NORGREN
ENERGY SECTOR

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

For single and double operated actuators

Valves for safety systems up to SIL 4 (IEC 61508)

Crossover-free switching, switch-over function guaranteed even with small cross section

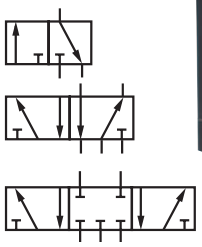
Valve switches at power failure into starting position (mechanical return spring, monostable design)

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 emb, Ex dmb, 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



TÜV
DIN EN 61508
IEC 61508
up to SIL 4

Approval depends on magnetic system, see pages 4 and 7!

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

Mounting position:
Optional, impulse valves preferably horizontally

Orifice:
DN 6 mm, DN 8 mm

Port size:
G 1/4, 1/4 NPT, G 1/2, 1/2 NPT

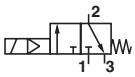
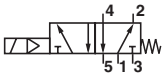
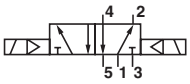
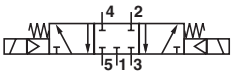
Operating pressure:
2,5 ... 8 bar (36 ... 116 psi) with internal air supply
0 ... 8 bar (0 ... 116 psi) with external air supply

Fluid/Ambient temperature:
-40 ... +65°C (NBR) (-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 installation please protect all connections against the penetration of moisture!

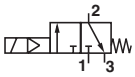
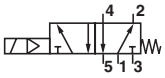
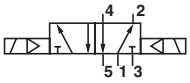
Materials:
Body: aluminium 3.0615 with surface treatment for rough environmantal conditions (condensate test with alternating temperatures in sulphuric environment, salt spray test with different sodium chloride solutions, tested in ammonia environment), brass 2.0401 (Ms 58), stainless steel 1.4404 (316 L)
Seals: NBR (special perbunan) or HNBR

Technical data

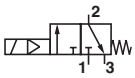
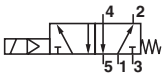
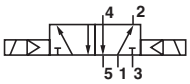
Valves with seals NBR -40 ... +65°C *3), housing: aluminium anodized

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	1300	x	0,5	1	9713535
	1/4 NPT	3/2	Solenoid/spring	2,5 ... 8	1300	x	0,5	1	9713545
	G 1/2	3/2	Solenoid/spring	2,5 ... 8	2600		0,5	2	9713555
	1/2 NPT	3/2	Solenoid/spring	2,5 ... 8	2600		0,5	2	9713565
	G 1/4	5/2	Solenoid/spring	2,5 ... 8	1300	x	0,7	3	9710535
	1/4 NPT	5/2	Solenoid/spring	2,5 ... 8	1300	x	0,7	3	9710545
	G 1/2	5/2	Solenoid/spring	2,5 ... 8	2600		0,7	4	9710555
	1/2 NPT	5/2	Solenoid/spring	2,5 ... 8	2600		0,7	4	9710565
	G 1/4	5/2	Solenoid/solenoid	2,5 ... 8	1300		0,7	5	9711535
	1/4 NPT	5/2	Solenoid/solenoid	2,5 ... 8	1300		0,7	5	9711545
	G 1/4	5/3	Solenoid/solenoid, APB	2,5 ... 8	950		0,7	6	9712535
	1/4 NPT	5/3	Solenoid/solenoid, APB	2,5 ... 8	950		0,7	6	9712545

Housing: brass

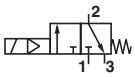
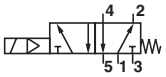
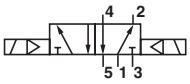
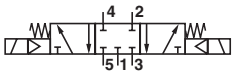
Symbol	Port size	Function	Actuation/return	Operating pressure (bar)	Flow (l/min)	Test certificate IEC 61508 *2)	Weight (kg)	Dimension No.	Model *1)
	G 1/4	3/2	Solenoid/spring	2,5 ... 8	1300	x	1,0	1	9713635
	1/4 NPT	3/2	Solenoid/spring	2,5 ... 8	1300	x	1,0	1	9713645
	G 1/2	3/2	Solenoid/spring	2,5 ...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

Housing: stainless steel

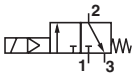
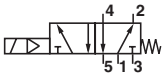
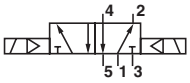
Symbol	Port size	Function	Actuation/return	Operating pressure (bar)	Flow (l/min)	Test certificate IEC 61508 *2)	Weight (kg)	Dimension No.	Model *1)
	G 1/4	3/2	Solenoid/spring	2,5 ... 8	1300	x	1,1	1	9713735
	1/4 NPT	3/2	Solenoid/spring	2,5 ... 8	1300	x	1,1	1	9713745
	G 1/2	3/2	Solenoid/spring	2,5 ...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

*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

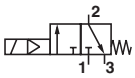
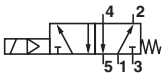
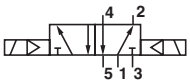
Valves with seals HNBR -25 ... +80°C *3), housing: aluminium anodized

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	1300	x	0,5	1	9713235
	1/4 NPT	3/2	Solenoid/spring	2,5 ... 8	1300	x	0,5	1	9713245
	G 1/2	3/2	Solenoid/spring	2,5 ... 8	2600	x	0,5	2	9713255
	1/2 NPT	3/2	Solenoid/spring	2,5 ... 8	2600	x	0,5	2	9713265
	G 1/4	5/2	Solenoid/spring	2,5 ... 8	1300	x	0,7	3	9710235
	1/4 NPT	5/2	Solenoid/spring	2,5 ... 8	1300	x	0,7	3	9710245
	G 1/2	5/2	Solenoid/spring	2,5 ... 8	2600	x	0,7	4	9710255
	1/2 NPT	5/2	Solenoid/spring	2,5 ... 8	2600	x	0,7	4	9710265
	G 1/4	5/2	Solenoid/solenoid	2,5 ... 8	1300		0,7	5	9711235
	1/4 NPT	5/2	Solenoid/solenoid	2,5 ... 8	1300		0,7	5	9711245
	G 1/4	5/3	Solenoid/solenoid, APB	2,5 ... 8	950		0,7	6	9712235
	1/4 NPT	5/3	Solenoid/solenoid, APB	2,5 ... 8	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	1300	x	1,0	1	9713335
	1/4 NPT	3/2	Solenoid/spring	2,5 ... 8	1300	x	1,0	1	9713345
	G 1/2	3/2	Solenoid/spring	2,5 ... 8	2600	x	1,0	2	9713355
	1/2 NPT	3/2	Solenoid/spring	2,5 ... 8	2600	x	1,0	2	9713365
	G 1/4	5/2	Solenoid/spring	2,5 ... 8	1300	x	1,7	3	9710335
	1/4 NPT	5/2	Solenoid/spring	2,5 ... 8	1300	x	1,7	3	9710345
	G 1/2	5/2	Solenoid/spring	2,5 ... 8	2600	x	1,7	4	9710355
	1/2 NPT	5/2	Solenoid/spring	2,5 ... 8	2600	x	1,7	4	9710365
	G 1/4	5/2	Solenoid/solenoid	2,5 ... 8	1300		1,7	5	9711335
	1/4 NPT	5/2	Solenoid/solenoid	2,5 ... 8	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	1300	x	1,1	1	9713435
	1/4 NPT	3/2	Solenoid/spring	2,5 ... 8	1300	x	1,1	1	9713445
	G 1/2	3/2	Solenoid/spring	2,5 ... 8	2600	x	1,1	2	9713455
	1/2 NPT	3/2	Solenoid/spring	2,5 ... 8	2600	x	1,1	2	9713465
	G 1/4	5/2	Solenoid/spring	2,5 ... 8	1300	x	1,8	3	9710435
	1/4 NPT	5/2	Solenoid/spring	2,5 ... 8	1300	x	1,8	3	9710445
	G 1/2	5/2	Solenoid/spring	2,5 ... 8	2600	x	1,8	4	9710455
	1/2 NPT	5/2	Solenoid/spring	2,5 ... 8	2600	x	1,8	4	9710465
	G 1/4	5/2	Solenoid/solenoid	2,5 ... 8	1300		1,8	5	9711435
	1/4 NPT	5/2	Solenoid/solenoid	2,5 ... 8	1300		1,8	5	9711445

*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 -25 ... +65°C or 0...+80°C see test certificate (on request)
Valve function: APB = All Ports Blocked

Solenoid operators

	Power consumption 24 V d.c. (W)	Power consumption 230 V a.c. (VA)	Rated current 24 V d.c. (m A)	Rated current 230 V a.c. (m A)	Ex-Protection (ATEX-Category)	Protection class *7)	Temperature Ambient/ Fluid (°C)	Electrical connection	Weight (kg)	Dimension No.	Circuit diagram No.	Model
	1,9	2,1 *5)	78	10		IP00 without connector *5) IP65 with connector *5)	-25 ... +60	DIN EN 175 301-803 Form A	0,3	7	1/5	0763 *7)
	3,6	-	150	-	II2G II2D	Ex mb II T4 *1) Ex tD A21 IP66 T110°	-20 ... +70	3 m Cable	0,4	9	4	0298 *8)
	-	4,6	-	18	II2G II2D	Ex mb II T4 *1) Ex tD A21 IP66 T110°	-20 ... +70	3 m Cable	0,4	9	7	0299 *8)
	0,8	-	33	-	II2G II2D	Ex e mb IIC T5/T6 Gb Ex tb IIIC T130°C Db IP66 *2), *10)	-40 ... +80 T5 -40 ... +70 T6 -40 ... +80	M20 X 1,5 *6)	0,6	10	4	4200 *8)
	-	1,3	-	6	II2G II2D	Ex e mb IIC T5/T6 Gb Ex tb IIIC T130°C Db IP66 *2), *10)	-40 ... +80 T5 -40 ... +70 T6 -40 ... +80	M20 X 1,5 *6)	0,6	10	7	4201 *8)
	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 IP66 *3), *10)	-40 ... +80 T5 -40 ... +70 T6 -40 ... +80	1/2 NPT *6)	0,8	17	20	4600 *8)
	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 IP66 *3), *10)	-40 ... +80 T5 -40 ... +70 T6 -40 ... +80	M20 X 1,5 *6)	0,8	17	21	4602 *8)
	-	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 IP66 *3), *10)	-40 ... +80 T5 -40 ... +70 T6 -40 ... +80	1/2 NPT *6)	0,8	17	20	4601 *8)
	-	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 IP66 *3), *10)	-40 ... +80 T5 -40 ... +70 T6 -40 ... +80	M20 X 1,5 *6)	0,8	17	21	4603 *8)
Stainless steel 	0,8	–	33	–	II2G II2D	Ex mb d IIC T4/T6 Ex mb e II T4/T6 Ex tD A21 IP66 T100° *2), *10)	-40 ... +50 T4 -40 ... +40 T6 -40 ... +80	M20 X 1,5 *6)	1,2	19	4	4802 *8), *11)
		1,3	–	6	II2G II2D	Ex mb d IIC T4/T6 Ex mb e II T4/T6 Ex tD A21 IP66 T100° *2), *10)	-40 ... +50 T4 -40 ... +40 T6 -40 ... +80	M20 X 1,5 *6)	1,2	19	7	4803 *8), *11)
	1,4	-	59	-		XP/DIP, Div. 1 & 2 Cl. I, Gr. A-D Cl. II / III, Gr. E-G T3 (160°C) *4) NEMA 4, 4X, 6, 6P, 7, 9	-20 ... +60	Flying leads 450 mm long	0,4	18	1	3720

Standard voltages 24 V d.c., 230 V a.c., other voltages on request.
Design according to VDE 0580, EN 50014/50028. 100% duty cycle.

*1) EG-Type-Examination-Certificate KEMA 02 ATEX 1347 X
*2) EG-Type-Examination-Certificate KEMA 98 ATEX 4452 X
*3) EG-Type-Examination-Certificate PTB 02 ATEX 2085 X
*4) CSA-LR 57643-6, FM Approval
*5) Required connector: type 0570275 for d.c. and 0663303 for a.c.
*6) Connector cable gland not supplied, see table »Accessories«
*7) IP-Protection class according to EN60529
*8) Suitable for outdoor installation
*10) IEC Ex Certificate of Conformity
*11) EG-Type-Examination-Certificate PTB 06 ATEX 2054 X

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 dmb; if a cable gland with Ex e type of proteciton is used, the solenoid will have protection class Ex emb.

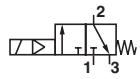
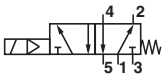
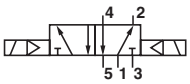
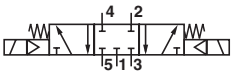
Solenoid actuators for intrinsically-safe circuits

	Nominal resistance RN coil (Ω)	Min. required switching current (mA)	Resistance Rw 60 coil * (Ω)	Required voltage at terminal Rw 60 (V)	Protection class	Temperature Ambient/Fluid (°C)	Weight (kg)	Dimension No.	Circuit diagram No.	Model
	200	33	240	8	Ex ia IIC T6	-40 ... +60	0,85	6	10	2050
	391	24	460	11	Ex ia IIC T4	-40 ... +80	0,85	6	10	2051
	736	17	880	15	Ex iaD 21 T80°C	-40 ... +60	0,85	6	10	2052
	1220	13	1460	19	Ex iaD 21 T100°C	-40 ... +80	0,85	6	10	2053

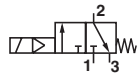
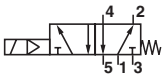
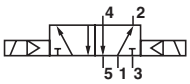
EG-Type-Examination-Certificate PTB 07 ATEX 2019 (Kat. II 2 GD)
IECEx Certificate of Conformity IECEx PTB 07.0017
Cable gland is included in delivery

When selecting an intrinsically safe power supply, the permissible maximum values according to the Certificate of Conformity should be taken into acount.
Ui = 45 V, Ii = 500 mA, according to Tab. A. 1, EN 60079-11
Pi = 2,0 W, Li and Ci can be ignored.

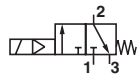
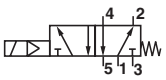
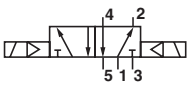
Valves, indirect solenoid operated using low-power pilot system in protection class Ex ia IIC T4/T6, seals NBR -40 ... +65°C , housing: aluminium anodized, suitable solenoid operators see page 7 only

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

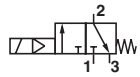
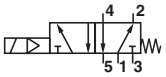
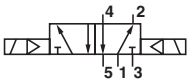
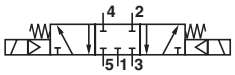
Symbol	Port size	Function	Actuation/return	Operating pressure (bar)	Flow (l/min)	Weight (kg)	Dimension No.	Model *1)
	G 1/4	3/2	Solenoid/spring	2,5 ... 8	1300	1,0	7	9713639
	1/4 NPT	3/2	Solenoid/spring	2,5 ... 8	1300	1,0	7	9713649
	G 1/2	3/2	Solenoid/spring	2,5 ... 8	2600	1,0	8	9713659
	1/2 NPT	3/2	Solenoid/spring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

Housing: Stainless steel

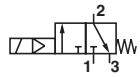
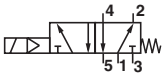
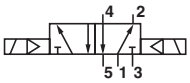
Symbol	Port size	Function	Actuation/return	Operating pressure (bar)	Flow (l/min)	Weight (kg)	Dimension No.	Model *1)
	G 1/4	3/2	Solenoid/spring	2,5 ... 8	1300	1,1	7	9713739
	1/4 NPT	3/2	Solenoid/spring	2,5 ... 8	1300	1,1	7	9713749
	G 1/2	3/2	Solenoid/spring	2,5 ... 8	2600	1,1	8	9713759
	1/2 NPT	3/2	Solenoid/spring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

*1) When ordering please indicate solenoid, voltage and electrical connection, see page 7
Valve function: APB = All Ports Blocked

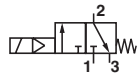
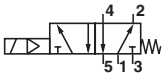
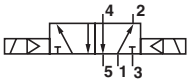
Valves, Indirect solenoid actuated using low-power pilot system in protection class Ex ia IIC T4/T6, seals HNBR -25 ... +80°C, housing: aluminium anodized, suitable solenoid operators see page 7 only

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	1300	1,0	7	9713339
	1/4 NPT	3/2	Solenoid/spring	2,5 ... 8	1300	1,0	7	9713349
	G 1/2	3/2	Solenoid/spring	2,5 ... 8	2600	1,0	8	9713359
	1/2 NPT	3/2	Solenoid/spring	2,5 ... 8	2600	1,0	8	9713369
	G 1/4	5/2	Solenoid/spring	2,5 ... 8	1300	1,7	9	9710339
	1/4 NPT	5/2	Solenoid/spring	2,5 ... 8	1300	1,7	9	9710349
	G 1/2	5/2	Solenoid/spring	2,5 ... 8	2600	1,7	10	9710359
	1/2 NPT	5/2	Solenoid/spring	2,5 ... 8	2600	1,7	10	9710369
	G 1/4	5/2	Solenoid/solenoid	2,5 ... 8	1300	1,7	11	9711339
	1/4 NPT	5/2	Solenoid/solenoid	2,5 ... 8	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	1300	1,1	7	9713439
	1/4 NPT	3/2	Solenoid/spring	2,5 ... 8	1300	1,1	7	9713449
	G 1/2	3/2	Solenoid/spring	2,5 ... 8	2600	1,1	8	9713459
	1/2 NPT	3/2	Solenoid/spring	2,5 ... 8	2600	1,1	8	9713469
	G 1/4	5/2	Solenoid/spring	2,5 ... 8	1300	1,8	9	9710439
	1/4 NPT	5/2	Solenoid/spring	2,5 ... 8	1300	1,8	9	9710449
	G 1/2	5/2	Solenoid/spring	2,5 ... 8	2600	1,8	10	9710459
	1/2 NPT	5/2	Solenoid/spring	2,5 ... 8	2600	1,8	10	9710469
	G 1/4	5/2	Solenoid/solenoid	2,5 ... 8	1300	1,8	11	9711439
	1/4 NPT	5/2	Solenoid/solenoid	2,5 ... 8	1300	1,8	11	9711449

*1) When ordering please indicate solenoid, voltage and electrical connection, see page 7
Valve function: APB = All Ports Blocked

Low-power pilot system in protection class Ex ia IIC T4/T6
Suitable valves see page 2 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)	Protection class *4)	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	-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	-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

*4) Category II2G, EG-Type-Examination-Certificate PTB 06 ATEX 2001U
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	00 internal air supply
		005 M16 x 1,5 cable gland	0Z external air supply

Option selector

971★★★★.★★★★.★★★.★★

Function	Substitute
5/2 way valve with spring return	0
5/2 way impuls	1
5/3 way valve with spring return (APB)	2
3/2 way valve with spring return	3
Materials: Housing/Seals	**Substitute**
Aluminium/HNBR (-25...+ 80°C)*	2
Brass/HNBR (-25...+ 80°C)*	3
Stainless steel/HNBR (-25...+ 80°C)*	4
Aluminium/NBR (-40...+ 65°C)*	5
Brass/NBR (-40...+ 65°C)*	6
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

Air supply	Substitute
Internal	0
External	Z
Voltage	**Substitute**
24 V d.c.	024.0
230 V a.c.	230.5
Solenoid	**Substitute**
See solenoid table	
Version	**Substitute**
Without manual override (retrofit)	5
Semi automatic (on request)	7
low power pilot (see page 5 and 6)	9

Ordering example
5/2 directional control valve with spring return,
Port size G 1/4, solenoid in protection class
Ex emb II, 24 V DC
Type: 9710535.4200.024.00
internal air supply
Type: 9710535.4200.024.0Z
external air supply
II2GD Ex e cable gland M20x1,5
Type: 0588819

Accessories

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

Page 14 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 14	Page 14	Page 14
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

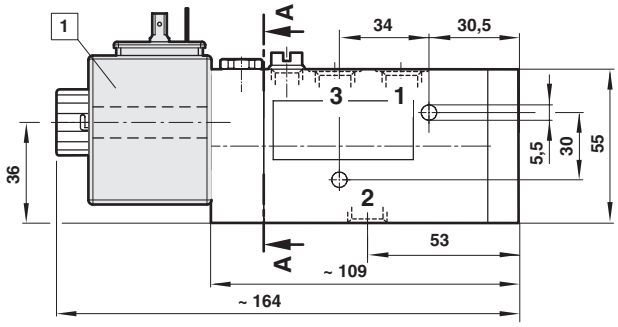
Dimensions

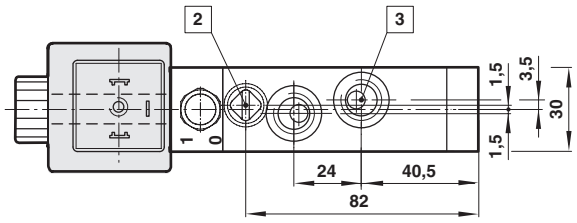
Dimensions shown in mm

Projection/First angle

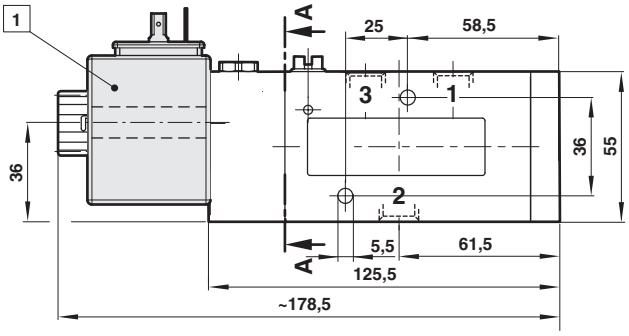
Valves

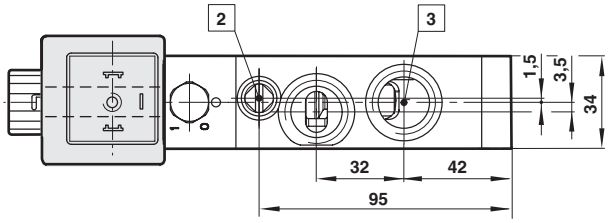
1



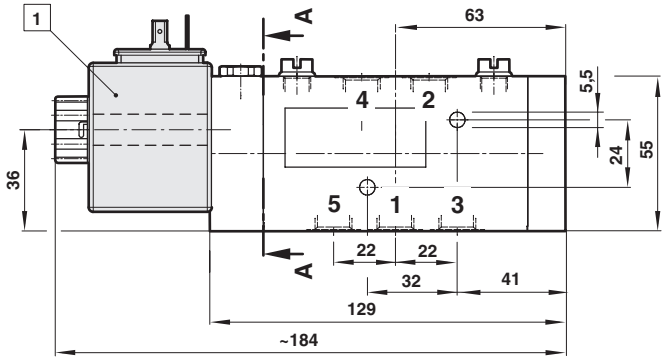


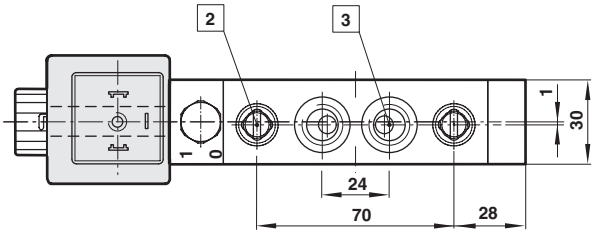
2



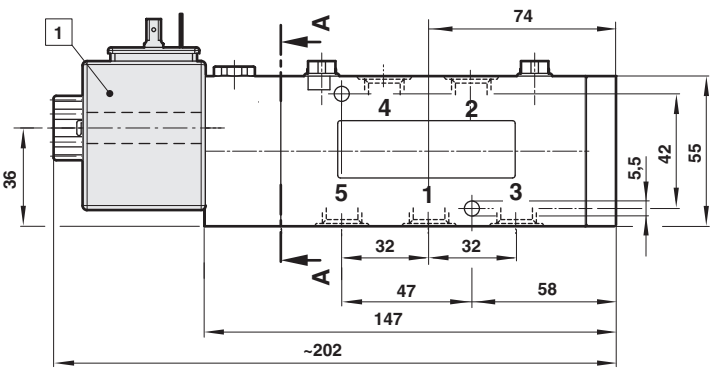


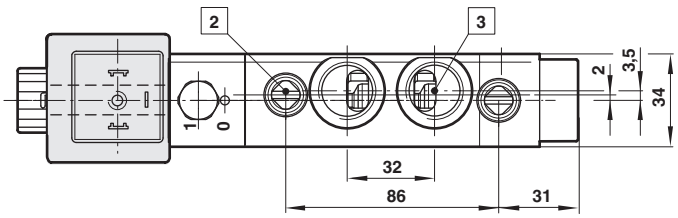
3



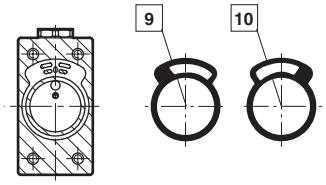


4





A - A



1 Solenoid dimensions see page 13

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

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

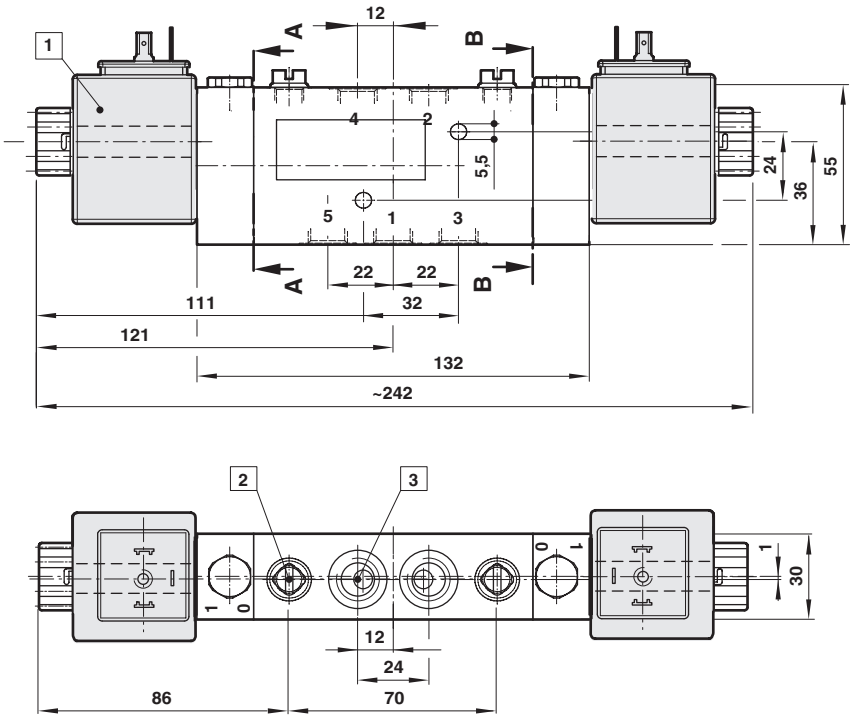
9 Position of gasket internal pilot air

10 Position of gasket external pilot air

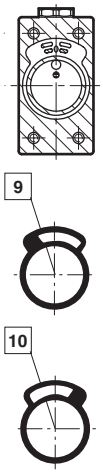
Dimensions shown in mm

Projection/First angle

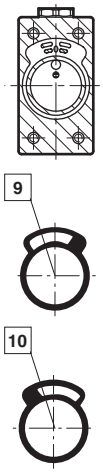
5



A - A



B - B



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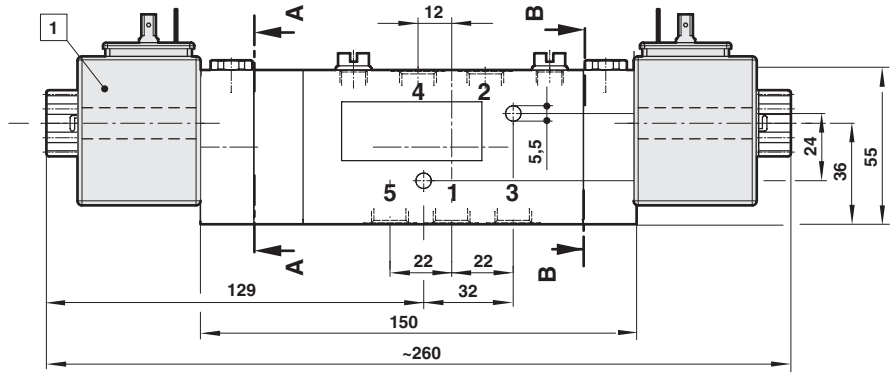
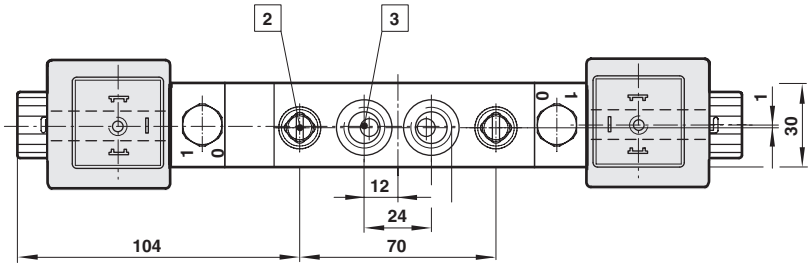
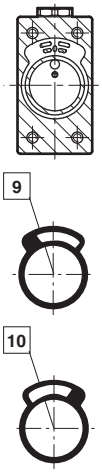
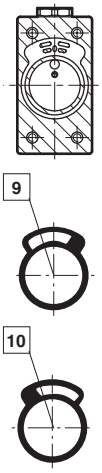




A - A



B - B



1 Solenoid dimensions see page 13

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

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

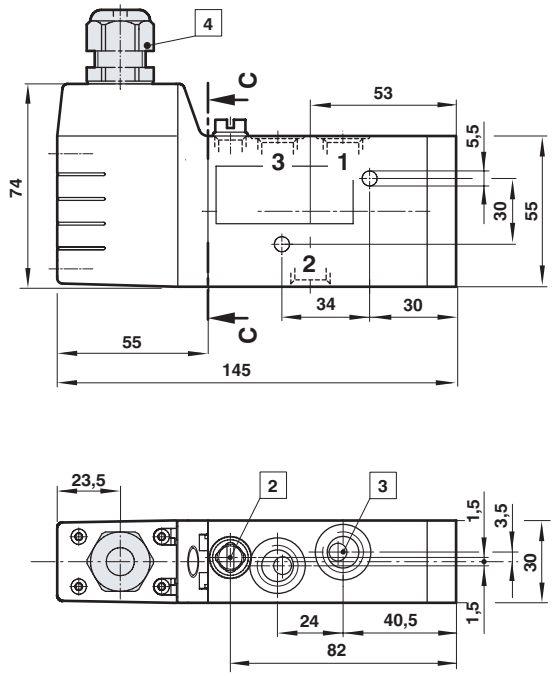
9 Position of gasket internal pilot air

10 Position of gasket external pilot air

Dimensions shown in mm

Projection/First angle

7



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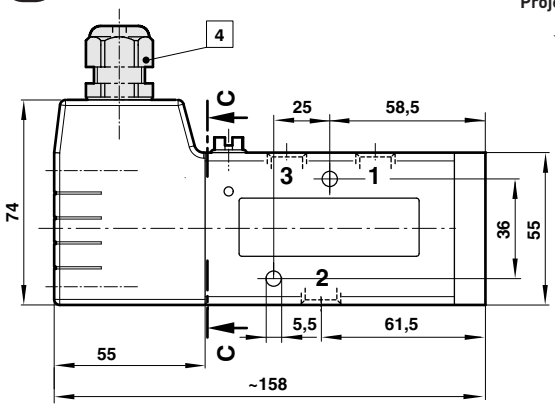

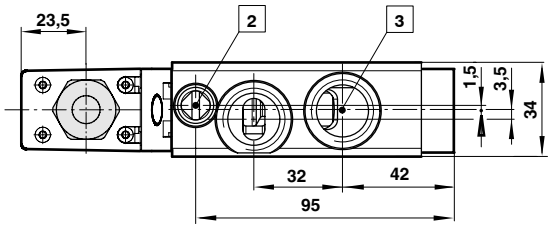

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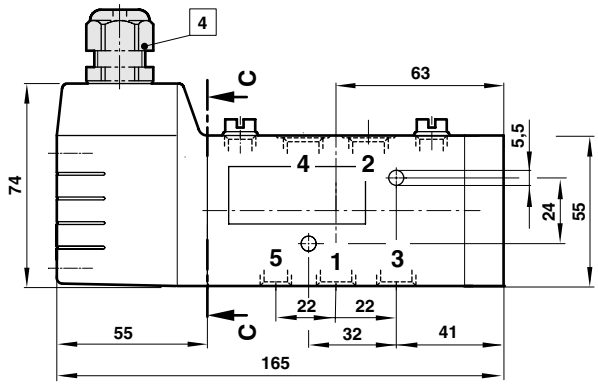

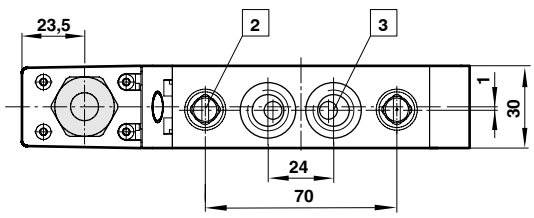

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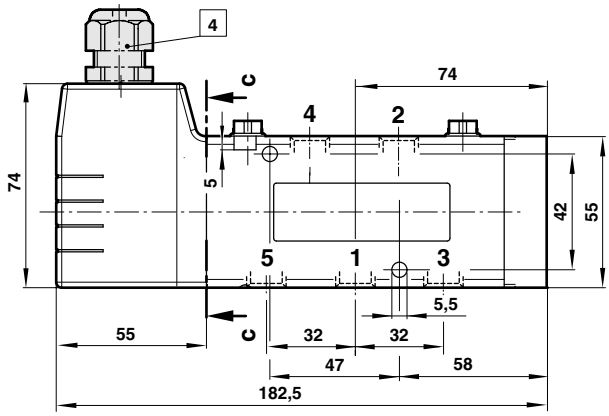
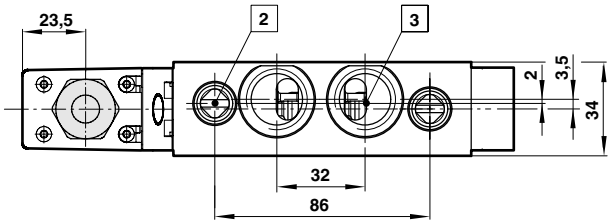
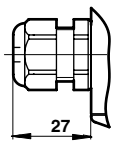




Electrical connection

005



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

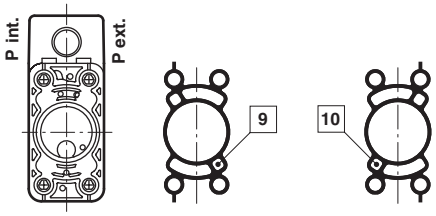
3 Working port G1/4, G1/2 or 1/4 NPT, 1/2 NPT

4 Electrical port M16x1,5

9 Position of gasket internal pilot air

10 Position of gasket external pilot air

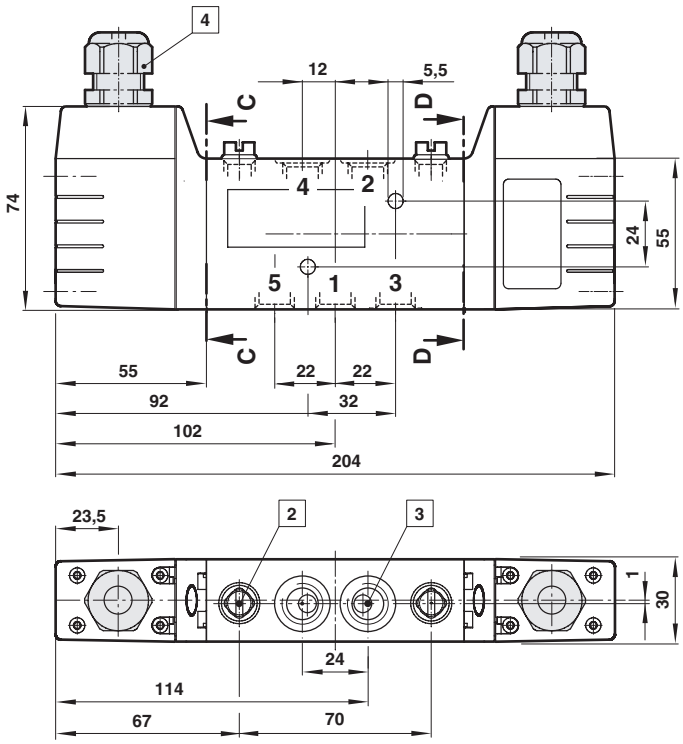
C-C

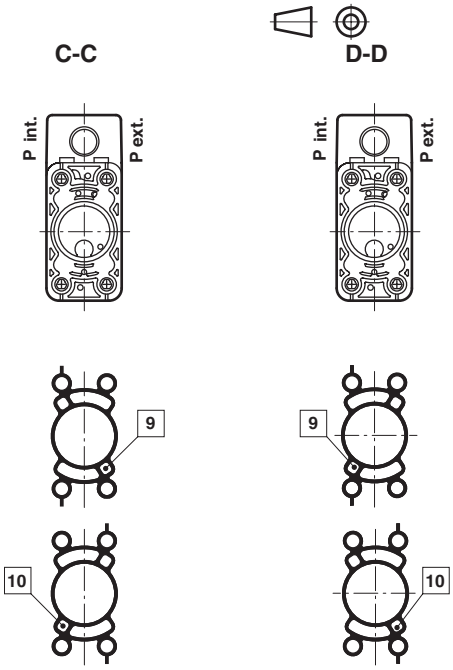


11

Dimensions shown in mm

Projection/First angle





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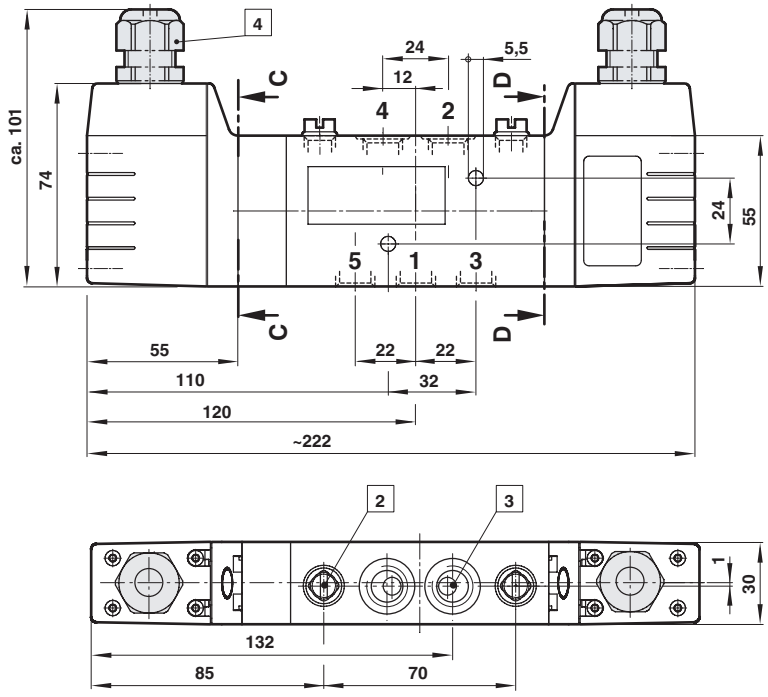
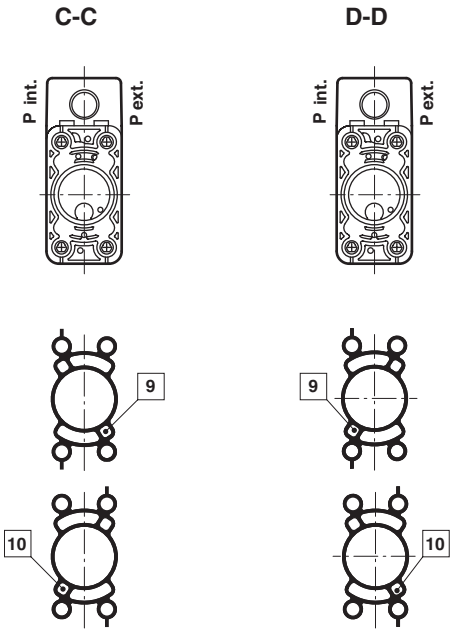
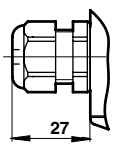




Electrical connection

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

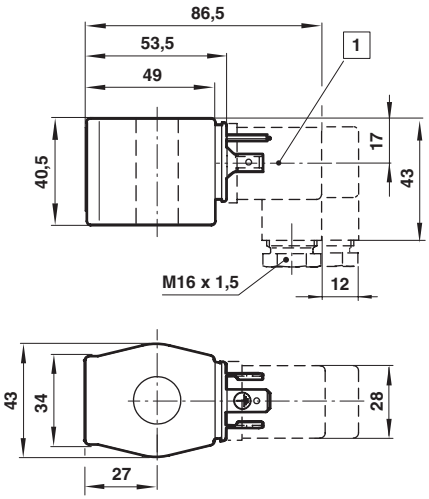
Dimensions

Solenoid operators

Dimensions shown in mm

Projection/First angle

7



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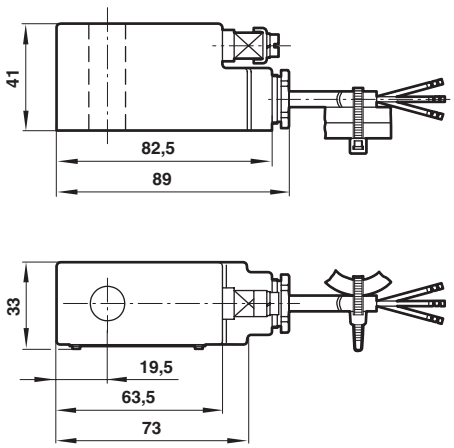

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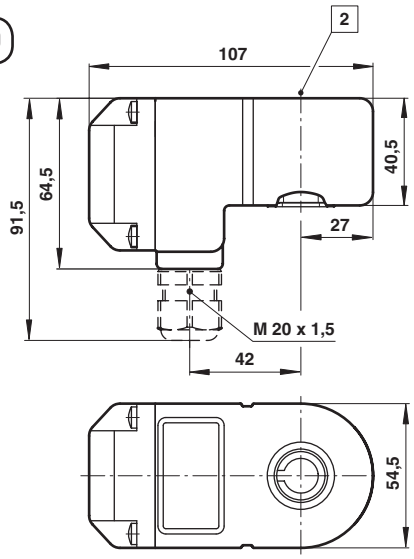

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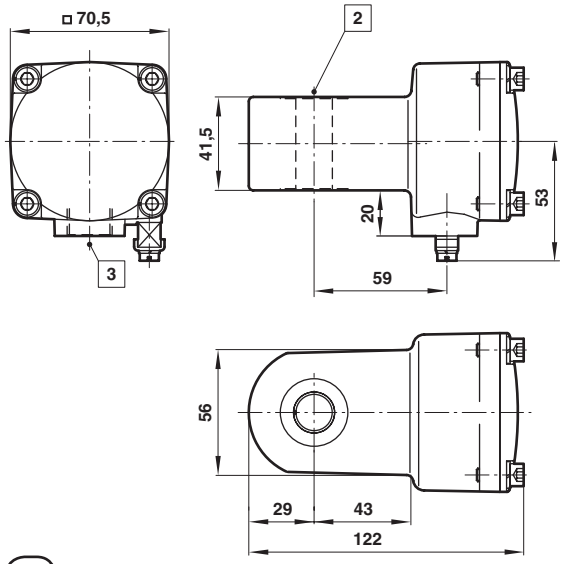

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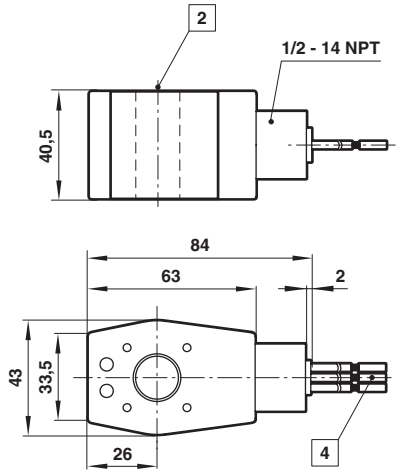

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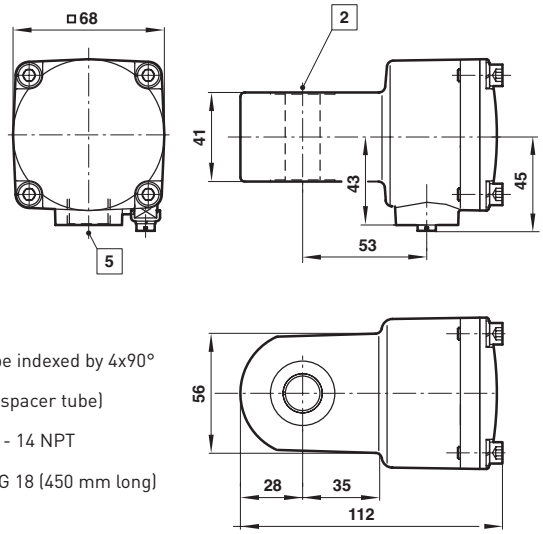


1 Connector can be indexed by 4x90°

2 Ø 16 or 13 (with spacer tube)

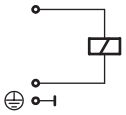
3 M20 x 1,5 or 1/2 - 14 NPT

4 Flying leads AWG 18 (450 mm long)

5 M20 x 1,5

Circuit diagrams

1



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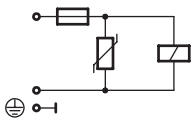

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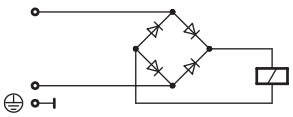

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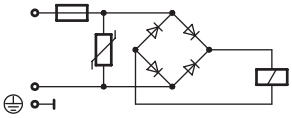

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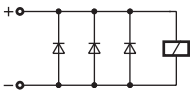

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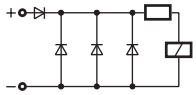

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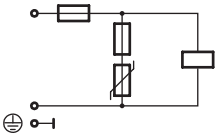

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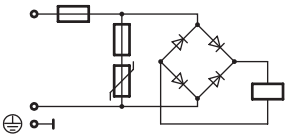
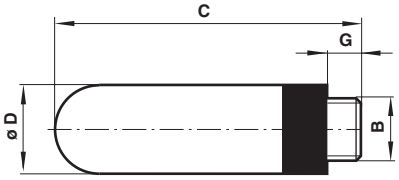


Silencer
Model: M/S2, M/S4, C/S2, C/S4

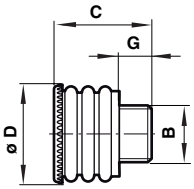


B	G	C	Ø D	Weight (g)	Model
G1/4	7	35,5	15,5	2,9	M/S2
1/4 NPT	7	35,5	15,5	2,9	C/S2
G1/2	12	67	23	11,5	M/S4
1/2 NPT	12	67	23	11,5	C/S4

Exhaust guard
Model: 0613422, 0613423

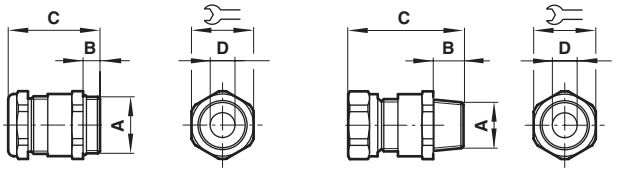
Dimensions shown in mm

Projection/First angle



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

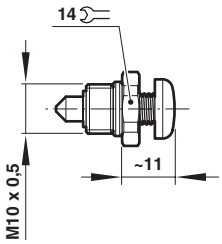
Cable gland



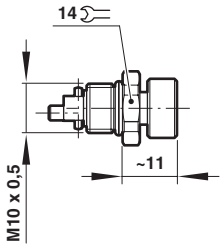
0588925 only

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



Model: 0553887



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 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.