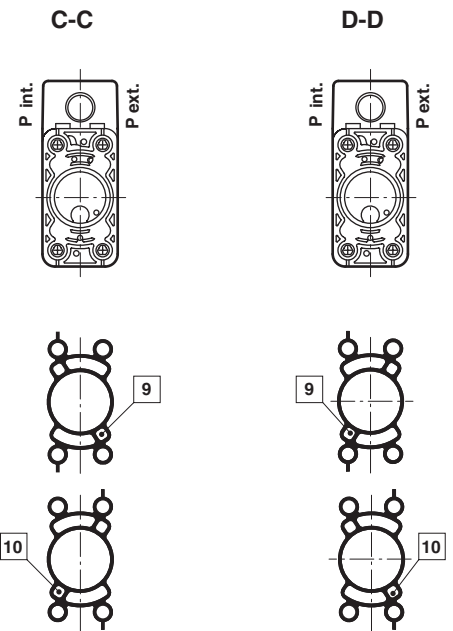
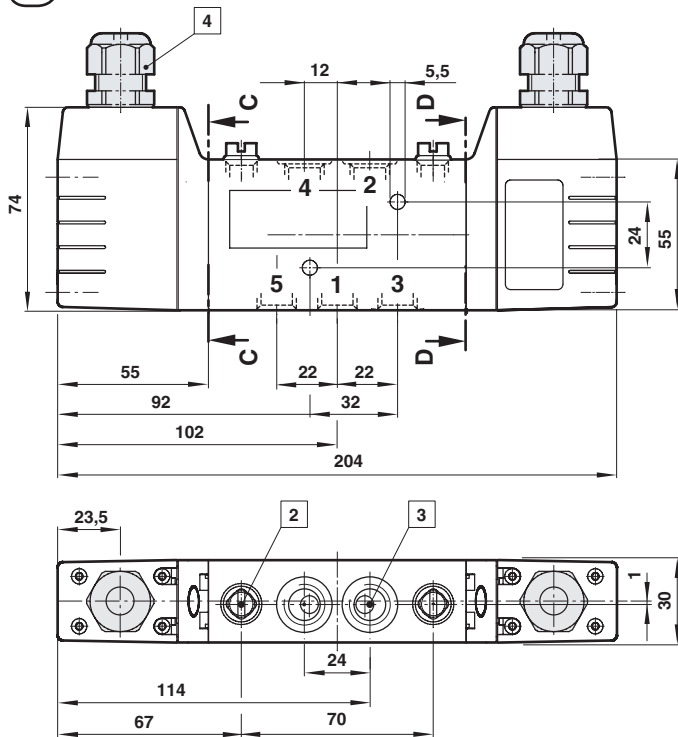
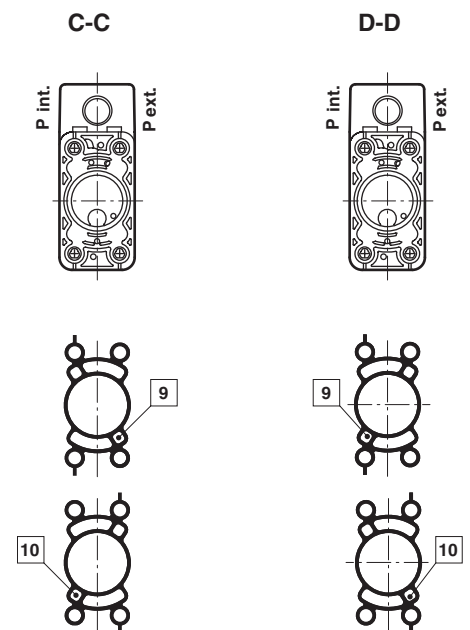
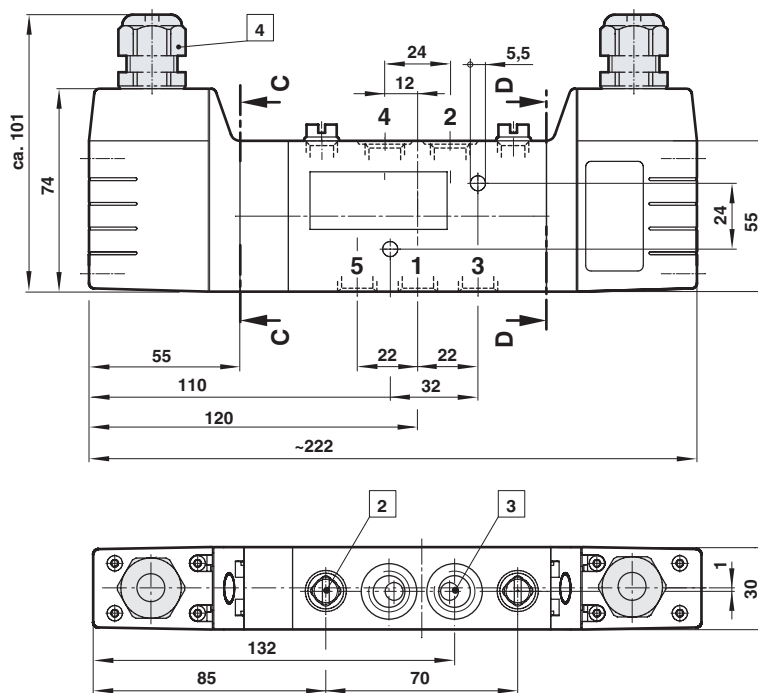
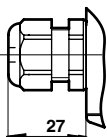
C-C

005



- 2 External control pressure connection G1/8, 1/8 NPT
- 3 Working port G1/4, G1/2 or 1/4 NPT, 1/2 NPT
- 4 Electrical port M16x1,5
- 9 Position of gasket internal pilot air
- 10 Position of gasket external pilot air

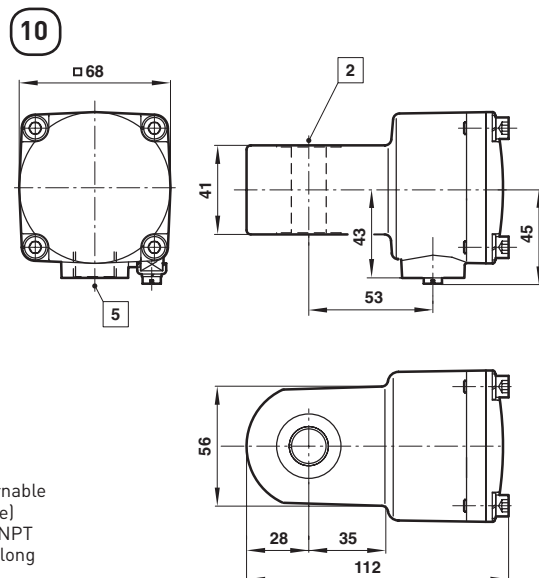
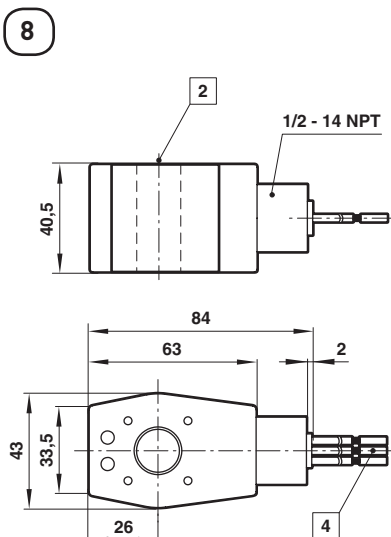
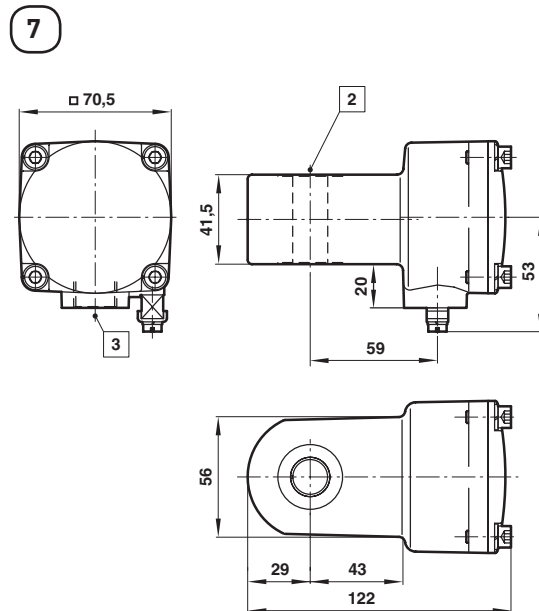
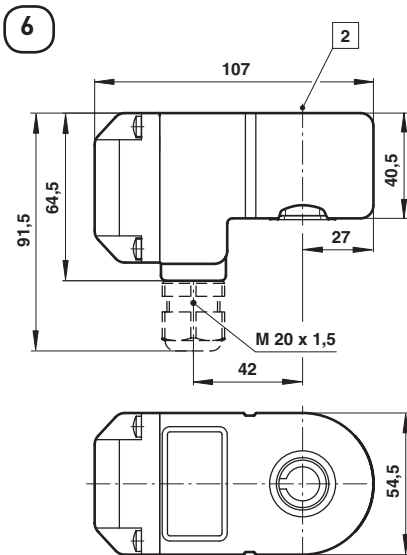
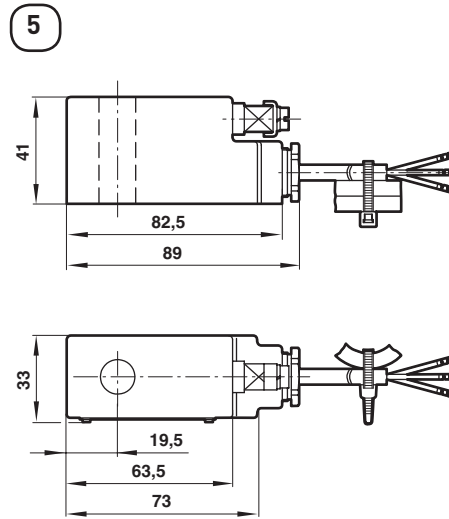
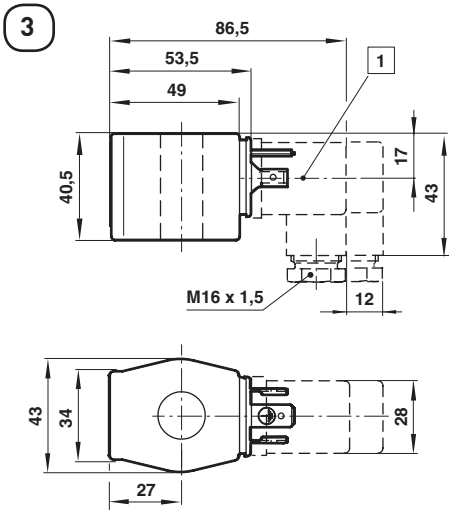


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12

Electrical connection
005


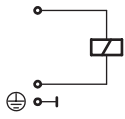
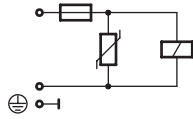
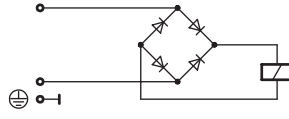
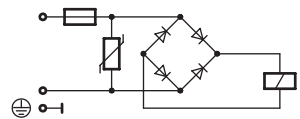
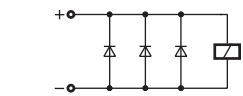
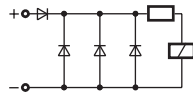
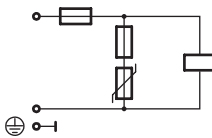
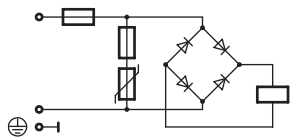
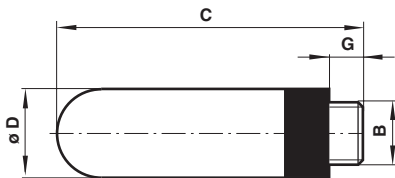
- 2 External control pressure connection G1/8, 1/8 NPT
- 3 Working port G1/4, G1/2 or 1/4 NPT, 1/2 NPT
- 4 Electrical port M16x1,5
- 9 Position of gasket internal pilot air
- 10 Position of gasket external pilot air

Dimensions

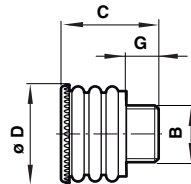
Solenoid operators



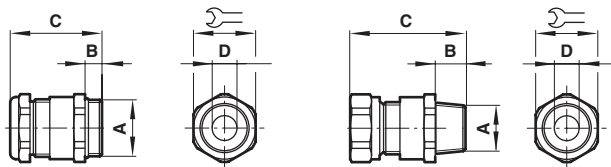
- 1 Connector 4 x 90° turnable
- 2 Ø 13 (with spacer tube)
- 3 M20 x 1,5 or 1/2 - 14 NPT
- 4 Flying leads 450 mm long
- 5 M20 x 1,5

Circuit diagrams
1

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Silencer
Model: M/S2, M/S4, C/S2, C/S4


B	G	C	Ø D	Weight (g)	Model
G1/4	7	35,5	15,5	2,9	M/S2
1/4 NPT	7	35,5	15,5	2,9	C/S2
G1/2	12	67	23	11,5	M/S4
1/2 NPT	12	67	23	11,5	C/S4

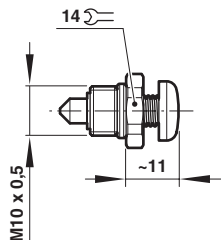
Exhaust guard
Model: 0613422, 0613423


B	Suitable for	G	C	Ø D	Weight (g)	Model
1/4"	G1/4, 1/4 NPT	10	26,5	21	5	0613422
1/2"	G1/2, 1/2 NPT	12	33,5	29	11	0613423

Cable gland


0588925 only

A	B	C	Ø D	⌀	Model
M20 x 1,5	9	36	5 ... 8	22	0588819
M20 x 1,5	6,5	27,5	9 ... 13	22	0589385
M20 x 1,5	14	39	10 ... 14	24	0588851
1/2-14 NPT	15	58	7,5 ... 11,9	24	0588925
M20 x 1,5	14	39	7 ... 12	24	0589395
M20 x 1,5	10	34	10 ... 14	24	0589387

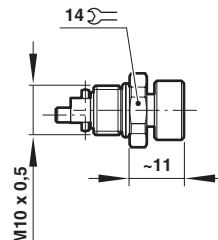
Manual override
Model: 0553886

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 features**«.

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 pneumatic systems and to provide adequate safeguards to prevent personal injury or damage to

Model: 0553887


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.

Functional safety (SIL):

Suitable for certain applications can only be evaluated through examination of each safety-related overall system with regard to the requirements of IEC 61508/61511.