

## 97105 Inline & NAMUR, 3/2, 5/2 & 5/3 indirect solenoid actuated spool valves



- > 1/4" & 1/2" (G or NPT) Inline & NAMUR
- > Main application: Single and double acting actuators
- > Approval according to DIN EN 161, DIN 3394 and IEC 61508, multichannel up to SIL 3
- > Crossover-free switching
- > Suited for outdoor use under critical environment conditions
- > Variable valve solenoid combination
- > Add-on manual override



### Technical features

#### Medium:

Neutral, gaseous fluids which do not damage the product or affect the function (e.g. compressed air, nitrogen). Based on ISO 8573-1-2010 classification 1-2-3.

#### Operation:

Indirect solenoid operated spool valve

#### Operating pressure:

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

#### Orifice:

6 mm (1/4"); 8 mm (1/2")

#### Port size:

G1/4, G1/4 NAMUR, 1/4 NPT, 1/4 NPT NAMUR, G1/2, G1/2 NAMUR, 1/2 NPT, 1/2 NPT NAMUR  
NAMUR Interface with integrated recirculation from the exhaust air to the actuator spring chamber

#### Flow direction:

Fixed

#### Mounting position:

Optional, impulse valves preferably horizontally

#### Ambient/Media temperature:

NBR:

-40 ... +65°C (-40 ... +149°F)

HNBR:

-25 ... +80°C (-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!

#### Material:

Body: Aluminium anodized (suitable for high humidity, sulphuric, sodium, chloride or ammonia environments, brass 2.0401, stainless steel 1.4404 (316 L))  
Seals: NBR or HNBR

#### Further versions:

Manual reset on request

#### Flow conversion:

Cv US Gallon/min (water) =

l/min (air) x 0,001

Kv m<sup>3</sup>/h (water) =

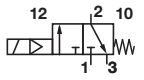
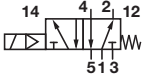
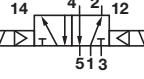
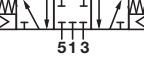
l/min (air) x 0,000906

## Technical data Inline version

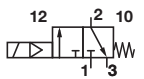
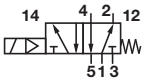
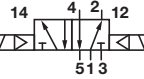
Seals NBR: -40 ... +65°C / IEC 61508: -40 ... +40°C

Seals HNBR: -25 ... +80°C / IEC 61508: -25 ... +65°C or 0 ... +80°C

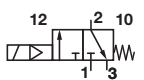
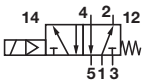
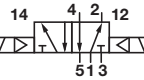
### Housing: Aluminium anodized

Symbol	Port size	Actuation/return	Flow (l/min)	Dimension No.	NBR		HNBR	
					IEC 61508	Model *1)	IEC 61508	Model *1)
	G1/4	Solenoid/spring	1300	1	x	9713535	x	9713235
	1/4 NPT	Solenoid/spring	1300	1	x	9713545	x	9713245
	G1/2	Solenoid/spring	2600	2	—	9713555	x	9713255
	1/2 NPT	Solenoid/spring	2600	2	—	9713565	x	9713265
	G1/4	Solenoid/spring	1300	3	x	9710535	x	9710235
	1/4 NPT	Solenoid/spring	1300	3	x	9710545	x	9710245
	G1/2	Solenoid/spring	2600	4	—	9710555	x	9710255
	1/2 NPT	Solenoid/spring	2600	4	—	9710565	x	9710265
	G1/4	Solenoid/solenoid	1300	5	—	9711535	—	9711235
	1/4 NPT	Solenoid/solenoid	1300	5	—	9711545	—	9711245
	G1/2	Solenoid/solenoid	2600	6	—	9711555	—	9711255
	1/2 NPT	Solenoid/solenoid	2600	6	—	9711565	—	9711265
	G1/4	Solenoid/solenoid	950	7	—	9712535	—	9712235
	1/4 NPT	Solenoid/solenoid	950	7	—	9712545	—	9712245

### Housing: Stainless steel

Symbol	Port size	Actuation/return	Flow (l/min)	Dimension No.	NBR		HNBR	
					IEC 61508	Model *1)	IEC 61508	Model *1)
	G1/4	Solenoid/spring	1300	1	x	9713735	x	9713435
	1/4 NPT	Solenoid/spring	1300	1	x	9713745	x	9713445
	G1/2	Solenoid/spring	2600	2	—	9713755	x	9713455
	1/2 NPT	Solenoid/spring	2600	2	—	9713765	x	9713465
	G1/4	Solenoid/spring	1300	3	x	9710735	x	9710435
	1/4 NPT	Solenoid/spring	1300	3	x	9710745	x	9710445
	G1/2	Solenoid/spring	2600	4	—	9710755	x	9710455
	1/2 NPT	Solenoid/spring	2600	4	—	9710765	x	9710465
	G1/4	Solenoid/solenoid	1300	5	—	9711735	—	9711435
	1/4 NPT	Solenoid/solenoid	1300	5	—	9711745	—	9711445

### Housing: Brass

Symbol	Port size	Actuation/return	Flow (l/min)	Dimension No.	NBR		HNBR	
					IEC 61508	Model *1)	IEC 61508	Model *1)
	G1/4	Solenoid/spring	1300	1	x	9713635		
	1/4 NPT	Solenoid/spring	1300	1	x	9713645		
	G1/2	Solenoid/spring	2600	2	—	9713655		
	1/2 NPT	Solenoid/spring	2600	2	—	9713665	x	9713365
	G1/4	Solenoid/spring	1300	3	x	9710635		
	1/4 NPT	Solenoid/spring	1300	3	x	9710645	x	9710345
	G1/2	Solenoid/spring	2600	4	—	9710655	x	9710355
	1/2 NPT	Solenoid/spring	2600	4	—	9710665		
	1/4 NPT	Solenoid/solenoid	1300	5	—	9711645		
	1/2 NPT	Solenoid/solenoid	2600	6	—	9711665		

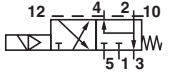
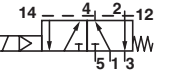
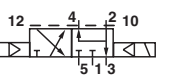
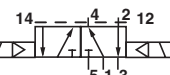
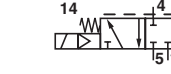
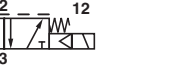


\*1) When ordering please indicate solenoid, voltage and current type (frequency)

## Technical data NAMUR version

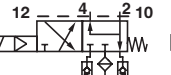
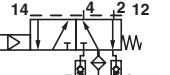
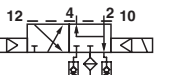
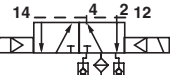
Seals NBR: -40 ... +65°C / IEC 61508: -40 ... +40°C

Seals HNBR: -25 ... +80°C / IEC 61508: -25 ... +65°C or 0 ... +80°C

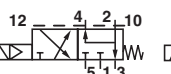
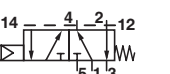
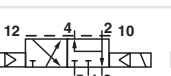
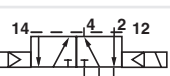
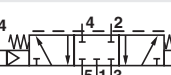

### Housing: Aluminium anodized

Symbol	Port size	Actuation/return	Flow (l/min)	Dimension No.	NBR		HNBR	
					IEC 61508	Model *1)	IEC 61508	Model *1)
 	G1/4 NAMUR	Solenoid/spring	1300	8	x	9710505	x	9710205
	1/4 NPT NAMUR	Solenoid/spring	1300	8	x	9710515	x	9710215
 	G1/2 NAMUR	Solenoid/spring	2600	9	—	9710595	x	9710295
	1/2 NPT NAMUR	Solenoid/spring	2600	9	—	9710596	x	9710296
 	G1/4 NAMUR	Solenoid/solenoid	1300	10	—	9711505	—	9711205
	1/4 NPT NAMUR	Solenoid/solenoid	1300	10	—	9711515	—	9711215
 	G1/4 NAMUR	Solenoid/solenoid (APB)	950	11	—	9712505	—	9712205
	1/4 NPT NAMUR	Solenoid/solenoid (APB)	950	11	—	9712515	—	9712215

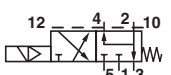
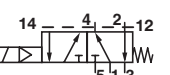
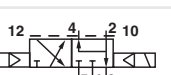
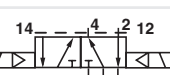
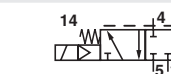

### Housing: Aluminium anodized with inlet filter and exhaust guard

Symbol	Port size	Actuation/return	Flow (l/min)	Dimension No.	HNBR	
					IEC 61508	Model *1)
 	G1/4 NAMUR	Solenoid/spring	1300	12	x	9710901
						(without accessories)
 	G1/4 NAMUR	Solenoid/solenoid	1300	13	—	9711901

### Housing: Stainless steel

Symbol	Port size	Actuation/return	Flow (l/min)	Dimension No.	NBR		HNBR	
					IEC 61508	Model *1)	IEC 61508	Model *1)
 	G1/4 NAMUR	Solenoid/spring	1300	8	x	9710705	x	9710405
	1/4 NPT NAMUR	Solenoid/spring	1300	8	x	9710715	x	9710415
 	G1/4 NAMUR	Solenoid/solenoid	1300	10	—	9711705	—	9711405
	1/4 NPT NAMUR	Solenoid/solenoid	1300	10	—	9711715	—	9711415
 	G1/4 NAMUR	Solenoid/solenoid (APB)	950	11	—	9712705	—	9712405
	1/4 NPT NAMUR	Solenoid/solenoid (APB)	950	11	—	9712715	—	9712415

### Housing: Brass

Symbol	Port size	Actuation/return	Flow (l/min)	Dimension No.	NBR		HNBR	
					IEC 61508	Model *1)	IEC 61508	Model *1)
 	G1/4 NAMUR	Solenoid/spring	1300	8	x	9710605	—	—
	1/4 NPT NAMUR	Solenoid/spring	1300	8	x	9710615	—	—
 	G1/4 NAMUR	Solenoid/solenoid	1300	10	—	9711605	—	—
	1/4 NPT NAMUR	Solenoid/solenoid	1300	10	—	9711615	—	—
 	G1/4 NAMUR	Solenoid/solenoid (APB)	950	11	—	9712605	—	—

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

Valve function: APB = All Ports Blocked

3/2 or 5/2 way function (Conversion instructions see page 20)

**Option selector**
**971★★★★★★★★★★**

Function	Substitute
5/2 way with spring return (3/2 way with adapter plate for NAMUR flange)	<b>0</b>
5/2 way impuls (3/2 way with adapter plate for NAMUR flange)	<b>1</b>
5/3 way valve with spring return (APB)	<b>2</b>
3/2 way valve with spring return	<b>3</b>
Materials: Housing/Seals	Substitute
Aluminium/HNBR (-25...+ 80°C) *2)	<b>2</b>
Brass/HNBR (-25...+ 80°C) *2)	<b>3</b>
Stainless steel/HNBR (-25...+ 80°C) *2)	<b>4</b>
Aluminium/NBR (-40...+ 65°C) *3)	<b>5</b>
Brass/NBR (-40...+ 65°C) *3)	<b>6</b>
Stainless steel/NBR (-40...+ 65°C) *3)	<b>7</b>
Special version *4)	<b>9</b>

\*2) IEC 61508: -25...+65°C or 0...+80°C

\*3) IEC 61508: -40 ... +40°C

\*4) IMI Precision Engineering internal use

e.g. 971x901: Valve with inlet filter and exhaust guards according to customer requirement.

Valve function APB = All Ports Blocked

Air supply	Substitute
Internal	<b>0</b>
External (at 1/4" NAMUR version only possible with additional flange and through that a changed item number, except LPV, see page 7 and 8)	<b>Z</b>
Voltage	Substitute
24 V DC	<b>024 0</b>
230 V AC	<b>230 5</b>
Solenoid	Substitute
See solenoid table	
Version	Substitute
Without manual override (retrofit-table) *	<b>5</b>
Without manual override * only for 1/2 NPT NAMUR	<b>6</b>
Low power pilot (see page 7 and 8)	<b>9</b>
Port size	Substitute
G1/4 NAMUR	<b>0</b>
1/4 NPT NAMUR	<b>1</b>
G1/4	<b>3</b>
1/4 NPT	<b>4</b>
G1/2	<b>5</b>
1/2 NPT	<b>6</b>
G1/2 NAMUR	<b>9</b>
1/2 NPT NAMUR (in connection with version code 6)	<b>9</b>

\*Manual override has to be ordered separately, see page 9.

## Solenoids

	Power consumption		Rated current		Protection class IP/NEMA	Ex-Protection (ATEX-Category)	Temperature Ambient/ Media (°C)	Electrical connection	Drawing No.	Circuit diagram No.	Model
	24 V DC (W)	230 V AC (VA)	24 V DC (mA)	230 V AC (mA)							
	1,9	2,1 *5)	78	11	IP65 (with connector)	—	-25 ... +60	Connector DIN EN 175301-803, form A *6)	24	31/33	0763
	3,6	—	150	—	IP66	II 2G Ex mb IIC T4 Gb II 2D Ex mb IIIC T115°C Db	-20 ... +70	Cable length 3 m	25	32	0298
	—	5,3	—	18	IP66	II 2G Ex mb IIC T4 Gb II 2D Ex mb IIIC T115°C Db	-20 ... +70	Cable length 3 m	25	32	0299
	0,8	—	38	—	IP66 (with cable gland)	II 2G Ex eb mb IIC T5/T6 Gb II 2D Ex tb IIIC T130°C Db	T5: -40 ... +80 T6: -40 ... +70 -40 ... +80	M20 x 1,5 *6)	26	32	4200
	—	1,3	—	6	IP66 (with cable gland)	II 2G Ex eb mb IIC T5/T6 Gb II 2D Ex tb IIIC T130°C Db	T5: -40 ... +80 T6: -40 ... +70 -40 ... +80	M20 x 1,5 *6)	26	34	4201
	0,8	—	33	—	IP66 (with cable gland)	II 2G Ex db mb IIC T5/T6 Gb II 2G Ex eb mb IIC T5/T6 Gb II 2D Ex tb IIIC T130°C Db	T5: -40 ... +80 T6: -40 ... +70 -40 ... +80	1/2 NPT *6)	27	37	4600
	—	1,3	—	6	IP66 (with cable gland)	II 2G Ex db mb IIC T5/T6 Gb II 2G Ex eb mb IIC T5/T6 Gb II 2D Ex tb IIIC T130°C Db	T5: -40 ... +80 T6: -40 ... +70 -40 ... +80	1/2 NPT *6)	27	38	4601
	0,8	—	33	—	IP66 (with cable gland)	II 2G Ex db mb IIC T5/T6 Gb II 2G Ex eb mb IIC T5/T6 Gb II 2D Ex tb IIIC T130°C Db	T5: -40 ... +80 T6: -40 ... +70 -40 ... +80	M20 x 1,5 *6)	27	37	4602
	—	1,3	—	6	IP66 (with cable gland)	III 2G Ex db mb IIC T5/T6 Gb II 2G Ex eb mb IIC T5/T6 Gb II 2D Ex tb IIIC T130°C Db	T5: -40 ... +80 T6: -40 ... +70 -40 ... +80	M20 x 1,5 *6)	27	38	4603
	0,8	—	33	—	IP66 (with cable gland)	II 2 G Ex db mb IIC T4/T6 Gb II 2 G Ex eb mb IIC T4/T6 Gb	T4: -40 ... +80 T6: -40 ... +70	M20 x 1,5 *6)	29	32	4802
	—	1,3	—	6	IP66 (with cable gland)	II 2 G Ex db mb IIC T4/T6 Gb II 2 G Ex eb mb IIC T4/T6 Gb	T4: -40 ... +50 T6: -40 ... +40	M20 x 1,5 *6)	29	34	4803
	1,4	—	228	—	4X	Cl. I, Div. 1, Gr. A - D Cl. II/III, Div. 1, Gr. E - G T3C (160°C)	-20 ... +60	Flying leads length 460 mm	28	31	3720

Standard voltages ( $\pm 10\%$ ) 24 V DC, 230 V AC, other voltages on request. Design according to VDE 0580, EN 50014/50028. 100% duty cycle.

\*5) Required connector: type 0570275 for d.c.; type 0663303 for a.c., 200 V DC solenoid voltage must be ordered!


\*6) Connector/cable gland is not scope of delivery, 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
0763	—	—	—	71.507
029x	KEMA 02 ATEX 1347 X	IECEX DEK 13.0014 X	—	71.505
42xx	KEMA 98 ATEX 4452 X	IECEX KEM 09.0068 X	—	71.580
372x, 382x	—	—	CSA-LR 57643-6	71.575
46xx	PTB 02 ATEX 2085 X	IECEX PTB 11.0094 X	—	71.585
48xx	EPS 18 ATEX 1019	IECEX EPS 18.0013	—	71.590

## 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	Ex-Protection (ATEX-Category)	Temperature Ambient/Media (°C)	Drawing No.	Circuit diagram No.	Model
	200	33	240	8	IP66 (with cable gland)	II 2G Ex ia IIC T4/T6 Gb II 2D Ex ia IIIC T80°C Db II 2D Ex ia IIIC T100°C Db	T4: -40 ... +80 T6: -40 ... +60 -40 ... +60 -40 ... +80	30	35	2050
	391	24	460	11	IP66 (with cable gland)	II 2G Ex ia IIC T4/T6 Gb II 2D Ex ia IIIC T80°C Db II 2D Ex ia IIIC T100°C Db	T4: -40 ... +80 T6: -40 ... +60 -40 ... +60 -40 ... +80	30	35	2051
	736	17	880	15	IP66 (with cable gland)	II 2G Ex ia IIC T4/T6 Gb II 2D Ex ia IIIC T80°C Db II 2D Ex ia IIIC T100°C Db	T4: -40 ... +80 T6: -40 ... +60 -40 ... +60 -40 ... +80	30	35	2052
	1220	13	1460	19	IP66 (with cable gland)	II 2G Ex ia IIC T4/T6 Gb II 2D Ex ia IIIC T80°C Db II 2D Ex ia IIIC T100°C Db	T4: -40 ... +80 T6: -40 ... +60 -40 ... +60 -40 ... +80	30	35	2053

Cable gland (cable Ø 5 ... 10 mm) is in scope of delivery

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. 1, EN 60079-11

Pi = 2,0 W, Li and Ci can be ignored.

### Approvals

Model	Approvals ATEX	IECEEx	Datasheet
205x	PTB 07 ATEX 2019	IECEEx PTB 07.0017	71.535

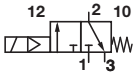
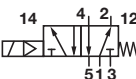
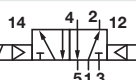
### Partnumbers for international approval

Land/Approval	Coil/Code	029x	205x	208x	372x	42xx	46xx	48xx
Europa/ATEX	Standard	x	x	x	-	x	x	x
International/IECEEx	Standard	x	x	x	-	x	x	x
China/NEPSI	-01	-	x	-	-	x	x	-
Brasilien/INMETRO	-02	-	x	-	-	x	x	-
Korea/KOSHA (only gas approval)	-03	-	x	-	-	x	x	x
Russland, Kasachstan & Weißrussland/TR-CU 012	-04	x	x	x	-	x	x	x
Indien/CCOE	Standard	-	x	-	-	x	x	-
Taiwan/ITRI	Standard	-	x	-	-	x	x	-
FM/USA	Standard	-	-	-	x	-	-	-
CSA/Kanada	Standard	-	-	-	x	-	-	-

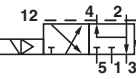
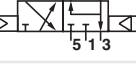
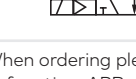
Example: 0000000420002400-04

(Coil: 4200; Voltage: 24V DC; Approval: TR-CU 012)

**Technical data Inline version using low-power pilot system (page 8)**
**Seals NBR: -40 ... +65°C / IEC 61508: -40 ... +40°C**
**Seals HNBR: -25 ... +80°C / IEC 61508: -25 ... +65°C or 0 ... +80°C**
**Housing: Aluminium anodized**

Symbol	Port size	Actuation/return	Flow (l/min)	Dimension No.	NBR		HNBR	
					IEC 61508	Model *1)	IEC 61508	Model *1)
	G1/4	Solenoid/spring	1300	14	—	9713539	—	9713239
	1/4 NPT	Solenoid/spring	1300	14	—	9713549	—	9713249
	G1/2	Solenoid/spring	2600	15	—	9713559	—	9713259
	1/2 NPT	Solenoid/spring	2600	15	—	9713569	—	9713269
	G1/4	Solenoid/spring	1300	16	—	9710539	—	9710239
	1/4 NPT	Solenoid/spring	1300	16	—	9710549	—	9710249
	G1/2	Solenoid/spring	2600	17	—	9710559	—	9710259
	1/2 NPT	Solenoid/spring	2600	17	—	9710569	—	9710269
	G1/4	Solenoid/solenoid	1300	18	—	9711539	—	9711239
	1/4 NPT	Solenoid/solenoid	1300	18	—	9711549	—	9711249

**Technical data NAMUR version using low-power pilot system (page 8)**
**Seals NBR: -40 ... +65°C / IEC 61508: -40 ... +40°C**
**Seals HNBR: -25 ... +80°C / IEC 61508: -25 ... +65°C or 0 ... +80°C**
**Housing: Aluminium anodized**


Symbol	Port size	Actuation/return	Flow (l/min)	Dimension No.	NBR		HNBR	
					IEC 61508	Model *1)	IEC 61508	Model *1)
	G1/4 NAMUR	Solenoid/spring	1300	19	—	9710509	—	9710209
	1/4 NPT NAMUR	Solenoid/spring	1300	19	—	9710519	—	9710219
	G1/4 NAMUR	Solenoid/solenoid	1300	20	—	9711509	—	9711209
	1/4 NPT NAMUR	Solenoid/solenoid	1300	20	—	9711519	—	9711219
	G1/4 NAMUR	Solenoid/solenoid (APB)	950	21	—	9712509	—	9712209
	1/4 NPT NAMUR	Solenoid/solenoid (APB)	950	21	—	9712519	—	9712219

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

Valve function: APB = All Ports Blocked

3/2 or 5/2 way function (Conversion instructions see page 20)

## Low-power pilot system in protection class II 2G Ex ia IIC T4/T6

	Power P (mW)	Switch-on voltage U on (V)	Switch-off voltage U off (V)	Rated current I on (mA)	Resistance coil R (Ω)	IP Protection class	Ex-Protection (ATEX-Category)	Temperature Ambient/Media (°C)	Circuit diagram No.	Model
	6,3 (+20°C)	≥ 4,3 (+20°C) ≥ 5,2 (+80°C)	≤ 1,44 (+20°C) ≤ 1,2 (-25°C)	≥ 1,45	2800	IP65 (with cable gland)	II 2G Ex ia IIC T4/T6	T4: -40 ... +80°C T6: -40 ... +60°C	36	2085
	23,2 (+20°C)	≥ 16 (+20°C) ≥ 16,8 (+80°C)	≤ 5,4 (+20°C) ≤ 4,7 (-25°C)	≥ 1,45	10900	IP65 (with cable gland)	II 2G Ex ia IIC T4/T6	T4: -40 ... +80°C T6: -40 ... +60°C	36	2086

Cable gland (cable Ø 5 ... 10 mm) is in scope of delivery

### Approvals

Typ	Approvals ATEX	Datenblatt
208x	PTB 06 ATEX 2001U	71.540

### Ordering example

9710549	2085	005	00
Ventil	Pilot 6,3 mW	Standard	00 internal air supply

### Max. values Ex i

U <sub>i</sub> (V)	I <sub>i</sub> (mA)	P <sub>i</sub> *7) (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

\*7) Model 2086 without P<sub>i</sub> limiting. C<sub>i</sub> and I<sub>i</sub> can be ignored.

### Partnumbers for international approval

Land/Approval	Coil/Code	029x	205x	208x	372x	42xx	46xx	48xx
Europa/ATEX	Standard	x	x	x	–	x	x	x
International/IECEx	Standard	x	x	x	–	x	x	x
China/NEPSI	-01	–	x	–	–	x	x	–
Brasilien/INMETRO	-02	–	x	–	–	x	x	–
Korea/KOSHA (only gas approval)	-03	–	x	–	–	x	x	x
Russland, Kasachstan & Weißrussland/TR-CU 012	-04	x	x	x	–	x	x	x
Indien/CCOE	Standard	–	x	–	–	x	x	–
Taiwan/ITRI	Standard	–	x	–	–	x	x	–
FM/USA	Standard	–	–	–	x	–	–	–
CSA/Kanada	Standard	–	–	–	x	–	–	–

Example: 0000000420002400-04

(Coil: 4200; Voltage: 24V DC; Approval: TR-CU 012)

## Cable gland (please order separately)

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



Page 20

For solenoid	Thread	Cable Ø (mm)	Material	Protection class (ATEX)	Ambient temperatur limitation *8)	Model
42xx	M20 x 1,5	7,0 ... 12,0	Plastic	II 2G Ex e / II 2D Ext	Siehe Tabelle	0589735
42xx	M20 x 1,5	10,0 ... 14,0	Plastic	II 2G Ex e / II 2D Ext	Siehe Tabelle	0589736
42xx	M20 x 1,5	6,0 ... 12,0	Plastic	II 2G Ex e / II 2D Ext	Siehe Tabelle	0589737
42xx	M20 x 1,5	5,0 ... 10,0	Plastic	II 2G Ex e / II 2D Ext	Siehe Tabelle	0589739
46xx	M20 x 1,5	5,0 ... 14,0	Nickel plated brass	II 2G Ex e / II 2D Ext	-	0589654
46xx	M20 x 1,5	10,0 ... 14,0	Nickel plated brass	II 2G Ex d / II 2D Ext	-	0588851
46xx	1/2 NPT	7,5 ... 11,9	Nickel plated brass	II 2G Ex d / II 2D Ext	-	0588925
46xx, 48xx	M20 x 1,5	9,0 ... 13,0	Stainless steel 1.4571	II 2G Ex e / II 2D Ext	-	0589385
46xx, 48xx	M20 x 1,5	7,0 ... 12,0	Stainless steel 1.4404	II 2G Ex d / II 2D Ext	-	0589395
46xx, 48xx	M20 x 1,5	10,0 ... 14,0	Stainless steel 1.4404	II 2G Ex d / II 2D Ext	-	0589387

\*8) The limitation of the temperature range to the mentioned range is due to the self-heating of the solenoid.

## Connector DIN EN 175301-803



0570275, form A

0663303, form A with rectifier)

Other connectors see datasheet 7.1.507

For solenoid	Ambient temperatur limitation solenoid 42xx		
	<b>0589735 &amp; 0589736 *9)</b>		
	<b>0589737</b>	<b>0589739 *9)</b>	
420x/425x	T5 & Dust Ex: -35°C...+80°C	T5 & Dust Ex: -40°C...+68°C	T5 & Dust Ex: -40°C...+78°C
	T6: -35°C...+70°C	T6: -40°C...+68°C	T6: -40°C...+70°C





\*9) Tested for the lower level of mechanical risk (4 joule), an additional protection against impacts might be needed.

## Valve

Silencer (Plastic) *10)	Silencer (Stainless steel) *10)	Silencer (Brass) *10)	Exhaust guard *11)
			
Page 22	Page 22	Page 22	Page 22
M/S2 (G1/4)	0014613 (G1/4)	T40C2800 (G1/4)	0613422 (G1/4, 1/4 NPT)
C/S2 (1/4 NPT)	0613678 (1/4 NPT)	MS002A (1/4 NPT)	0613423 (G1/2, 1/2 NPT)
M/S4 (G1/2)	0014813 (G 1/2)	T40C4800 (G 1/2)	
C/S4 (1/2 NPT)	0613679 (1/2 NPT)	MS004A (1/2 NPT)	

\*10) For indoors use only






\*11) For outdoors use, opening pressure ~ 0,2 bar

Manual override (without detent)	Manual override (with detent, return at pressure fails)	Manual override (with detent) *12)	Manual override (for start-up only)
			
Page 17	Page 17	Page 17	Page 17
0553886	0553887	0614084	0613379

\*12) See function description 75036430

Using the manual override with detent cancels the SIL-approval!  
The manual override is meant to be used for system testing.

## NAMUR Accessories (only G1/4)

Throttle control plate *13)	Flange plate	Yoke	Mounting plate	Quick exhaust module *14)
				
Page 21	Page 20	Page 21	Page 21	Page 21
4040239	0612790 (NAMUR single connection plate) 0612791 (NAMUR-rip use in combination with 0612790)	0540593 (Pipe mounting use in combination with 0612790)	0613453 (90°)	4050218

\*13) The throttle control plate 4040239 has a minimum flow rate for safety reason.

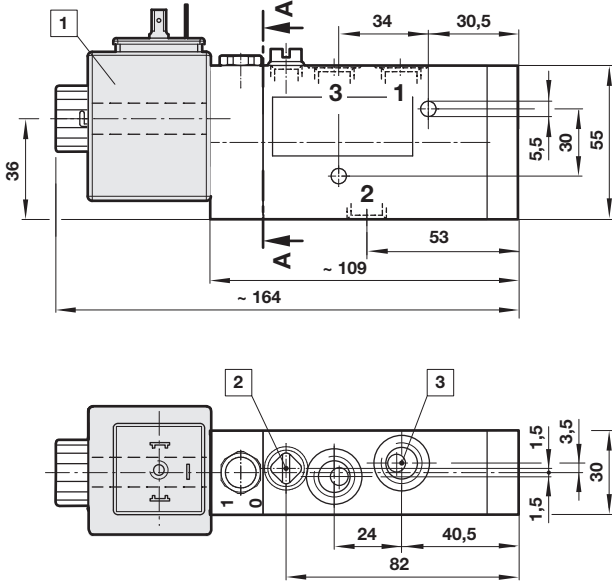
\*14) Technical data see datasheet 5.4.820.

**Dimensions vaves**

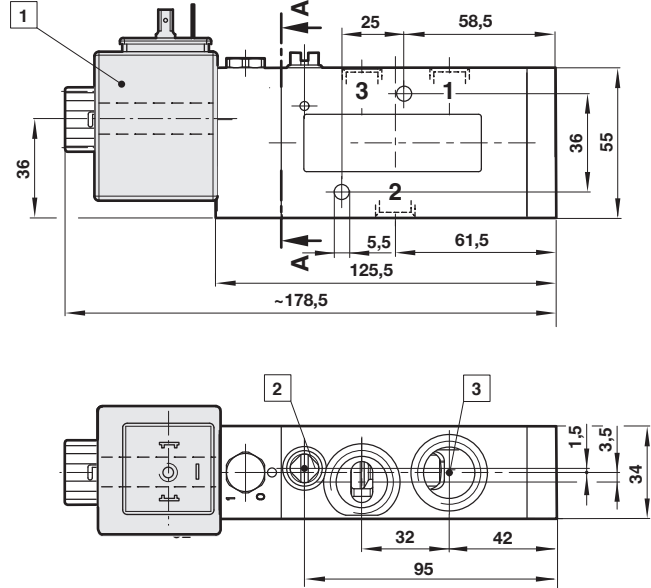
 Dimensions in mm  
 Projection/First angle

**1**

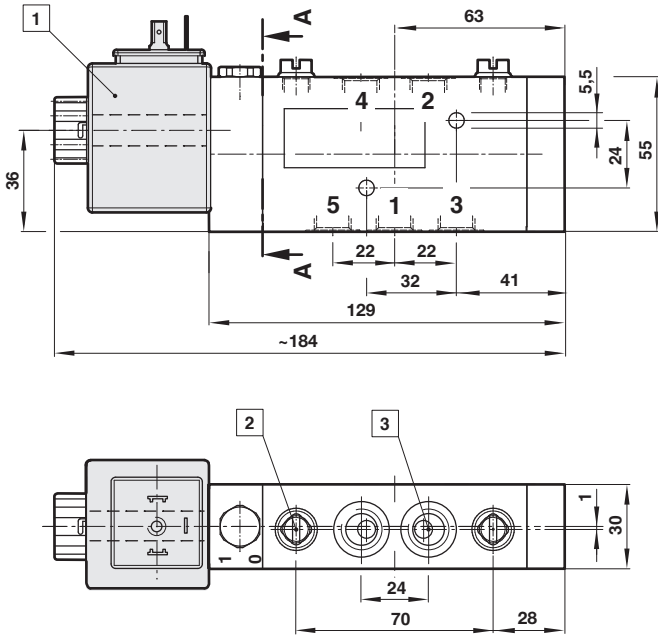
Weight: Aluminium anodized: 0,5 kg, Stainless steel: 1,1 kg, Brass: 1,0 kg


**2**

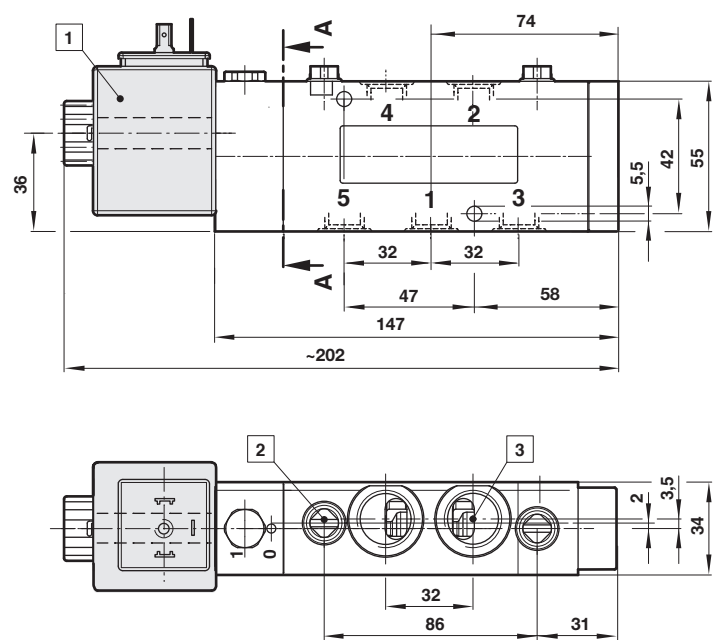
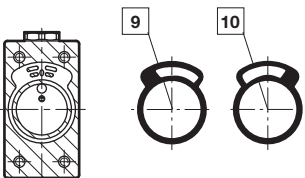
Weight: Aluminium anodized: 0,5 kg, Stainless steel: 1,1 kg, Brass: 1,0 kg


**3**

Weight: Aluminium anodized: 0,7 kg, Stainless steel: 1,8 kg, Brass: 1,7 kg


**4**

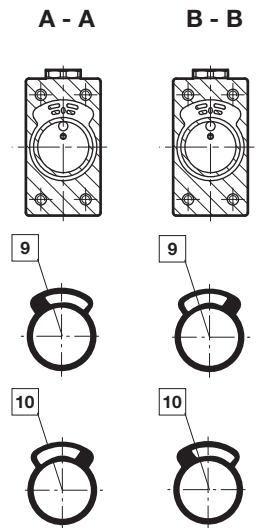
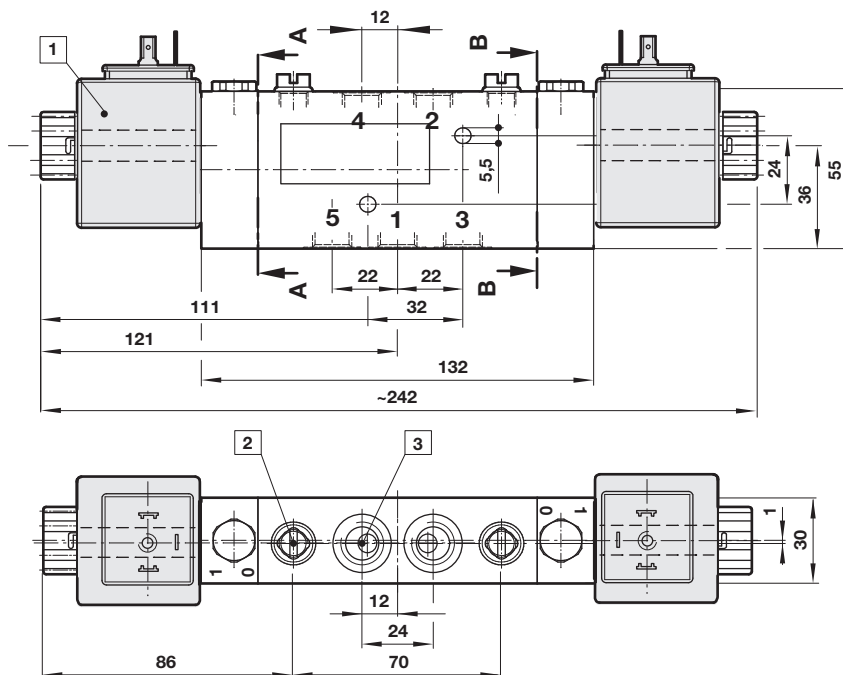
Weight: Aluminium anodized: 0,7 kg, Stainless steel: 1,8 kg, Brass: 1,7 kg


**A - A**


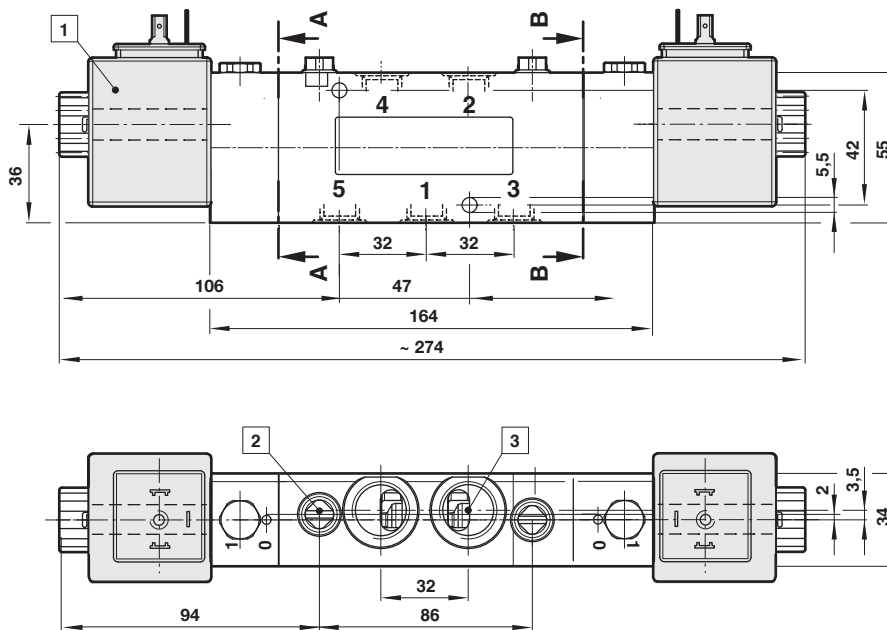
- 1 Solenoid dimensions on page 18
- 2 External control pressure connection G1/8, 1/8 NPT
- 3 Working port G1/4, G1/2 or 1/4 NPT, 1/2 NPT
- 9 Position of gasket internal pilot air
- 10 Position of gasket external pilot air

**5**

Weight: Aluminium anodized: 0,7 kg, Stainless steel: 1,8 kg, Brass: 1,7 kg

 Dimensions in mm  
 Projection/First angle

**6**

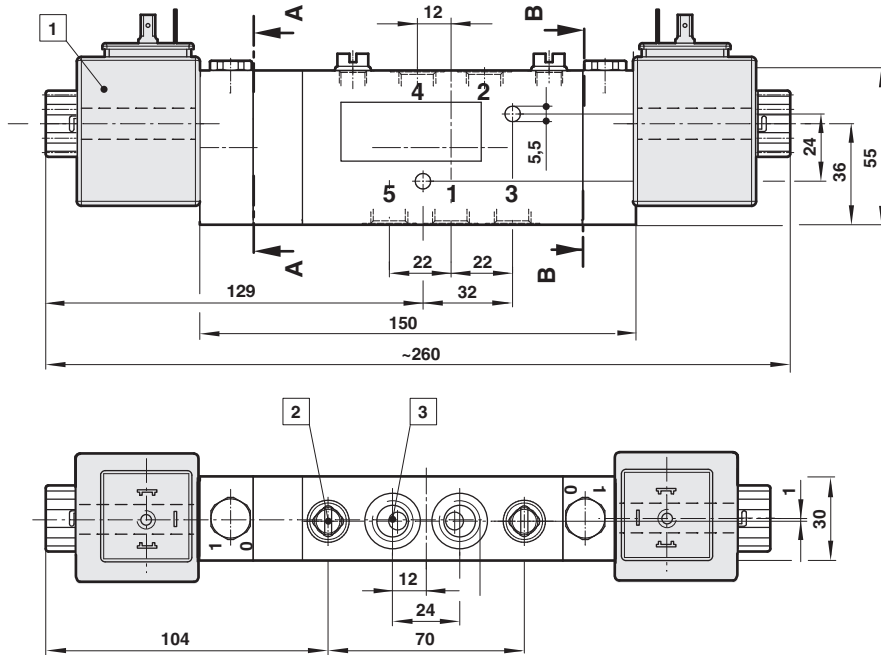
Weight: Aluminium anodized: 0,8 kg, Stainless steel: 1,9 kg, Brass: 1,8 kg



- 1 Solenoid dimensions on page 18
- 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

**7**

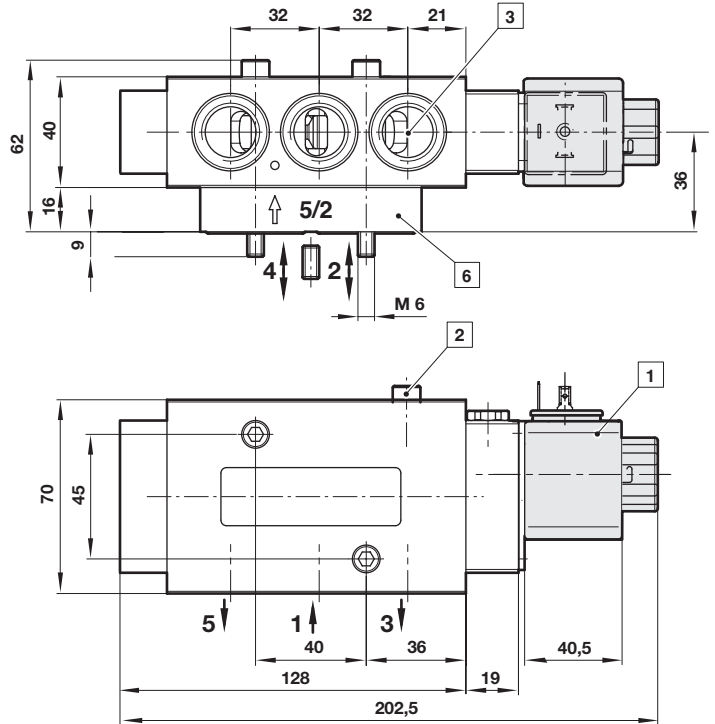
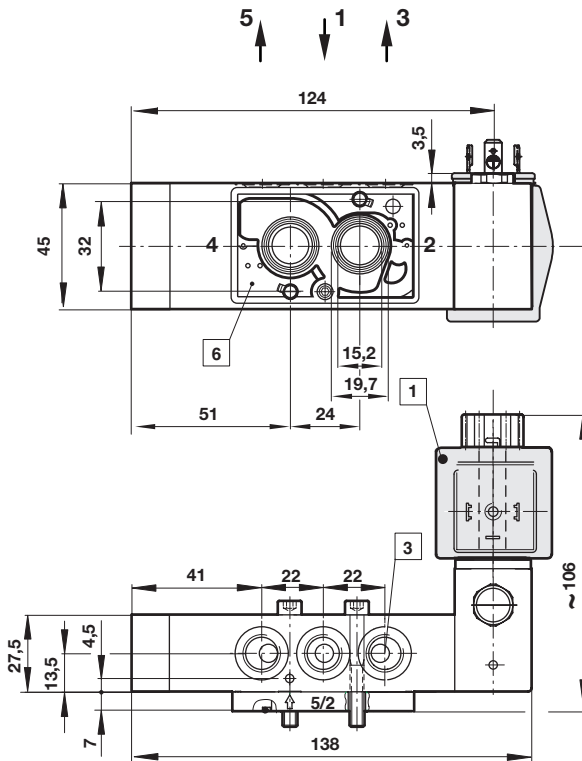
Weight: Aluminium anodized: 0,7 kg

 Dimensions in mm  
 Projection/First angle

**8**

Weight: Aluminium anodized: 0,45 kg, Stainless steel: 1,0 kg, Brass: 1,0 kg

**9**

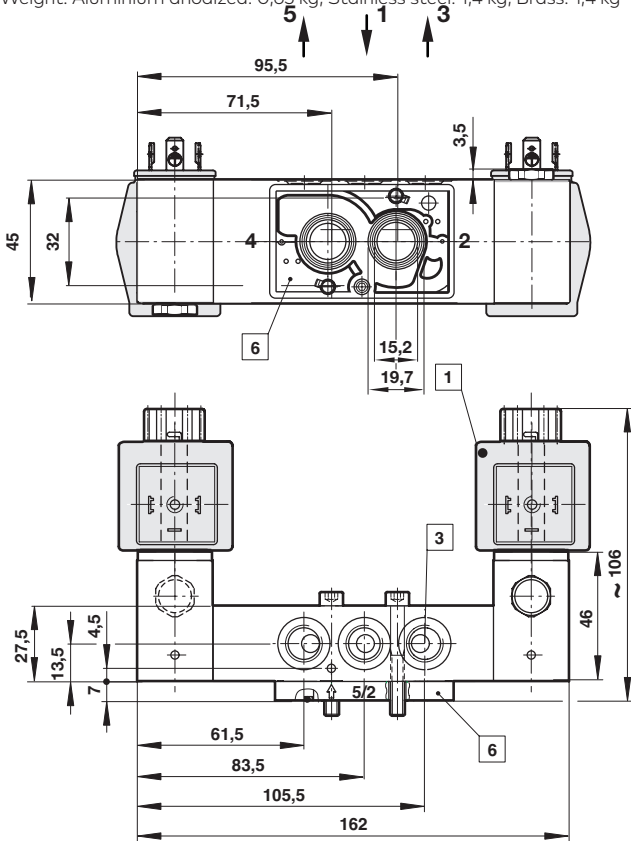
Weight: Aluminium anodized: 0,8 kg



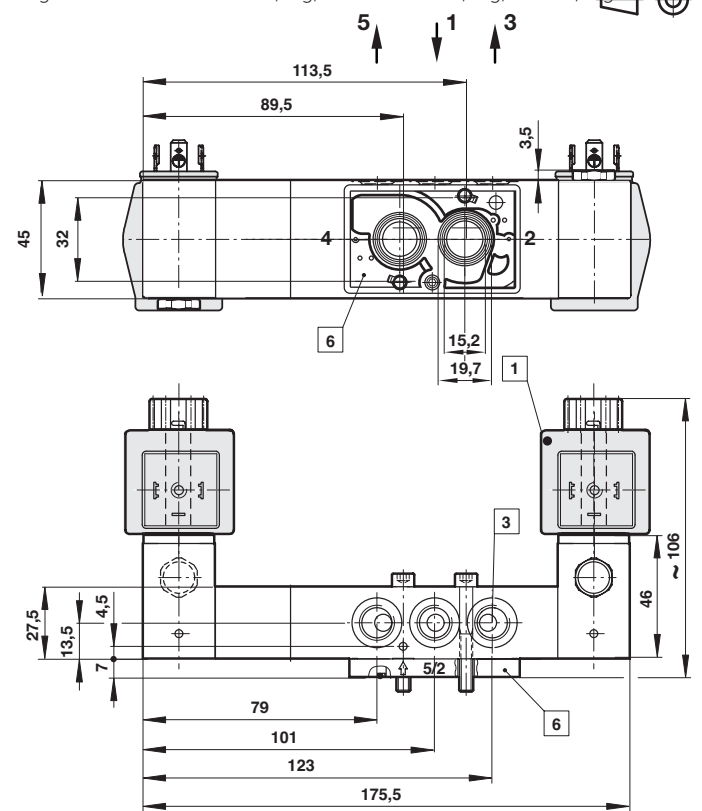
- 1** Solenoid dimensions on page 18
- 2** External control pressure connection G1/8 oder 1/8 NPT
- 3** Working port G1/4, G1/2 or 1/4 NPT, 1/2 NPT
- 6** NAMUR connection plate 3/2 or 5/2 way function
- 9** Position of gasket internal pilot air
- 10** Position of gasket external pilot air

**10**

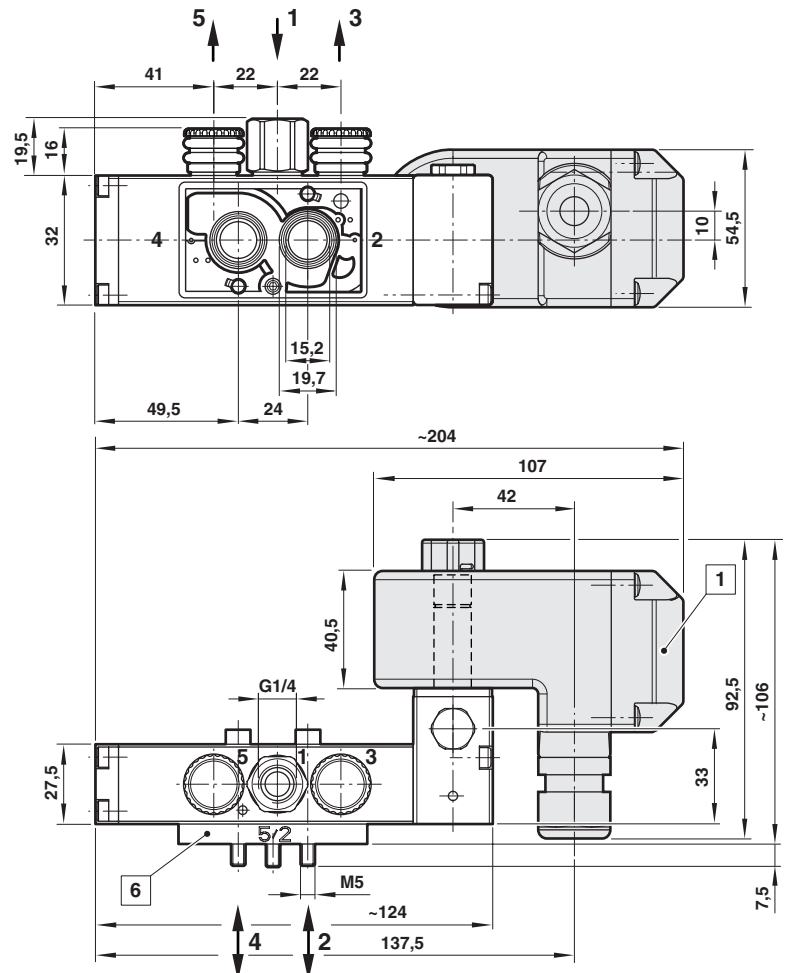
Weight: Aluminium anodized: 0,65 kg, Stainless steel: 1,4 kg, Brass: 1,4 kg


**11**

Weight: Aluminium anodized: 0,7 kg, Stainless steel: 1,5 kg, Brass: 1,5 kg

 Dimensions in mm  
Projection/First angle


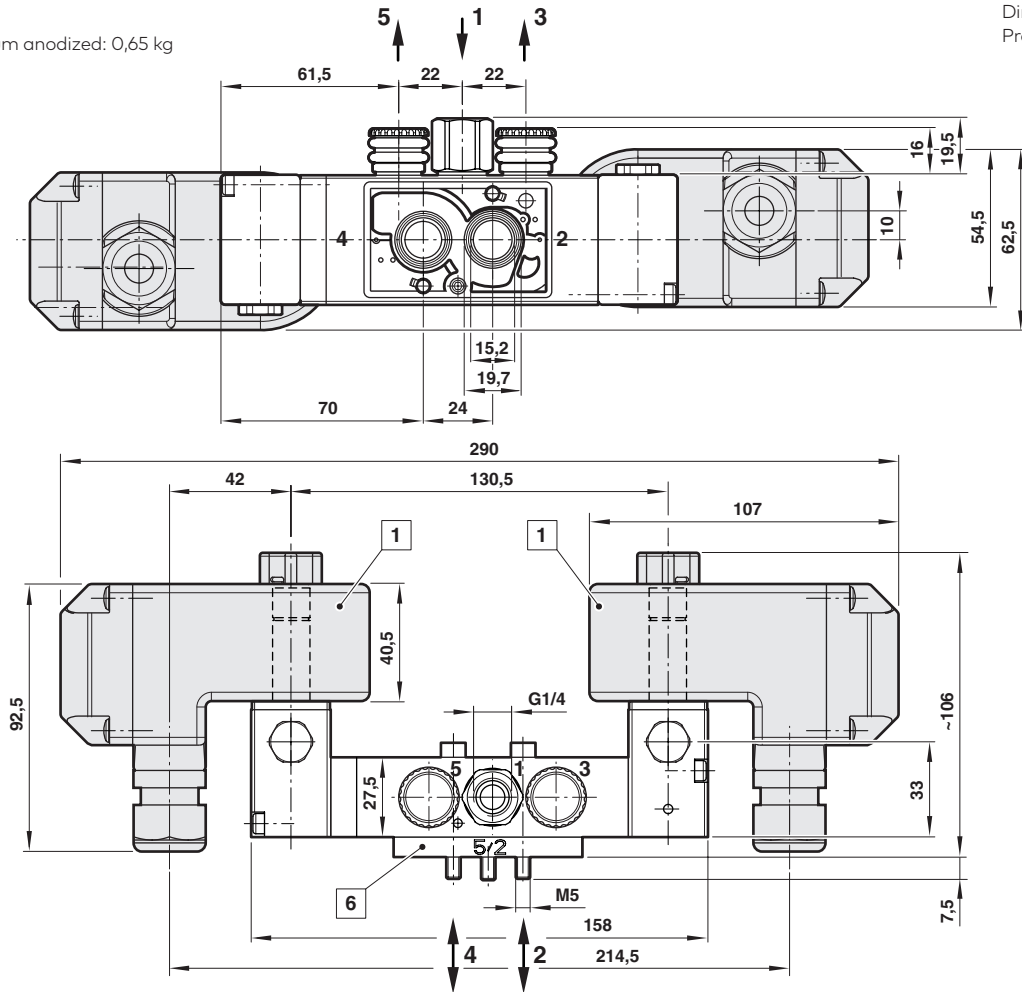
Weight: Aluminium anodized: 0,45 kg



- 1 Dimensions for solenoids see page 18
- 3 Working port G1/4 or 1/4 NPT
- 6 NAMUR connection plate 3/2 or 5/2 way function

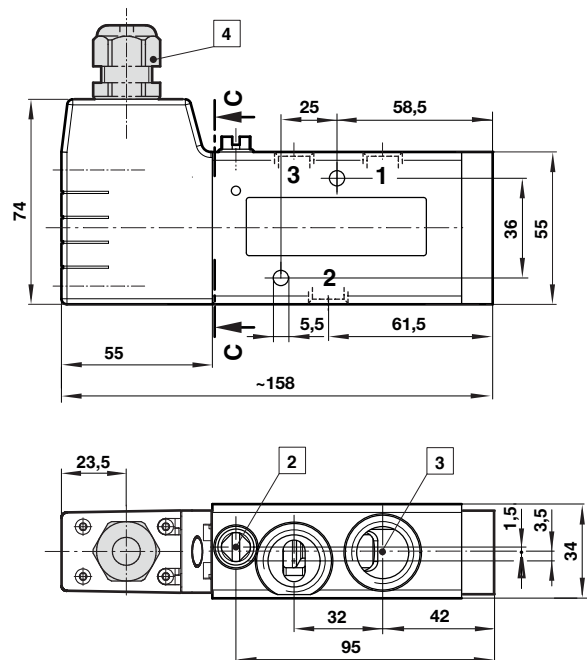
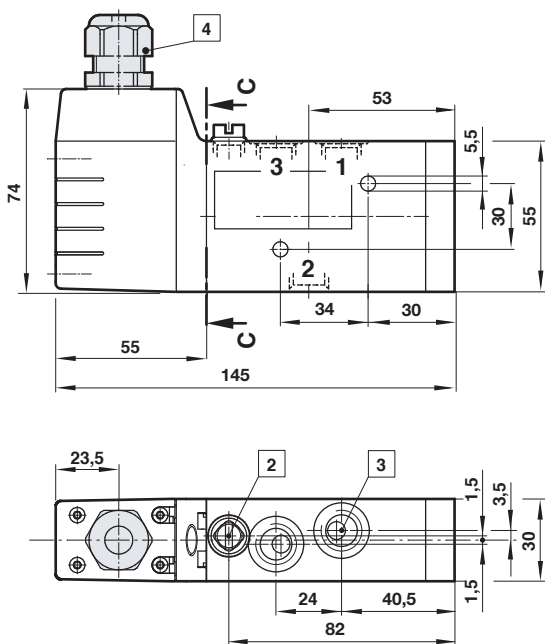
13 Weight: Aluminium anodized: 0,65 kg

Dimensions in mm  
Projection/First angle



14 Weight: Aluminium anodized: 0,5 kg, Stainless steel: 0,5 kg, Brass: 0,5 kg

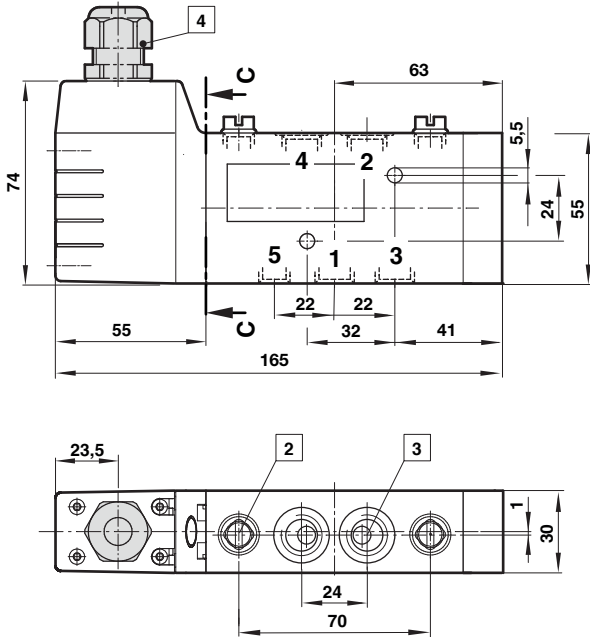
15 Weight: Aluminium anodized: 0,5 kg, Stainless steel: 0,5 kg, Brass: 0,5 kg



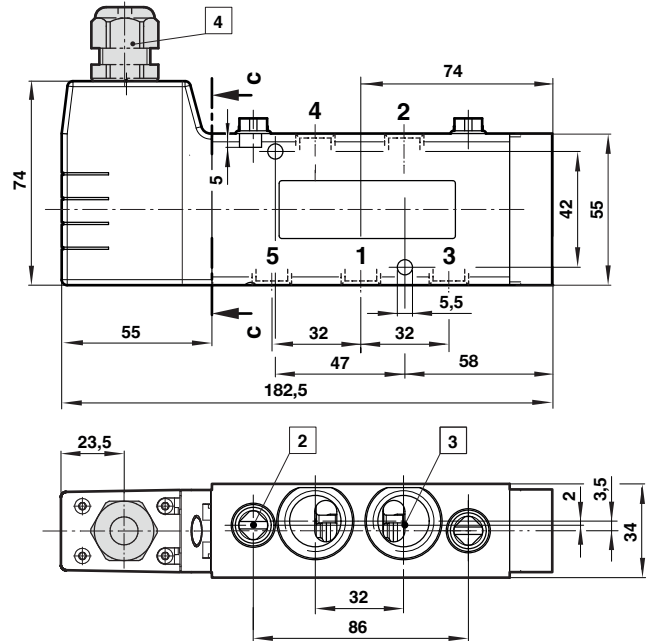
- 1 Solenoid dimensions on page 18
- 2 External control pressure connection G1/8, 1/8 NPT
- 3 Working port G1/4, G1/2 or 1/4 NPT, 1/2 NPT
- 6 NAMUR connection plate 3/2 or 5/2 way function
- 9 Position of gasket internal pilot air
- 10 Position of gasket external pilot air

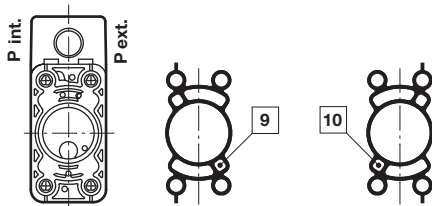
**16**

Weight: Aluminium anodized: 0,7 kg

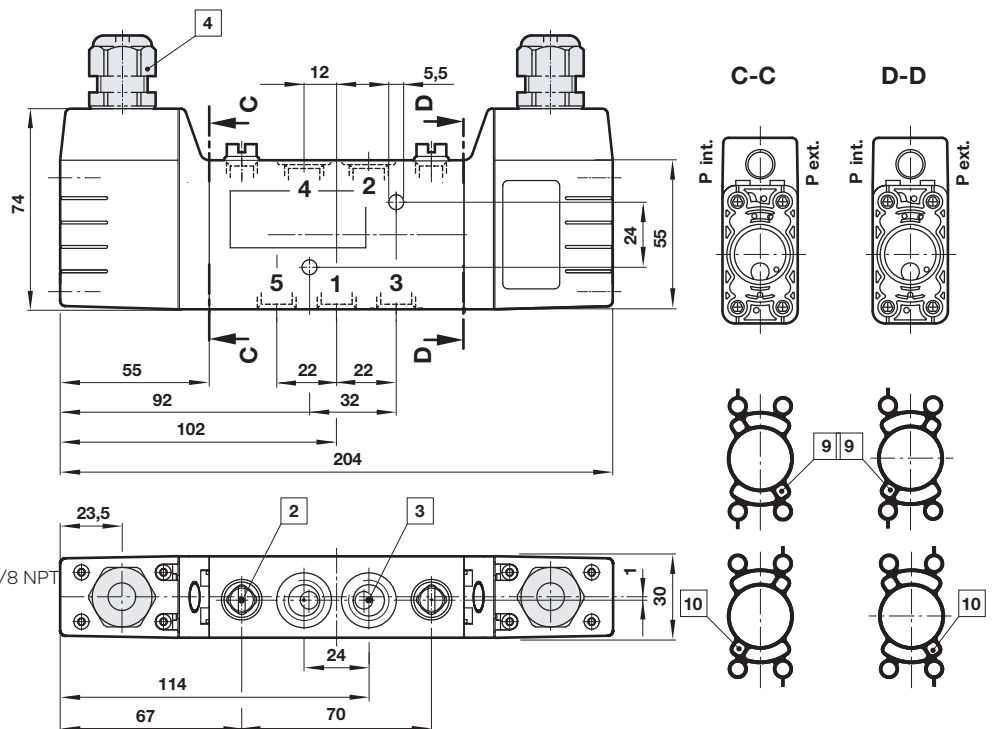

**17**

Weight: Aluminium anodized: 0,7 kg


 Dimensions in mm  
 Projection/First angle

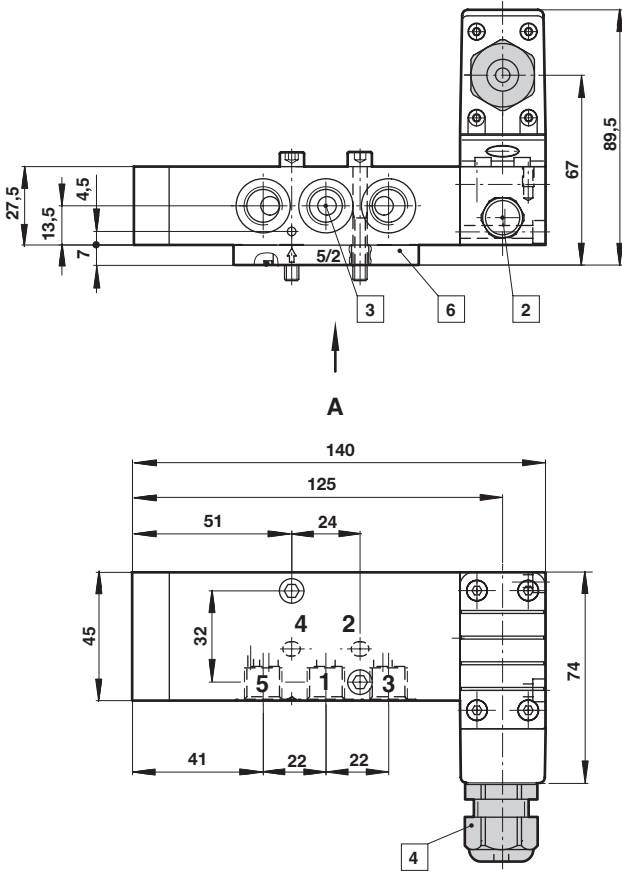
**C-C**
**005**

**18**

Weight: Aluminium anodized: 0,7 kg



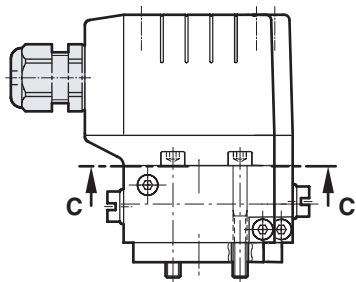
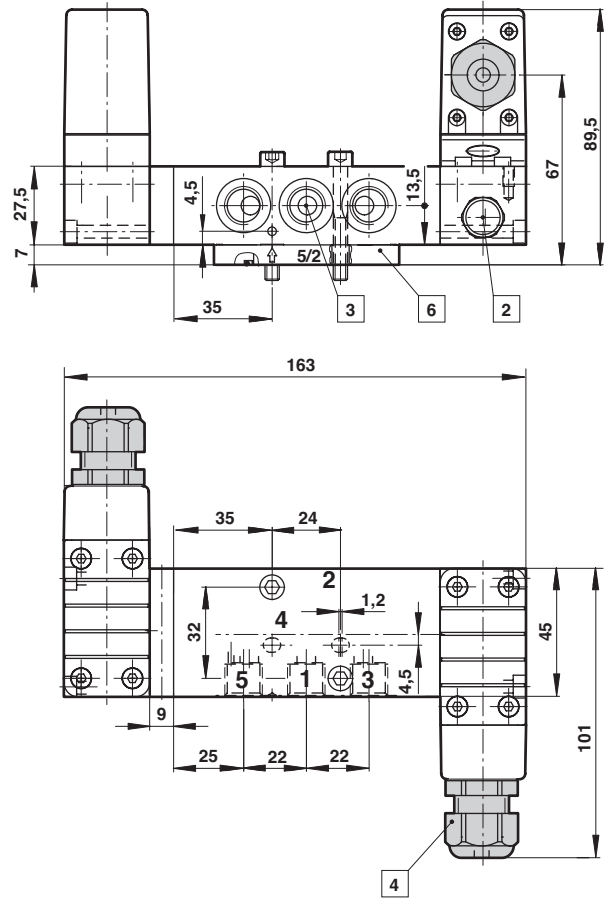
- 1 Solenoid dimensions on page 18
- 2 External control pressure connection G1/8, 1/8 NPT
- 3 Working port G1/4, G1/2 or 1/4 NPT, 1/2 NPT
- 4 Electrical connection 005
- 9 Position of gasket internal pilot air
- 10 Position of gasket external pilot air

**19** Weight: Aluminium anodized: 0,45 kg



**20** Weight: Aluminium anodized: 0,65 kg

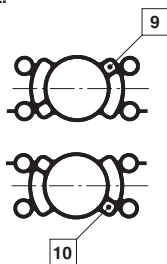
Dimensions in mm  
Projection/First angle



C-C

P ext.

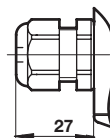
P int.



- 2 External control pressure connection G1/8 or 1/8 NPT
- 3 Working port G1/4 or 1/4 NPT
- 4 Electrical connection 005
- 6 NAMUR connection plate 3/2 or 5/2 way function
- 9 Position of gasket internal pilot air
- 10 Position of gasket external pilot air

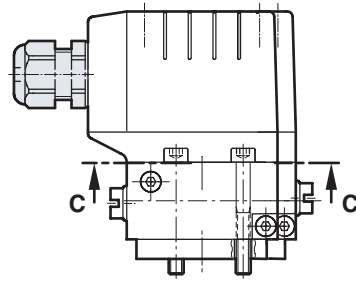
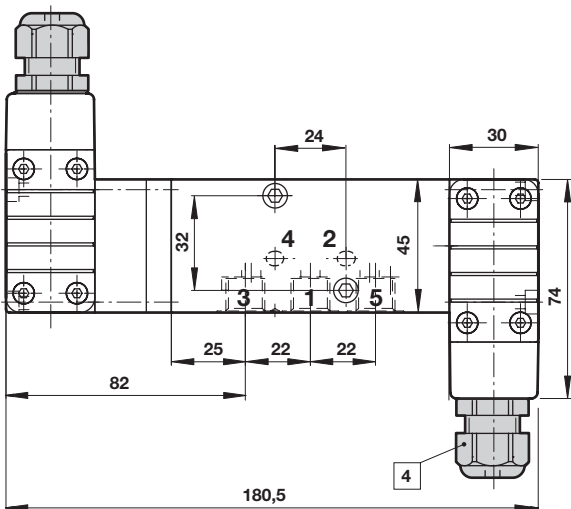
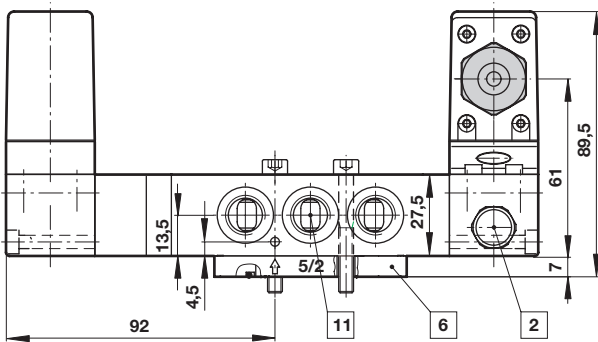
### Electrical connection

005

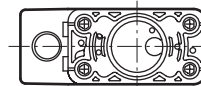


**21**

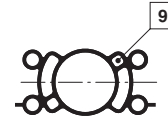
Weight: Aluminium anodized: 0,7 kg

 Dimensions in mm  
 Projection/First angle

**C-C**

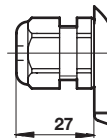
P ext.



P int.



10

**Electrical connection**
**005**

**2** External control pressure connection G1/8 or 1/8 NPT

**3** Working port G1/2 or 1/2 NP

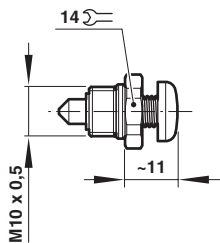
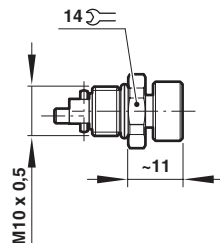
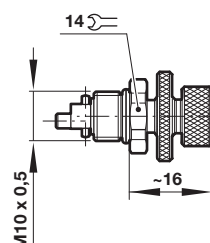
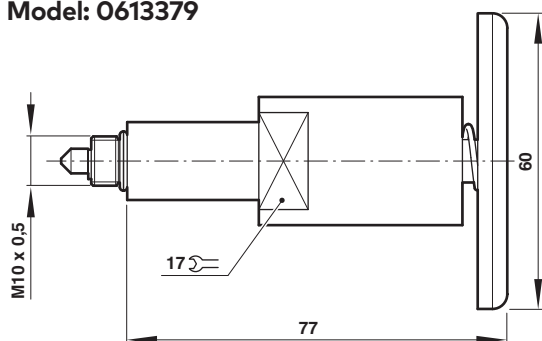
**4** Electrical connection 005

**6** NAMUR connection plate 3/2 or 5/2 way function

**9** Position of gasket internal pilot air

**10** Position of gasket external pilot air

**11** Working port G1/4 or 1/4 NPT

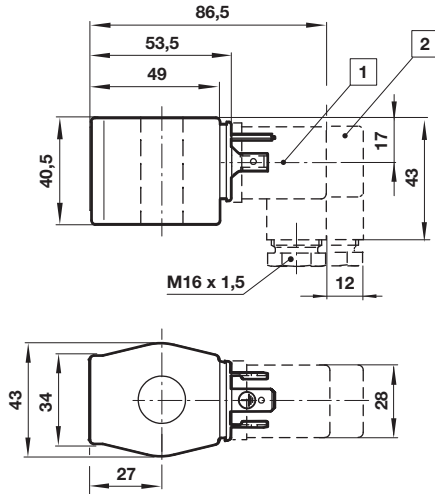
**Manual override**
**Model: 0553886**

**Model: 0553887**

**Model: 0614084**

**Model: 0613379**


**Dimensions  
Solenoids**

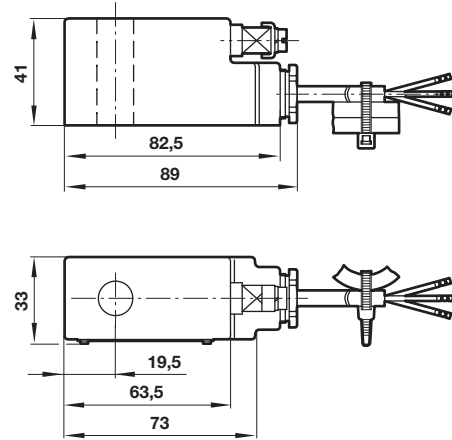
 Dimensions in mm  
Projection/First angle

**24**

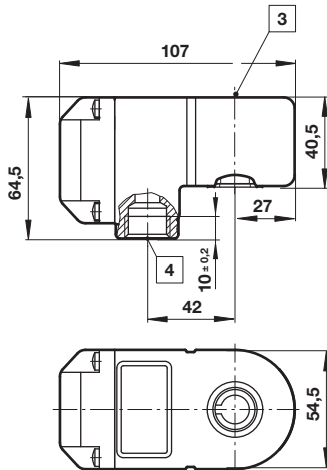
Weight: 0,3 kg


**25**

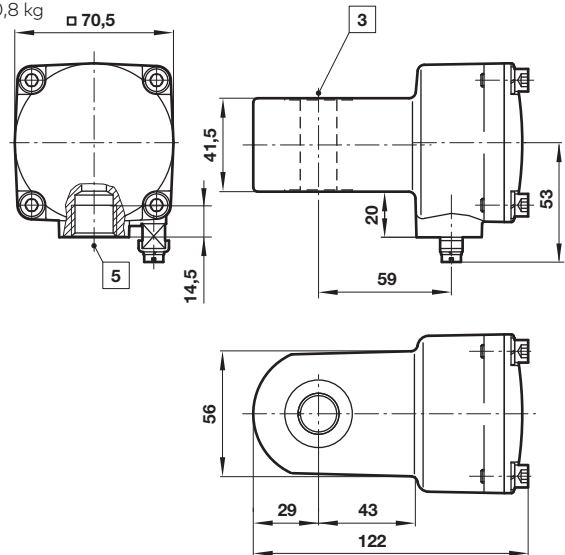
Weight: 0,4 kg


**26**

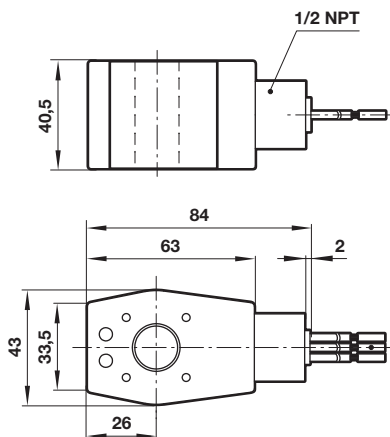
Weight: 0,6 kg


**27**

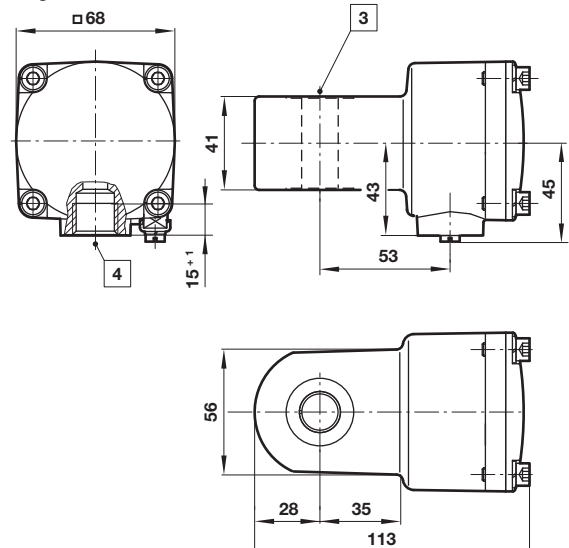
Weight: 0,8 kg


**28**

Weight: 0,4 kg


**29**

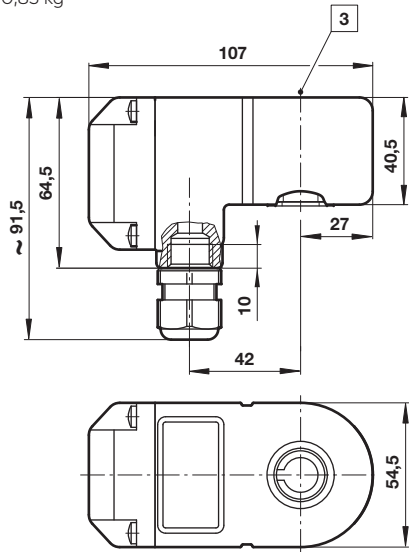
Weight: 1,2 kg

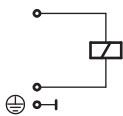
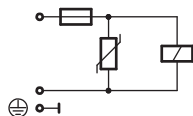
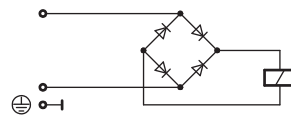
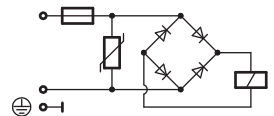
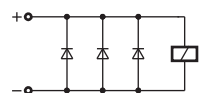
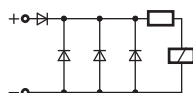
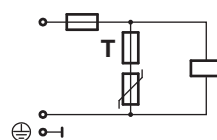
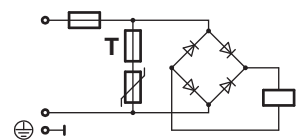
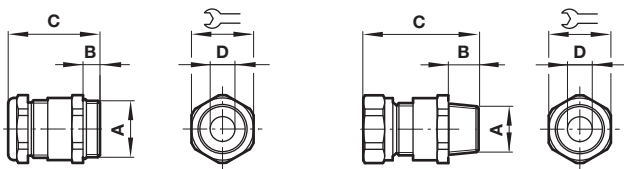



- 1 Connector 4 x 90° turnable
- 2 Connector with rectifier (O663303)
- 3 Ø 13 (with spacer tube)
- 4 M20 x 1,5
- 5 M20 x 1,5 or 1/2 NPT

**30**

Weight: 0,85 kg

 Dimensions in mm  
 Projection/First angle

**3** Ø 13 (with spacer tube)

**Circuit diagrams**
**31**

**32**

**33**

**34**

**35**

**36**

**37**

**38**

**Cable gland**

**0588925 only**

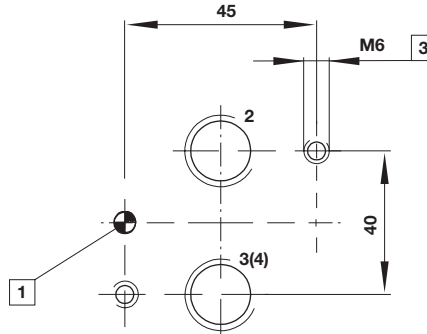
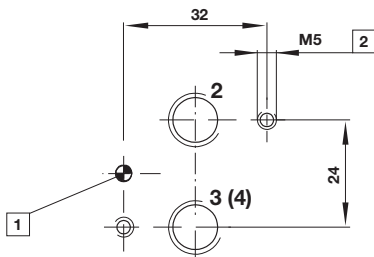
A	B	C	∅ D		Model
M20 x 1,5	10	40	7,0 ... 12,0	24	0589735
M20 x 1,5	10	43	10,0 ... 14,0	27	0589736
M20 x 1,5	10	40	6,0 ... 12,0	24	0589737
M20 x 1,5	10	39,5	5,0 ... 10,0	24	0589739
M20 x 1,5	6,5	35,5	5,0 ... 14,0	24	0589654
M20 x 1,5	12	37	9,0 ... 14,0	30	0588851
1/2 NPT	15	58	7,5 ... 11,9	24	0588925
M20 x 1,5	6,5	27,5	9,0 ... 13,0	22	0589385
M20 x 1,5	16	40	7,0 ... 12,0	24	0589395
M20 x 1,5	16	41	10,0 ... 14,0	24	0589387

### NAMUR hole pattern (actuator side)

Port size 1/4"

Port size 1/2"

Dimensions in mm  
Projection/First angle



- 1 Coding stud threaded
- 2 8 mm deep
- 3 10 mm deep

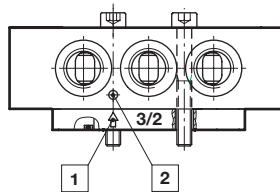
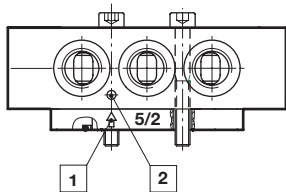
NAMUR quick exhaust module for a better kv-value by exhaust see data sheet 5.4.820

NAMUR interlinking plates in redundancy design for »safety exhaust-ing★ and »safety ventilating★ see data sheet 5.4.830

### Conversion instructions of 5/2 into 3/2 way function

5/2 way function  
(original mode of supply)

3/2 way function

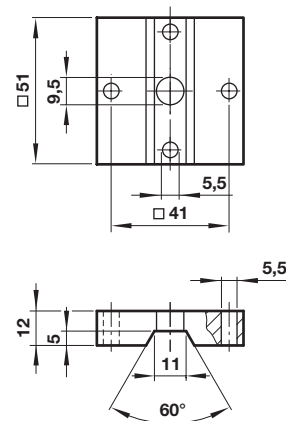
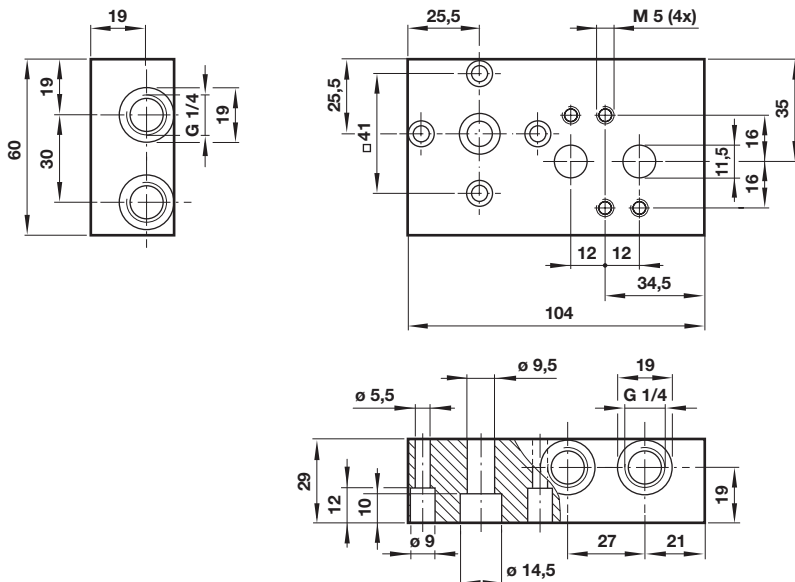


3/2 resp. 5/2 way function according to version by swapping or turning enclosed adaptor plates. Make sure Marker and Arrow do match as shown on above drawing.

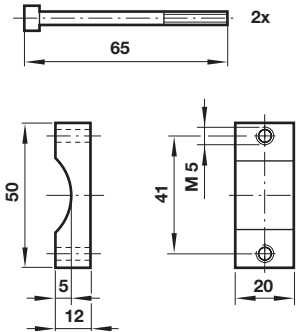
- 1 Arrow
- 2 Marker

Single connection plate  
Model: O612790

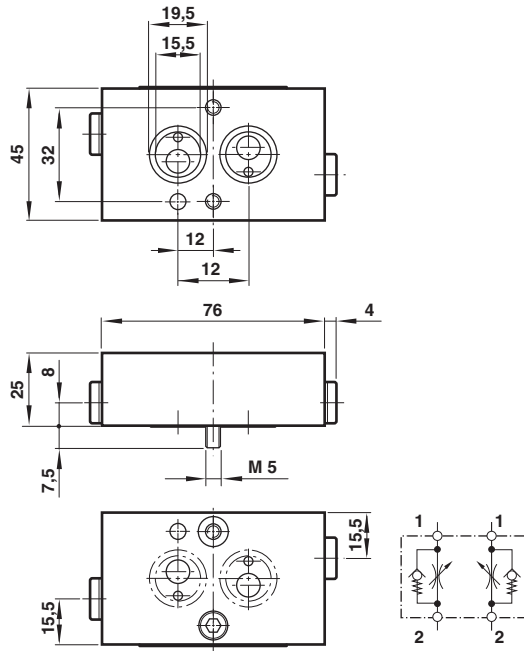
NAMUR slot  
in connection with O612790  
Model: O612791



**Yoke  
in connection with  
0612790  
Model: 0540593**

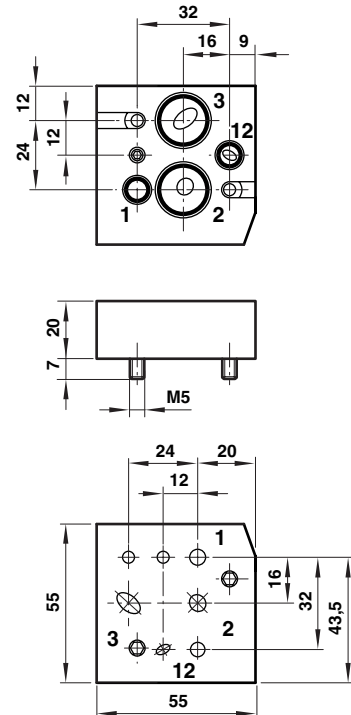


**Throttle control plate  
Model: 4040239**



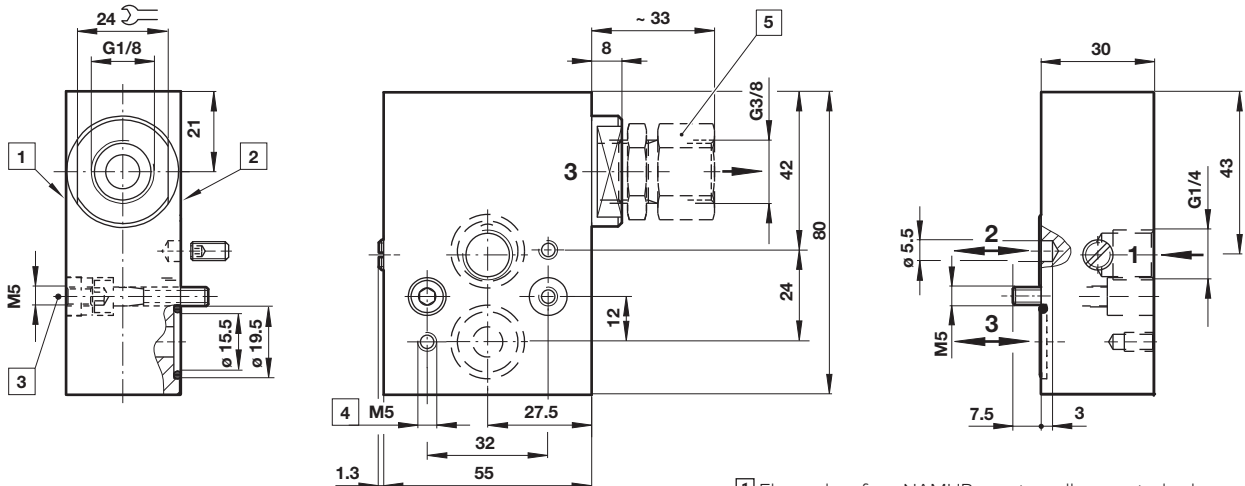
**90° Mounting plate  
Model: 0613453**

Dimensions in mm  
Projection/First angle



**Throttle control plate**

**Model: 4050218**

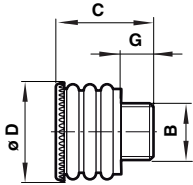


- 1 Flanged surface NAMUR or externally mounted valve
- 2 Flanged surface NAMUR actuator
- 3 Push-in threaded piece after plate mounting  
(to secure correct position)
- 4 8 mm deep
- 5 Flow regulator assembly

### Exhaust guard

Model: 0613422 & 0613423

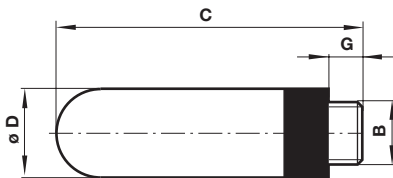
Dimensions in mm  
Projection/First angle



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

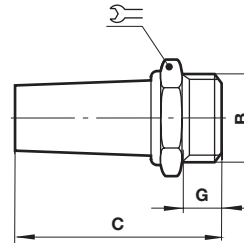
### Silencer (plastic)


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

### Silencer (brass or stainless steel)



B	C	G		Weight (g)	Model
G1/4	33	8	17	18	T40C2800
1/4 NPT	35	8	9/16	18	MS002A
G1/4	36	8	16	23	0014613
1/4 NPT	36	8	16	67	0613678
G1/2	56	12	27	63	T40C4800
1/2 NPT	48	12	7/8	63	MS004A
G1/2	49	12	24	81	0014813
1/2 NPT	49	12	24	235	0613679

#### Authorised Distributor:



46, Jalan SS 22/21, Damansara Jaya,  
47400 Petaling Jaya,  
Selangor Darul Ehsan, Malaysia.

Email: [ampmech@ampmech.com](mailto:ampmech@ampmech.com)

Website: [www.ampmech.com](http://www.ampmech.com)

### Warning

These products are intended for use in industrial compressed air and fluid systems only. Do not use these products where pressures and temperatures can exceed those listed under »**Technical features/data**«. Before using these products with fluids other than those specified, for non-industrial applications, life-support systems, or other applications not within published specifications, consult Norgren GmbH.

Through misuse, age, or malfunction, components used in fluid power systems can fail in various modes.

The system designer is warned to consider the failure modes of all component parts used in fluid power systems and to provide adequate safeguards to prevent personal injury or damage to equipment in the event of such failure. System designers must provide a warning to end users in the system instructional manual if protection against a failure mode cannot be adequately provided.

System designers and end users are cautioned to review specific warnings found in instruction sheets packed and shipped with these products.

#### 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.