98025 NAMUR
3/2 poppet valves
electromagnetic actuated, indirectly controlled
G 1/2, 1/2 NPT or flanged with NAMUR Interface

Main application: single operated actuators for plants

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

Add-on manual override or inductive limit switches

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

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

These solenoid valves are applicable in Ex protection class ATEX (categories II 2 GD and II 3 GD) and other international approvals

TÜV
DIN EN 61508
IEC 61508
up to SIL 4

Approval depends on magnetic system, see page 3 and 4!

Technical features

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

Operation:
Indirect solenoid operated poppet valves with external pilot port

Mounting position:
Any, but preferably with solenoid vertical

Orifice:
8 mm

Port size:
G 1/2, 1/2 NPT or flanged with NAMUR Interface

Operating pressure:
2 ... 8 bar
0 to 8 bar with external air supply, control pressure 2,0 ... 8 bar

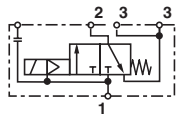
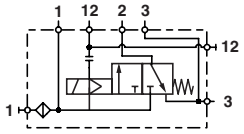
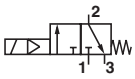
Flow:
See technical data on page 2

Flow direction:
Fixed

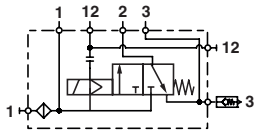
Fluid/Ambient temperature:
-40 ... +60°C (special perbunan)
-25 ... +60°C (SIL version)
Depending on solenoid system
Air supply must be dry enough to avoid ice formation at temperatures below +2°C.

Materials:
Housing: stainless steel 1.4404 (316L), brass 2.0401 (Ms 58), Aluminium anodized 3.0615
Seal: SNBR (special perbunan)
Inner parts: stainless steel

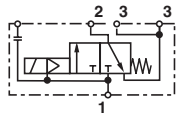
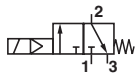
Technical data
3/2 way indirect solenoid operated poppet valves

Symbol	Port size 1, 3	2 (3)	Flow (l/min) *2) 1 » 2	2 » 3	Flow (l/min) *3) 1 » 2	2 » 3	Materials	Test certification IEC 61508	Weight (kg)	Dimension No.	Model *1)
	G 1/4, G1/2	NAMUR G1/4	1250	1500	2500	3100	Aluminium	x	0,9	1	9802505
	1/4 NPT, 1/2 NPT	NAMUR 1/4 NPT	1250	1500	2500	3100	Aluminium	x	0,9	1	9802515
	G 1/4, G1/2	NAMUR G1/4	1250	1500	2500	3100	Stainless steel	x	1,5	1	9802705
	1/4 NPT, 1/2 NPT	NAMUR 1/4 NPT	1250	1500	2500	3100	Stainless steel	x	1,5	1	9802715
	G 1/4, G1/4	NAMUR G1/4 P into flange plate	550	900	1300	2100	Aluminium	—	0,9	5	9802525
	G 1/2	G 1/2	1300	1200	2700	2600	Aluminium	x	0,6	2	9802555
	1/2 NPT	1/2 NPT	1300	1200	2700	2600	Aluminium	x	0,6	2	9802565
	G 1/2	G 1/2	1300	1200	2700	2600	Stainless steel	x	1,0	2	9802755
	1/2 NPT	1/2 NPT	1300	1200	2700	2600	Stainless steel	x	1,0	2	9802765
	G 1/2	G 1/2	1300	1200	2700	2600	Brass	x	1,0	2	9802655
	1/2 NPT	1/2 NPT	1300	1200	2700	2600	Brass	x	1,0	2	9802665

3/2 way indirect solenoid operated poppet valves with exhaust guad

Symbol	Port size 1, 3	2 (3)	Flow (l/min) *2) 1 » 2	2 » 3	Flow (l/min) *3) 1 » 2	2 » 3	Materials	Test certification IEC 61508	Weight (kg)	Dimension No.	Model *1)
	G 1/4, G1/4	NAMUR G1/4 P into flange plate	550	900	1300	2100	Aluminium	—	0,9	6	9802825

3/2 way indirect solenoid operated valves using low-power pilot system in protection class Ex ia IIC T4/T6
Suitable solenoid actuators see page 4 only

Symbol	Port size 1, 3	2 (3)	Flow (l/min) *2) 1 to 2	2 to 3	Flow (l/min) *3) 1 to 2	2 to 3	Materials	Test certification IEC 61508	Weight (kg)	Dimension No.	Model *1)
	G 1/4, G 1/2	NAMUR G 1/4	1250	1500	2500	3100	Aluminium		0,9	3	9802509
	1/4 NPT, 1/2 NPT	NAMUR 1/4 NPT	1250	1500	2500	3100	Aluminium		0,9	3	9802519
	G 1/2	G 1/2	1300	1200	2700	2600	Aluminium		0,6	4	9802559
	1/2 NPT	1/2 NPT	1300	1200	2700	2600	Aluminium		0,6	4	9802569

*1) Ordering information see below
Flow conducted according to ISO 6358 and ISO 8778, 20°C
*2) Inlet pressure 6 bar, outlet pressure 5 bar
*3) Inlet pressure 8 bar, outlet pressure 0 bar

Option selector

9802★★★.★★★★.★★★.★★

Materials	Substitute
Aluminium	5
Brass	6
Stainless steel	7
Port size	**Substitute**
NAMUR, G1/4	0
NAMUR, 1/4 NPT	1
G1/2	5
1/2 NPT	6
Version	**Substitute**
Standard	5
Low power version	9

Voltages	Substitute
24 V d.c.	024.00
230 V a.c.	230.50
Solenoids	**Substitute**
See table above	

Solenoid operators

	Power consumption 24 V d.c. (W)	230 V a.c. (VA)	Rated current 24 V d.c. (mA)	230 V a.c. (mA)	Ex-Protection (ATEX-Categorie)	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	3	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	5	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	5	7	0299 *8)
	0,8	-	33	-	II2G II2D	Ex emb II T5/T6 Ex tD A21 IP66 T130° *2), *10)	-40 ... +80 T5 -40 ... +70 T6 -40 ... +80	M20 X 1,5 *6)	0,6	6	4	4200 *8)
	-	1,3	-	6	II2G II2D	Ex emb II T5/T6 Ex tD A21 IP66 T130° *2), *10	-40 ... +80 T5 -40 ... +70 T6 -40 ... +80	M20 X 1,5 *6)	0,6	6	7	4201 *8)
	0,8	-	33	-	II2G II2D	Ex dmb IIC T5/T6 Ex emb II T5/T6 Ex tD A21 IP66 T130° *3)	-40 ... +80 T5 -40 ... +70 T6 -40 ... +80	1/2 NPT *6)	0,8	7	4	4600 *8)
	0,8	-	33	-	II2G II2D	Ex dmb IIC T5/T6 Ex emb II T5/T6 Ex tD A21 IP66 T130° *3)	-40 ... +80 T5 -40 ... +70 T6 -40 ... +80	M20 X 1,5 *6)	0,8	7	4	4602 *8)
	-	1,3	-	6	II2G II2D	Ex dmb IIC T5/T6 Ex emb II T5/T6 Ex tD A21 IP66 T130° *3)	-40 ... +80 T5 -40 ... +70 T6 -40 ... +80	1/2 NPT *6)	0,8	7	7	4601 *8)
	-	1,3	-	6	II2G II2D	Ex dmb IIC T5/T6 Ex emb II T5/T6 Ex tD A21 IP66 T130° *3)	-40 ... +80 T5 -40 ... +70 T6 -40 ... +80	M20 X 1,5 *6)	0,8	7	7	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	10	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	10	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	8	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
*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 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.

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	Temperature Ambient	Circuit diagram No.	Model *4)
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 bis +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 bis +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 00 ATEX 2050
Air consumption: home position ⩽ 60 l/h, operating position ⩽ 15 l/h
*5) Model 2086 without Pi limiting. Ci and Li can be ignore.

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

Accessories

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

Page 13 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

0570275
0663303 (with rectifier)

Inlet filter

Page 14

0613487

Silencer *1)

Page 14

M/S2 (G1/4)
C/S2 (1/4 NPT)
M/S4 (G1/2)
C/S4 (1/2 NPT)

Exhaust guard *2)

Page 14

0613422 (G1/4, 1/4 NPT)
0613423 (G1/2, 1/2 NPT)

Manual override

0553886 (without detent)
0553887 (with detent)

Manual override (for start-up only)

0613379 (without detent)

*1) For indoors use only
*2) For outdoors use

Throttle control plate

Page 13

4040239 (only for G1/4)

Flange plate, for G1/4 only

Page 13

0612790 (NAMUR single connection plate
0612791 (NAMUR-rip use in combination with 0612790

Yoke

Page 13

0540593

Distance plate for coils

Page 13

0540109

Mounting plate 90° and 270°

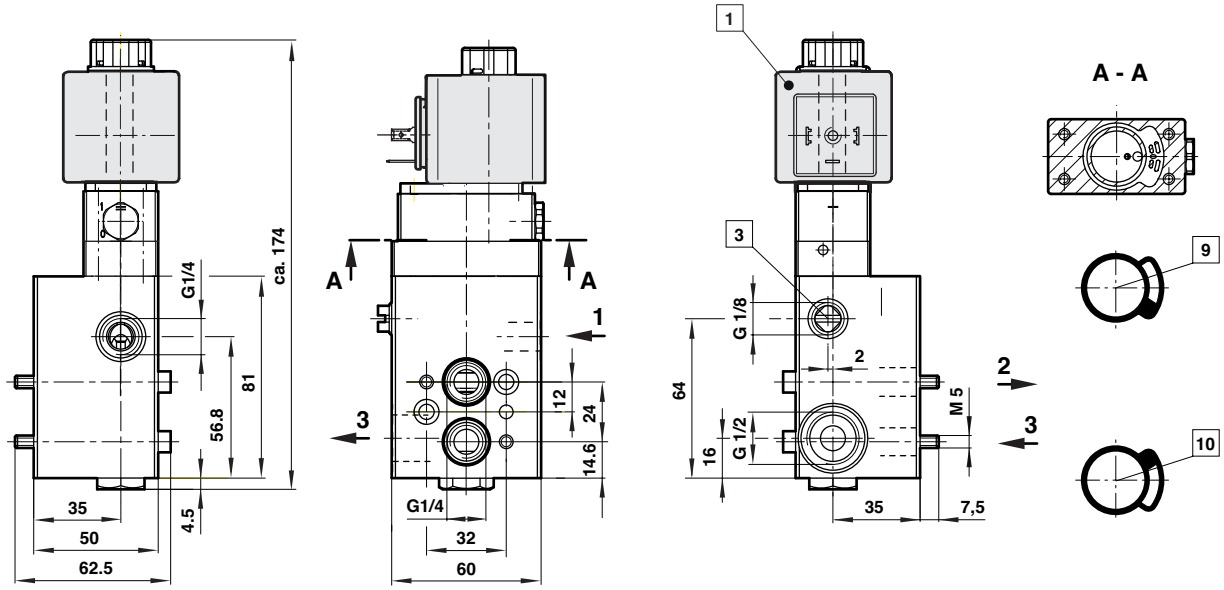
Page 13

0613453 (90°)
0613556 (270°)

Dimensions

Valves

1



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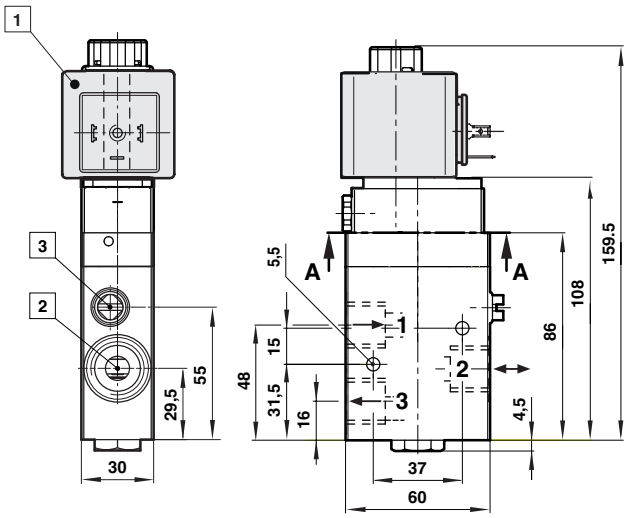
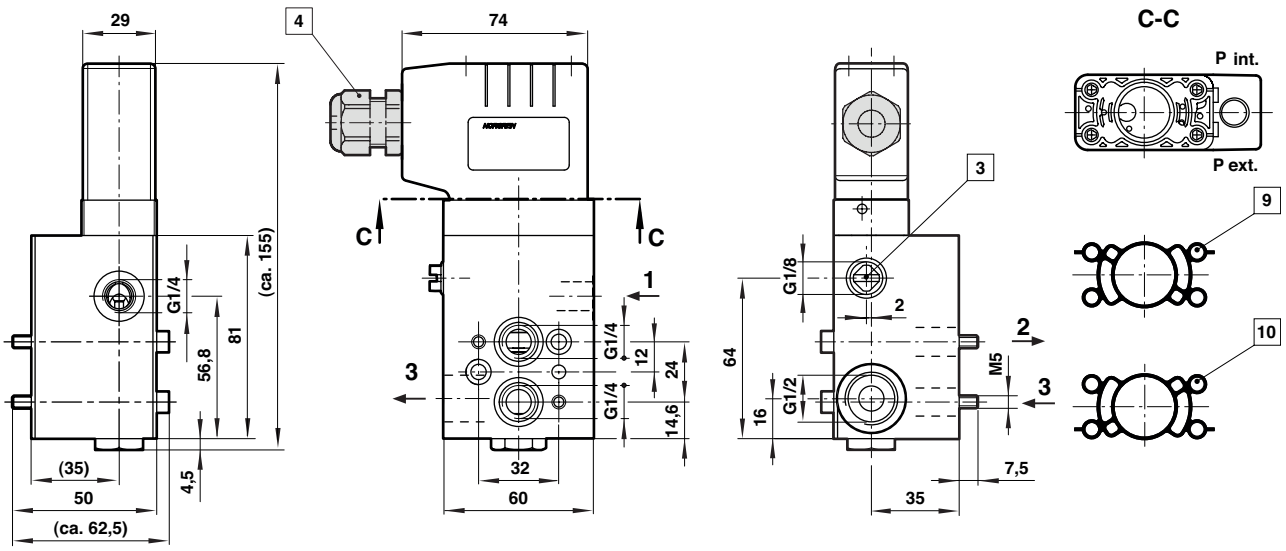


1 Solenoid optional turnable
2 Port G1/2 or 1/2 NPT
3 External control pressure connection G1/8 or 1/8 NPT
4 Electrical connection selectable version 005
9 Position of gasket internal pilot air
10 Position of gasket external pilot air

3



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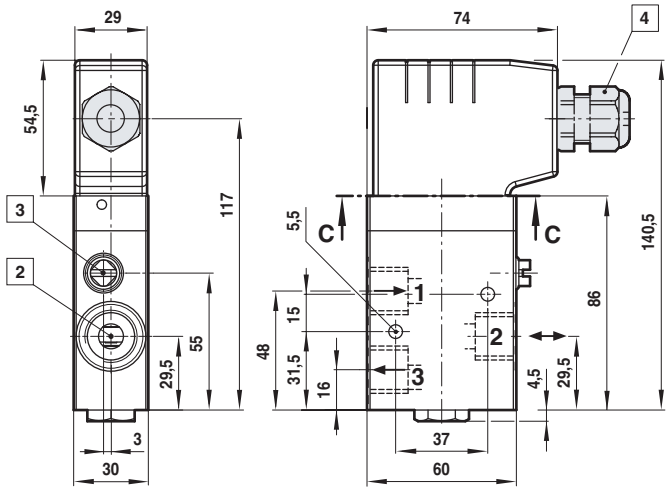

1 Solenoid optional turnable
2 Port G1/2 or 1/2 NPT
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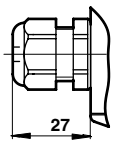
4 Electrical connection selectable version 005
9 Position of gasket internal pilot air
10 Position of gasket external pilot air

Electrical connection

005



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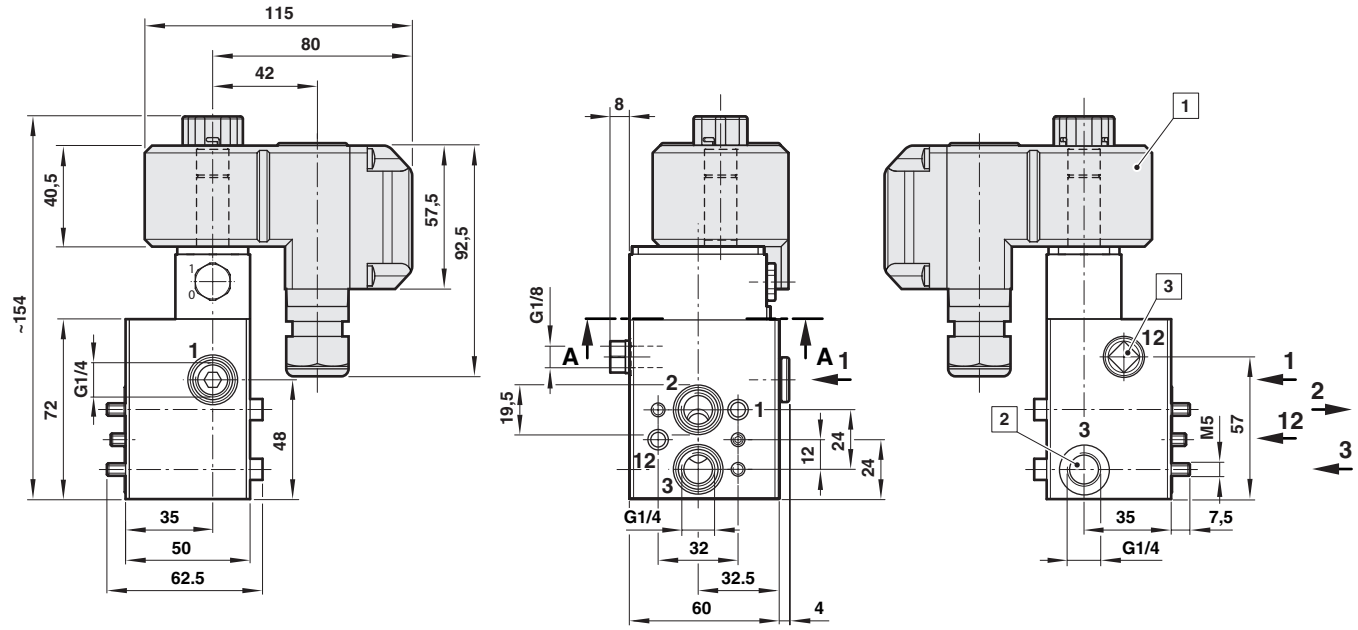

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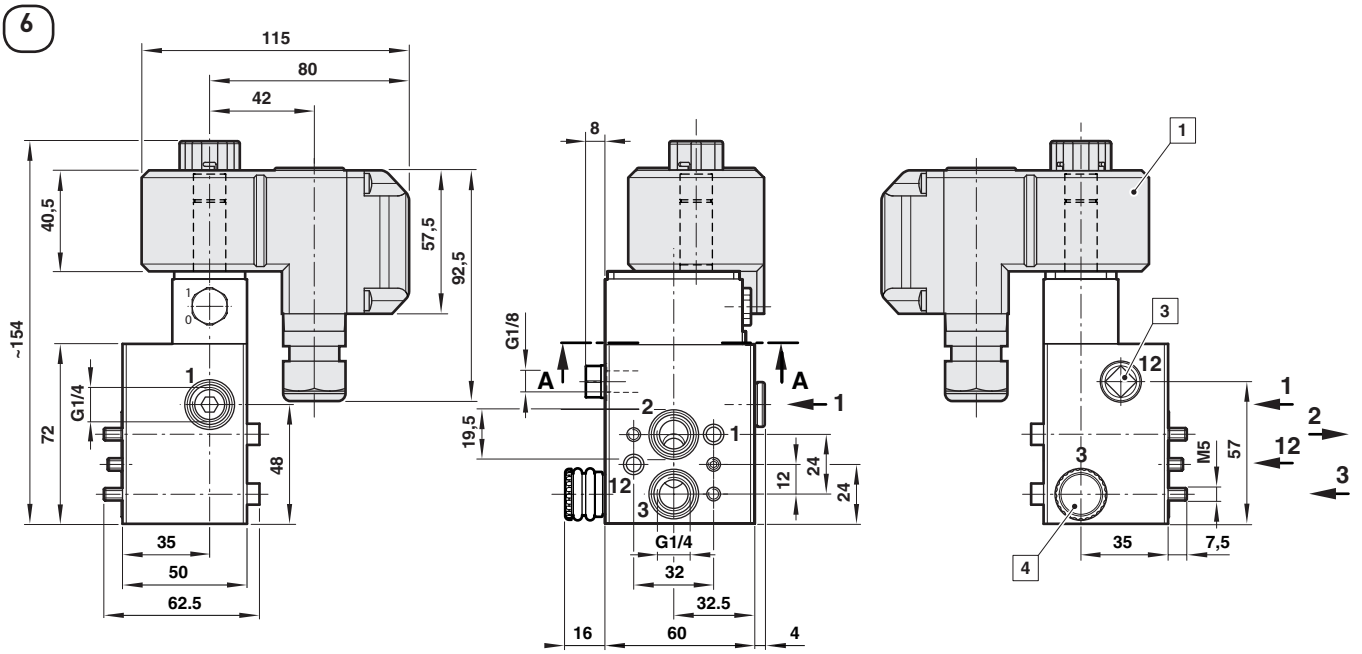

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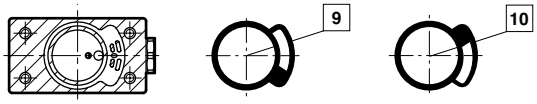


1 Solenoid optional turnable

2 Port G1/4 or 1/4 NPT

3 External control pressure connection G1/8 or 1/8 NPT

4 Exhaust guard G 1/4, or 1/4 NPT

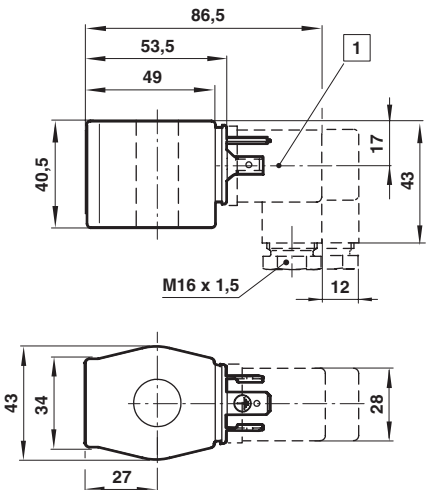
9 Position of gasket internal pilot air

10 Position of gasket external pilot air

Dimensions

Solenoid operators

3



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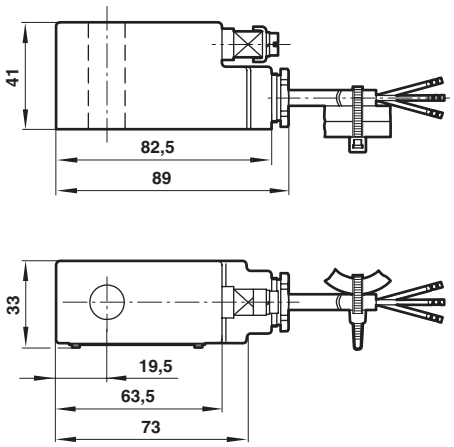

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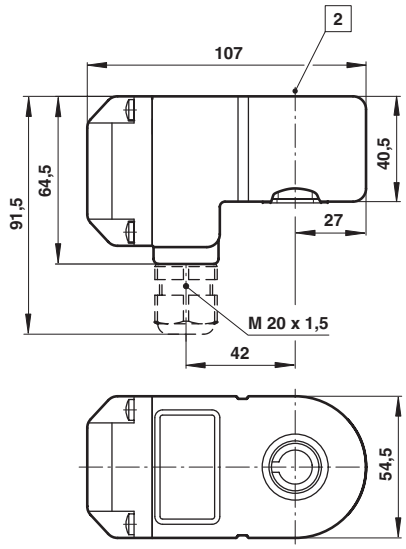

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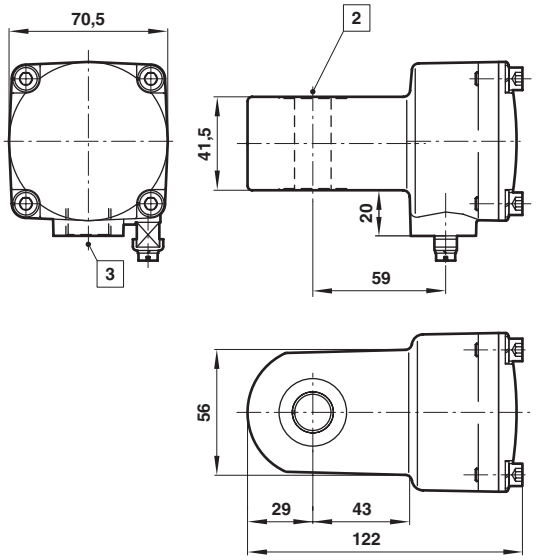

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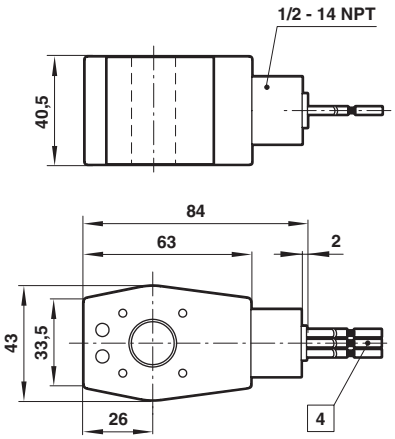


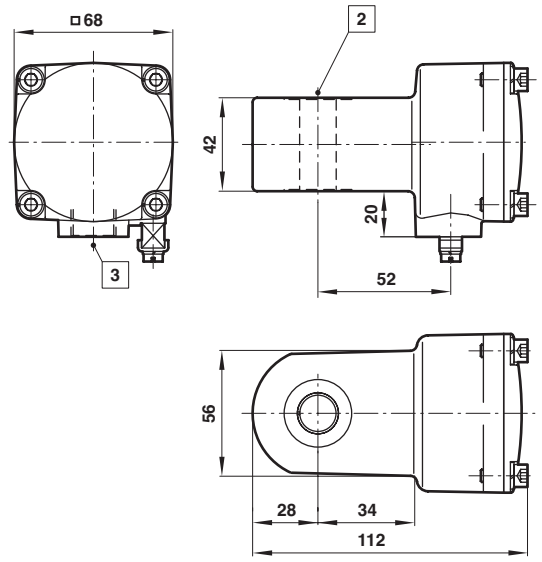
1 Connector can be indexed by 4x90°

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)

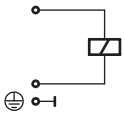
10



2 Ø 16 or 13 (with spacer tube)

Circuit diagrams

1



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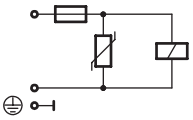

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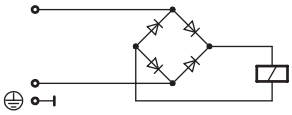

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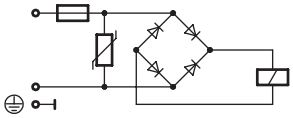

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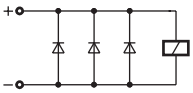
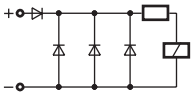
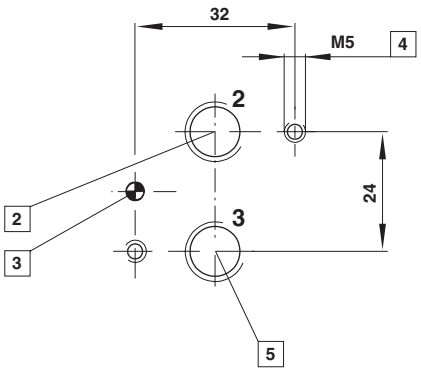


11



NAMUR hole pattern (driving side)
Port G1/4



2 Port 2 (A)

3 Coding stud threaded

4 M5 (10 deep)

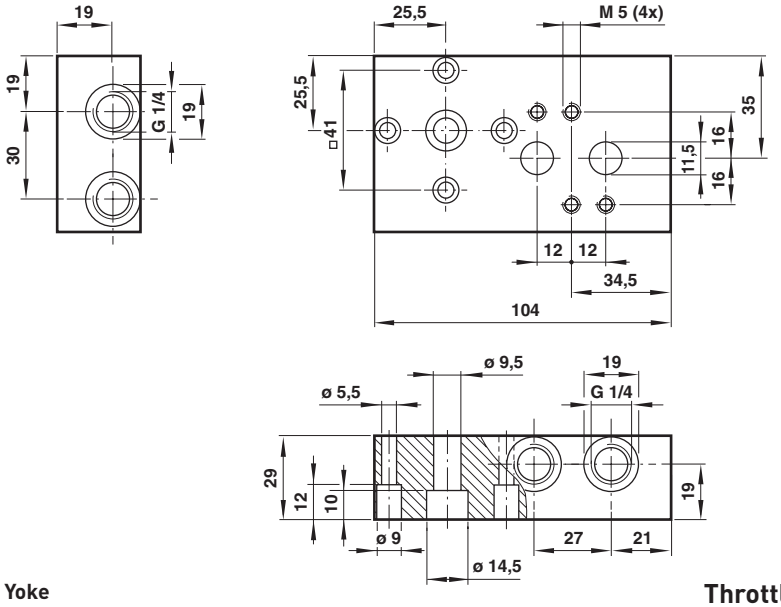
5 Port 3 (R)

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 exhausting« and »safety ventilating« see data sheet 5.4.830

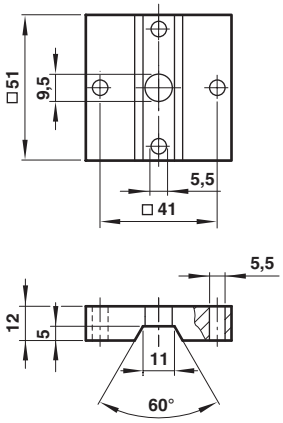
Single connection plate

Type: 0612790



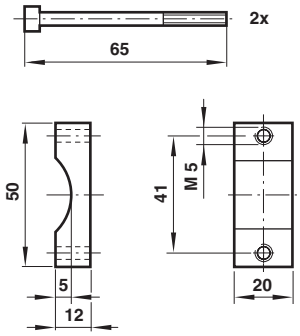
NAMUR slot

Type: 0612791



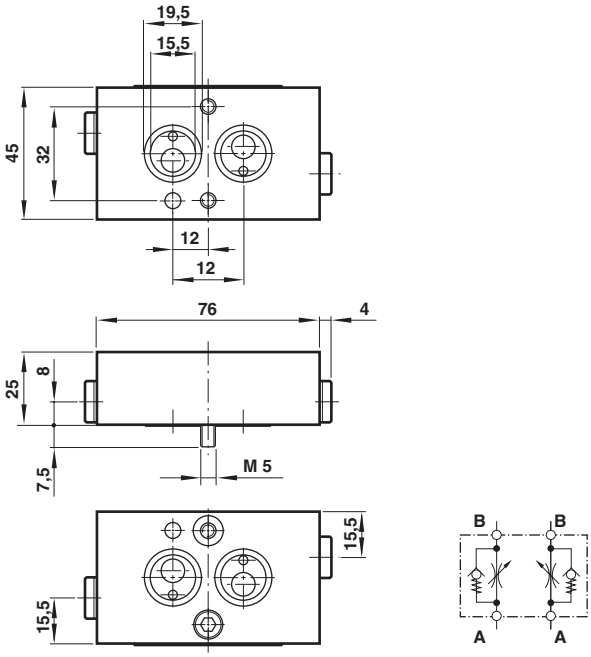
Yoke

Model: 0540593

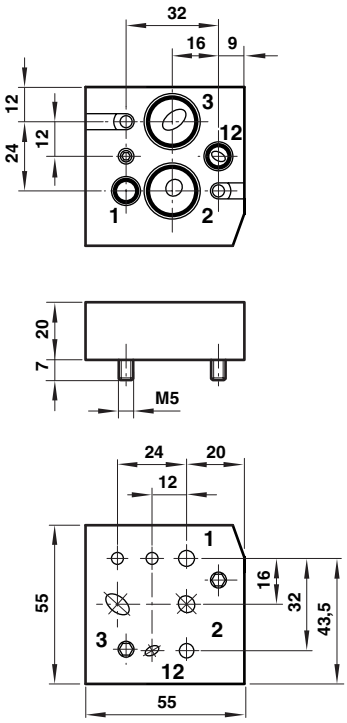


Throttle control plate

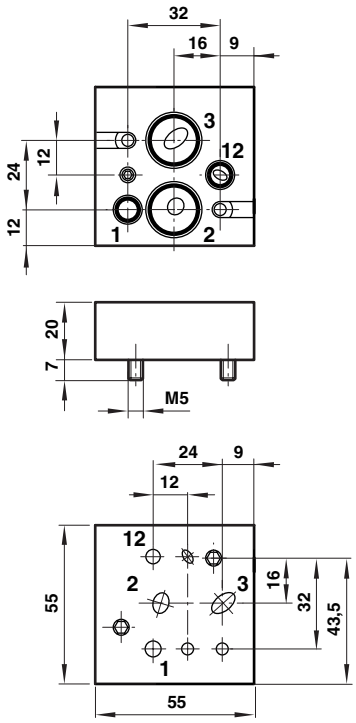
Model: 4040239



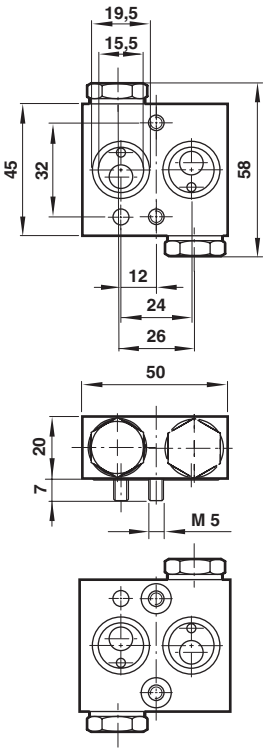
90° Mounting plate
Model: 0613453



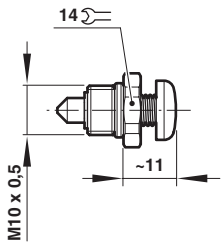
270° Mounting plate
Model: 0613556



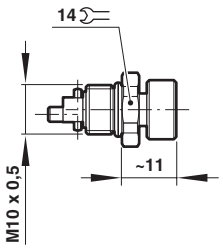
Distance plate
Model: 0540109



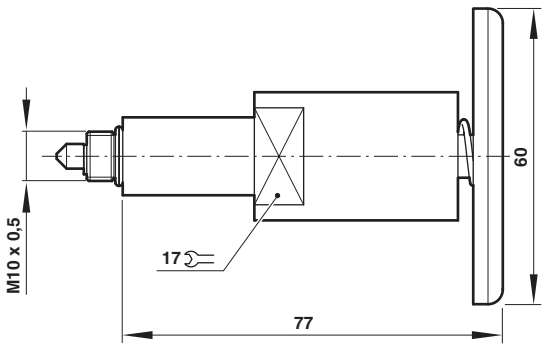
Manual override
Model: 0553886



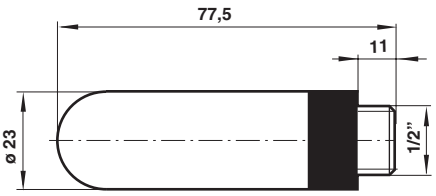
Model: 0553887



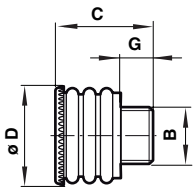
Model: 0613379



Silencer
Model: M/S4, C/S4

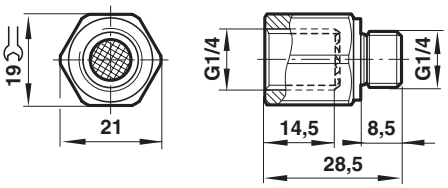


Exhaust guard
Model: 0613422, 0613423

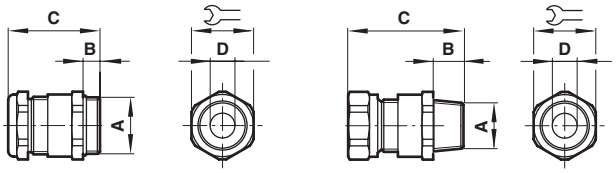


B	Suitable for	G	C	Ø D	Weight (g)	Model
1/4"	G1/4, 1/4 NPT	10	26,5	21	5	0613422
1/2"	G1/2, 1/2 NPT	12	33,5	29	11	0613423

Inlet filter
Model: 0613487



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

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'**.

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 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.