Portfolio

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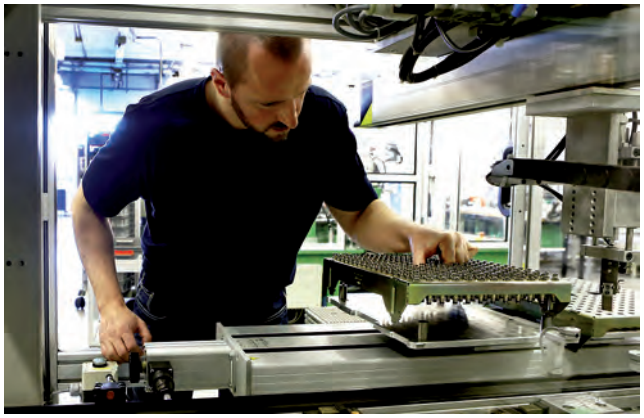
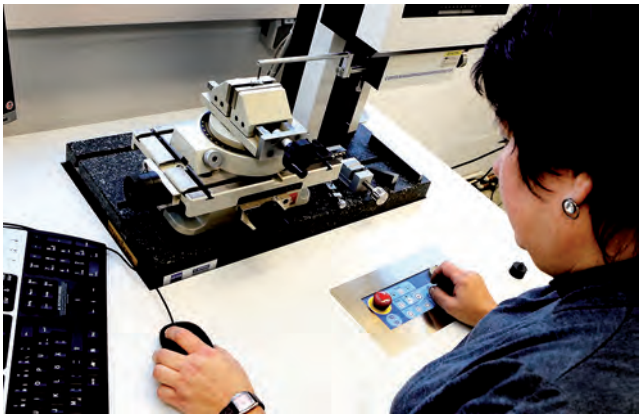
INNOVATION BY NASSMAGNET

Modular and Compact Electromagnetic Components

www.nassmagnet.com ☎ +49 511 6746-0

About us





“Innovation by nass magnet” is the promise we pledge in our advertising. And as a company group operating worldwide (Germany, Hungary, USA, China), we are in fact very pleased to present you an impressive portfolio of innovative solutions in the fields of mechanical engineering and plant construction by way of this catalogue.

As a market leader, *nass magnet* develops pneumatic pilot control valves, exports these to all corners of the globe, and has gained a reputation for stability, expert consultation, high product quality and fair prices. Over many years we have fulfilled market demands professionally and to the full satisfaction of our customers.

In case you haven’t done so already, we now invite you to witness for yourself that the nass magnet team thinks in terms of solutions. Owing to the modular construction of a wide range of our products, we are able to satisfy many customer requirements. And if you are unable to find exactly what you want in this catalogue, our team of experts are always close at hand to offer you advice and assistance: with the most up-to-date simulation programs (for fluid flows, magnetic fields, material strengths, plastic melt flows), databases and naturally, with all the experience we have acquired over the past decades.

By virtue of an efficient design procedure even during the concept phase, you additionally profit from the high level of detail of the solutions.

OUR OFFER

- development of individual new products;
- development of all-round solutions;
- continuous support right up to the series maturity stage;
- consultation regarding the deployment of our products;
- simulation and expertise;
- series production;
- sample production.

Our policy right from the start of the product creation phase is: proactive in the sense of conserving our environmental resources.

As you can see: we regard innovation as a day-to-day task. We hope you enjoy reading our new catalogue and look forward to discussing with you the way ahead regarding the solution of a technical challenge.

More Information about *nass magnet*

- **Order our free presentation about the company group, „Innovation by nass magnet“ (for Acrobat and Acrobat Reader)! ➲ Phone +49 511 6746-264, Andreas.Seibert@nassmagnet.de**
- **Visit our website www.nassmagnet.com!**

All companies belong to the *nass magnet* company group and are privately owned.

nass magnet GmbH
Headquarters: Hanover/Germany

One of the leading companies for electromagnetic components worldwide: over 250 employees develop and manufacture high-quality pilot control valves and valves for air, neutral gases, liquids and other media, as well as electromagnetic drive units for valves in the field of mobile applications.
Managing Director: Klaus H. Kirchheim (Chairman),
Thomas Groetzinger (Engineering)

nass controls
Headquarters: New Baltimore/Michigan/USA

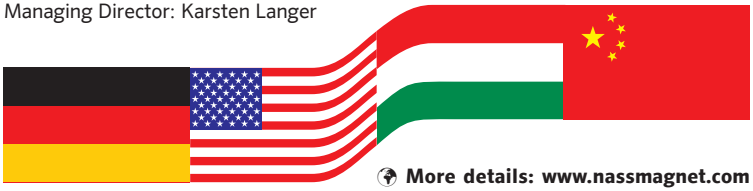
Sales partner for North, Central and South America, Australia and New Zealand. This is where modules supplied by the company group are assembled and undergo final testing. The production of market-specific variants and merchandise rounds off the product spectrum. 20 members of staff work at *nass controls*.
Managing Director: Randy Bennett (President),
Klaus H. Kirchheim (Vice President)

nass magnet Hungária Kft.
Headquarters: Veszprém/Hungary

In technological terms, one of the leading manufactures of plug connectors and cable plugs. Moreover, the factory in Hungary manufactures solenoids, function fittings and part of the modular component spectrum for the company group. The company employs over 250 employees.
Managing Director: Klaus H. Kirchheim (Chairman),
Dennis Müller (Commercial Manager)

nass magnet Shanghai Trading Co., Ltd.
Headquarters: Shanghai/China

Sales partner for Asia. 3 members of staff are employed by the nass magnet Shanghai Trading Co., Ltd.
Managing Director: Karsten Langer



More details: www.nassmagnet.com

Standardized Variety

Already our basic product range achieves a remarkable product variety due to the modular structure and meets a large number of customer‘s requirements. We have compiled it for you in this catalogue.

If you have questions, our sales team will be pleased to assist you:

Your contact:
Christoph Böhm
Phone +49 511 6746-228
Fax +49 511 6746-285
Mobile +49 173 6229042
Christoph.Boehm@nassmagnet.de

3/2 way solenoid valve (level control of a utility vehicle)

3/2 way solenoid valve (pressure regulation of a utility vehicle)

Modified Standards

You flick through this catalogue and see: This range does not cover 100 % of your requirements. – No problem: What cannot be shown 1:1 by means of the catalogue, but what is based on it, will the nass magnet team make possible with the product range nCUSTOM.

If you have questions, our sales team will be pleased to assist you:

Your contact:
Christoph Böhm
Phone +49 511 6746-228
Fax +49 511 6746-285
Mobile +49 173 6229042
Christoph.Boehm@nassmagnet.de

Coil for coupling (electromagnetic coupling of a vehicle)

New Products of High Quality

You need a new component or prefer a complete solution from one hand. This requires that all necessary steps until the product is ready for series production can be made in one company - with experience, precision and reliability. In short: Innovation by nass magnet.

If you have questions, our sales team will be pleased to assist you:

Your contact:
Stephan Prigge
Phone +49 511 6746-229
Fax +49 511 6746-285
Mobile +49 173 6773090
Stephan.Prigge@nassmagnet.de

www.nassmagnet.com ☎ +49 511 6746-0

System 6

The name „System 6“ stands for a modular system of solenoid coils, armature systems, solenoid operators and solenoid valves. The diameter of the armatures of all valve components is approximately 6 mm. This value is the major characteristic of this type. The components‘ efficiency has been increased to the optimum in years of simulation, construction and practical testing.

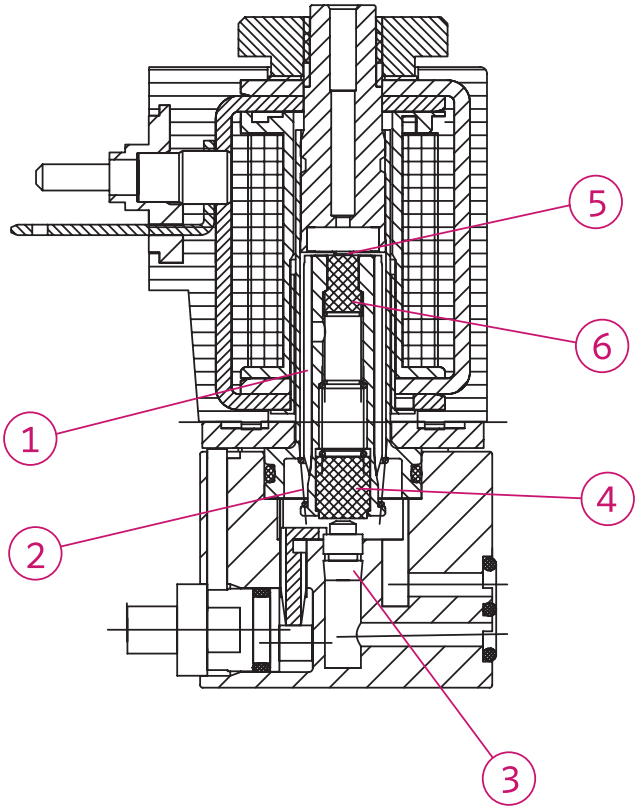
APPLICATION OF SYSTEM 6

The solenoid operators and solenoid valves of System 6 can be used for operating 2/2- or 3/2 way valves. Available switching functions are *normally closed* and *normally open*. For 3/2 way seat valves of this series, typical maximum values for operating pressure and nominal width are 10 bar/1 mm. For 2/2 way devices, a maximum operating pressure of 16 bar or a maximum nominal width of 1.8 mm can be achieved.

The components of System 6 are mainly used as pilot valves in pneumatics. The solenoid operators and solenoid valves are designed for the use with compressed air or other neutral gases. The use of other substances is possible according to prior agreement with *nass magnet*.

FUNCTION

While the solenoid operator/solenoid valve (standard version, 3/2 way, normally closed) is de-energized, the armature[1] is pushed down on the lower valve seat[3] by the reset spring[2]. The lower valve seat is closed by a sealing element[4]. In this switch position the upper valve seat[5] in the magnetic core is open. When the valve is energized, the magnetic force exceeds the force of the reset spring and moves the armature into the opposite extreme position. In this case the upper valve seat5 is closed by the sealing element6, whereas the lower valve seat3 is open.



Solenoid operators and solenoid valves have identical functionality. However, if solenoid operators are ordered, neither the lower valve seat nor the valve body is shipped. Those components have to be provided by the customer. 2/2 way valves do not have an upper valve seat. Besides that, the function of the magnet is identical.

Note

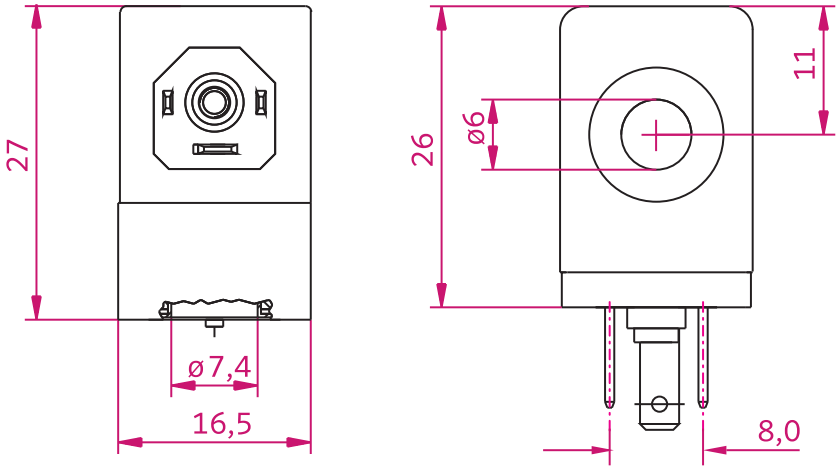
We reserve the right to make product changes without notice. For use other than general industrial pneumatics, please consult factory.

SOLENOID COIL

Width:	16,5 mm
Connection type:	form C – EN 175301-803-C
Moulding material:	thermoset resin

General Data

Voltage tolerance	± 10 %
Ambient temperature	- 20 °C to + 50 °C
Relative duty cycle	100 %
Insulation class of insulating materials according to DIN VDE 0580	F
Degree of protection with connector according to EN 60529	IP 65
Imprint	*nass magnet* (customer imprint possible)



Technical Data Standard Versions

Part No.	Voltage	Frequency [Hz]	Rated Power [W]	[VA]	Power Level	$\Delta\vartheta_{32}$ [K]
106-030-0007	12 V DC	–	1,2		2	27
106-030-0112	24 V DC	–	1,3		2	27
106-030-0008	24 V DC	–	2,0		3	39
106-030-0037	230 V AC	50		3,2	3	34
106-030-0037	240 V AC	60		3,0	3	34
106-030-0006	12 V DC	–	3,1		4	56
106-030-0004	24 V DC	–	3,0		4	56
106-030-0005	24 V AC	50		3,6	4	57
106-030-0005	24 V AC	60		3,0	4	57
106-030-0003	110 V AC	50		3,6	4	52
106-030-0003	120 V AC	60		3,6	4	52

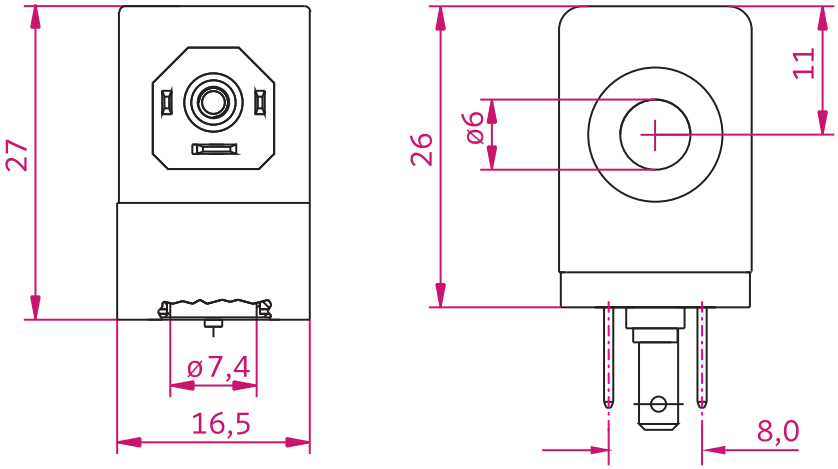
$\Delta\vartheta_{32}$ [K]: steady-state over-temperature according to VDE 0580

SOLENOID COIL

Width:	16,5 mm
Connection type:	form C – EN 175301-803-C
Moulding material:	thermoplastic

General Data

Voltage tolerance	± 10 %
Ambient temperature	- 20 °C to + 50 °C
Relative duty cycle	100 %
Insulation class of insulating materials according to DIN VDE 0580	F
Degree of protection with connector according to EN 60529	IP 65
Imprint	*nass magnet* (customer imprint possible)



Technical Data Standard Versions

Part No.	Voltage	Frequency [Hz]	Rated Power [W]	[VA]	Power Level	$\Delta\vartheta_{32}$ [K]
106-030-0070	12 V DC	–	3,1		4	62
106-030-0071	24 V DC	–	0,8		1	20
106-030-0072	24 V DC	–	1,3		2	30
106-030-0073	24 V DC	–	2,0		3	44
106-030-0068	24 V DC	–	3,0		4	62
106-030-0069	24 V AC	50		3,6	4	63
106-030-0069	24 V AC	60		3,0	4	63
106-030-0067	110 V AC	50		3,7	4	58
106-030-0067	120 V AC	60		3,7	4	58
106-030-0066	220 V AC	50		3,7	4	63
106-030-0066	240 V AC	60		3,7	4	63

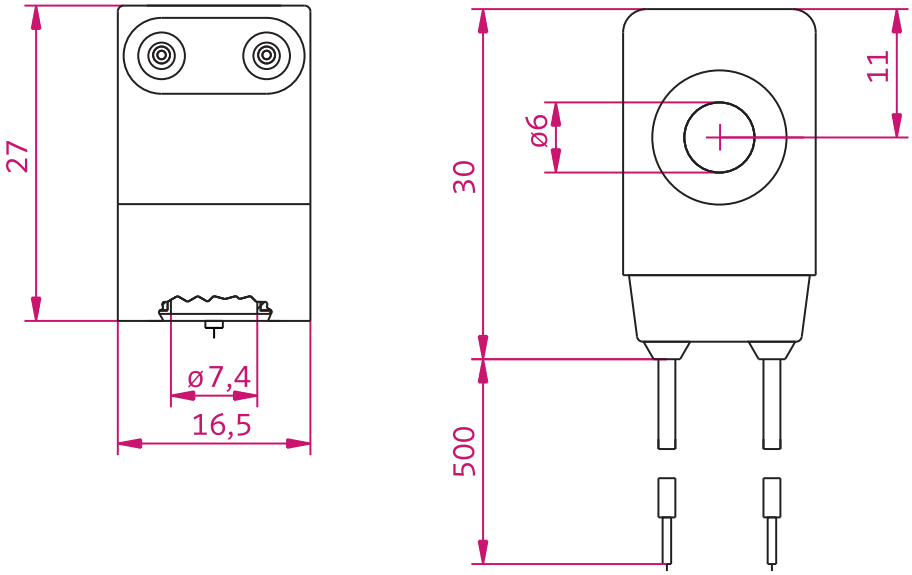
$\Delta\vartheta_{32}$ [K]: steady-state over-temperature according to VDE 0580

SOLENOID COIL

Width:	16,5 mm
Connection type:	flying leads
Moulding material:	thermoplastic

General Data

Voltage tolerance	± 10 %
Ambient temperature	- 20 °C to + 50 °C
Relative duty cycle	100 %
Insulation class of insulating materials according to DIN VDE 0580	F
Degree of protection with connector according to EN 60529	IP 65
Imprint	*nass magnet* (customer imprint possible)

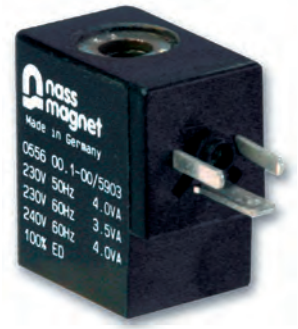


Technical Data Standard Versions

Part No.	Voltage	Frequency [Hz]	Rated Power [W]	[VA]	Power Level	$\Delta\vartheta_{32}$ [K]
106-030-0053	24 DC	–	2,0		3	44
106-030-0039	24 DC	–	3,0		4	62
106-030-0038	230 AC	50		4,0	4	63
106-030-0038	230 AC	60		3,4	4	63

Note: alternative length of flying leads on request

$\Delta\vartheta_{32}$ [K]: steady-state over-temperature according to VDE 0580



Width: 16 mm
Connection type: form C
Moulding material:
thermoset resin

Width: 16 mm
Connection type: form C
Moulding material:
thermoplastic

Width: 16 mm
Connection type: flying leads
Moulding material:
thermoplastic

SPECIAL REMARKS

The technical data are valid for the indicated standard voltages. Other voltages are available on request.

Perfect function of these solenoid coils with the pertinent components included in this catalogue is assured with the winding having reached its operating temperature (max. ambient temperature and max. voltage tolerance). The steady-state over-temperature is reached in case of valve body of plastic and coil jacketing made of thermoplastic. All valves are designed in compliance with DIN VDE 0580. Arrangement of the valves in modular design is possible, however, it may ensue a higher temperature increased by up to 20 K and may limit the function.

A general lifetime of the products cannot be specified, as it is decisively influenced by ambient conditions, the single application and combination with other components. The function can only be fulfilled in case of exclusive use of *nass magnet* products.

Should there be deviating or additional operating conditions compared to the abovementioned conditions, special testing is necessary in order to verify the usability of the *nass magnet* products. – ***nass magnet* will be glad to give you the required advice.**

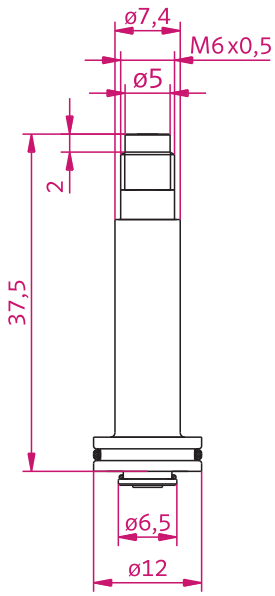
ARMATURE ASSEMBLY FL

Switching function:	2/2 and 3/2 way
De-energized state:	NC (normally closed)
Connection type:	flange

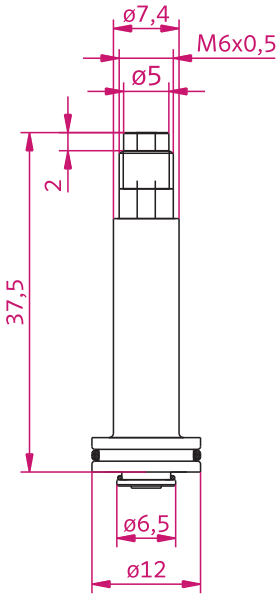
General Data

Ambient temperature ..... - 10 °C to + 50 °C
Quality of medium according to ISO 8573-1 ..... compressed air class 4, 3, 4
Mounting position ..... any (preferably plunger in vertical direction)

2/2 way



3/2 way



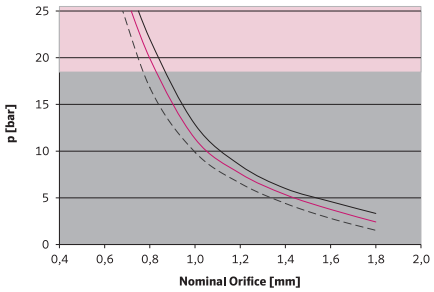
Technical Data Standard Versions

Part No.	Function	Power Level	Nominal Orifice [mm] inlet	exhaust	Pressure [bar]	Appropriate for		Armature Guide brass	stainless steel	Sealing Material
106-010-0003	3/2 way	1	0,6	0,7	8	DC		x		FPM
106-010-0007	3/2 way	1	0,6	0,7	8	DC		x		HNBR
106-010-0012	3/2 way	1	0,6	0,7	8	DC			x	FPM
106-010-0002	3/2 way	2	0,8	0,9	8	DC		x		FPM
106-010-0005	3/2 way	3	0,8	0,9	10	DC	AC	x		FPM
106-010-0004	2/2 way	3, 4	see below			see below	DC	AC	x	FPM
106-010-0001	3/2 way	4	1,0	1,1	10	DC	AC	x		FPM

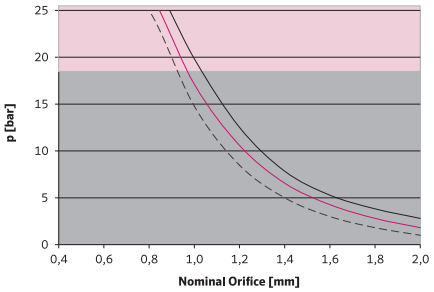
Power Levels for 2/2 Way Versions

AC - 50 Hz AC - 60 Hz DC - 5 % residual ripple max. test pressure: 18 bar · special versions on request

Power Level 3



Power Level 4

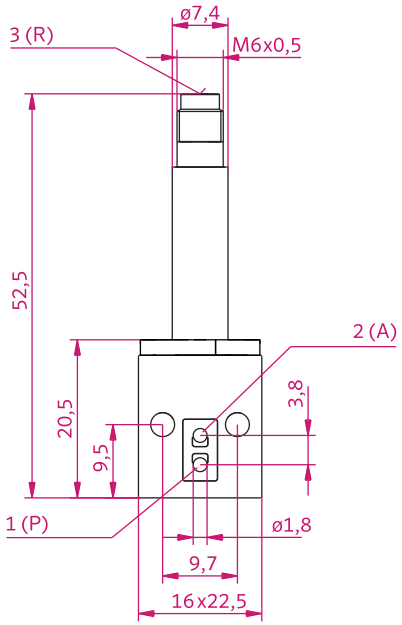


VALVE SYSTEM SF

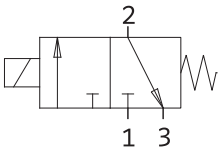
Switching function:	3/2 way
De-energized state:	NC (normally closed)
Valve body:	plastics
Gasket of the pneumatic interface:	O'rings, asymmetrical, side flange (SF) sealing material FPM

General Data

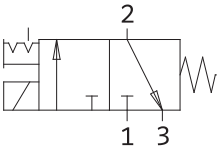
Ambient temperature	- 10 °C to + 50 °C
Quality of medium according to ISO 8573-1	compressed air class 4, 3, 4
Mounting position	any (preferably plunger in vertical direction)



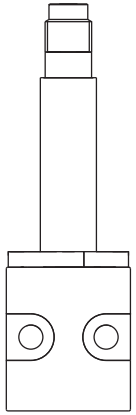
Pneumatic Diagram



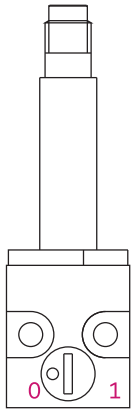
without manual override



bistable manual override



without manual override



bistable manual override

Technical Data Standard Versions

Part No.	**Power Level**	**Nominal Orifice** [mm] inlet	exhaust	**Pressure** [bar]	**Flow Rate** [l/min]* 1–2	2–3	**Manual Override** bistable	**Appropriate for**		**Armature Guide** brass	stainless steel
106-050-0002	1	0,6	0,7	8	12	14	x	DC		x	
106-050-0003	2	0,8	0,9	8	20	26	x	DC		x	
106-050-0008	2	0,8	0,9	8	20	26		DC		x	
106-050-0016	3	0,8	0,9	10	23	31	x	DC	AC	x	
106-050-0025	4	1,0	1,1	10	27	37		DC	AC	x	
106-050-0017	4	1,0	1,1	10	27	37	x	DC			x
106-050-0004	4	1,0	1,1	10	27	37	x	DC	AC	x	

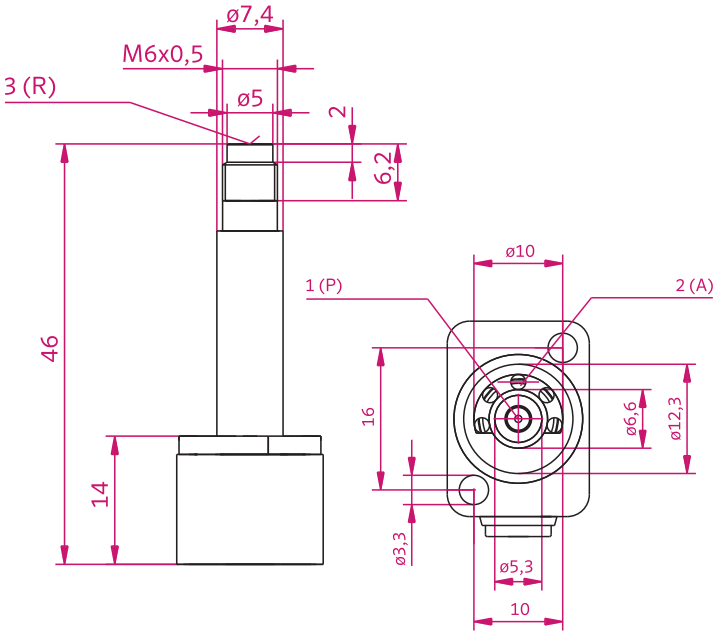
* qv flow rate at an inlet pressure of 6 bar (ΔX = 1 bar) and 0 °C; flow rate detection in compliance with ISO 6358

VALVE SYSTEM KR

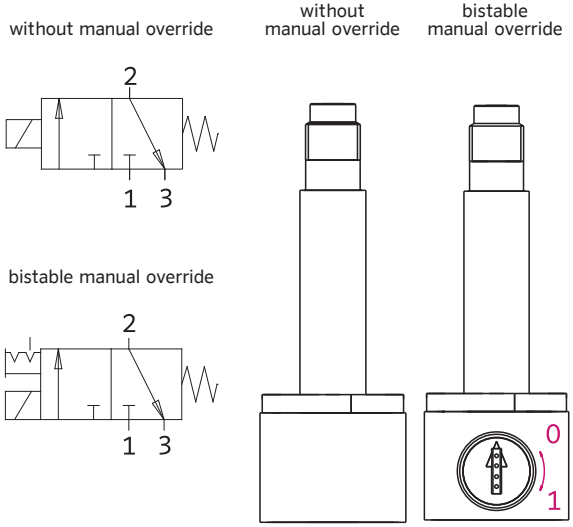
Switching function:	3/2 way
De-energized state:	NC (normally closed)
Valve body:	plastics
Gasket of the pneumatic interface:	concentric O'rings (KR) sealing material FPM

General Data

Ambient temperature	- 10 °C to + 50 °C
Quality of medium according to ISO 8573-1	compressed air class 4, 3, 4
Mounting position	any (preferably plunger in vertical direction)



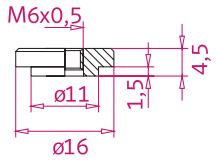
Pneumatic Diagram



Technical Data Standard Versions

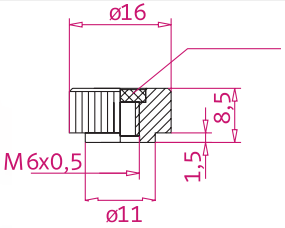
Part No.	Power Level	Nominal Orifice [mm] inlet	exhaust	Pressure [bar]	Flow Rate [l/min]* 1–2	2–3	Manual Override bistable	monostable	Appropriate for		Armature Guide brass	stainless steel
106-050-0026	1	0,6	0,7	8	12	14			DC		x	
106-050-0005	1	0,6	0,7	8	12	14	x		DC		x	
106-050-0006	2	0,8	0,9	8	23	28	x		DC		x	
106-050-0010	3	0,8	0,9	10	23	28	x		DC	AC	x	
106-050-0020	3	0,8	0,9	10	23	28	x		DC	AC	x	
106-050-0001	4	1,0	1,1	10	32	40		x	DC	AC	x	
106-050-0007	4	1,0	1,1	10	32	40	x		DC	AC	x	

* qv flow rate at an inlet pressure of 6 bar (ΔX = 1 bar) and 0 °C; flow rate detection in compliance with ISO 6358



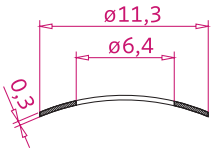
Knurled nut · M 6 x 0,5 mm

Part No.: 106-080-0001
Explanation: tightening torque max. 1,0 Nm; use with spring washer #106-080-0009



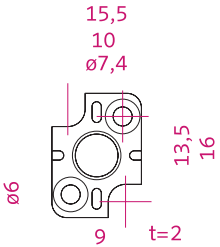
Silencer · M 6 x 0,5 mm

Part No.: 106-080-0004
Explanation: inclusive sintered filter; tightening torque max. 1,0 Nm; use with spring washer #106-080-0009



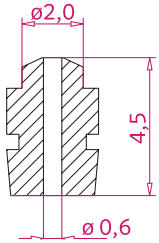
Spring washer

Part No.: 106-080-0009
Explanation: use with knurled nut #106-080-0001 or silencer #106-080-0004



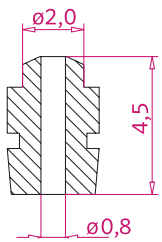
Mounting plate

Part No.: 106-702-0001
Explanation: only for armature assembly FL



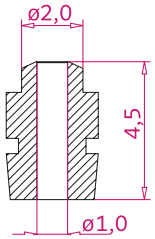
Valve seat · orifice size 0,6

Part No.: 106-034-0001

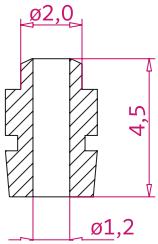


Valve seat · orifice size 0,8

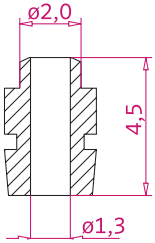
Part No.: 106-034-0002



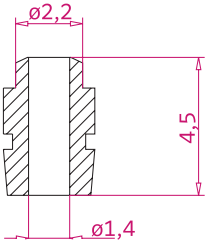
Valve seat · orifice size 1,0
Part No.: 106-034-0003



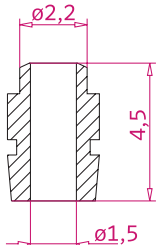
Valve seat · orifice size 1,2
Part No.: 106-034-0006



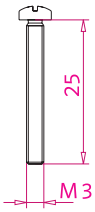
Valve seat · orifice size 1,3
Part No.: 106-034-0004



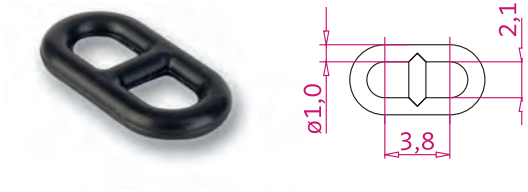
Valve seat · orifice size 1,4
Part No.: 106-034-0007



Valve seat · orifice size 1,5
Part No.: 106-034-0005



Fillister head screw · M 3 x 25 mm
Part No.: 900-822-0049
Explanation: with slots and cross slots; only for valve system SF (for one valve system two srews are required); tightening torque max. 0,5 Nm

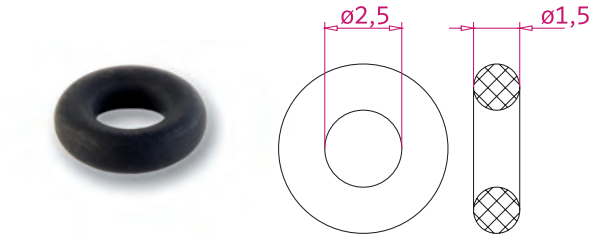


Flange seal NBR

Part No.: 106-723-0001
Explanation: only for valve system SF

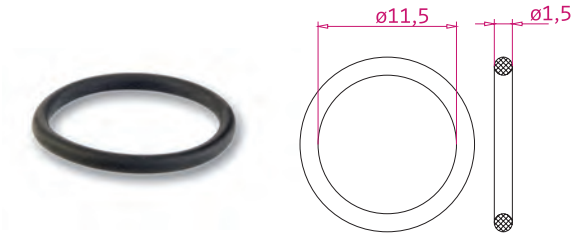
Cheese-head screw · M 3 x 18 mm

Part No.: 900-822-0037
Explanation: with slots and cross slots; only for valve system KR (for one valve system two srews are required); tightening torque max. 0,5 Nm



O'ring FPM · 2,5 x 1,5 mm

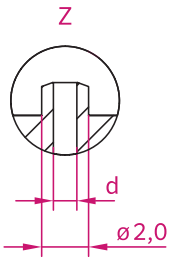
Part No.: 900-841-0065
Explanation: only for valve system KR

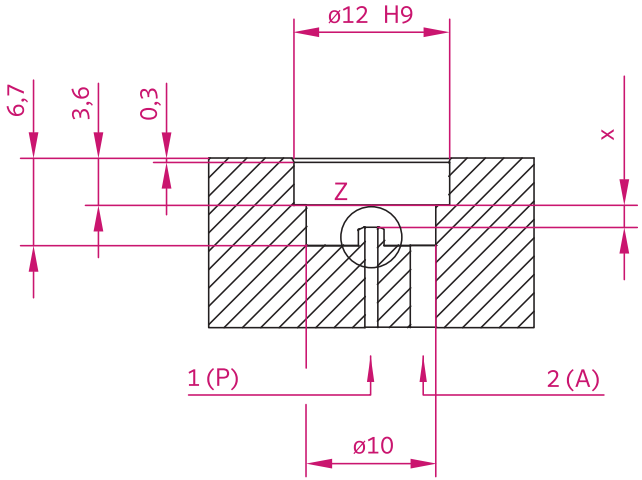


O'ring FPM · 11,5 x 1,5 mm

Part No.: 900-841-0077
Explanation: only for valve system KR

PNEUMATIC CONNECTION SOLENOID OPERATOR





d	x	
	1 / 2	2 / 1 3
0,6	1,60	1,70
0,8	1,63	1,75
1,0	1,68	1,75
1,2	1,70	-
1,3	1,70	-
1,4	1,75	-
1,5	1,75	-

Note:

Specifications regarding the characteristic of the customer interface are available at *nass magnet* on request.

www.nassmagnet.com ☎ +49 511 6746-0

System 8

The name “System 8” stands for a modular system of solenoid coils, armature systems, solenoid operators and solenoid valves. The diameter of the armatures of all valve components is approximately 8 mm. This value is the major characteristic of this type. The components' efficiency has been increased to the optimum in years of simulation, construction and practical testing.

APPLICATION OF SYSTEM 8

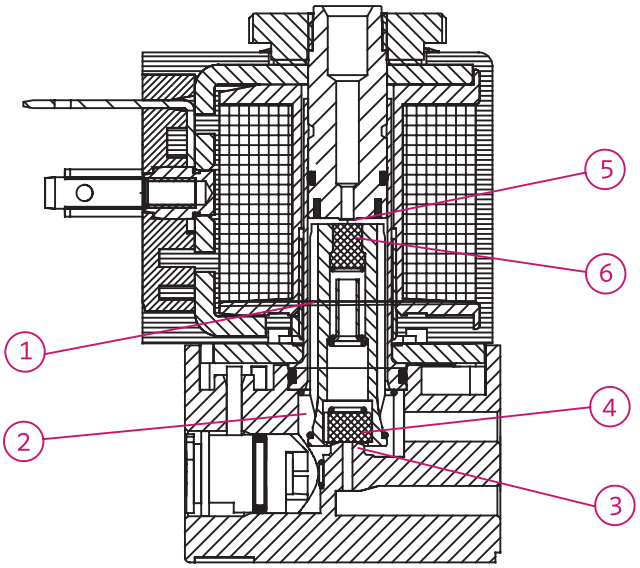
The solenoid operators and solenoid valves of system 8 can be used for operating 2/2- or 3/2 way valves, especially in pneumatics. Available switching functions are *normally closed* and *normally open*.

For 3/2 way valves of this series, typical maximum values for operating pressure and nominal orifice are 16 bar/2.5 mm. 2/2 way solenoid operators and solenoid valves can also be used for controlling liquids.

FUNCTION

While the solenoid operator/solenoid valve is de-energized, the armature[1] is being pushed down on the lower valve seat[3] by the reset spring[2]. The lower valve seat is closed by a sealing element[4]. In this switch position the upper valve seat5 in the magnetic core is open. When the valve is energized, the magnetic force exceeds the force of the reset spring and moves the armature into the opposite extreme position. In this case the upper valve seat5 is closed by the sealing element6, whereas the lower valve seat3 is open.

Solenoid operators and solenoid valves have identical functionality. However, if solenoid operators are ordered, neither the lower valve seat nor the valve body is shipped.



Those components have to be provided by the customer.

2/2 way valves do not have an upper valve seat. Besides that, the function of the magnet is identical.

Note

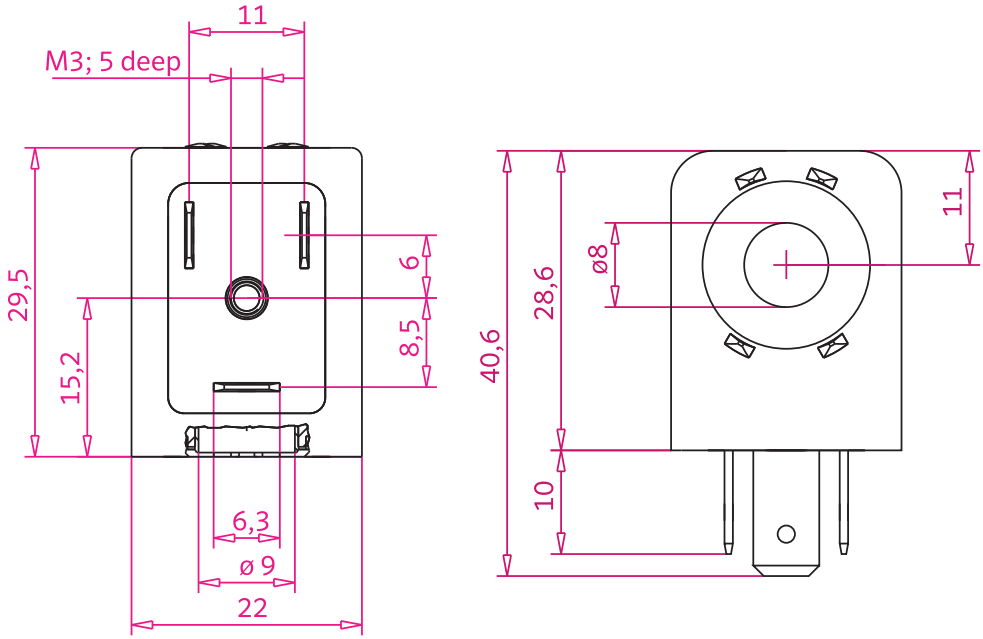
We reserve the right to make product changes without notice. For use other than general industrial pneumatics, please consult factory.

SOLENOID COIL

Width:	22 mm
Connection type:	industry form
Moulding material:	thermoset resin

General Data

Voltage tolerance	± 10 %
Ambient temperature	- 20 °C to + 50 °C
Relative duty cycle	100 %
Insulation class of insulating materials according to DIN VDE 0580	F
Degree of protection with connector according to EN 60529	IP 65
Imprint	*nass magnet* (customer imprint possible)
Protection class	I



Technical Data Standard Versions

Part No.	Voltage	Frequency [Hz]	Rated Power [W]	[VA]	Power Level	$\Delta\vartheta_{32}$ [K]
108-030-0048	24 V DC	–	2,0		2	35
108-030-0862	110 V AC	50		4,1	2	50
108-030-0862	110 V AC	60		3,3	2	50
108-030-0798	230 V AC	50		3,9	2	50
108-030-0798	230 V AC	60		3,2	2	50
108-030-0050	24 V DC	–	2,6		3	45
108-030-0052	24 V AC	50		6,0	3	75
108-030-0052	24 V AC	60		4,9	3	75
108-030-0049	220 V AC	50		6,0	3	75
108-030-0049	220 V AC	60		4,9	3	75
108-030-0051	230 V AC	50		6,0	3	75
108-030-0051	230 V AC	60		4,9	3	75
108-030-0043	12 V DC	–	4,6		4	70
108-030-0043	24 V AC	50		7,1	4	90
108-030-0044	24 V DC	–	4,8		4	70
108-030-0044	48 V AC	50		7,7	4	90
108-030-0047	220 V AC	50		8,5	4	95
108-030-0046	230 V AC	50		7,9	4	90
108-030-0046	230 V AC	60		6,4	4	90
108-030-0047	240 V AC	60		9,0	4	95
108-030-1169	12 V DC	–	5,5		5	85
108-030-0045	24 V DC	–	6,0		5	85
108-030-1169	24 V AC	50		9,2	5	105
108-030-0045	48 V AC	60		7,6	5	85
108-030-1120	230 V AC	50		9,4	5	102

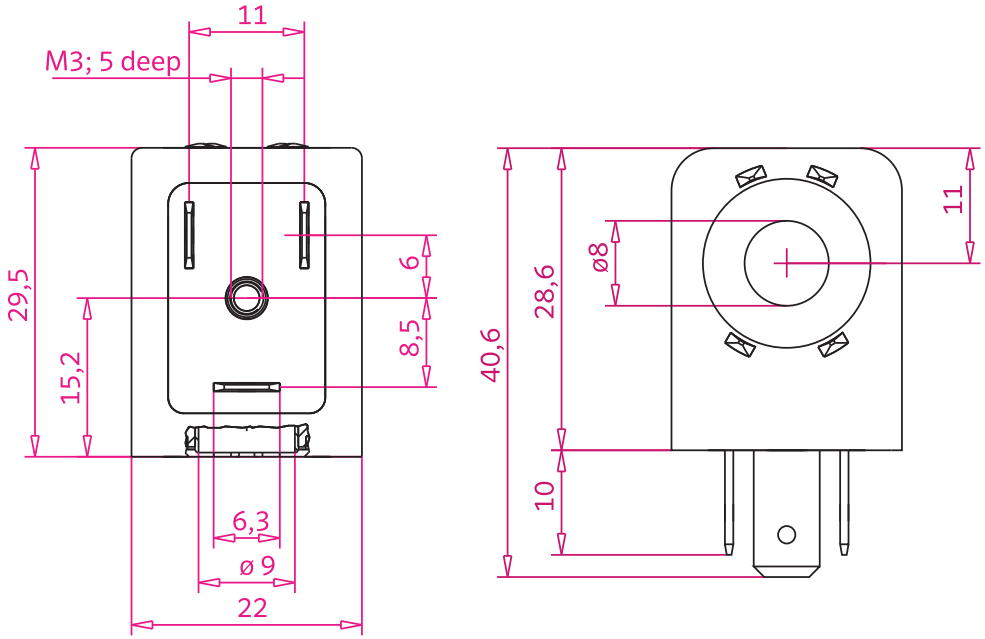
$\Delta\vartheta_{32}$ [K]: steady-state over-temperature according to VDE 0580

SOLENOID COIL

Width:	22 mm
Connection type:	industry form
Moulding material:	thermoplastic

General Data

Voltage tolerance	± 10 %
Ambient temperature	- 20 °C to + 50 °C
Relative duty cycle	100 %
Insulation class of insulating materials according to DIN VDE 0580	F
Degree of protection with connector according to EN 60529	IP 65
Imprint	*nass magnet* (customer imprint possible)
Protection class	I



Technical Data Standard Versions

Part No.	Voltage	Frequency [Hz]	Rated Power [W]	[VA]	Power Level	$\Delta\vartheta_{32}$ [K]
108-030-0278	24 V DC	–	1,1		1	20
108-030-0273	24 V DC	–	2,0		2	35
108-030-0279	24 V AC	50		3,6	2	50
108-030-0279	24 V AC	60		3,0	2	50
108-030-0268	110 V AC	50		4,1	2	50
108-030-0268	110 V AC	60		3,3	2	50
108-030-0276	220 V AC	50		3,9	2	50
108-030-0276	220 V AC	60		3,2	2	50
108-030-0294	230 V AC	50		3,9	2	50
108-030-0294	230 V AC	60		3,2	2	50
108-030-0271	12 V DC	–	2,4		3	45
108-030-0275	24 V DC	–	2,6		3	45
108-030-0260	48 V DC	–	2,7		3	75
108-030-0260	110 V AC	50		6,0	3	75
108-030-0274	110 V DC	–	3,6		3	75
108-030-0274	220 V AC	50		6,0	3	105
108-030-0281	230 V AC	50		6,0	3	75
108-030-0281	240 V AC	60		5,5	3	75
108-030-0257	12 V AC	–	4,6		4	100
108-030-0257	24 V DC	50		7,1	4	100
108-030-0258	24 V DC	–	4,8		4	70
108-030-0258	48 V AC	50		8,0	4	70
108-030-0259	48 V DC	–	5,0		4	70
108-030-0267	110 V AC	50		8,6	4	100
108-030-0267	110 V AC	60		6,6	4	100
108-030-0261	220 V AC	50		9,3	4	105
108-030-0269	230 V AC	50		7,9	4	95
108-030-0269	230 V AC	60		6,4	4	99
108-030-0270	12 V AC	50		8,8	5	105
108-030-0264	24 V DC	–	6,0		5	85
108-030-0263	24 V AC	50		9,3	5	110
108-030-0266	110 V AC	50		8,6	5	105
108-030-0286	110 V DC	–	6,1		5	105
108-030-0266	120 V AC	60		8,7	5	105
108-030-0272	110 V DC	–	4,9		5	105
108-030-0272	220 V AC	50		8,5	5	105
108-030-0287	220 V AC	50		8,0	5	105
108-030-0286	230 V AC	60		9,7	5	105
108-030-0298	220 V AC	50		8,0	5	105
108-030-0298	230 V AC	50		9,4	5	105

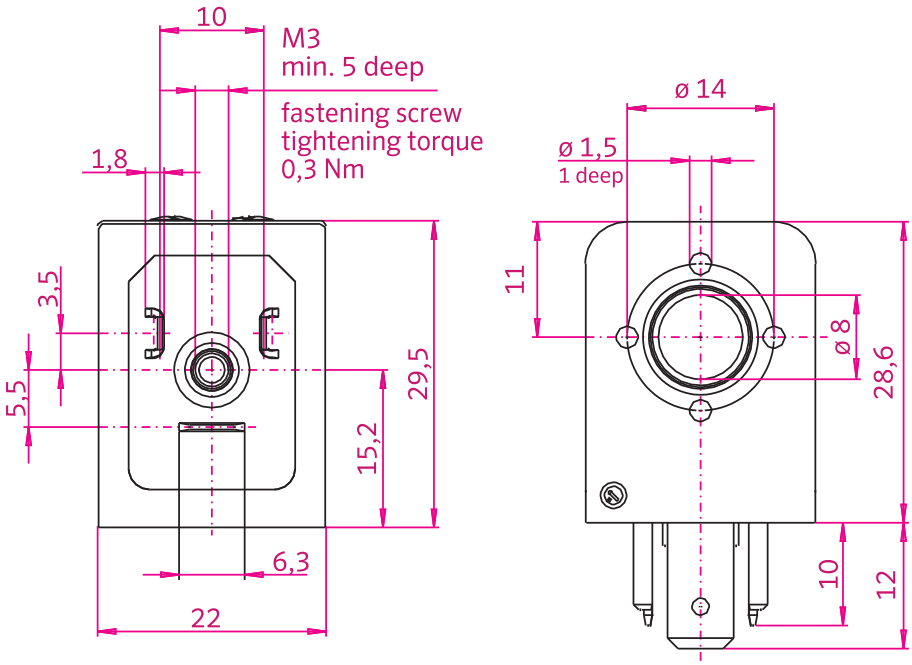
$\Delta\vartheta_{32}$ [K]: steady-state over-temperature according to VDE 0580

SOLENOID COIL

Width:	22 mm
Connection type:	form B – EN 175301-803-B
Moulding material:	thermoset resin

General Data

Voltage tolerance	± 10 %
Ambient temperature	- 20 °C to + 50 °C
Relative duty cycle	100 %
Insulation class of insulating materials according to DIN VDE 0580	F
Degree of protection with connector according to EN 60529	IP 65
Imprint	*nass magnet* (customer imprint possible)
Protection class	I



Technical Data Standard Versions

Part No.	Voltage	Frequency [Hz]	Rated Power [W]	[VA]	Power Level	$\Delta\vartheta_{32}$ [K]
108-030-0524	24 V DC	–	6,0		5	85
108-030-0524	48 V AC	60		7,6	5	85
108-030-0525	110 V AC	50		8,6	5	105
108-030-0525	120 V AC	60		8,7	5	105

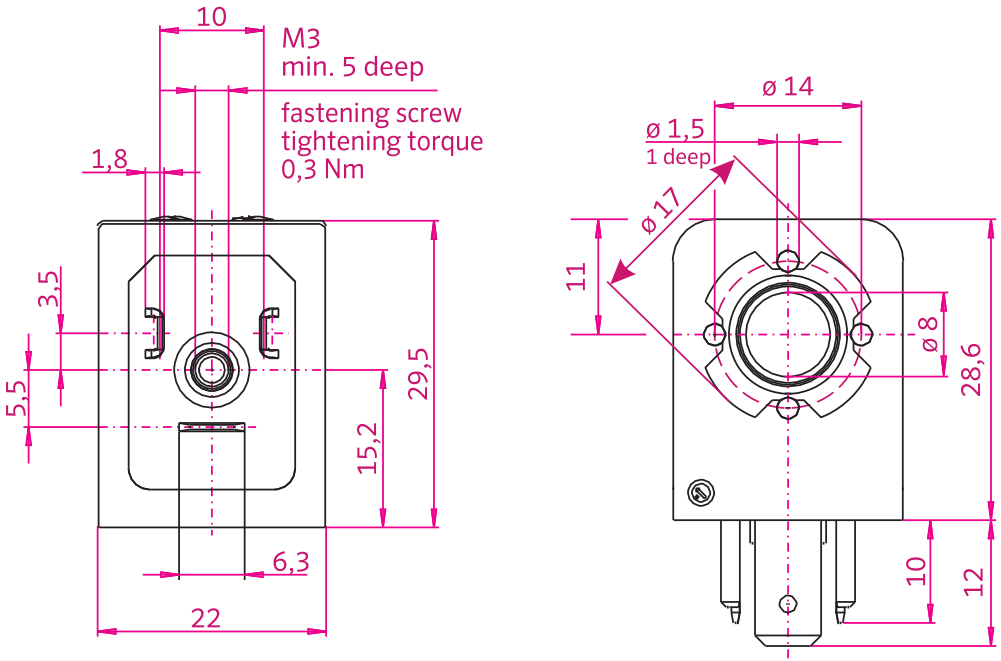
$\Delta\vartheta_{32}$ [K]: steady-state over-temperature according to VDE 0580

SOLENOID COIL

Width:	22 mm
Connection type:	form B – EN 175301-803-B
Moulding material:	thermoplastic

General Data

Voltage tolerance	± 10 %
Ambient temperature	- 20 °C to + 50 °C
Relative duty cycle	100 %
Insulation class of insulating materials according to DIN VDE 0580	F
Degree of protection with connector according to EN 60529	IP 65
Imprint	*nass magnet* (customer imprint possible)
Protection class	I



Technical Data Standard Versions

Part No.	Voltage	Frequency [Hz]	Rated Power [W]	[VA]	Power Level	$\Delta\vartheta_{32}$ [K]
108-030-0889	24 V DC	–	1,7		2	35
108-030-0891	24 V DC	–	2,6		3	45
108-030-0892	230 V AC	50		6,0	3	75
108-030-0892	230 V AC	60		4,9	3	75
108-030-0887	24 V DC	–	4,8		4	70
108-030-0887	48 V AC	50		7,7	4	70
108-030-0890	110 V DC	–	4,9		4	100
108-030-0890	220 V AC	50		8,5	4	100
108-030-0893	24 V AC	50		7,9	4	95
108-030-0893	24 V AC	60		6,4	4	95
108-030-0888	24 V DC	–	6,0		5	85
108-030-0888	48 V AC	60		7,6	5	85

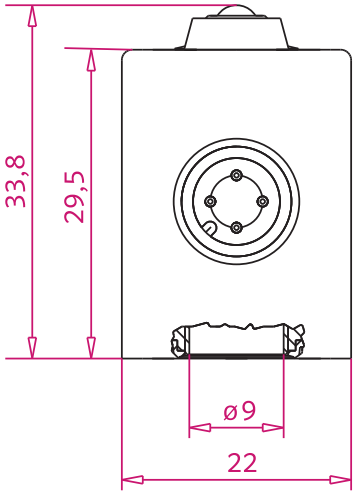
$\Delta\vartheta_{32}$ [K]: steady-state over-temperature according to VDE 0580

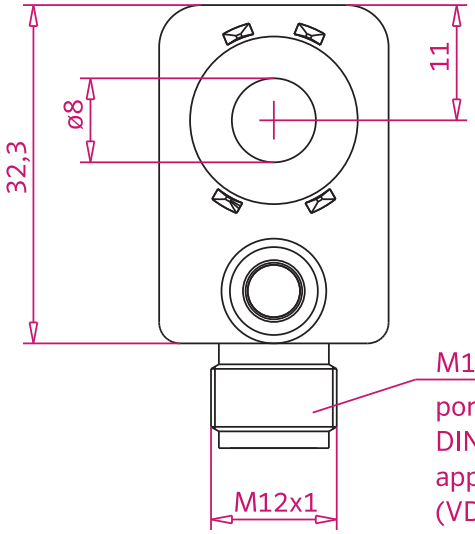
SOLENOID COIL

Width:	22 mm
Connection type:	M 12 metal thread
Moulding material:	thermoset resin

General Data

Voltage tolerance	± 10 %
Ambient temperature	- 20 °C to + 50 °C
Relative duty cycle	100 %
Insulation class of insulating materials according to DIN VDE 0580	F
Degree of protection with connector according to EN 60529	IP 65
Imprint	*nass magnet* (customer imprint possible)
Protection class	II

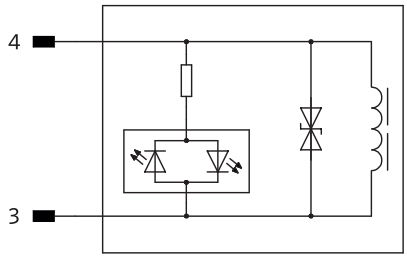




M12-Connector

port acc. to
DIN EN 60947-5-2
appendix D
(VDE 0660 part 208)

Circuit Diagram



Technical Data Standard Versions

Part No.	Voltage	Rated Power [W]	Power Level	$\Delta\vartheta_{32}$ [K]	LED yellow
108-030-1109	24 V DC	2,5	3	45	x
108-030-0240	24 V DC	4,8	4	70	x

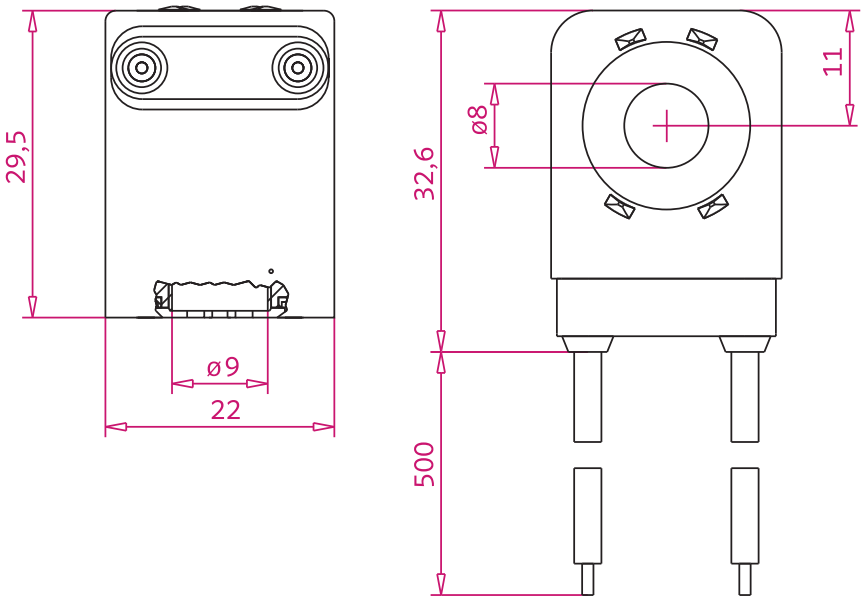
$\Delta\vartheta_{32}$ [K]: steady-state over-temperature according to VDE 0580

SOLENOID COIL

Width:	22 mm
Connection type:	flying leads
Moulding material:	thermoplastic

General Data

Voltage tolerance	± 10 %
Ambient temperature	- 20 °C to + 50 °C
Relative duty cycle	100 %
Insulation class of insulating materials according to DIN VDE 0580	F
Degree of protection	IP 65
Imprint	*nass magnet* (customer imprint possible)
Protection class	III



Technical Data Standard Versions

Part No.	Voltage	Frequency [Hz]	Rated Power [W]	Rated Power [VA]	Power Level	$\Delta\vartheta_{32}$ [K]	Length of Flying Leads
108-030-0788	24 V DC	–	2,6		3	45	500 mm
108-030-0785	48 V DC	–	2,7		3	45	500 mm
108-030-0784	24 V DC	–	4,8		4	70	500 mm
108-030-0784	48 V AC	50		8,5	4	70	500 mm
108-030-0785	110 V AC	50		6,0	4	45	500 mm
108-030-0786	24 V DC	–	6,0		5	85	500 mm

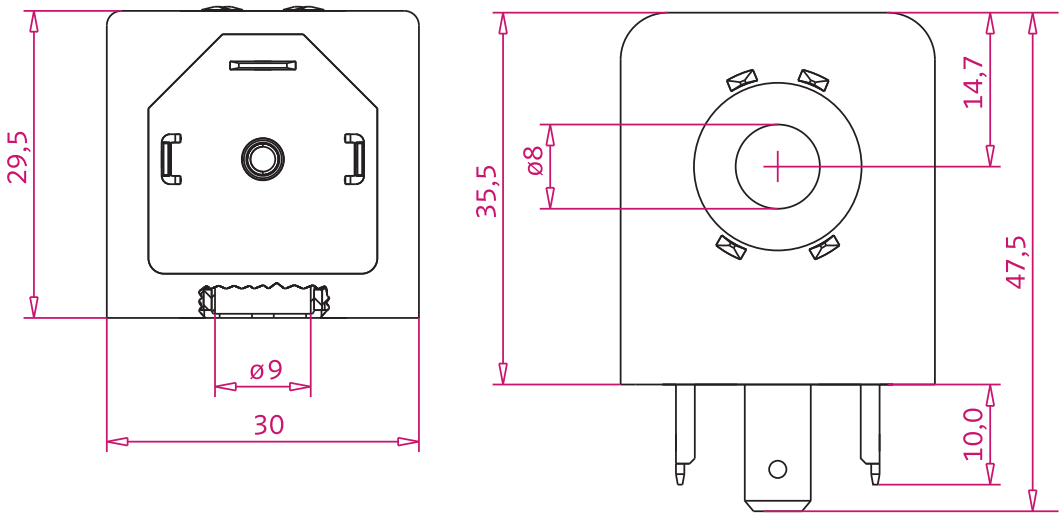
$\Delta\vartheta_{32}$ [K]: steady-state over-temperature according to VDE 0580

SOLENOID COIL

Width:	30 mm
Connection type:	form A – EN 175301-803-A
Moulding material:	thermoset resin

General Data

Voltage tolerance	± 10 %
Ambient temperature	- 20 °C to + 50 °C
Relative duty cycle	100 %
Insulation class of insulating materials according to DIN VDE 0580	F
Degree of protection with connector according to EN 60529	IP 65
Imprint	*nass magnet* (customer imprint possible)
Protection class	I



Technical Data Standard Versions

Part No.	Voltage	Frequency [Hz]	Rated Power [W]	[VA]	Power Level	$\Delta\vartheta_{32}$ [K]
108-030-1089	24 V DC	–	2,1		3	35
108-030-0093	24 V DC	–	2,7		4	35
108-030-0716	24 V AC	50		5,2	4	70
108-030-0716	24 V AC	60		3,9	4	60
108-030-0092	220 V AC	50		4,9	4	60
108-030-0092	240 V AC	60		4,8	4	60
108-030-0094	24 V DC	–	4,5		5	60
108-030-0098	48 V DC	–	4,9		5	60
108-030-0477	110 V AC	50		7,6	5	70
108-030-0477	120 V AC	60		6,9	5	70
108-030-0096	48 V AC	50		9,9	6	85
108-030-0096	48 V AC	60		7,1	6	85
108-030-0095	110 V AC	–	6,9		6	90
108-030-0097	110 V AC	50		10,5	6	90
108-030-0097	120 V AC	60		9,9	6	90
108-030-0095	220 V AC	50		10,5	6	90

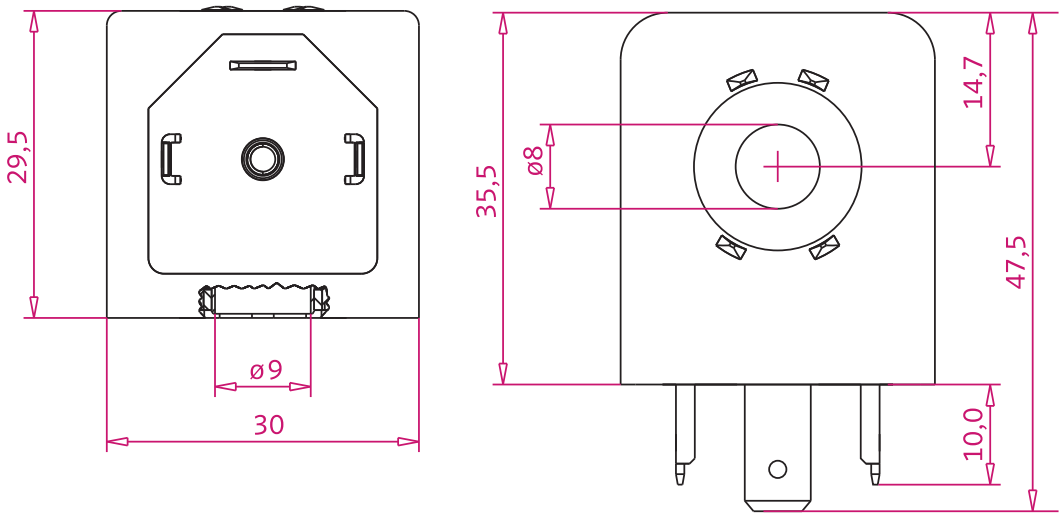
$\Delta\vartheta_{32}$ [K]: steady-state over-temperature according to VDE 0580

SOLENOID COIL

Width:	30 mm
Connection type:	form A – EN 175301-803-A
Moulding material:	thermoplastic

General Data

Voltage tolerance	± 10 %
Ambient temperature	- 20 °C to + 50 °C
Relative duty cycle	100 %
Insulation class of insulating materials according to DIN VDE 0580	F
Degree of protection with connector according to EN 60529	IP 65
Imprint	*nass magnet* (customer imprint possible)
Protection class	I



Technical Data Standard Versions

Part No.	Voltage	Frequency [Hz]	Rated Power [W]	[VA]	Power Level	$\Delta\vartheta_{32}$ [K]
108-030-0570	24 V DC	–	0,7		1	15
108-030-0559	24 V DC	–	2,1		3	35
108-030-0564	12 V DC	–	2,6		4	40
108-030-0557	24 V AC	50		5,2	4	70
108-030-0557	24 V AC	60		3,9	4	70
108-030-0560	24 V DC	–	2,7		4	40
108-030-0555	48 V DC	–	3,4		4	60
108-030-0555	110 V AC	50		4,8	4	60
108-030-0553	220 V AC	50		4,9	4	60
108-030-0553	220 V AC	60		3,7	4	60
108-030-0561	24 V DC	–	4,5		5	60
108-030-0554	110 V DC	–	6,0		5	75
108-030-0569	110 V DC	–	5,3		5	75
108-030-0556	110 V AC	50		7,6	5	70
108-030-0556	120 V AC	60		6,9	5	70
108-030-0554	220 V AC	50		8,0	5	75
108-030-0569	230 V AC	50		7,9	5	75
108-030-0558	12 V DC	–	6,2		6	85
108-030-0563	24 V DC	–	6,8		6	85
108-030-0563	48 V AC	50		9,9	6	90
108-030-0562	110 V DC	–	6,5		6	90
108-030-0565	110 V AC	50		10,5	6	90
108-030-0565	120 V AC	60		9,9	6	90
108-030-0562	220 V AC	50		10,5	6	90
108-030-0568	230 V AC	50		10,5	6	90
108-030-0568	230 V AC	60		7,6	6	90

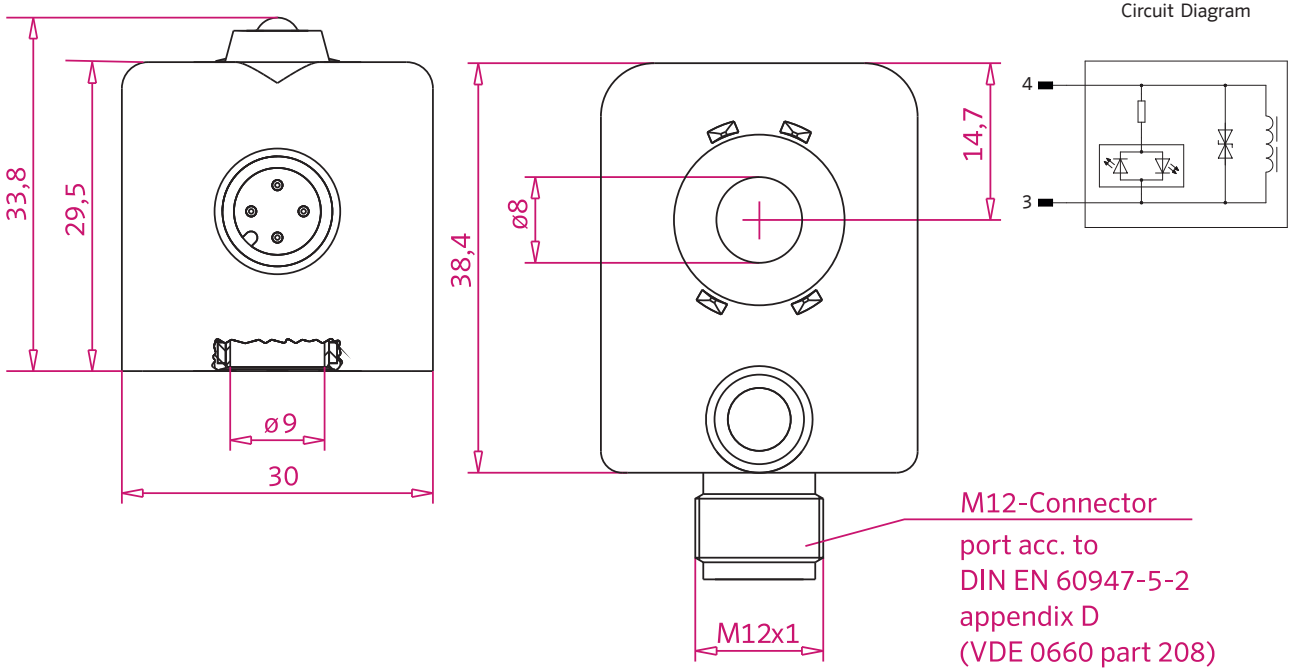
$\Delta\vartheta_{32}$ [K]: steady-state over-temperature according to VDE 0580

SOLENOID COIL

Width:	30 mm
Connection type:	M 12 metal thread
Moulding material:	thermoset resin

General Data

Voltage tolerance	± 10 %
Ambient temperature	- 20 °C to + 50 °C
Relative duty cycle	100 %
Insulation class of insulating materials according to DIN VDE 0580	F
Degree of protection with connector	IP 65
Imprint	*nass magnet* (customer imprint possible)
Protection class	II



Technical Data Standard Versions

Part No.	Voltage	Rated Power [W]	Power Level	$\Delta\vartheta_{32}$ [K]	LED	Contact 2-pole
108-030-0181	24 V DC	2,7	4	35	yellow	x
108-030-0182	24 V DC	4,5	5	60	yellow	x

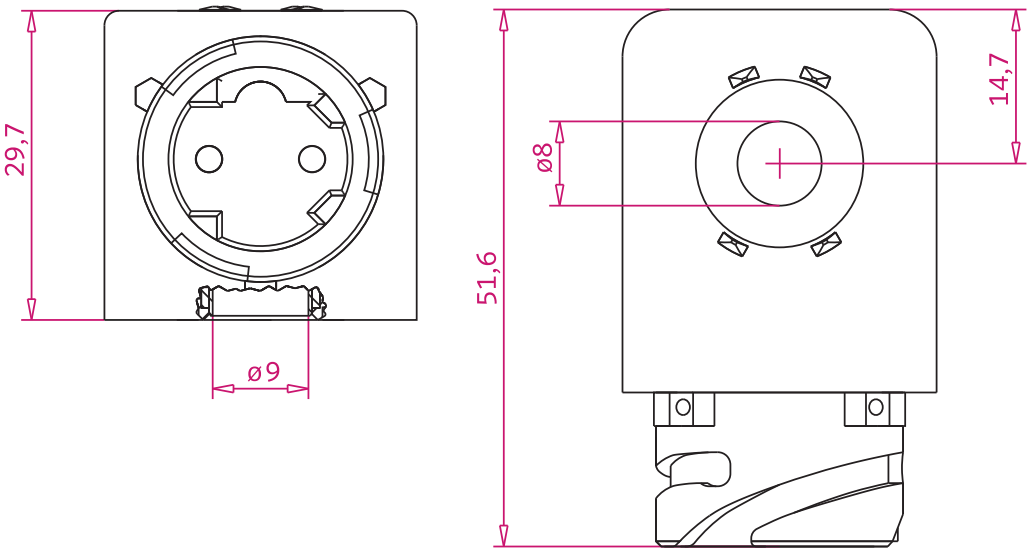
$\Delta\vartheta_{32}$ [K]: steady-state over-temperature according to VDE 0580

SOLENOID COIL

Width:	30 mm
Connection type:	bayonet (connector DIN 72585)
Moulding material:	thermoplastic

General Data

Voltage tolerance	± 10 % (± 30 % on request)
Ambient temperature	- 40 °C to + 50 °C (+ 80 °C on request)
Relative duty cycle	100 %
Degree of protection with connector according to EN 60529	IP 6K 9K
Imprint	*nass magnet* (customer imprint possible)
Protection class	III



Technical Data Standard Version

Part No.	Voltage	Rated Power [W]	Power Level	$\Delta\vartheta_{32}$ [K]
108-030-0256	24 V DC	4,5	5	60

$\Delta\vartheta_{32}$ [K]: steady-state over-temperature according to VDE 0580

SPECIAL REMARKS

Note: The proportions of the solenoid coils displayed in the images on this page do not represent the actual proportions.

The technical data are valid for the indicated standard voltages. Other voltages are available on request.

Perfect function of these solenoid coils with the pertinent components included in this catalogue is assured with the winding having reached its operating temperature (max. ambient temperature and max. voltage tolerance). The steady-state over-temperature is reached in case of valve bodies of plastic and coil encapsulation made of Thermoplastic. All valves are designed in compliance with DIN VDE 0580. Arrangement of the valves in modular design is possible, however, it may ensue a higher temperature increased by up to 20 K and may limit the function. A general lifetime of the products cannot be specified, as it is decisively influenced by ambient conditions, the single application and combination with other components. The function can only be fulfilled in case of exclusive use of *nass magnet* products.

Should there be deviating or additional operating conditions compared to the abovementioned conditions, special testing is necessary in order to verify the usability of the *nass magnet* products.

***nass magnet* will be glad to give you the required advice.**

Width: 22 mm
Connection type: industry form
Moulding material: thermoset resin and thermoplastic

Width: 22 mm
Connection type: form B
Moulding material: thermoset resin and thermoplastic

Width: 22 mm
Connection type: flying leads
Moulding material: thermoplastic

Width: 22 mm
Connection type:
M 12 metal thread
Moulding material:
thermoset resin

Width: 30 mm
Connection type: form A
Moulding material: thermoset resin and thermoplastic

Width: 30 mm
Connection type:
M 12 metal thread
Moulding material:
thermoset resin

Width: 30 mm
Connection type: bayonet
Moulding material: thermoplastic

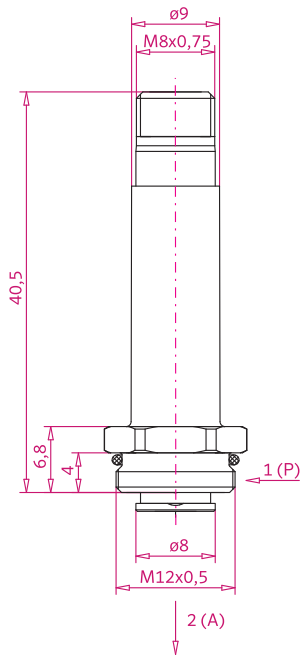
ARMATURE ASSEMBLY GW (THREAD)

Switching function:	2/2 and 3/2 way
De-energized state:	NC (normally closed)
Connection type:	thread M 12 x 0,5

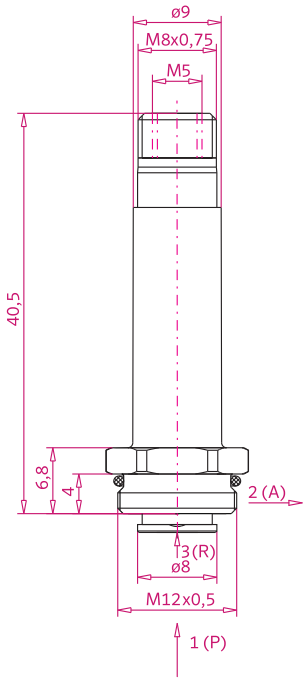
General Data

Ambient temperature ..... - 10 °C to + 50 °C
Quality of medium according to ISO 8573-1 ..... compressed air class 4, 3, 4
Mounting position ..... any (preferably plunger in vertical direction)

2/2 way



3/2 way



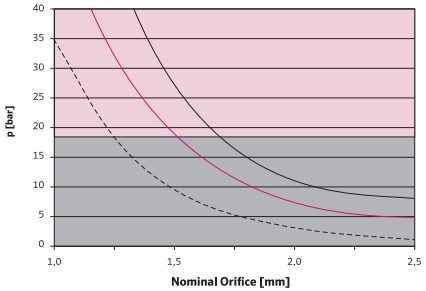
Technical Data Standard Versions

Part No.	Function	Power Level	Nominal Orifice [mm] inlet	exhaust	Pressure [bar]	Appropriate for		Armature Guide brass	stainless steel
108-010-0082	3/2 way NC	1	0,6	0,8	10	DC		x	
108-010-0085	3/2 way NC	1	0,8	1,0	8	DC		x	
108-010-0027	3/2 way NC	2	0,8	1,0	10	DC	AC	x	
108-010-0017	3/2 way NC	3	1,0	1,3	10	DC	AC	x	
108-010-0053	3/2 way NC	3	1,0	1,3	10	DC	AC		x
108-010-0005	2/2 way NC	3, 4, 5, 6	see below			DC	AC	x	
108-010-0014	2/2 way NC	3, 4, 5, 6	see below			DC	AC		x
108-010-0016	3/2 way NC	4	1,3	1,5	10	DC	AC	x	
108-010-0002	3/2 way NC	5	1,5	1,7	10	DC	AC	x	
108-010-0045	3/2 way NC	5	1,5	1,7	10	DC	AC		x
108-010-0004	3/2 way NC	6	1,7	1,7	10	DC	AC	x	

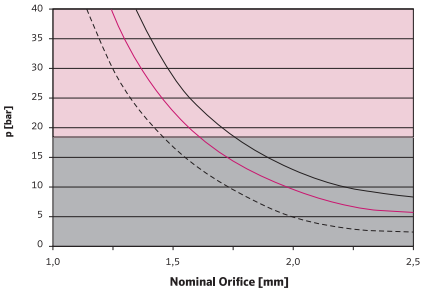
Power Levels for 2/2 Way Versions

AC - 50 Hz AC - 60 Hz DC - 5 % residual ripple max. test pressure: 18 bar · special versions on request

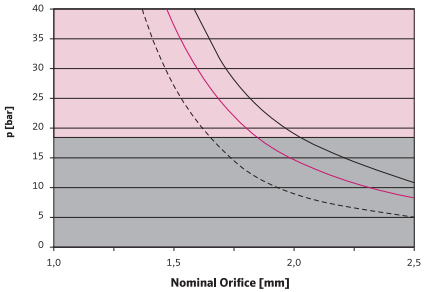
Power Level 3



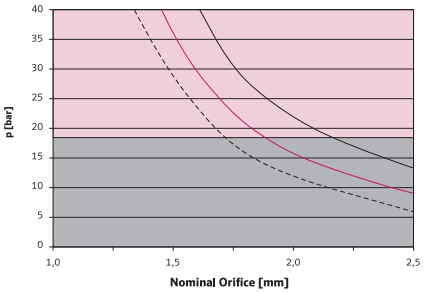
Power Level 4



Power Level 5



Power Level 6



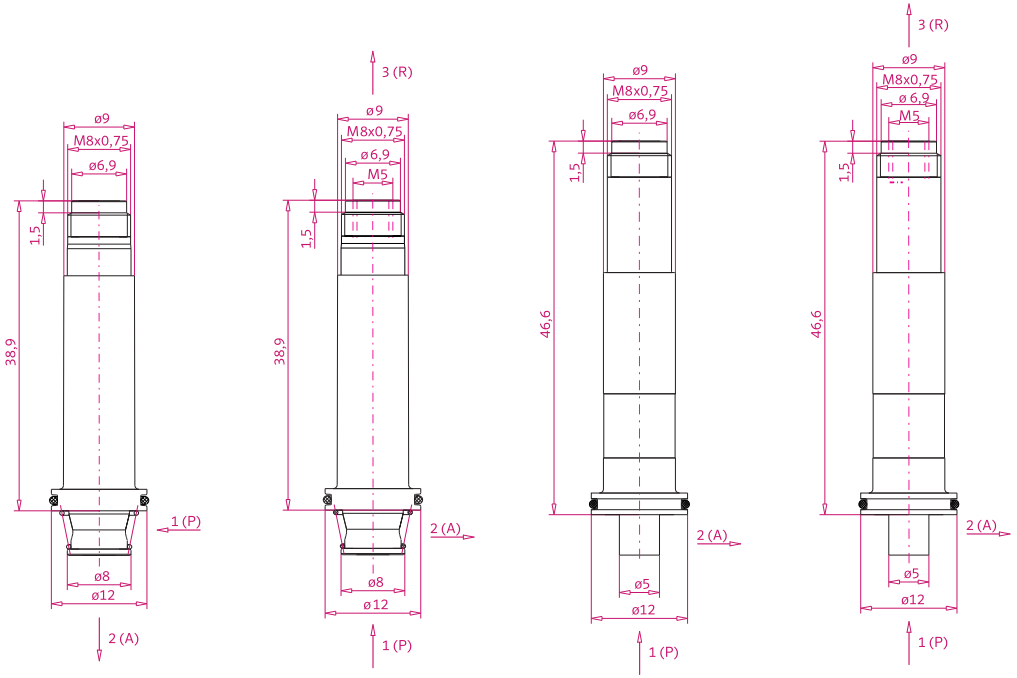
ARMATURE ASSEMBLY FL

Switching function:	2/2 and 3/2 way
De-energized state:	NC (normally closed), NO (normally open)
Connection type:	flange

General Data

Ambient temperature ..... - 10 °C to + 50 °C
Quality of medium according to ISO 8573-1 ..... compressed air class 4, 3, 4
Mounting position ..... any (preferably plunger in vertical direction)

2/2 way (NC) 3/2 way (NC) 2/2 way (NO) 3/2 way (NO)



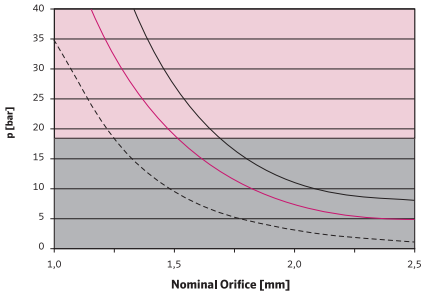
Technical Data Standard Versions

Part No.	Function	Power Level	Nominal Orifice [mm] inlet	exhaust	Pressure [bar]	Appropriate for		Armature Guide brass	stainless steel
108-010-0081	3/2 way NC	1	0,6	0,8	10	DC		x	
108-010-0084	3/2 way NC	1	0,8	1,0	8	DC		x	
108-010-0100	3/2 way NC	1	0,6	0,8	10	DC			x
108-010-0026	3/2 way NC	2	0,8	1,0	10	DC	AC	x	
108-010-0007	3/2 way NC	3	1,0	1,3	10	DC	AC		x
108-010-0010	3/2 way NC	3	1,0	1,3	10	DC	AC	x	
108-010-0006	2/2 way NC	3, 4, 5, 6	see below			DC	AC	x	
108-010-0088	2/2 way NC	3, 4, 5, 6	see below			DC			x
108-010-0009	3/2 way NC	4	1,3	1,5	10	DC	AC	x	
108-010-0049	3/2 way NC	4	1,3	1,5	10	DC	AC		x
108-010-0172	3/2 way NO	4	1,0	1,3	10	DC		x	
108-010-0001	3/2 way NC	5	1,5	1,7	10	DC	AC	x	
108-010-0060	3/2 way NC	5	1,5	1,7	10	DC	AC		x
108-010-0003	3/2 way NC	6	1,7	1,7	10	DC	AC	x	
108-010-0066	3/2 way NC	6	1,7	1,7	10	DC	AC		x

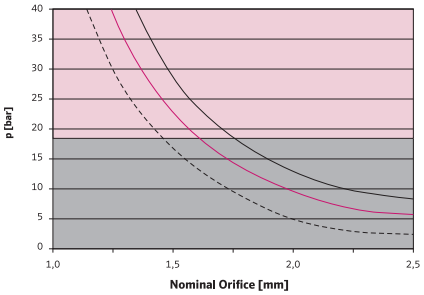
Power Levels for 2/2 Way Versions

AC - 50 Hz AC - 60 Hz DC - 5 % residual ripple max. test pressure: 18 bar · special versions on request

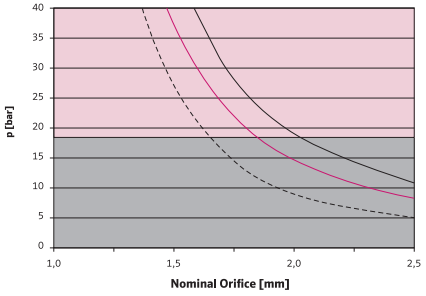
Power Level 3



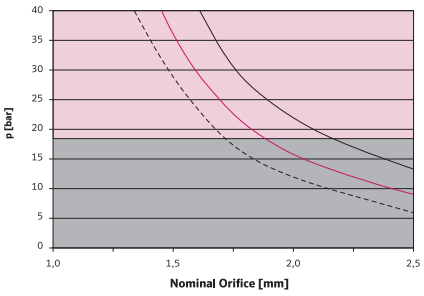
Power Level 4



Power Level 5



Power Level 6

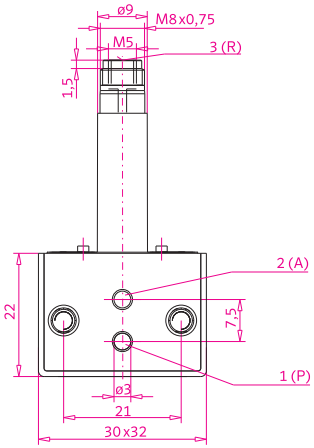


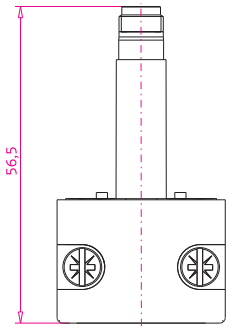
VALVE SYSTEM CNOMO

Height:	22 mm
Switching function:	2/2 and 3/2 way
De-energized state:	NC (normally closed), NO (normally open)
Valve body:	plastics

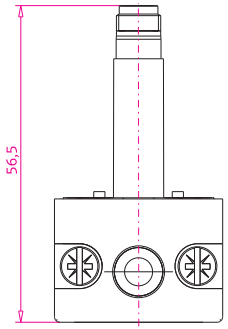
General Data

Ambient temperature	- 10 °C to + 50 °C
Quality of medium according to ISO 8573-1	compressed air class 4, 3, 4
Mounting position	any (preferably plunger in vertical direction)
Sealing material	FPM (other sealing materials on request)

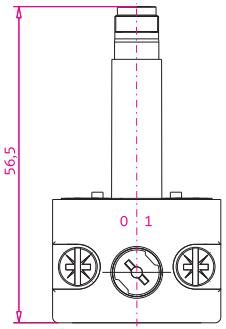




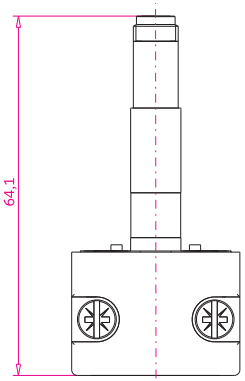
without manual override, NC



monostable manual override, NC

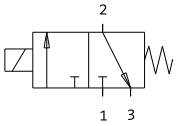


bistable manual override, NC

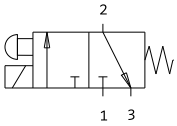


without manual override, NO

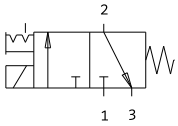
Pneumatic Diagram



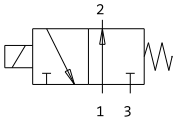
without manual override, NC



monostable manual override, NC



bistable manual override, NC



without manual override, NO

Technical Data Standard Versions

Part No.	Power Level	Nominal Orifice [mm] inlet	exhaust	Pressure [bar]	Flow Rate* [l/min] 1–2	2–3	Manual Override bistable	monostable	Appropriate for	
108-050-0190	1	0,8	1,0	8	20	30	x		DC	
108-050-0194	1	0,6	0,7	10	12	22	x		DC	
108-050-0202	1	0,8	1,0	8	20	30			DC	
108-050-0207	1	0,8	1,0	8	20	30		x	DC	
108-050-0243	2	0,8	1,0	10	20	30	x		DC	AC
108-050-0109	3	1,0	1,3	10	35	60	x		DC	AC
108-050-0110	3	1,0	1,3	10	35	60			DC	AC
108-050-0126	3	1,0	1,3	10	35	60		x	DC	AC
108-050-0111	4	1,3	1,5	10	50	75	x		DC	AC
108-050-0114	4	1,3	1,5	10	50	75			DC	AC
108-050-0127	4	1,3	1,5	10	50	75		x	DC	AC
108-050-0122	5	1,5	1,7	10	65	90	x		DC	AC
108-050-0124	5	1,5	1,7	10	65	90			DC	AC
108-050-0130	5	1,5	1,7	10	65	90		x	DC	AC
108-050-0116	6	1,3	1,5	16	50	75	x		DC	AC
108-050-0118	6	1,3	1,5	16	50	75			DC	AC
108-050-0125	6	1,7	1,7	10	80	90			DC	AC
108-050-0160	6	1,7	1,7	10	80	90		x	DC	AC
108-050-0137	6	1,3	1,5	16	50	75		x	DC	AC

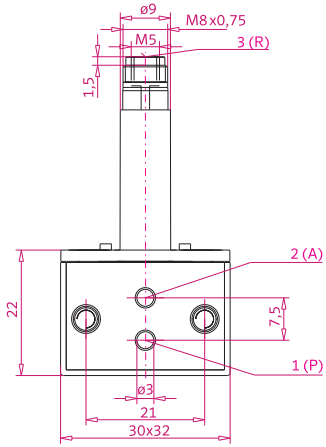
* qv flow rate at an inlet pressure of 6 bar (X = 1 bar) and 0 °C; flow rate detection in compliance with ISO 6358
Note: Bistable manual override is a combination of the pushing/resetting function and the rotating/latching function.

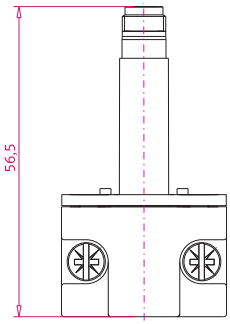
VALVE SYSTEM CNOMO

Height:	22 mm
Switching function:	3/2 way, 2/2 way possible with accessoires
De-energized state:	NC (normally closed), NO (normally open)
Valve body:	aluminium, coated

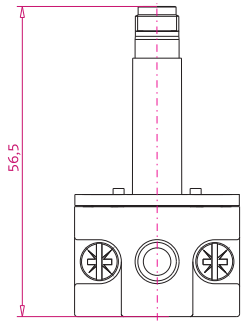
General Data

Ambient temperature	- 10 °C to + 50 °C
Quality of medium according to ISO 8573-1	compressed air class 4, 3, 4
Mounting position	any (preferably plunger in vertical direction)

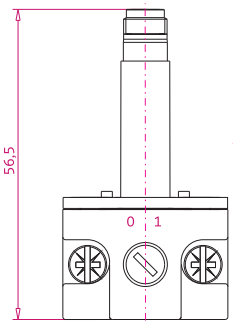




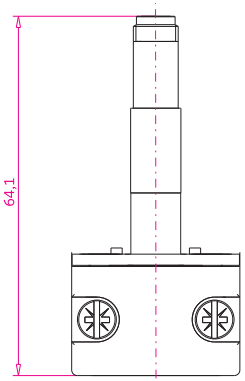
without manual override, NC



monostable manual override, NC

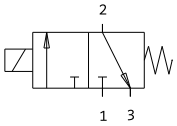


bistable manual override, NC

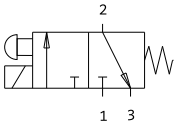


without manual override, NO

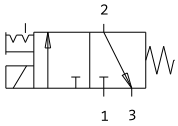
Pneumatic Diagram



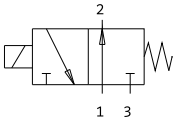
without manual override, NC



monostable manual override, NC



bistable manual override, NC



without manual override, NO

Technical Data Standard Versions

Part No.	Power Level	Nominal Orifice [mm] inlet	exhaust	Pressure [bar]	Flow Rate* [l/min] 1–2	2–3	Manual Override bistable	monostable	Appropriate for	
108-050-0189	1	0,8	1,0	8	20	30	x		DC	
108-050-0201	1	0,8	1,0	8	20	30		x	DC	
108-050-0002	3	1,0	1,3	10	35	60	x		DC	AC
108-050-0242	3	1,0	1,3	10	35	60			DC	AC
108-050-0003	4	1,3	1,5	10	50	75	x		DC	AC
108-050-0023	4	1,3	1,5	10	50	75		x	DC	AC
108-050-0004	5	1,5	1,7	10	65	90	x		DC	AC
108-050-0005	5	1,5	1,7	10	65	90			DC	AC
108-050-0007	5	1,5	1,7	10	65	90		x	DC	AC
108-050-0135	5	1,0	1,3	16	35	60		x	DC	AC
108-050-0006	6	1,7	1,7	10	84	94			DC	AC
108-050-0035	6	1,7	1,7	10	84	94		x	DC	AC
108-050-0037	6	1,3	1,5	16	50	75		x	DC	AC

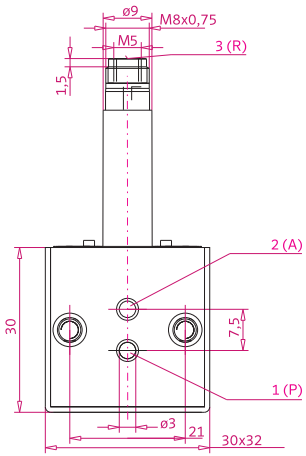
* qv flow rate at an inlet pressure of 6 bar (X = 1 bar) and 0 °C; flow rate detection in compliance with ISO 6358
Note: Bistable manual override is a combination of the pushing/resetting function and the rotating/latching function.

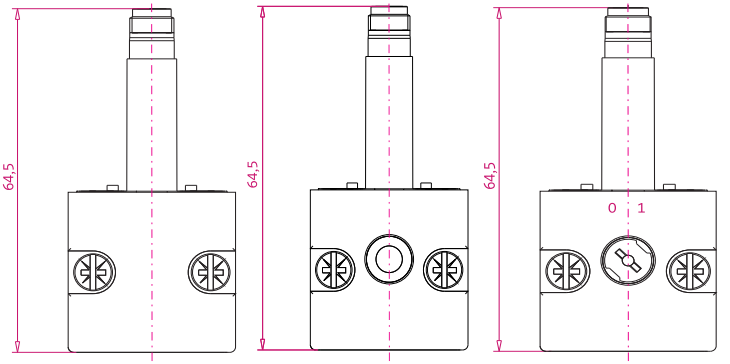
VALVE SYSTEM CNOMO

Height:	30 mm
Switching function:	3/2 way, 2/2 way possible with accessoires
De-energized state:	NC (normally closed)
Valve body:	plastics

General Data

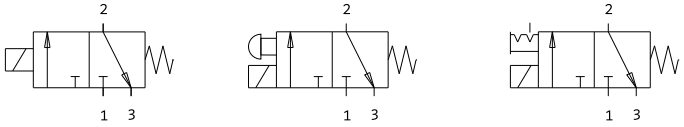
Ambient temperature	- 10 °C to + 50 °C
Quality of medium according to ISO 8573-1	compressed air class 4, 3, 4
Mounting position	any (preferably plunger in vertical direction)
Sealing material	FPM (other sealing materials on request)





without manual override, NC | monostable manual override, NC | bistable manual override, NC

Pneumatic Diagram



without manual override, NC | monostable manual override, NC | bistable manual override, NC

Technical Data Standard Version

Part No.	Power Level	Nominal Orifice [mm] inlet	exhaust	Pressure [bar]	Flow Rate* [l/min] 1–2	2–3	Manual Override bistable	monostable	Appropriate for	
108-050-0169	3	1,0	1,3	10	35	60	x		DC	AC

* qv flow rate at an inlet pressure of 6 bar (X = 1 bar) and 0 °C; flow rate detection in compliance with ISO 6358

Notes:

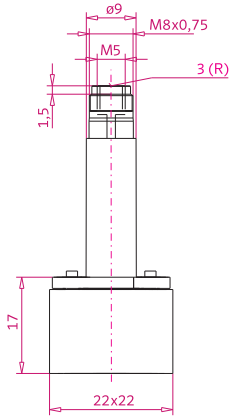
- Bistable manual override is a combination of the pushing/resetting function and the rotating/latching function.
- Switching function 3/2 way NO (normally open) on request

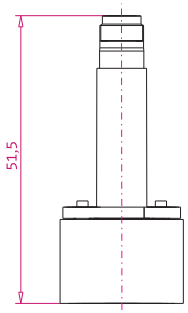
VALVE SYSTEM KR

Switching function:	3/2 way
De-energized state:	NC (normally closed), NO (normally open)
Gasket of the pneumatic interface:	concentric O'rings (KR) sealing material FPM
Valve body:	plastics

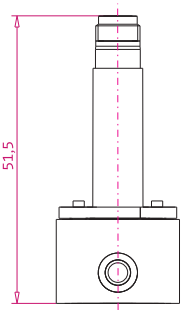
General Data

Ambient temperature	- 10 °C to + 50 °C
Quality of medium according to ISO 8573-1	compressed air class 4, 3, 4
Mounting position	any (preferably plunger in vertical direction)

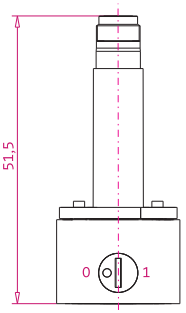




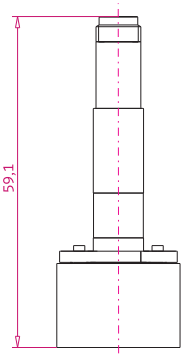
without manual override, NC



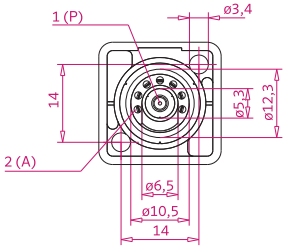
monostable manual override, NC



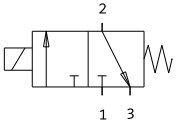
bistable manual override, NC



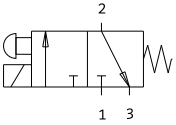
without manual override, NO



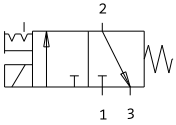
Pneumatic Diagram



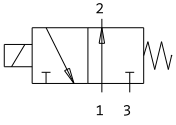
without manual override, NC



monostable manual override, NC



bistable manual override, NC



without manual override, NO

Technical Data Standard Versions

Part No.	Power Level	Nominal Orifice [mm] inlet	exhaust	Pressure [bar]	Flow Rate* [l/min] 1–2	2–3	Manual Override bistable	monostable	Appropriate for	
108-050-0188	1	0,8	1,0	8	20	30			DC	
108-050-0196	1	0,6	0,8	10	12	22	x		DC	
108-050-0208	1	0,8	1,0	8	20	30	x		DC	
108-050-0008	3	1,0	1,3	10	35	54	x		DC	AC
108-050-0013	3	1,0	1,3	10	35	54			DC	AC
108-050-0078	3	1,0	1,3	10	35	54		x	DC	AC
108-050-0009	4	1,3	1,5	10	55	70	x		DC	AC
108-050-0014	4	1,3	1,5	10	55	70			DC	AC
108-050-0072	4	1,3	1,5	10	55	70		x	DC	AC
108-050-0012	5	1,5	1,7	10	65	80	x		DC	AC
108-050-0015	5	1,5	1,7	10	65	80			DC	AC
108-050-0063	5	1,5	1,7	10	65	80		x	DC	AC

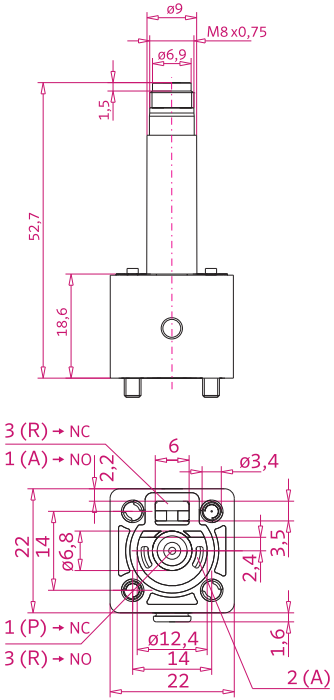
* qv flow rate at an inlet pressure of 6 bar (X = 1 bar) and 0 °C; flow rate detection in compliance with ISO 6358

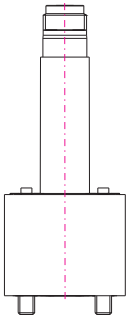
VALVE SYSTEM GKR

Switching function:	3/2 way
De-energized state:	NC (normally closed), NO (normally open)
Gasket of the pneumatic interface:	internal exhaust
	sealing material FPM
Valve body:	plastics

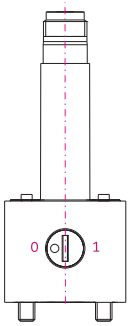
General Data

Ambient temperature	- 10 °C to + 50 °C
Quality of medium according to ISO 8573-1	compressed air class 4, 3, 4
Mounting position	any (preferably plunger in vertical direction)



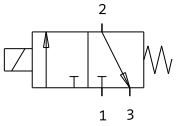


without manual override, NC

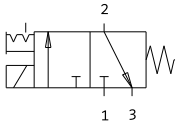


bistable manual override, NC

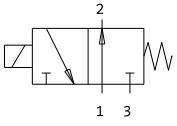
Pneumatic Diagram



without manual override, NC



bistable manual override, NC



without manual override, NO

Technical Data Standard Versions

Part No.	**Power Level**	**Nominal Orifice** [mm] inlet	exhaust	**Pressure** [bar]	**Flow Rate*** [l/min] 1–2	2–3	**Manual Override** bistable	monostable	**Appropriate for**	
108-050-0099	3	1,0	1,3	10	26	42	x		DC	AC
108-050-0081	4	1,3	1,5	10	48	56	x		DC	AC

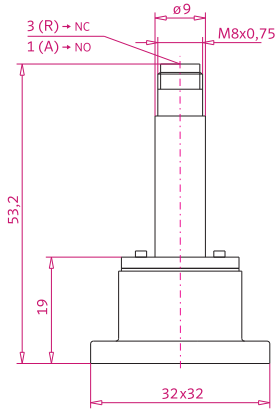
* qv flow rate at an inlet pressure of 6 bar (X = 1 bar) and 0 °C; flow rate detection in compliance with ISO 6358

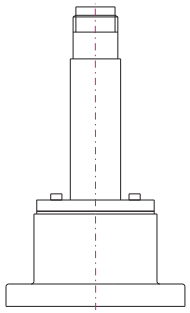
VALVE SYSTEM FL

Switching function:	3/2 way
De-energized state:	NC (normally closed), NO (normally open)
Gasket of the pneumatic interface:	O'rings, asymmetrical (FL) sealing material FPM
Valve body:	plastics

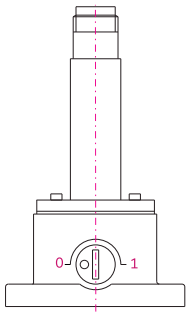
General Data

Ambient temperature	- 10 °C to + 50 °C
Quality of medium according to ISO 8573-1	compressed air class 4, 3, 4
Mounting position	any (preferably plunger in vertical direction)

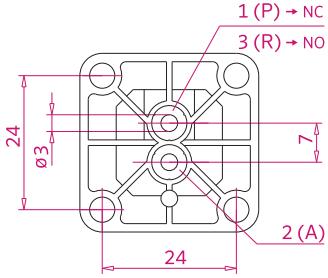




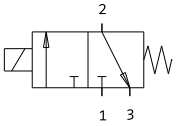
without manual override, NC



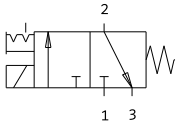
bistable manual override, NC



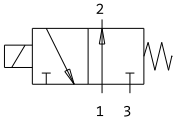
Pneumatic Diagram



without manual override, NC



bistable manual override, NC

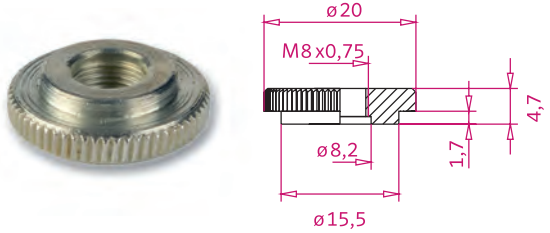


without manual override, NO

Technical Data Standard Versions

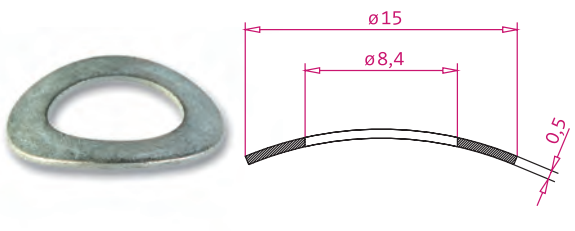
Part No.	**Power Level**	**Nominal Orifice** [mm] inlet	exhaust	**Pressure** [bar]	**Flow Rate*** [l/min] 1–2	2–3	**Manual Override** bistable	without	**Appropriate for**	
108-050-0044	3	1,0	1,3	10	25	58	x		DC	AC
108-050-0045	4	1,3	1,5	10	52	80	x		DC	AC
108-050-0046	5	1,5	1,7	10	64	88	x		DC	AC
108-050-0047	5	1,5	1,7	10	64	88		x	DC	AC

* qv flow rate at an inlet pressure of 6 bar (X = 1 bar) and 0 °C; flow rate detection in compliance with ISO 6358



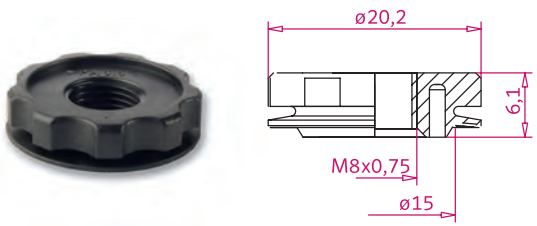
Knurled nut · M 8 x 0,75 mm

Part No.: 108-080-0024
Explanation: tightening torque max. 1,2 Nm;
use with spring washer #108-080-0022



Spring washer

Part No.: 108-080-0022
Explanation: use with knurled nut #108-080-0024

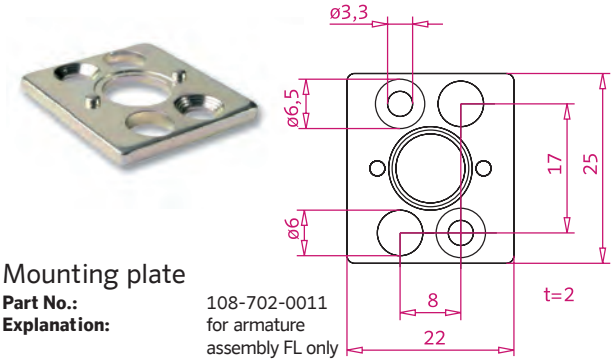


Knurled nut · M 8 x 0,75 mm

Part No.: 108-080-0025
Explanation: tightening torque max. 0,5 Nm

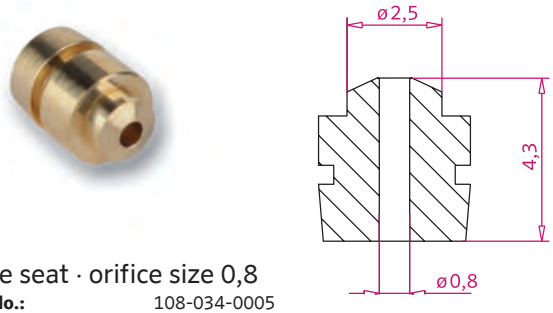
Exhaust protector · M 8 x 0,75 mm

Part No.: 108-080-0020
Explanation: tightening torque max. 0,5 Nm



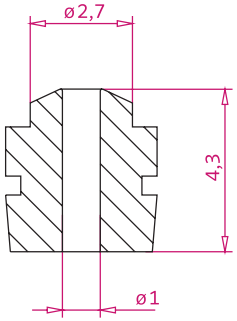
Mounting plate

Part No.: 108-702-0011
Explanation: for armature
assembly FL only

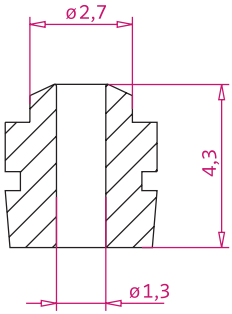


Valve seat · orifice size 0,8

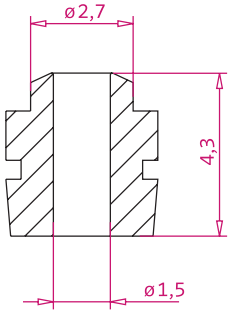
Part No.: 108-034-0005



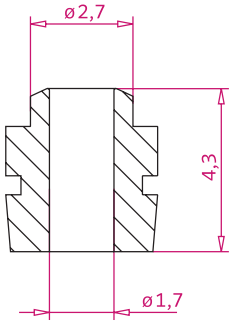
Valve seat · orifice size 1,0
Part No.: 108-034-0003



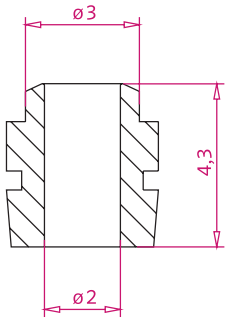
Valve seat · orifice size 1,3
Part No.: 108-034-0004



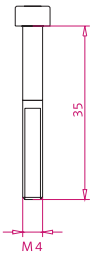
Valve seat · orifice size 1,5
Part No.: 108-034-0001



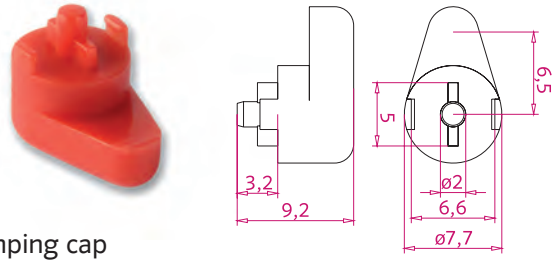
Valve seat · orifice size 1,7
Part No.: 108-034-0002



Valve seat · orifice size 2,0
Part No.: 108-034-0007

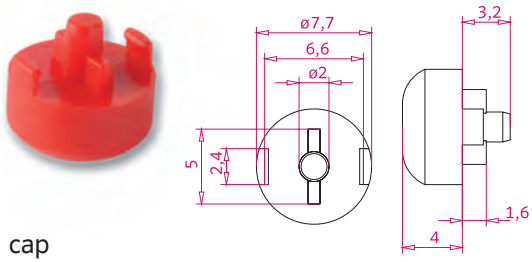


Cheese-head screw · M 4 x 35 mm
Part No.: 900-822-0045
Explanation: with slots and cross slots; only for valve system CNOMO (for one valve system two srews are required); tightening torque max. 1,5 Nm



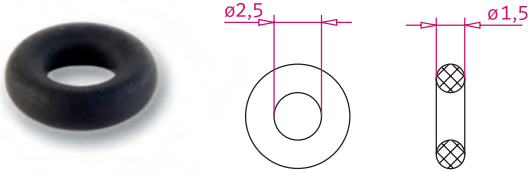
Clamping cap

Part No.: 108-715-0009
Explanation: push and turn actuation, clip-on type, for bistable manual override; for valve system CNOMO only



Push cap

Part No.: 108-715-0010
Explanation: push and turn actuation, clip-on type, for monostable manual override; for valve system CNOMO only



O'ring FPM · 2,5 x 1,5 mm

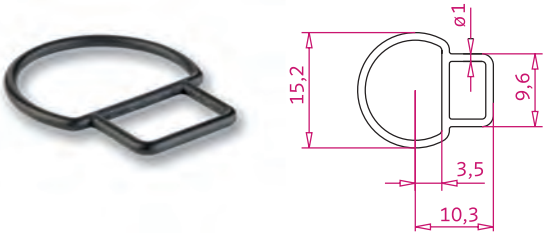
Part No.: 900-841-0065
Explanation: only for valve systems KR and GKR

O'ring FPM · 11,5 x 1,5 mm

Part No.: 900-841-0077
Explanation: only for valve system KR

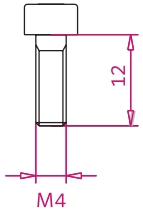
Cheese-head screw · M 3 x 18 mm

Part No.: 900-822-0037
Explanation: slotted and with cross recess, tightening torque max. 0,5 Nm; for valve system KR only



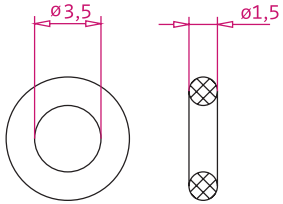
Gasket FPM

Part No.: 108-005-0024
Explanation: only for valve system GKR



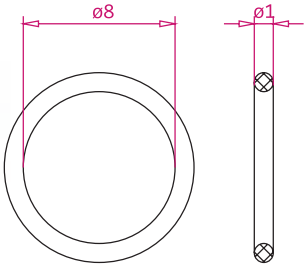
Cheese-head screw · M 4 x 12 mm

Part No.: 900-822-0041
Explanation: tightening torque max. 0,7 Nm ;
for valve system FL only; for one valve system
two srews are required



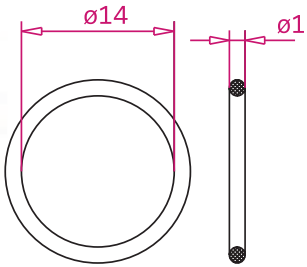
O'ring FPM · 3,5 x 1,5 mm

Part No.: 900-841-0068
Explanation: only for valve system FL



O'ring FPM · 8,0 x 1,0 mm

Part No.: 900-841-0074

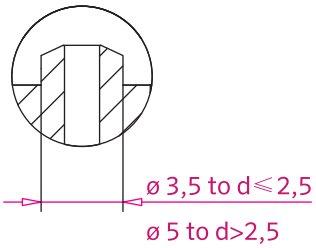


O'ring FPM · 14,0 x 1,0 mm

Part No.: 900-841-0082

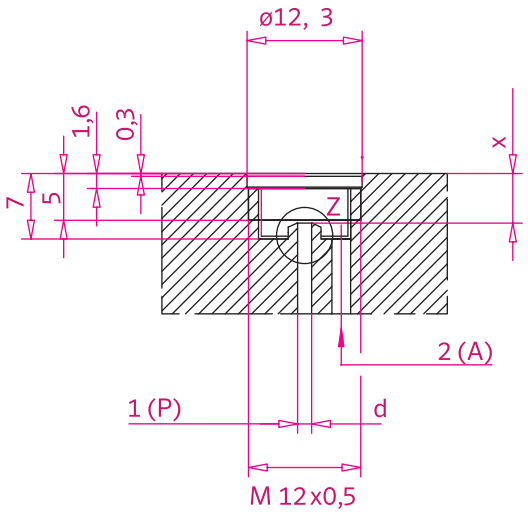
PNEUMATIC CONNECTION SOLENOID OPERATOR

Z

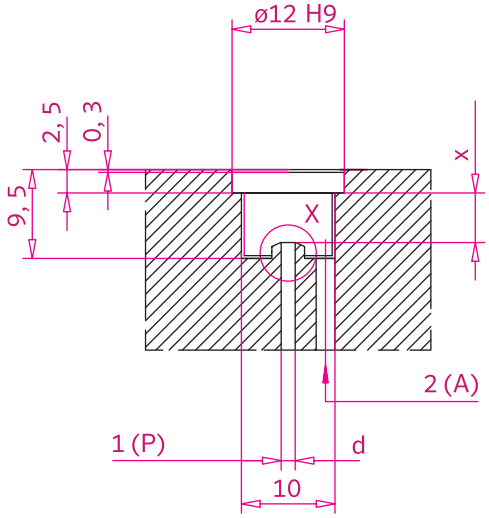


d	x	
	1 2	2 1 3
0,6	5,00	5,20
0,8	5,05	5,25
1,0	5,10	5,30
1,3	5,15	5,30
1,5	5,20	5,30
1,7	5,25	5,30
2,0	5,30	-
2,5	5,40	-
3,0	5,50	-
3,5	5,60	-

Thread Version with O'ring Seal



Flange Version with O'ring Seal



Note:

Specifications regarding the characteristic of the customer interface are available at *nass magnet* on request.

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System 13

The name „System 13“ stands for a modular system of solenoid coils, armature systems, solenoid operators and solenoid valves. The diameter of the armatures of all valve components is approximately 13 mm. This value is the major characteristic of this type. The components‘ efficiency has been increased to the optimum in years of simulation, construction and practical testing.

APPLICATION OF SYSTEM 13

The solenoid operators and solenoid valves of system 13 can be used for operating 2/2- or 3/2 way valves, especially in pneumatics and process technology. Available switching functions are *normally closed* and *normally open*.

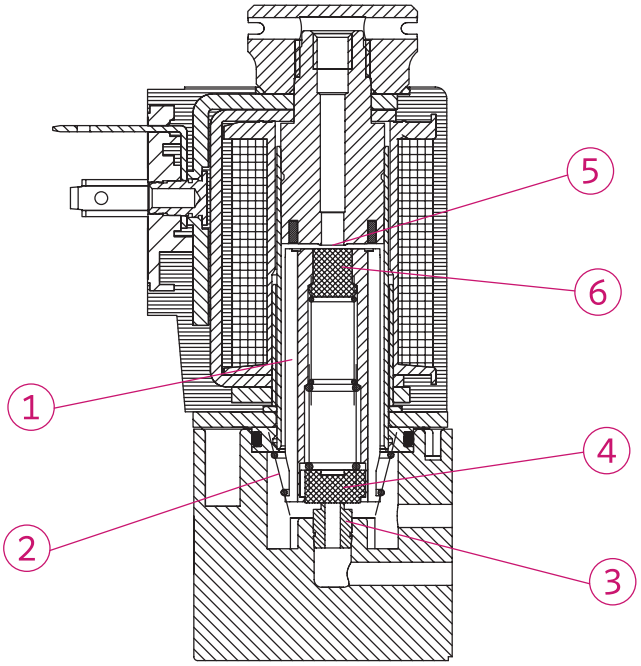
For 3/2 way valves of this series, typical maximum values for operating pressure and nominal width are 40 bar/5 mm. The solenoid operators and solenoid valves are designed for the use with compressed air or other neutral gases.

2/2 way solenoid operators and solenoid valves can also be used for controlling non-aggressive liquids.

FUNCTION

While the solenoid operator/solenoid valve (standard version, 3/2 way, normally closed) is de-energized, the armature[1] is pushed down on the lower valve seat[3] by the reset spring[2]. The lower valve seat is closed by a sealing element[4]. In this switch position the upper valve seat[5] in the magnetic core is open. When the valve is energized, the magnetic force exceeds the force of the reset spring and moves the armature[1] into the opposite extreme position. In this case the upper valve seat[5] is closed by the sealing element6, whereas the lower valve seat3 is open.

Solenoid operators and solenoid valves have identi-cal functionality. However, if solenoid operators are or-dered neither the lower valve seat nor the valve body is shipped.



Those components have to be provided by the customer.

2/2 way valves do not have an upper valve seat[5]. Besides that, the function of the magnet is identical.

Note

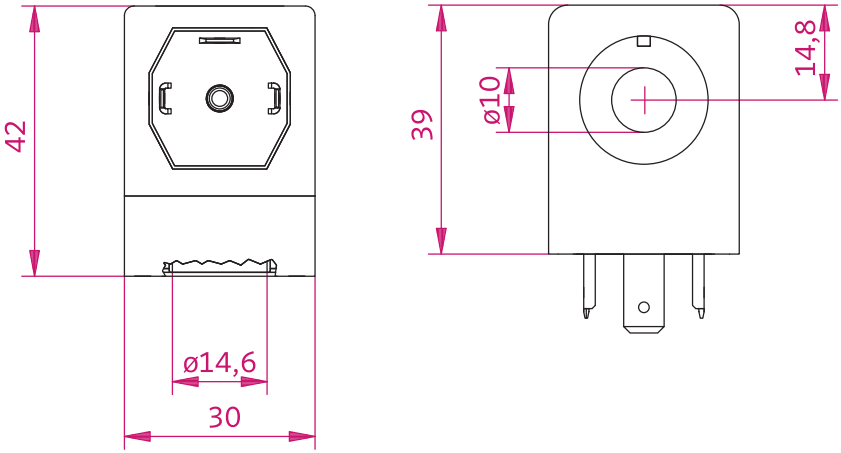
We reserve the right to make product changes without notice. For use other than general industrial pneumatics, please consult factory.

SOLENOID COIL

Width:	30 mm
Connection type:	form A – EN 175301-803-A
Moulding material:	thermoset resin

General Data

Voltage tolerance	± 10 %
Ambient temperature	- 20 °C to + 50 °C
Relative duty cycle	100 %
Insulation class of insulating materials according to DIN VDE 0580	F
Degree of protection with connector according to EN 60529	IP 65
Protective class	I
Imprint	*nass magnet* (customer imprint possible)



Technical Data Standard Versions

Part No.	Voltage	Frequency [Hz]	Rated Power [W]	[VA]	Power Level	$\Delta\vartheta_{32}$ [K]
113-030-0042	24 V DC	–	2,0		1	20
113-030-0045	48 V DC	–	2,1		1	20
113-030-0032	48 V DC	–	1,6		1	40
113-030-0032	220 V AC	50		6,4	1	40
113-030-0032	230 V AC	50		6,6	1	40
113-030-0032	240 V AC	60		5,7	1	40
113-030-0278	12 V DC	–	6,0		2	60
113-030-0026	24 V DC	–	6,1		2	45
113-030-0029	24 V AC	50		10,8	2	60
113-030-0029	24 V AC	60		9,6	2	60
113-030-0036	110 V AC	50		11,1	2	60
113-030-0036	120 V AC	60		11,7	2	60
113-030-0033	220 V AC	50		10,8	2	60
113-030-0044	12 V AC	50		19,3	3	100
113-030-0044	12 V AC	60		17,1	3	90
113-030-0027	24 V DC	–	11,0		3	70
113-030-0039	24 V AC	50		17,9	3	90
113-030-0039	24 V AC	60		15,6	3	85
113-030-0037	110 V AC	50		17,6	3	90
113-030-0037	120 V AC	60		18,3	3	90
113-030-0034	220 V AC	50		18,1	3	90
113-030-0034	240 V AC	60		18,9	3	95
113-030-0033	240 V AC	60		11,4	3	60
113-030-0047	12 V DC	–	15,0		4	95
113-030-0028	24 V DC	–	15,0		4	95
113-030-0040	24 V AC	50		21,8	4	105
113-030-0040	24 V AC	60		19,4	4	105
113-030-0043	48 V AC	50		26,2	4	105
113-030-0043	48 V AC	60		23,2	4	105
113-030-0052	48 V AC	50		19,0	4	100
113-030-0052	48 V AC	60		16,6	4	90
113-030-0038	110 V AC	50		24,8	4	105
113-030-0049	110 V AC	50		21,7	4	105
113-030-0049	110 V AC	60		19,2	4	105
113-030-0038	120 V AC	60		26,1	4	105
113-030-0041	195 V DC	–	16,6		4	105
113-030-0035	220 V AC	50		22,0	4	105
113-030-0050	230 V AC	50		21,4	4	105
113-030-0050	230 V AC	60		19,0	4	105
113-030-0031	240 V AC	50		17,9	4	90
113-030-0035	240 V AC	60		23,2	4	105

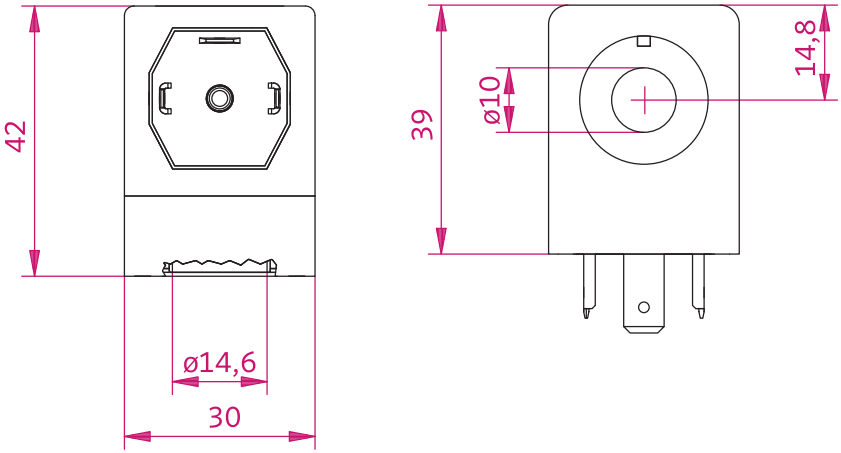
$\Delta\vartheta_{32}$ [K]: steady-state over-temperature according to VDE 0580

SOLENOID COIL

Width:	30 mm
Connection type:	form A – EN 175301-803-A
Moulding material:	thermoplastic

General Data

Voltage tolerance	± 10 %
Ambient temperature	- 20 °C to + 50 °C
Relative duty cycle	100 %
Insulation class of insulating materials according to DIN VDE 0580	F
Degree of protection with connector according to EN 60529	IP 65
Protective class	I
Imprint	*nass magnet* (customer imprint possible)



Technical Data Standard Versions

Part No.	Voltage	Frequency [Hz]	Rated Power [W]	[VA]	Power Level	$\Delta\vartheta_{32}$ [K]
113-030-0199	24 V DC	–	6,1		2	50
113-030-0200	24 V DC	–	11,0		3	80
113-030-0205	110 V AC	50		17,6	3	100
113-030-0205	120 V AC	60		18,3	3	100
113-030-0204	220 V AC	50		18,1	3	100
113-030-0204	220 V AC	60		15,9	3	95
113-030-0203	240 V AC	50		17,6	3	100
113-030-0203	240 V AC	60		15,9	3	95
113-030-0201	24 V DC	–	15,0		4	105
113-030-0206	24 V AC	50		19,3	4*	105
113-030-0206	24 V AC	60		16,0	4*	105

$\Delta\vartheta_{32}$ [K]: steady-state over-temperature according to VDE 0580

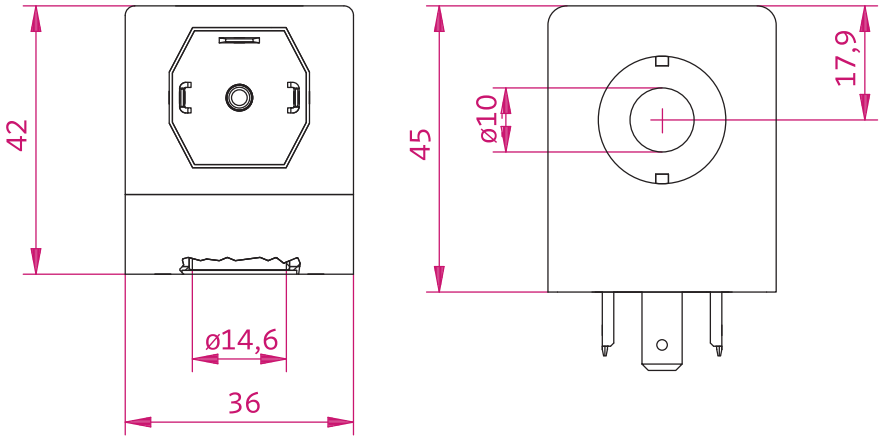
* When using AC type models with a power rating of 4 the maximum ambient temperature must not exceed + 40 °C.

SOLENOID COIL

Width:	36 mm
Connection type:	form A – EN 175301-803-A
Moulding material:	thermoset resin

General Data

Voltage tolerance	± 10 %
Ambient temperature	- 20 °C to + 50 °C
Relative duty cycle	100 %
Insulation class of insulating materials according to DIN VDE 0580	F
Degree of protection with connector according to EN 60529	IP 65
Protective class	I
Imprint	*nass magnet* (customer imprint possible)



Technical Data Standard Versions

Part No.	Voltage	Frequency [Hz]	Rated Power [W]	[VA]	Power Level	$\Delta\vartheta_{32}$ [K]
113-030-0123	24 V DC	–	4,1		2	30
113-030-0144	24 V AC	50		8,8	2	40
113-030-0144	24 V AC	60		7,6	2	40
113-030-0128	220 V AC	50		9,0	2	45
113-030-0128	240 V AC	60		9,2	2	45
113-030-0142	230 V AC	50		8,8	2	40
113-030-0142	230 V AC	60		7,6	2	40
113-030-0121	220 V AC	50		14,0	3	60
113-030-0124	24 V DC	–	7,9		3	50
113-030-0135	24 V AC	50		14,0	3	60
113-030-0135	24 V AC	60		12,0	3	60
113-030-0279	110 V AC	50		13,9	3	60
113-030-0279	110 V AC	60		12,2	3	60
113-030-0125	24 V DC	–	11,9		4	70
113-030-0129	24 V AC	50		21,0	4	90
113-030-0129	24 V AC	60		18,0	4	85
113-030-0126	110 V AC	50		21,5	4	90
113-030-0141	230 V AC	50		22,0	4	90
113-030-0141	230 V AC	60		19,0	4	85
113-030-0120	12 V DC	–	17,5		5	105
113-030-0127	24 V AC	50		25,0	5	105
113-030-0132	24 V DC	–	18,5		5	105
113-030-0120	36 V AC	50		25,0	5	105
113-030-0137	110 V AC	50		27,5	5	105
113-030-0140	110 V AC	60		26,5	5	105
113-030-0137	120 V AC	60		28,0	5	105
113-030-0133	220 V AC	50		25,5	5	105
113-030-0122	220 V AC	50		22,0	5	105
113-030-0138	230 V AC	50		25,5	5	105
113-030-0133	240 V AC	60		25,0	5	105
113-030-0138	240 V AC	60		27,0	5	105

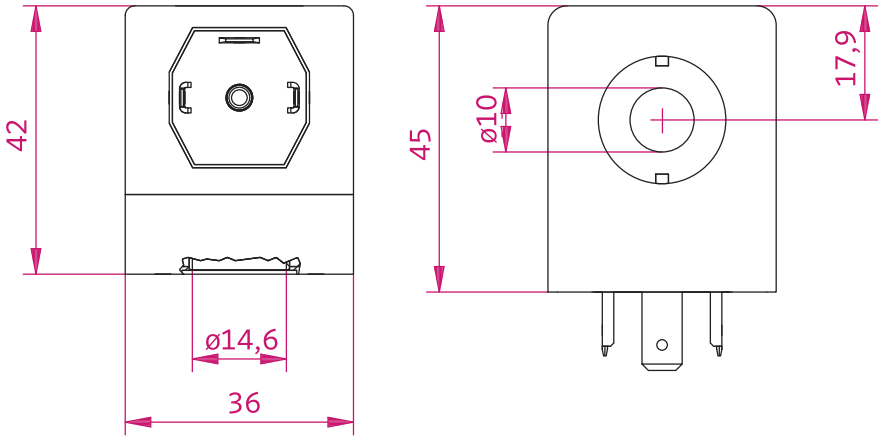
$\Delta\vartheta_{32}$ [K]: steady-state over-temperature according to VDE 0580

SOLENOID COIL

Width:	36 mm
Connection type:	form A – EN 175301-803-A
Moulding material:	thermoplastic

General Data

Voltage tolerance	± 10 %
Ambient temperature	- 20 °C to + 50 °C
Relative duty cycle	100 %
Insulation class of insulating materials according to DIN VDE 0580	F
Degree of protection with connector according to EN 60529	IP 65
Protective class	I
Imprint	*nass magnet* (customer imprint possible)



Technical Data Standard Versions

Part No.	Voltage	Frequency [Hz]	Rated Power [W]	[VA]	Power Level	$\Delta\vartheta_{32}$ [K]
113-030-0188	24 V DC	–	7,9		3	60
113-030-0189	24 V DC	–	11,9		4	80
113-030-0100	230 V AC	50		21,8	4	105
113-030-0190	24 V DC	–	18,5		5*	105

$\Delta\vartheta_{32}$ [K]: steady-state over-temperature according to VDE 0580

* When using AC type models with a power rating of 5 the maximum ambient temperature must not exceed + 40 °C. In this power level, AC versions are not possible.

Width: 30 mm
Connection type: form A
Moulding material: thermoset resin and thermoplastic

Width: 36 mm
Connection type: form A
Moulding material: thermoset resin and thermoplastic

Note: The proportions of the solenoid coils displayed in the images on this page do not represent the actual proportions.

SPECIAL REMARKS

The technical data are valid for the indicated standard voltages. Other voltages are available on request.

Perfect function of these solenoid coils with the pertinent components included in this catalogue is assured with the winding having reached its operating temperature (max. ambient temperature and max. voltage tolerance). The steady-state over-temperature is reached in case of valve body of plastic and encapsulation made of Thermoplastic. All devices are designed in compliance with DIN VDE 0580. Arrangement of the devices in modular design is possible, however, it may ensue a higher temperature increased by up to 20 K and may limit the function.

A general lifetime of the products cannot be specified, as it is decisively influenced by ambient conditions, the single application and combination with other components. The function can only be fulfilled in case of exclusive use of *nass magnet* products.

Should there be deviating or additional operating conditions compared to the above-mentioned conditions, special testing is necessary in order to verify the usability of the *nass magnet* products. – ***nass magnet* will be glad to give you the required advice.**

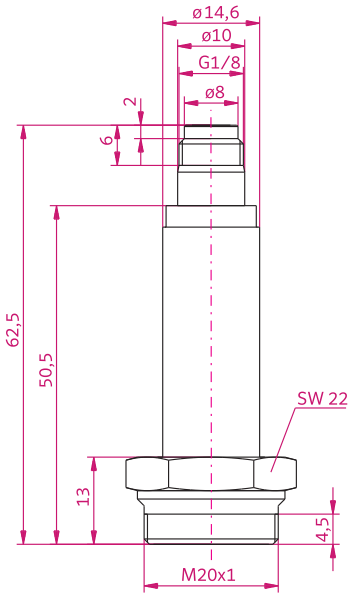
ARMATURE ASSEMBLY GW (THREAD)

Switching function:	2/2 and 3/2 way
De-energized state:	NC (normally closed), NO (normally open)
Connection type:	thread M 20 x 1, metal sealing or with O'ring
	shading ring for AC versions
	(without nonferrous metal
	on request)

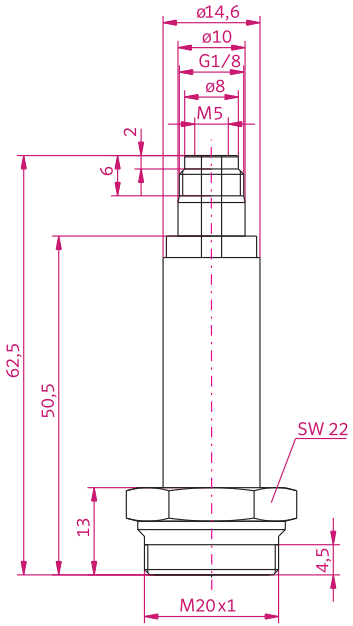
General Data

Ambient temperature	- 10 °C to + 50 °C
Sealing Material	FKM (other sealing materials on request)
Quality of medium according to ISO 8573-1	
when using FKM sealing elements	compressed quality air class 4, 3, 4
Mounting position	any (preferably plunger in vertical direction)

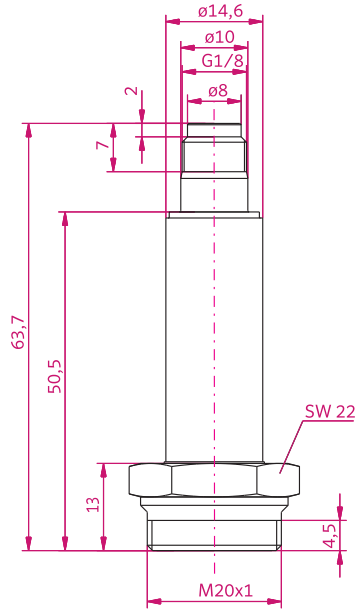
2/2 way NC



3/2 way NC



2/2 way N0



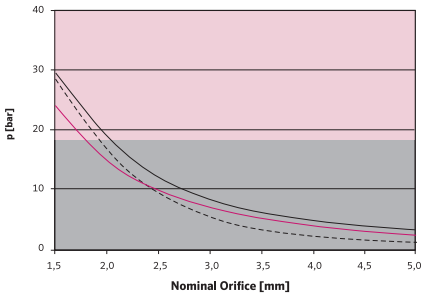
Technical Data Standard Versions

Part No.	Function	Power Level	Nominal Orifice [mm] inlet	exhaust	Pressure [bar]	Thread M 20 x 1 metal sealing	O'ring sealing	Armature Guide brass	stainless steel
113-010-0026	3/2 way NC	1	1,3	1,5	10	x			x
113-010-0022	3/2 way NC	2	2,0	2,5	10	x			x
113-010-0014	2/2 way NC	2, 3, 4	see below		see below		x	x	
113-010-0015	2/2 way NC	2, 3, 4	see below		see below		x		x
113-010-0031	2/2 way NC	2, 3, 4	see below		see below	x			x
113-010-0024	3/2 way NC	3	2,5	3,0	10	x			x
113-010-0056	2/2 way NO	3	see below		see below	x			x
113-010-0057	3/2 way NC	3	2,5	3,0	10		x		x
113-010-0002	3/2 way NC	4	3,0	3,5	10		x		x
113-010-0028	3/2 way NC	4	3,0	3,5	10	x			x
113-010-0046	2/2 way NO	5	see below		see below	x			x

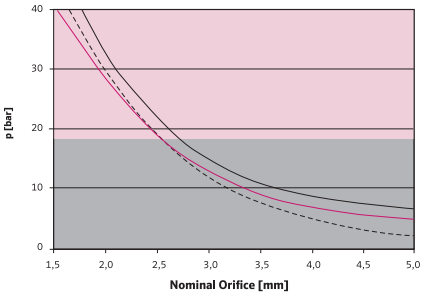
Power Levels for 2/2 Way Versions

AC - 50 Hz AC - 60 Hz DC - 5 % residual ripple max. test pressure: 18 bar · special versions on request

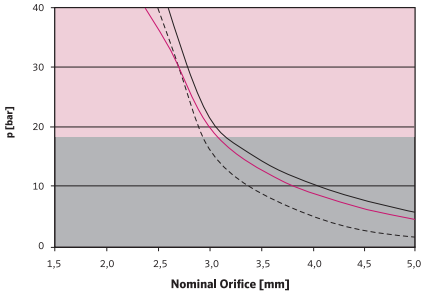
Power Level 2



Power Level 3



Power Level 4



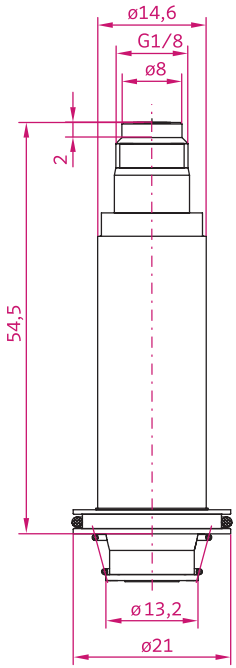
ARMATURE ASSEMBLY FL (FLANGE)

Switching function:	2/2 and 3/2 way
De-energized state:	NC (normally closed)
Connection type:	flange with O'ring shading ring for AC versions (without nonferrous metal on request)

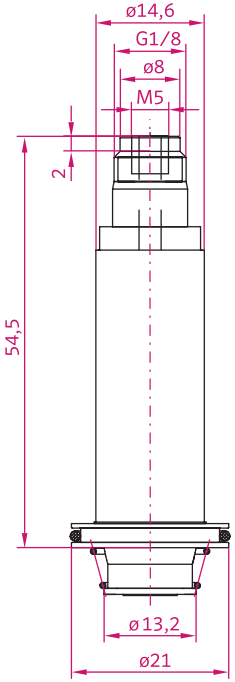
General Data

Ambient temperature	- 10 °C to + 50 °C
Sealing Material	FKM (other sealing materials on request)
Quality of medium according to ISO 8573-1	compressed quality air class 4, 3, 4
Mounting position	any (preferably plunger in vertical direction)

2/2 way NC



3/2 way NC



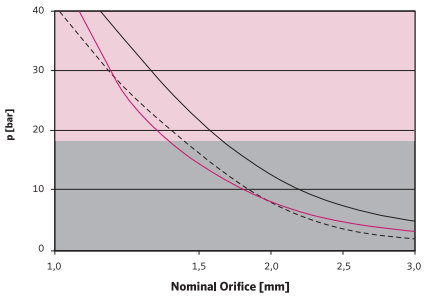
Technical Data Standard Versions

Part No.	Function	Power Level	Nominal Orifice [mm] inlet	exhaust	Pressure [bar]	Armature Guide brass	stainless steel
113-010-0027	3/2 way NC	1	1,3	1,5	10	x	
113-010-0023	3/2 way NC	2	2,0	2,5	10	x	
113-010-0034	3/2 way NC	2	2,0	2,5	10	x	
113-010-0032	2/2 way NC	2, 3, 4	see below		see below	x	
113-010-0025	3/2 way NC	3	2,5	3,0	10	x	
113-010-0029	3/2 way NC	4	3,0	3,5	10	x	
113-010-0035	3/2 way NC	4	3,0	3,5	10	x	

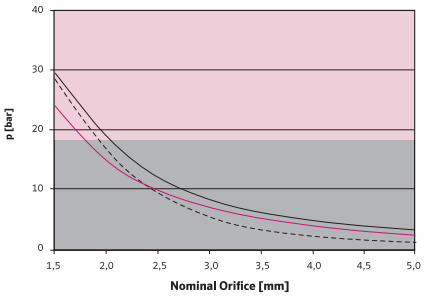
Power Levels for 2/2 Way Versions

AC - 50 Hz AC - 60 Hz DC - 5 % residual ripple max. test pressure: 18 bar · special versions on request

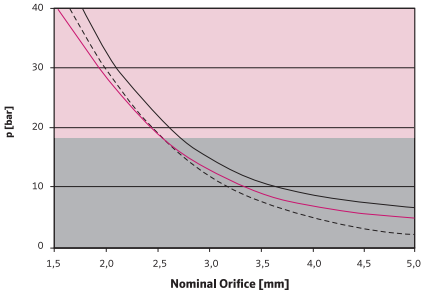
Power Level 1



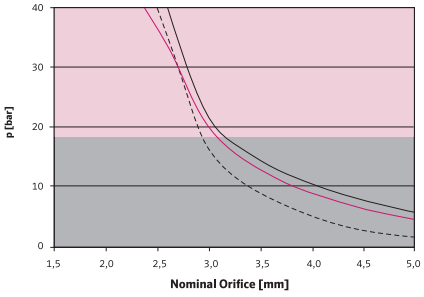
Power Level 2



Power Level 3



Power Level 4

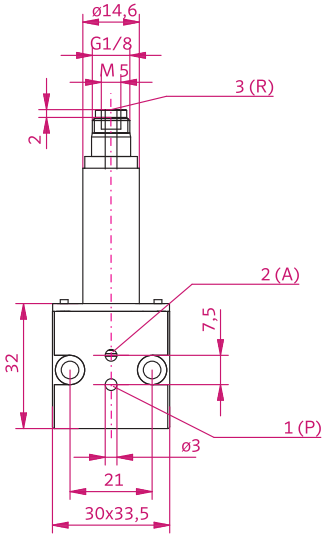


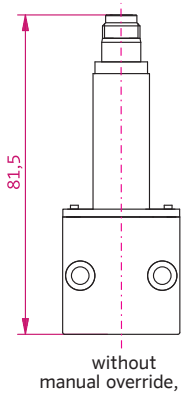
VALVE SYSTEM CNOMO

Switching function:	3/2 way
De-energized state:	NC (normally closed)
Valve box:	Zinc die-casted
Armature Guide:	stainless steel

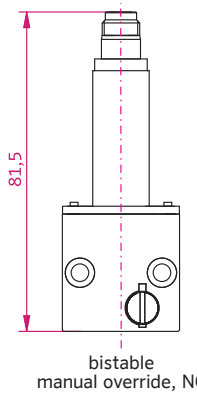
General Data

Ambient temperature	- 10 °C to + 50 °C
Sealing Material	FKM (other sealing materials on request)
Quality of medium according to ISO 8573-1	compressed quality air class 4, 3, 4
Mounting position	any (preferably plunger in vertical direction)

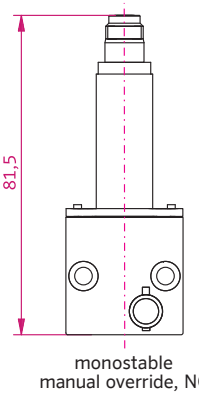




without
manual override, NC

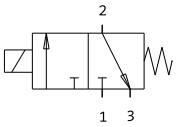


bistable
manual override, NC

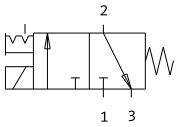


monostable
manual override, NC

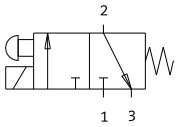
Pneumatic Diagram



without
manual override, NC



bistable
manual override, NC

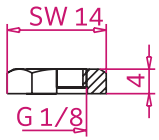


monostable
manual override, NC

Technical Data Standard Versions[1]

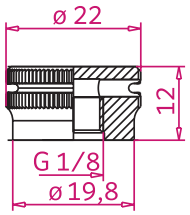
Part No.	Power Level	Nominal Orifice [mm] inlet	exhaust	Flow Rate[2] [l/min] 1–2	2–3	Manual Override bistable	monostable
113-050-0010	1	1,3	1,5	50	75		x
113-050-0016	1	1,3	1,5	50	75	x	
113-050-0018	1	1,3	1,5	50	75		
113-050-0004	2	2,0	2,5	100	175	x	
113-050-0017	2	2,0	2,5	100	175		x
113-050-0003	3	2,5	3,0	135	200		x
113-050-0007	4	3,0	3,5	165	210	x	
113-050-0008	4	3,0	3,5	165	210		
113-050-0011	4	3,0	3,5	165	210		x

1 All of the valve systems listed here are suitable for both AC and DC applications.
2 qv flow rate at an inlet pressure of 6 bar (ΔX = 1 bar) and 0 °C; flow rate detection in compliance with ISO 6358



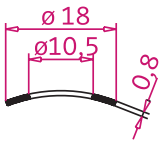
Hexagon nut

Part No.: 113-080-0004
Explanation: tightening torque max. 2 Nm; use with spring washer 113-080-0014



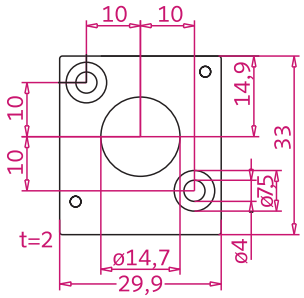
Exhaust protector

Part No.: 113-080-0005
Explanation: tightening torque max. 2 Nm; use with spring washer 113-080-0014



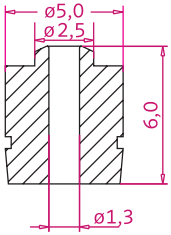
Spring washer

Part No.: 113-080-0014



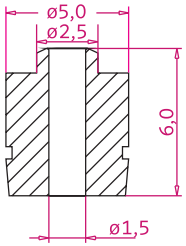
Mounting plate

Part No.: 113-702-0001
Explanation: only for armature assembly FL



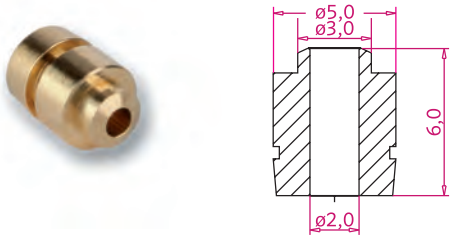
Valve seat · orifice size 1,3

Part No.: 113-034-0004

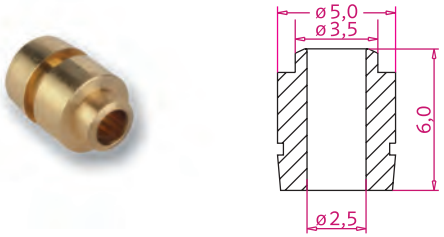


Valve seat · orifice size 1,5

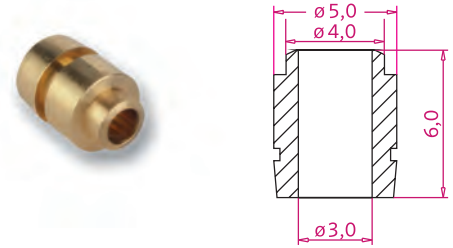
Part No.: 113-034-0001



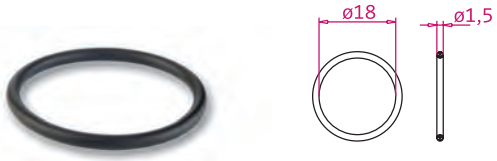
Valve seat · orifice size 2,0
Part No.: 113-034-0002



Valve seat · orifice size 2,5
Part No.: 113-034-0003



Valve seat · orifice size 3,0
Part No.: 113-034-0005

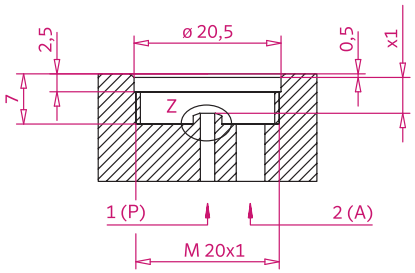


O'ring FKM · 18,0 x 1,5 mm
Part No.: 900-841-0085
Explanation: for armature assemblies with thread; not metallic self-sealing

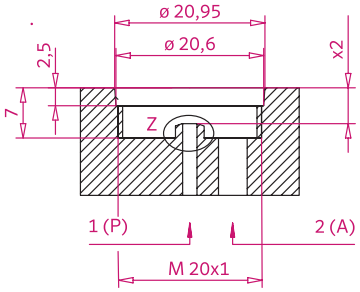
Cheese-head screw · M 4 x 35 mm
Part No.: 900-822-0045
Explanation: with slots and cross slots; only for valve system CNOMO (for one valve system two srews are required); tightening torque max. 1.5 Nm

PNEUMATIC CONNECTION SOLENOID OPERATOR

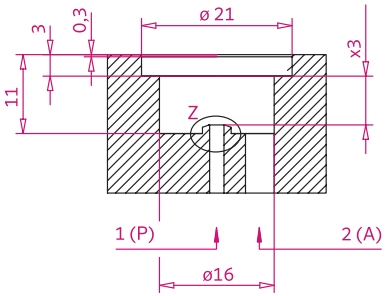
Thread Version with Metallic Seal



Thread Version with O'ring Seal

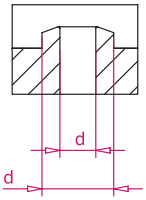


Flange Version with O'ring Seal



d	x1		x2		x3	
	1 2	2 1 3	1 2	2 1 3	1 2	2 1 3
1,3	4,60	4,70	4,60	4,70	6,40	6,50
1,5	4,60	4,80	4,60	4,80	6,40	6,60
2,0	4,70	5,00	4,70	5,00	6,50	6,80
2,5	4,80	5,10	4,80	5,10	6,60	6,90
3,0	4,90	5,10	4,90	5,10	6,70	6,90
3,5	5,00	5,20	5,00	5,20	6,80	7,00
4,0	5,10	-	5,10	-	6,90	-
4,5	5,20	-	5,20	-	7,00	-

Z



Note:

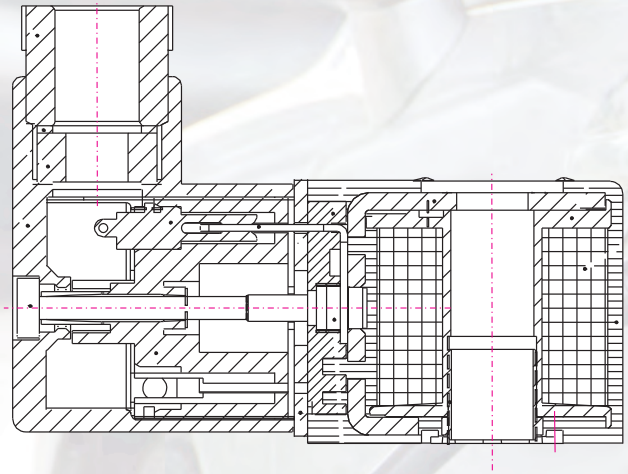
Specifications regarding the characteristic of the customer interface are available at *nass magnet* on request.

www.nassmagnet.com ☎ +49 511 6746-0

Explosion Protection

SOLENOID COILS FOR USE IN POTENTIALLY EXPLOSIVE ENVIRONMENTS

***nass magnet* offers components of the series "System 8" and "System 13" suitable for use in hazardous environments. Those have been tested and approved in accordance to EN/IEC 60079 and DIN VDE 0170 (as defined in directive 2014/34/EU of the European Union) by the "Phy-sikalisch-Technische Bundesanstalt" (Federal Physico-Technical Institute). Explosion prevention is granted, if the specified and matched components from the cata-logue are used.**



We gladly offer advice and technical support regarding the use of our products in hazardous environments, such as tank farm construction or crop processing. Please feel free to contact us.

The design of the products needs to match high quality requirements, which are being documented and tested regularly. Our portfolio consists only of sophisticated, safe and durable products.

Note

We reserve the right to make product changes without notice. For use other than general industrial pneumatics, please consult factory.

© Backgroundpicture, small picture: ClipDealer.com

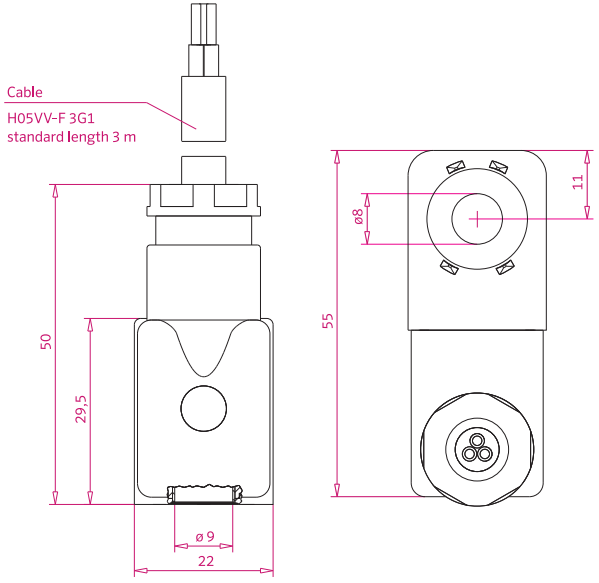
SOLENOID COIL SYSTEM 8 ATEX

Width:	a) 22 mm and b) 30 mm
Protection by encaps.:	a) ⟨Ex⟩ II 2 G Ex mb IIC T5, T4 Gb · ⟨Ex⟩ II 2 D Ex mb tb IIIC T95 °C, T130 °C Db IP65
	b) ⟨Ex⟩ II 2 G Ex mb IIC T6, T5, T4 Gb · ⟨Ex⟩ II 2 D Ex mb tb IIIC T80 °C, T95 °C, T130 °C Db IP65
Connection type:	three-wired cable, with sleeve
Moulding material:	thermoplastic

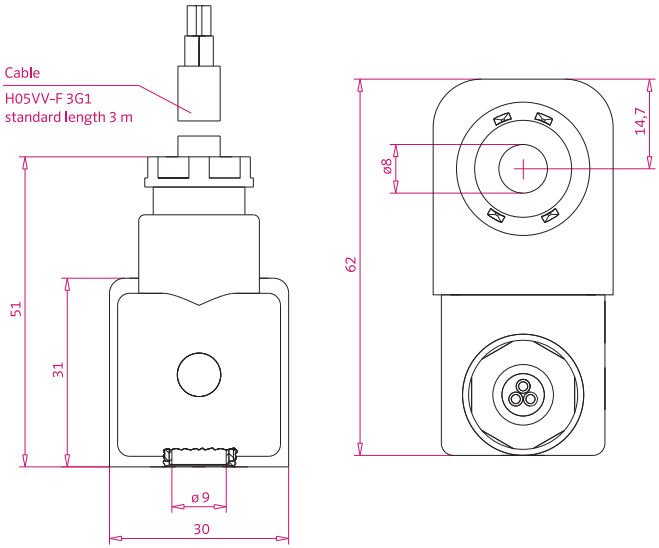
General Data

Voltage tolerance	± 10 %
Ambient temperature	- 20 °C to + 40 °C/+ 50 °C/+ 60 °C
Relative duty cycle	100 %
Insulation class of insulating materials according to DIN VDE 0580	F
Degree of protection	IP 65
Type examination certificates	a) PTB 00 ATEX 2001 X b) PTB 03 ATEX 2018 X, IECEx PTB 04.0002X
Imprint	*nass magnet* (customer imprint possible)
Cable length	3 m (other cable lengths on request)

22 mm



30 mm



Technical Data Standard Versions, Width 22 mm

Part No.	Voltage	Frequency [Hz]	Power Level	Temperature Class
108-030-1039	24 V DC	–	1	T 5
108-030-1027	12 V DC	–	3	T 4
108-030-1028	24 V DC	–	3	T 4
108-030-0004	24 V AC	50/60	3	T 4
108-030-1029	48 V DC	–	3	T 4
108-030-0002	110 V AC	50/60	3	T 4
108-030-0003	220 V AC	50	3	T 4
108-030-0003	240 V AC	60	3	T 4

Technical Data Standard Versions, Width 30 mm

Part No.	Voltage	Frequency [Hz]	Power Level	Temperature Class
108-030-1075	24 V DC	–	3	T 6
108-030-0038	110 V AC	50/60	3	T 6
108-030-0039	230 V AC	50/60	3	T 6
108-030-1065	24 V DC	–	4	T 5
108-030-0025	110 V AC	50/60	4	T 5
108-030-0026	230 V AC	50/60	4	T 5
108-030-1052	12 V DC	–	5	T 4
108-030-1051	24 V DC	–	5	T 4
108-030-0019	24 V AC	50/60	5	T 4
108-030-0020	36 V AC	50/60	5	T 4
108-030-1053	48 V DC	–	5	T 4
108-030-0018	110 V AC	50/60	5	T 4
108-030-0021	220 V AC	50	5	T 4
108-030-0021	230 V AC	50/60	5	T 4
108-030-0021	240 V AC	60	5	T 4

Notes

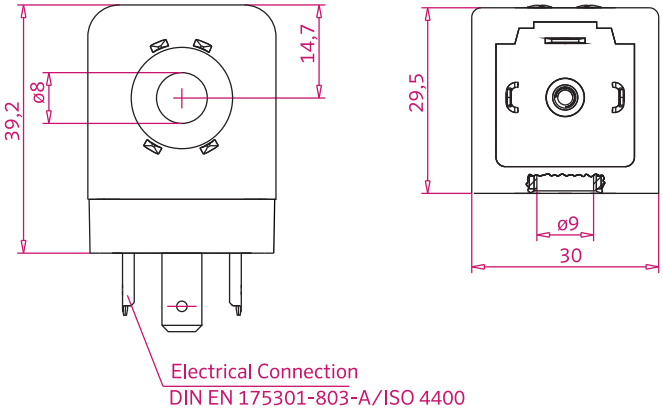
- Additional approvals from national and international admission offices on request.
- Please refer to the manual prior to start of operation!

SOLENOID COIL SYSTEM 8 ATEX

Width:	30 mm
Intrinsic safety:	⟨Ex⟩ II 2 G Ex ia IIB/IIC T6/T4 Ga
Connection type:	form A – EN 175301-803-A
Moulding material:	thermoset resin

General Data

Voltage tolerance	± 10 %
Ambient temperature	- 40 °C to + 50 °C/+ 85 °C
Relative duty cycle	100 %
Insulation class of insulating materials according to DIN VDE 0580	F
Degree of protection with appropriate connector	IP 65
Type examination certificate	PTB 02 ATEX 2154, IECEx PTB 08.0023
Imprint	*nass magnet* (customer imprint possible)



Technical Data Standard Versions

Part No.	Ambient Temperature	Group/max. Characteristics of Barriers	Power Level	Temperature Class
108-030-1083	- 40 °C to + 50 °C	IIC with 115 mA, 28 V DC	1	T 6
108-030-1083	- 40 °C to + 50 °C	IIB with 195 mA, 32 V DC	1	T 6
108-030-1088	- 40 °C to + 85 °C	IIC with 115 mA, 28 V DC	1	T 4
108-030-1088	- 40 °C to + 85 °C	IIB with 195 mA, 32 V DC	1	T 4

Notes

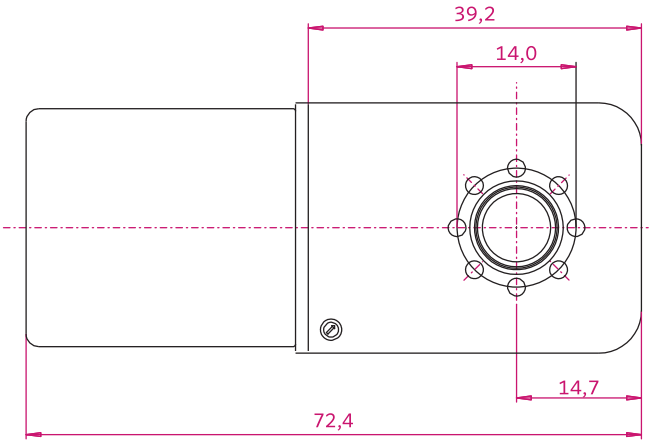
- The switching function of the intrinsically safe solenoid operator requires a minimum current of 37 mA from the safety barrier.
- The nominal operating voltage of the intrinsically safe solenoid coil is 24 V DC.
- The maximum steady-state over-temperature of the intrinsically safe solenoid coil is 18 K.
- Additional approvals from national and international admission offices on request.
- Please refer to the manual prior to start of operation!

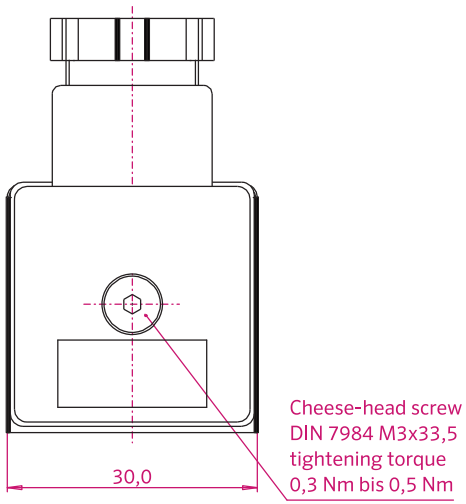
SOLENOID COIL SYSTEM 8 ATEX WITH CONNECTOR

Width:	30 mm
Intrinsic safety:	⟨Ex⟩ II 2 G Ex ia IIB/IIC T6, T4 Ga
	⟨Ex⟩ II 2 D Ex t IIIC T80 °C, T130 °C Db IP65
Connection type:	connector for cable
Moulding material:	thermoset resin

General Data

Voltage tolerance	± 10 %
Ambient temperature	- 40 °C to + 50 °C
Relative duty cycle	100 %
Insulation class of insulating materials according to DIN VDE 0580	F
Degree of protection	IP 65
Type examination certificate	PTB 09 ATEX 2001
Imprint	*nass magnet* (customer imprint possible)





Technical Data Standard Versions

Part No.	Ambient Temperature	Group/max. Characteristics of Barriers	Power Level	Temperature Class
108-030-1160	- 40 °C to + 50 °C	IIC with 115 mA, 28 V DC	1	T 6
108-030-1160	- 40 °C to + 50 °C	IIB with 195 mA, 32 V DC	1	T 6

Notes

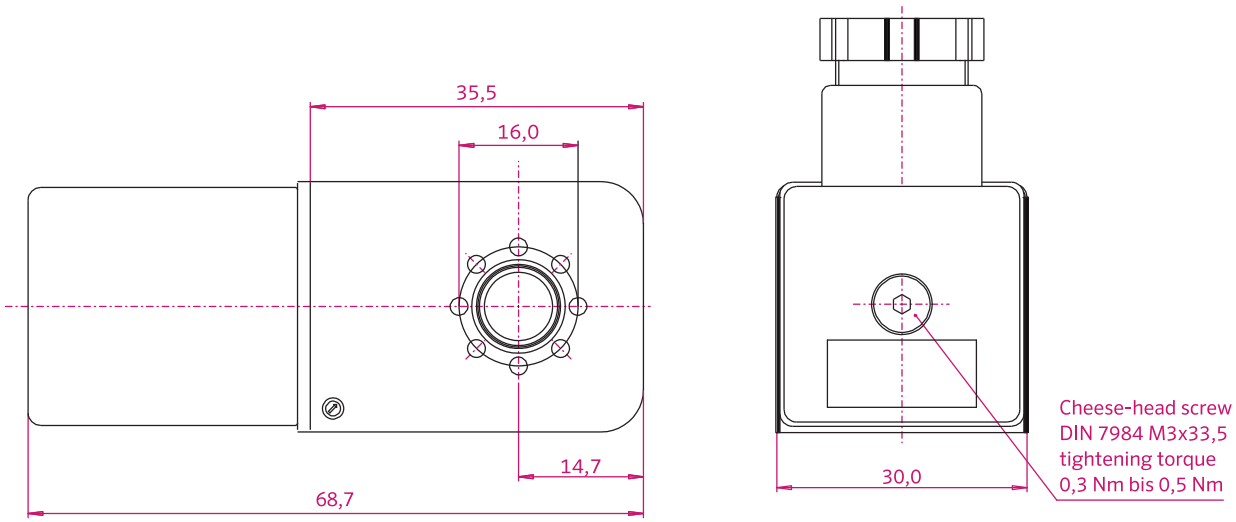
- The switching function of the intrinsically safe solenoid operator requires a minimum current of 37 mA from the safety barrier.
- The nominal operating voltage of the intrinsically safe solenoid coil is 24 V DC.
- The maximum steady-state over-temperature of the intrinsically safe solenoid coil is 18 K.
- Additional approvals from national and international admission offices on request.
- Please refer to the manual prior to start of operation!

SOLENOID COIL SYSTEM 8 ATEX

Width:	30 mm
Increased degree of protection, nonincendive:	⟨Ex⟩ II 3 G Ex nA IIC T5 Gc ⟨Ex⟩ II 3 D Ex tc IIIC T95 °C Dc IP65
Connection type:	connector form A – EN 175301-803-A
Moulding material:	thermoplastic

General Data

Voltage tolerance	± 10 %
Ambient temperature	- 20 °C to + 50 °C
Relative duty cycle	100 %
Insulation class of insulating materials according to DIN VDE 0580	F
Degree of protection	IP 65
Imprint	*nass magnet* (customer imprint possi



Technical Data Standard Versions

Part No.	Voltage	Frequency [Hz]	Rated Power [W]	[VA]	Power Level	$\Delta\vartheta_{32}$ [K]
108-030-0761	24 V DC	–	2,1		3	32
108-030-0759	110 V AC	50		4,0	3	46
108-030-0759	110 V AC	60		3,1	3	46
108-030-0763	230 V AC	50		4,0	3	47
108-030-0763	230 V AC	60		3,1	3	47
108-030-0762	24 V DC	–	2,7		4	38

Notes

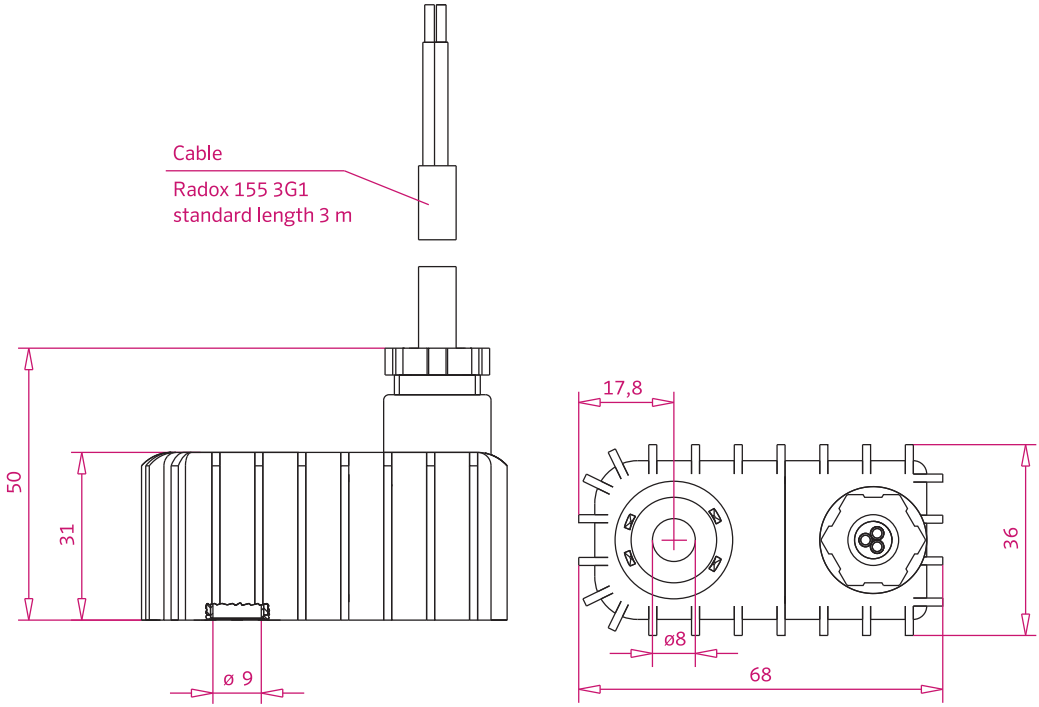
- $\Delta\vartheta_{32}$ [K]: steady-state over-temperature according to VDE 0580
- Please refer to the manual prior to start of operation!
- This device is only available in combination with the connector and may only be used with it.

SOLENOID COIL SYSTEM 8 ATEX

Width:	36 mm
Protection by encaps.:	⟨Ex⟩ II 2 G EEx ma II T4, T5, T6
	⟨Ex⟩ II 2 D IP65 T80 °C, T95 °C, T130 °C
Connection type:	cable flexible at low temperatures, with ferrules
Moulding material:	thermoplastic

General Data

Voltage tolerance	± 10 %
Ambient temperature	- 50 °C to + 50 °C/+ 60 °C
Relative duty cycle	100 %
Insulation class of insulating materials according to DIN VDE 0580	F
Degree of protection	IP 65 (IP 67 on request)
Imprint	*nass magnet* (customer imprint possible)
Cable length	3 m (other cable lengths on request)



Technical Data Standard Versions

Part No.	Voltage	Frequency [Hz]	Power Level	Temperature Class
108-030-1081	24 V DC	–	5	T 4
108-030-0041	230 V AC	50/60	5	T 4

Notes

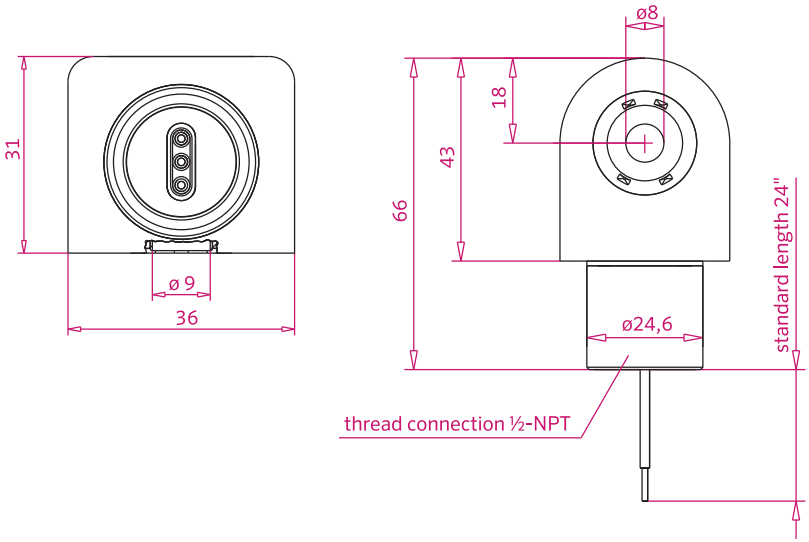
- Additional approvals from national and international admission offices on request.
- Please refer to the manual prior to start of operation!

SOLENOID COIL SYSTEM 8 CSA/FM

Width:	36 mm
Protection by encaps.:	CSA CLASS 2258 02 – process control equipment – for hazardous locations FM CLASS 3600, 3611, 3615, 3810 – hazardous (classified) location electrical equipment
Approval:	Ex m II T4
Connection type:	three-wired end sleeve for strands, thread ½-NPT for cable conduit
Moulding material:	thermoplastic

General Data

Voltage tolerance	± 10 %
Ambient temperature	- 20 °C to + 60 °C
Relative duty cycle	100 %
Insulation class of insulating materials according to DIN VDE 0580	H
Degree of protection with appropriate cable conduit	IP 65
Type examination certificates	CSA 202633, FM 3006713
Imprint	*nass magnet* (customer imprint possible)



Technical Data Standard Versions

Part No.	Voltage	Frequency [Hz]	Rated Power [W] [VA]	Power Level
108-030-0965	12 V DC	–	4,5	5
108-030-0954	12 V DC	–	4,5	5
108-030-0952	24 V DC	–	4,6	5
108-030-0953	110 V AC	50	7,5	5
108-030-0955	120 V AC	60	6,8	5
108-030-0198	220 V AC	50	7,7	5
108-030-0956	240 V AC	60	6,8	5

Notes

- (*) The threaded connector is available either as a zinc-chrome-plated steel version or as a stainless steel version.
- Please refer to the manual prior to start of operation!

Hazardous Locations

Ex m II T4 and Division 1

- Specifications in accordance to CSA certificate:
  - Class I, Division 1, Groups A, B, C and D; Class II, Groups E, F and G; Class III;
  - Class I, Division 2, Groups A, B, C, D.
- Specifications in accordance to FM certificate:
  - Explosion-proof Class I, Division 1, Groups A, B, C, D, T4, Ta = 60 °C;
    - encapsulation/explosion-proof Class I, Zone 1, AEx m II T4, Ta = 60 °C;
    - dust-ignition-proof for Class II/III, Division 1, Groups E, F and G, T4, Ta = 60 °C;
  - Nonincendive Class I, Division 2, Groups A, B, C, D, T4, Ta = 60 °C
  - Suitable for Class II, III, Division 2, Groups E, F, G, T4, Ta = 60 °C

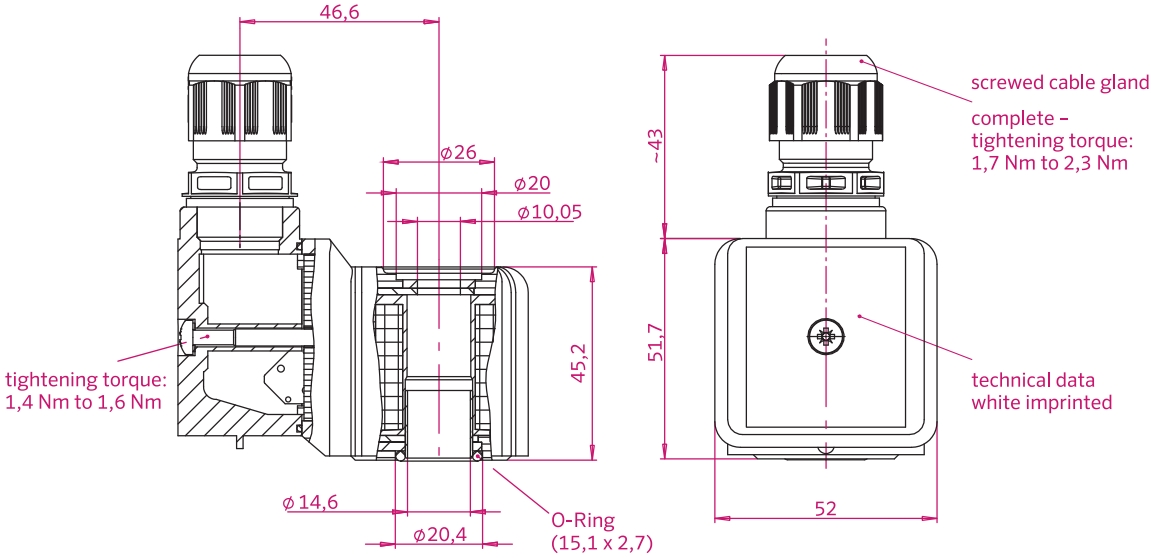
The current norms can be found in the certificates.

SOLENOID COIL SYSTEM 13 ATEX WITH TERMINAL BOX

Width:	52 mm
Protection by encaps.:	⟨Ex⟩ II 2 G Ex e mb IIC T4, T6 Gb
	⟨Ex⟩ II 2D Ex tb mb IIIC T130 °C, T80 °C Db IP 65, IP 67
Connection type:	terminal box
Moulding material:	thermoplastic

General Data

Voltage tolerance	± 10 %
Ambient temperature	- 40 °C to + 50 °C/+ 60 °C
Relative duty cycle	100 %
Insulation class of insulating materials according to DIN VDE 0580	F
Degree of protection	IP 65/IP 67
Type examination certificate	PTB 11 ATEX 2027 X
Imprint	*nass magnet* (customer imprint possible)



Technical Data Standard Versions

Part No.	Voltage	Ambient Temperature	Power Level	Pressure [bar]	Temperature Class
113-030-0119	24 V AC/DC	- 40 °C to + 50 °C	2	10	T 6
113-030-0318	110 V AC/DC	- 40 °C to + 50 °C	2	10	T 6
113-030-0149	230 V AC/DC	- 40 °C to + 50 °C	2	10	T 6
113-030-0103	24 V AC/DC	- 40 °C to + 60 °C	3	10	T 4
113-030-0118	110 V AC/DC	- 40 °C to + 60 °C	3	10	T 4
113-030-0094	230 V AC/DC	- 40 °C to + 60 °C	3	10	T 4

Notes

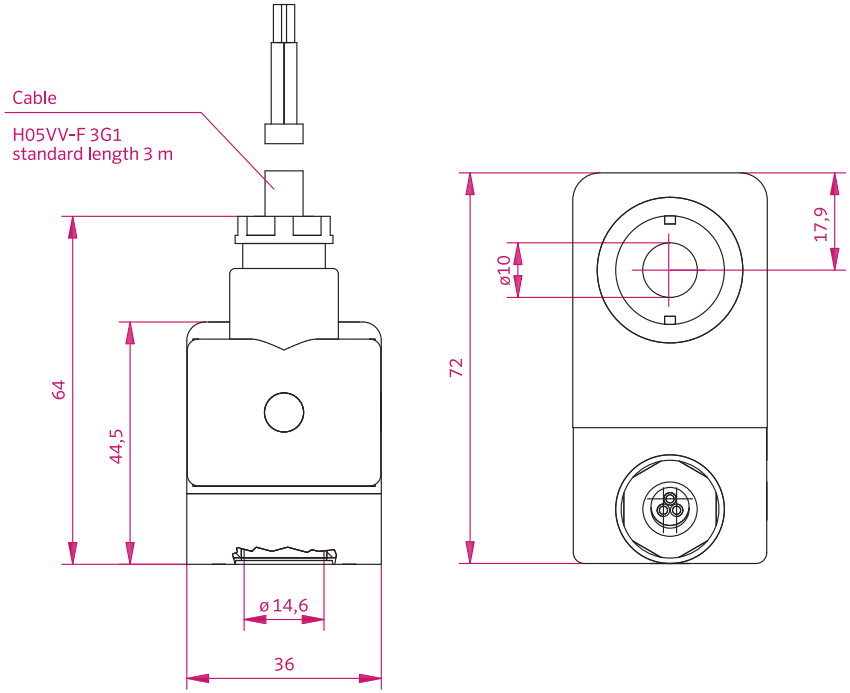
- The increased degree of protection IP 67 can be realized with a exhaust protector for the mounting of the solenoid coil.
- The solenoid coils are equipped with a rectifier and therefore independent with regard to the supply frequency.
- Additional approvals from national and international admission offices on request.
- Please refer to the manual prior to start of operation!

SOLENOID COIL SYSTEM 13 ATEX

Width:	36 mm
Protection by encaps.:	⟨Ex⟩ II 2 G Ex mb II T6, T5, T4 Gb
	⟨Ex⟩ II 2 D Ex tb IIIC T80 °C, T95 °C T130 °C Db IP65
Connection type:	three-wired cable, with ferrules
Moulding material:	thermoplastic

General Data

Voltage tolerance	± 10 %
Ambient temperature	- 20 °C to + 40 °C/+ 50 °C
Relative duty cycle	100 %
Insulation class of insulating materials according to DIN VDE 0580	F
Degree of protection	IP 65
Type examination certificates	PTB 03 ATEX 2086 X, IECEx PTB 05.0005X
Imprint	*nass magnet* (customer imprint possible)
Cable length	3 m (other cable lengths on request)



Technical Data Standard Versions

Part No.	Voltage	Frequency [Hz]	Power Level	Temperature Class
113-030-0264	24 V DC	–	2	T 5
113-030-0003	24 V AC	–	3	T 4
113-030-0004	110 V AC	50/60	3	T 4
113-030-0002	230 V AC	50/60	3	T 4

Notes

- Please note that the power levels of System 8 and System 13 differ regarding the controllable pneumatic nominal data. A combination of solenoid coils and armature systems of the two different series is not possible.
- Additional approvals from national and international admission offices on request.
- Please refer to the manual prior to start of operation!

SPECIAL ADVICE REGARDING EX-SOLENOID COILS

Note: The proportions of the solenoid coils displayed in the images on this page do not represent the actual proportions.

Width: 22 and 30 mm
Protection by encaps.: Ex II 2 G Ex mb IIC T5, T4 Gb, Ex II 2 D Ex mb tb IIIC T95 °C, T130 °C Db IP65 (22 mm); Ex II 2 G Ex mb IIC T6, T5, T4 Gb, Ex II 2 D Ex mb tb IIIC T80 °C, T95 °C, T130 °C Db IP65 (30 mm)
Connection type: three-wired cable

Width: 30 mm
Intrinsic safety: Ex II 2 G Ex ia IIB/IIC T6/T4 Ga
Connection type: connector form A

Width: 30 mm
Intrinsic safety: Ex II 2 G Ex ia IIB/IIC T6, T4 Ga; Ex II 2 D Ex t IIIC T80 °C, T130 °C Db IP65
Connection type: connector for cable

Width: 30 mm
Increased degree of protection, nonincendive:
Ex II 3 G Ex nA IIC T5 Gc;
Ex II 3 D Ex tc IIIC T95 °C Dc IP65
Connection type: connector form A

Width: 36 mm
Protection by encaps.: Ex II 2 G EEx ma II T4, T5, T6; Ex II 2 D IP65 T80 °C, T95 °C, T130 °C
Connection type: cable flexible at low temperatures

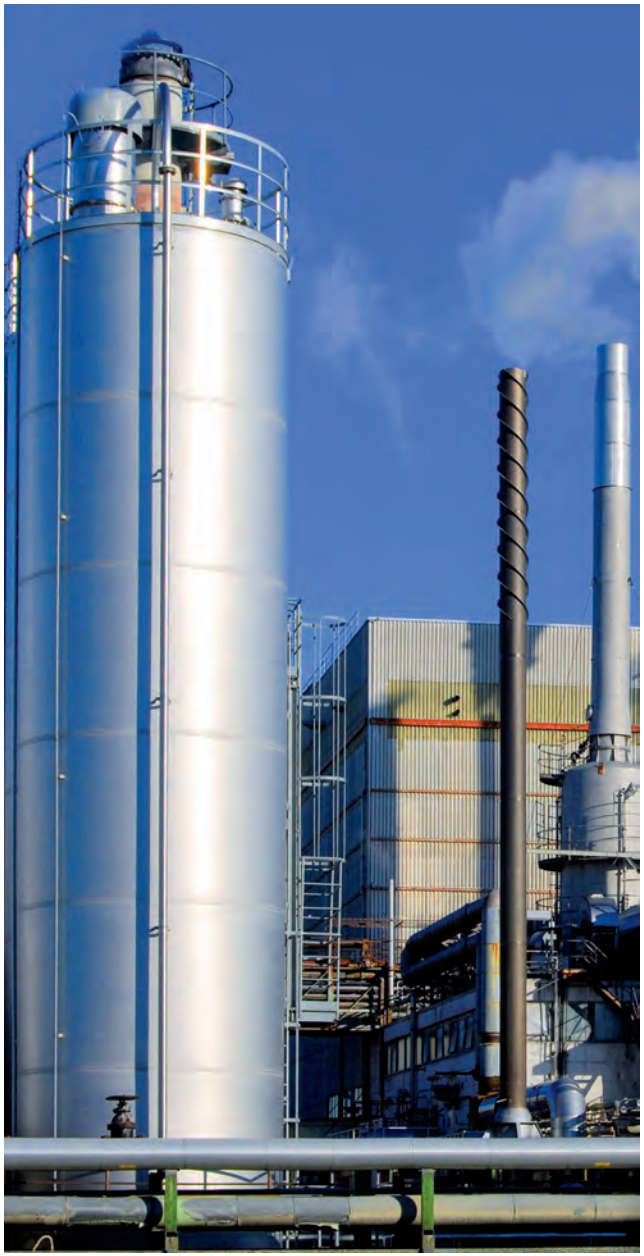
Width: 36 mm
Protection by encaps.: CSA CLASS 2258 02, FM CLASS 3600, 3611, 3615, 3810
Approval: Ex m II T4
Connection type: flying leads, thread ½-NPT

Width: 52 mm
Protection by encaps.: Ex II 2 G Ex e mb IIC T4, T6 Gb; Ex II 2D Ex tb mb IIIC T130 °C, T80 °C Db IP 65, IP 67
Connection type: terminal box

Width: 36 mm
Protection by encaps.: Ex II 2 G Ex mb II T6, T5, T4 Gb; Ex II 2 D Ex tb IIIC T80 °C, T95 °C T130 °C Db IP65
Connection type: three-wired cable

The mentioned technical data are valid for the indicated standard voltages. Other voltages are available on request. The perfect function of these solenoid coils and the respective components shown in this catalogue will be guaranteed for a winding at operating temperature, maximum ambient temperature and maximum voltage tolerance. The steady-state over-temperature is reached with valve bodies in plastic.

© Picture: ClipDealer.com



Encapsulated and Intrinsically Safe Solenoid Operators

These solenoid operators were tested by the Physikalisch-Technische Bundesanstalt (PTB) according to the directive 94/9/EC. They are generally suited for single and block assembly. Specific instructions and remarks for safe operation can be found in the respective operating instructions. Explosion protection can only be realized if the respective components shown in this catalogue are used. The maximum operating pressure for the armature/valve system is 12 bar.

Solenoid Operators with Increased Protection, Non-Igniting

These solenoid operators were tested by *nass magnet* according to the directive 94/9/EC. Explosion protection can only be realized if the respective components shown in this catalogue are used. The maximum operating pressure for the armature/valve system is 12 bar.

Explosion Requirement

Flammable Sources	Inflammable Substances	Oxygen Sources
hot surfaces flames and hot gases mechanically/electrically produced sparks equalising currents static electricity lightning stroke	Gases and dusts arising from flammable liquids and solid materials, and existing in the right incendive concentration	air (21 % oxygen) pure oxygen oxygen releasing compounds (potassium permanganate and others)

The classification of potentially explosive environments is based on directives of the European Parliament and the Council of the European Union. Those directives have been transferred to European and national legislation. Explosion protection – both Europe-wide and worldwide – is defined by the following committees:

- **European committee for electrotechnical standardization – CENELEC**
- **International electrotechnical committee – IEC**

Zone Classification of Hazardous Locations

Ex-zones specify locations with a dangerous and potentially explosive atmosphere based on the following criteria:

Zone 0 for gases: present permanently or on a long-term base (more than 1.000 hours per year); this includes the inside of a tank container of a vehicle transporting hazardous goods, for instance.

Zone 1 for gases: occasionally present (10 to 1.000 hours per year); this includes the filling area between the subsurface tank of a gas station and the tank wagon, for instance.

Zone 2 for gases: present only on rare occasions and on a short-term base (less than 10 hours per year); this includes the drive-through area in between the fuel dispensers of a gas station, for instance.

Zone 20 for dust: present permanently or on a long-term base (more than 1.000 hours per year) in a cloud-like fashion; this includes the inside of the silo of a flour mill, for instance.

Zone 21 for dust: present occasionally through the raising of settled dust (10 to 1.000 hours per year); this includes the outer filling area of the silo of a flour mill, for instance.

Zone 22 for dust: present only on rare occasions and on a short-term base (less than 10 hours per year); this includes minor dust debris on pipe plugs, for instance.

Correlation: Zone/Category

The device requirements are specified in categories. These categories are assigned to the following zone classification

Zone Classification		**Device Requirements**	
GAS	DUST	GAS	DUST
Zone 0	Zone 20	Category 1G	Category 1D
Zone 1	Zone 21	Category 2G	Category 2D
Zone 2	Zone 22	Category 3G	Category 3D

A higher-class device requirement is possible. A solenoid coil of the device category 2G may be used in zone 2, for example. The device requirement specifies the efficiency of individual protection measures within an electrical piece of equipment.

Classification of flammable substances in groups and temperature classes (based on the max. acceptable surface temperature)

TEMPERATURE CLASS		T1 (450 °C)	T2 (300 °C)	T3 (200 °C)	T4 (135 °C)	T5 (100 °C)	T6 (85 °C)
EXPLOSION GROUP	IIA	Acetone (540 °C) Ammonia (630 °C) Benzol (555 °C) Ethane (515 °C) Acetic Acid (485 °C) Carbon Oxide (605 °C) Methanol (455 °C) Propane (470 °C)	n-Butane (365 °C) n-Butyl Alcohol (340 °C)	Gasoline (220 bis 300 °C) Diesel Fuel (220 bis 300 °C) Plane Fuel (220 bis 300 °C) Heating Oil (220 bis 300 °C)	Acetaldehyde (140 °C)		
	IIB	City Gas (560 °C)	Ethyl Alcohol (425 °C) Ethylene (425 °C)	Ethyl Glycol (335 °C) Hydrogen Sulfide (270 °C)	Ethyl Ether (180 °C)		
	IIC	Hydrogen (560 °C)	Acetylene (305 °C)				Carbon Disulfide (95 °C)

Explosion-Proof Type (Abstract)

The European Standard EN 60079-0 comprises generic regulations for construction type and concurrent validation of electrical equipment to be applied on harzardous areas. It refers to further standards, which e.g. define the ignition protection type. The actual ignition protection type is distinctly coded on the equipment.

Name	Standard	Remarks
Encapsulation of oil (o)	EN 60079-7	Regarding the explosion-proof type *encapsulation of oil*, the device or part of it are separated from the explosive atmosphere.
Encapsulation of overpressure (p)	EN 60079-2	An explosion-proof gas being under overpressure (min. 0,5 mbar) shields the ignition source and avoids the penetration of the surrounding atmosphere.
Encapsulation of sand (q)	EN 60079-5	The fine-grain filling material shields the ignition source Orderly used, an arc created inside may not ignite the ex-atmosphere surrounding the body.
Pressure-resistant encapsulation (d)	EN 60079-1	In case of ignition inside the encapsulation, the body must resist the pressure, and a transmission of the *inner* explosion to the outside must be excluded.
Increased safety (e)	EN 60079-7	The explosion-proof type (e) is only valid for equipment or parts of it which, under normal circumstances, do neither create sparks nor arcs, do not reach hazardous temperatures and the nominal voltage of which does not exceed 11 kV.
Intrinsic safety (i)	EN 60079-11	The energy inside the circuit is limited to values which do not allow inadmissibly high temperatures and/or sparks respectively arcs.
Nonincendive (n)	EN 60079-15	Simplified application of the other explosion-proof types for zone 2
Protection by encapsulation (m)	EN 60079-18	The ignition source is embedded into a sealing compound in such a way that it cannot ignite a hazardous explosive atmosphere.

IP-Degree of Protection

GRADE	Against contact and of foreign objects	Against penetration of water
0	No protection	No protection
1	Protection against big foreign objects	Vertically falling water drops must not have any damaging effect
2	Degree of protection against contact with and penetration of foreign objects > 12 mm	Water drops falling in any angle up to 15 °C to the perpendicular must not have any damaging effect.
3	Degree of protection against contact with and penetration of foreign objects > 2,5 mm	Water drops falling in any angle up to 60° C to the perpendicular must not have any damaging effect.
4	Protection against granular foreign objects > 1 mm	Water splashing against work equipment from all directions must not have any damaging effect.
5	Protection against penetration of dust	A water jet from a nozzle being brought onto the work equipment must not have any damaging effec.
6	Protection against dust entrance	In case of temporary flooding, e g in case of heavy seas water must not penetrate into the work equipment in harmful quantities.
7		If the work equipment is plunged into water under stipulated conditions of pressure and time (lowest part at least 1 m under water column for 30 minutes), water must not penetrate into it.
8		If the work equipment is plunged into water with a predefined.

Attention!

The proven IP-degree of protection is a substantial part of the regulatory initiation of Ex-solenoid coils. Modifications of any kind, such as the shortening or the improper extension of cables, reboring, additional or wrong labeling will cause the license of the modified product to expire. Initiation of machines or constructions with modified Ex-solenoid coils is forbidden without exception.

WORK EQUIPMENT IDENTIFICATION

Electric utilities inside of the European Union need to be in accordance with the relevant regulations. If a manufacturer matches those requirements, the respective device will be marked with the CE-symbol.

For the explosion protection according to ATEX (ATmosphére EXplosibles as specified by directive 2014/34/EU), this mark will be extended by the number of the notifying body. The "Physikalisch-Technische Bundesan-stalt" (Federal Physico-Technical Institute), for example, has the number 0102. Furthermore, the year of production and the constructive safety level need to be indicated on the device.

Intrinsically safe work equipment may, as an example, bear the following identification:

Ex corresponds to european standard
ia ignition protection type
IIC explosion group
T6 temperature class
Ga equip. prot. level

According to the directive EN 60079-0 this identification is as follows:

PTB 02 ATEX 2154 X

PTB: notified body
02: year of examination
ATEX: according to directive 94/4/EC
2154: current number of type-examination certificate
X: the certificate is subject to special conditions

According to the ATEX directive intrinsically safe work equipment is then identified as follows:

II all sectors excluding mining (mining=I)
1 very high safety, appropriate for zone 0 (2 independent safeguards)
G explosion protection for gases, vapours and fogs (D=dusts)

The device category of the pertinent work equipment is put in round brackets:

II
1 operation outside of the potentially explosive environment while having effect on that described area
G

In summary, intrinsically safe work equipment is provided with the following complete identification:

II 1 G Ex ia IIC T6 Ga

Analoguously, the complete identification of pertinent work equipment is as follows:

II (1) G [Ex ia] IIC

www.nassmagnet.com ☎ +49 511 6746-0

Tiny Tubes

The so-called *Tiny Tubes* are our smallest valves. Besides their small physical dimensions, they feature respectable pneumatic power density and a long life time. Even though they are not part of a modular system, there is a versatile product portfolio of application-specific "plug & play" solutions.

All of the compact valves are micro-calibrated in order to attain constantly high flow rates in the automation industry. Attractive for medical application: *nass magnet* provides a special version of the Tiny Tubes for a lubrication-free opearation with teflon-coated components.

The type System 3-10 stands for a compact solenoid valve with a width of 10 mm (block assembly is possible). Each variation has an armature diameter of 3 mm, which has been determined as the optimum for this pneumatic class through simulation and practical testing.

APPLICATION OF SYSTEM 3-10

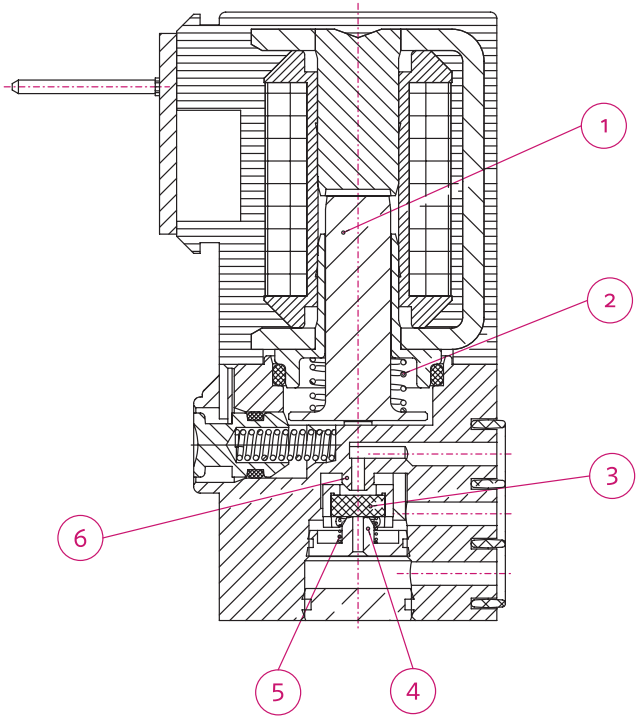
Usually, the solenoids are used in automation as 3/2 way valves or 2/2 way valves with the switching functions *normally closed (NC)* or *normally open (NO)*. Typical maximum operating pressure and nominal orifice for the 3/2 way model are 10 bar/0.7 mm. This type has been designed for the use with filtered compressed air and inert gases. The use of other substances, especially in medical applications, requires prior agreement with *nass magnet*.

FUNCTION

The plunger[1] of System 3-10 is pressed downwards by the reset spring[2]. The plunger itself does not feature any sealing elements. The plunger movement transfers to the actuator, which is gathering the sealing element[3].

In the de-energized state, the reset spring is taking effect on the sealing element through the armature and the actuator. The sealing element is pushed on the lower valve seat[4]. The plunger will move once the solenoid coil is under current. The actuator is now unloaded and moves upwards, supported by the lower pressure spring5. The sealing element exposes the lower valve seat and seals towards the upper valve seat6.

In a 2/2 way model or for the NO switching function, the valve seats are charged with individual pressures. In this case, a modified spring design is provided by the manufacturer.



Note

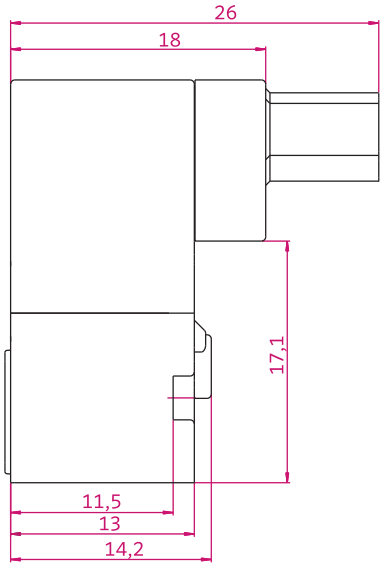
We reserve the right to make product changes without notice. For use other than general industrial pneumatics, please consult factory.

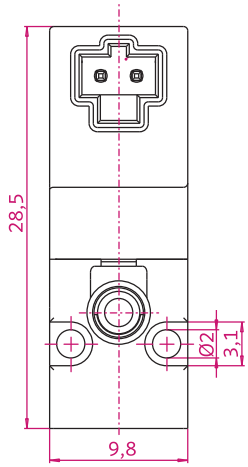
SOLENOID VALVE SYSTEM 3–10

Switching function:	3/2 way (2/2 way on request)
De-energized state:	NC (normally closed), NO (normally open)
Electrical connection:	USC
Operating voltage:	12 V DC, 24 V DC

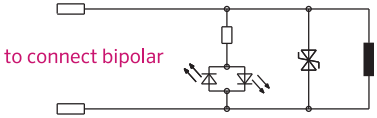
General Data

Voltage tolerance	± 10 %
Ambient temperature	- 10 °C to + 50 °C
Relative duty cycle	100 %
Activation/deactivation period according to ISO/CD12238	nominal 5 ms/5 ms
Insulation class of insulating materials according to DIN VDE 0580	F
Degree of protection according to EN 60529	IP 40 (see type of contact)
Class of protection	III
Quality of medium according to ISO 8573-1	compressed air class 3, 3, 3
Mounting position	any (preferably plunger in vertical direction)
Imprint	*nass magnet* (customer imprint possible)

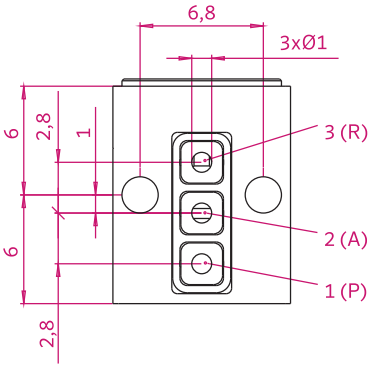




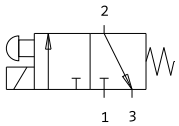
Circuit Diagram



Pneumatic Interface ISO 15218



Pneumatic Diagram



Note: The picture shows the 3/2 way NC type with electric/pneumatic interface on opposite side (OPS).

Technical Data 3/2 Way Standard Versions with Electrical USC-Connector

Part No.	Nom. Orif. [mm] inlet	exhaust	NC	NO	Pressure [bar]	Flow Rate [l/min] 1–2	2–3	Voltage	Rated Power [W]	Circuit LED	prot. circ.	Man. Overr. monostable	Interface Pos.
130-070-0091	0,5	0,6	X		1 to 8	7	9	24 V DC	0,6	X	X	X	OPS[1]
130-070-0092	0,5	0,6	X		1 to 8	7	9	12 V DC	0,6	X	X	X	OPS
130-070-0093	0,5	0,6	X		1 to 10	7	9	24 V DC	0,9	X	X	X	OPS
130-070-0094	0,7	0,8	X		1 to 8	10	13	24 V DC	0,9	X	X	X	OPS
130-070-0132	0,7	0,8	X		1 to 8	10	13	24 V DC	0,9	X	X	X	SAS[2]
130-070-0133	0,7	0,8	X		1 to 8	10	13	12 V DC	0,9	X	X	X	SAS
130-070-0143	0,6	0,5		X	1 to 8	7	7	24 V DC	0,6	X	X	X	SAS
130-070-0154	0,6	0,5		X	1 to 8	7	7	24 V DC	0,6	X	X	X	OPS

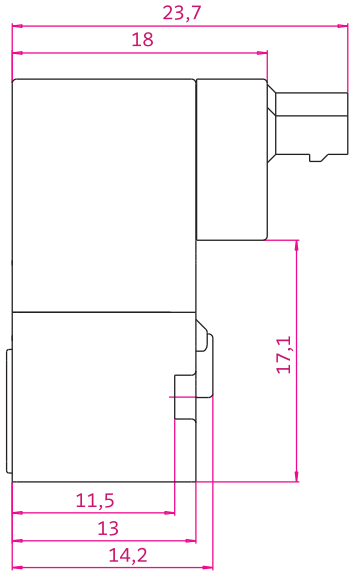
1 OPS: electric/pneumatic interface on opposite side
2 SAS: electric/pneumatic interface on the same side

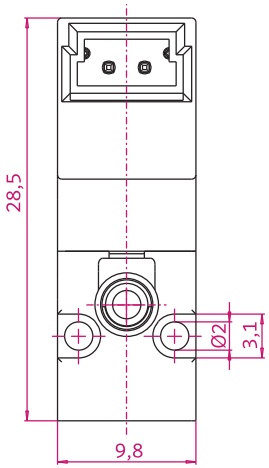
SOLENOID VALVE SYSTEM 3–10

Switching function:	3/2 way (2/2 way on request)
De-energized state:	NC (normally closed), NO (normally open)
Electrical connection:	JPC
Operating voltage:	6 V DC, 12 V DC, 24 V DC

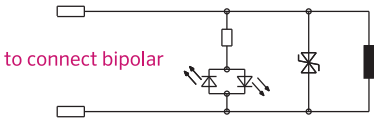
General Data

Voltage tolerance	± 10 %
Ambient temperature	- 10 °C to + 50 °C
Relative duty cycle	100 %
Activation/deactivation period according to ISO/CD12238	nominal 5 ms/5 ms
Insulation class of insulating materials according to DIN VDE 0580	F
Degree of protection according to EN 60529	IP 40 (see type of contact)
Class of protection	III
Quality of medium according to ISO 8573-1	compressed air class 3, 3, 3
Mounting position	any (preferably plunger in vertical direction)
Imprint	*nass magnet* (customer imprint possible)

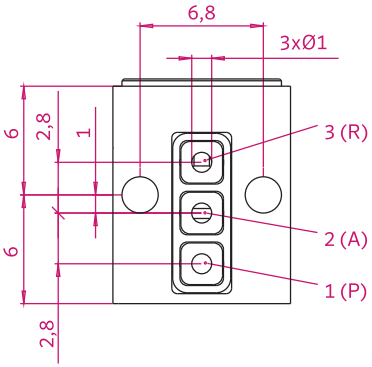




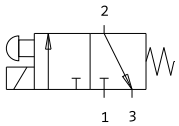
Circuit Diagram



Pneumatic Interface ISO 15218



Pneumatic Diagram



Note: The picture shows the 3/2 way NC type with electric/pneumatic interface on opposite side (OPS).

Technical Data 3/2 Way Standard Versions with Electrical JPC-Connector

Part No.	Nom. Orif. [mm] inlet	exhaust	NC	NO	Pressure [bar]	Flow Rate [l/min] 1–2	2–3	Voltage	Rated Power [W]	Circuit LED	prot. circ.	Man. Overr. monostable	Interface Pos.
130-070-0096	0,5	0,6	X		1 to 8	7	9	24 V DC	0,6	X	X	X	OPS[1]
130-070-0097	0,5	0,6	X		1 to 8	7	9	6 V DC	0,6	X	X	X	OPS
130-070-0098	0,7	0,8	X		1 to 8	10	13	24 V DC	0,9	X	X	X	OPS
130-070-0100	0,5	0,6	X		1 to 8	7	9	24 V DC	0,6			X	OPS
130-070-0101	0,7	0,8	X		1 to 8	10	13	24 V DC	0,9			X	OPS
130-070-0134	0,7	0,8	X		1 to 8	10	13	24 V DC	0,9	X	X	X	SAS[2]
130-070-0155	0,6	0,5		X	1 to 8	7	7	24 V DC	0,6	X	X	X	OPS
130-070-0182	0,7	0,8	X		1 to 8	10	13	12 V DC	0,9	X	X	X	OPS
130-070-0194	0,8	0,7		X	1 to 8	10	13	24 V DC	0,9	X	X	X	OPS

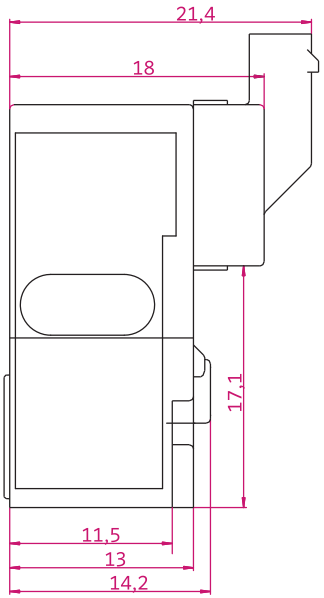
1 OPS: electric/pneumatic interface on opposite side
2 SAS: electric/pneumatic interface on the same side

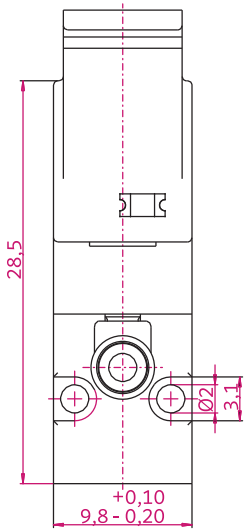
SOLENOID VALVE SYSTEM 3–10

Switching function:	3/2 way (2/2 way on request)
De-energized state:	NC (normally closed), NO (normally open)
Electrical connection:	M
Operating voltage:	24 V DC

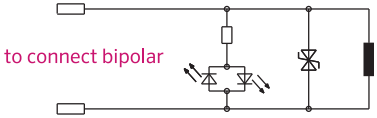
General Data

Voltage tolerance	± 10 %
Ambient temperature	- 10 °C to + 50 °C
Relative duty cycle	100 %
Activation/deactivation period according to ISO/CD12238	nominal 5 ms/5 ms
Insulation class of insulating materials according to DIN VDE 0580	F
Degree of protection according to EN 60529	IP 40 (see type of contact)
Class of protection	III
Quality of medium according to ISO 8573-1	compressed air class 3, 3, 3
Mounting position	any (preferably plunger in vertical direction)
Imprint	*nass magnet* (customer imprint possible)

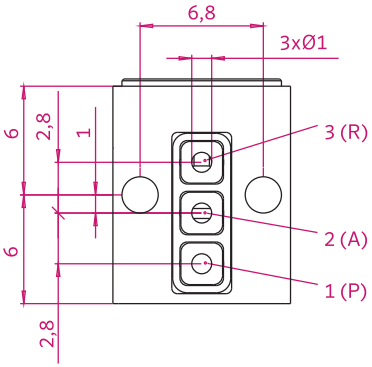




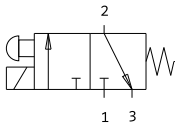
Circuit Diagram



Pneumatic Interface ISO 15218



Pneumatic Diagram



Note: The picture shows the 3/2 way NC type with electric/pneumatic interface on opposite side (OPS).

Technical Data 3/2 Way Standard Versions with Electrical M-Connector

Part No.	**Nom. Orif.** [mm] inlet	exhaust	**NC**	**NO**	**Pressure** [bar]	**Flow Rate** [l/min] 1–2	2–3	**Voltage**	**Rated Power** [W]	**Circuit** LED	prot. circ.	**Man. Overr.** monostable	**Interface Pos.**
130-070-0125	0,7	0,8	X		1 bis 8	10	13	24 V DC	0,9	X	X	X	OPS[1]

1 OPS: electric/pneumatic interface on opposite side

Electrical connection: USC
Operating voltage: 12 V DC, 24 V DC

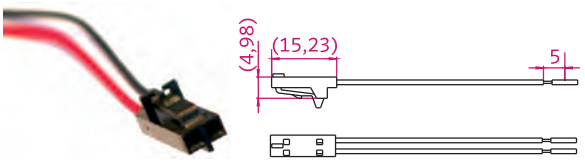
Electrical connection: JPC
Operating voltage: 6 V DC, 12 V DC, 24 V DC

Electrical connection: M
Operating voltage: 24 V DC

SPECIAL REMARKS

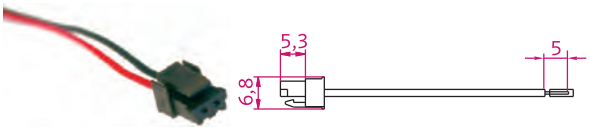
System 3–10 is designed in compliance with VDE 0580. The alignment of the valves on manifolds without lateral gaps is permitted without any restriction of the operating conditions. A general lifetime of the products cannot be specified, as it is decisively influenced by ambient and operating conditions. Optionally, the solenoid valves can be designed for a lifetime of up to 400 million cycles.

***nass magnet* will be glad to assist you and to develop individual concepts for specifically required applications.**



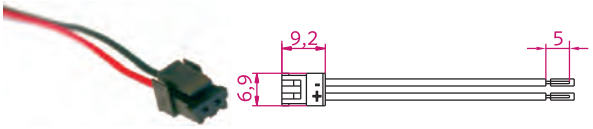
Connector with flying leads · USC form

Part No.: 616-202-0004
Length of flying leads: 300 mm



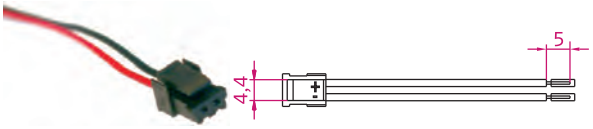
Connector with flying leads · JPC form

Part No.: 616-202-0012
Length of flying leads: 100 mm
Explanation: also suitable for connector type M



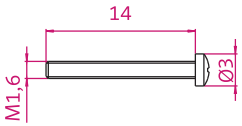
Connector with flying leads · JPC form

Part No.: 616-202-0002
Length of flying leads: 300 mm
Explanation: also suitable for connector type M



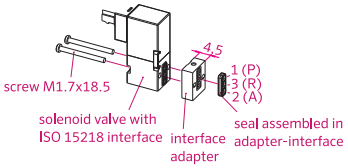
Connector with flying leads · JPC form

Part No.: 616-202-0003
Length of flying leads: 600 mm
Explanation: also suitable for connector type M



Fastening screw · M 1,6 x 14 mm

Part No.: 900-822-0033
Explanation: Two fastening screws are required per solenoid valve.

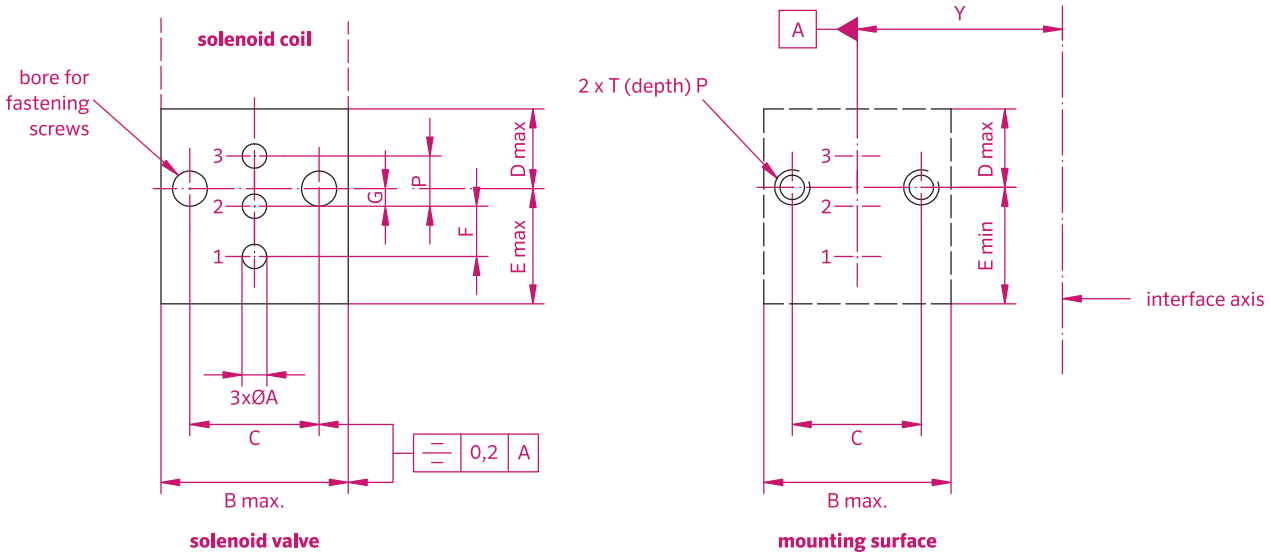


Interface inclusive seal and screws

Part No.: 130-080-0002
Explanation: For adaption of the pneumatic interface consultation with *nass magnet* is necessary.

PNEUMATIC CONNECTION OF SOLENOID VALVE SYSTEM 3–10

ACCORDING TO ISO 15218



Sizes [mm]

A min:	1,0
A max:	1,2
B min:	10,0
B max:	10,5
C ± 0,1:	6,8
D min:	3,8
D max:	4,0
E min:	6,2
E max:	6,4
F ± 0,1:	2,8
G ± 0,1:	1,0
T:	M 1,6
P min:	3,0
Y min:	11,0

The type System 6–15 stands for a compact solenoid valve with a width of 15 mm (block assembly is possible). Each variation has an armature diameter of 6 mm, which has been determined as the optimum for this pneumatic class through simulation and practical testing.

APPLICATION OF SYSTEM 6–15

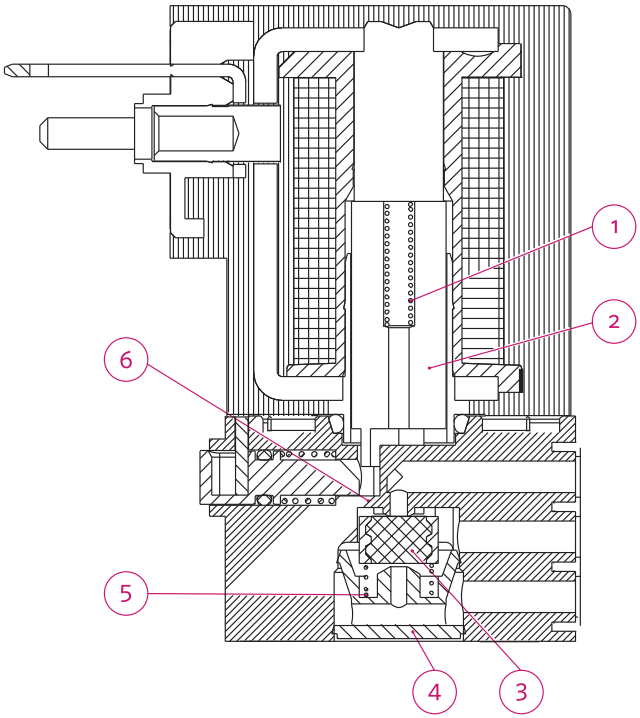
Usually, the solenoids are used in automation as 3/2 way valves or 2/2 way valves with the switching functions *normally closed (NC)* or *normally open (NO)*. Typical maximum operating pressure and nominal orifice for the 3/2 way model are 10 bar/1.2 mm. This type has been designed for the use with filtered compressed air and inert gases. The use of other substances, especially in medical applications, requires prior agreement with *nass magnet*.

FUNCTION

The plunger[1] of System 6–15 is pressed downwards by the reset spring[2]. The plunger itself does not feature any sealing elements. The plunger movement transfers to the actuator, which is gathering the sealing element[3].

In the de-energized state, the reset spring is taking effect on the sealing element through the armature and the actuator. The sealing element is pushed on the lower valve seat[4]. The plunger will move once the solenoid coil is under current. The actuator is now being unloaded and moves upwards, supported by the lower pressure spring[5].

The sealing element exposes the lower valve seat and seals towards the upper valve seat[6]. In a 2/2 way model or for the NO switch function, the valve seats are charged with individual pressures. In this case, a modified spring design is provided by the manufacturer.

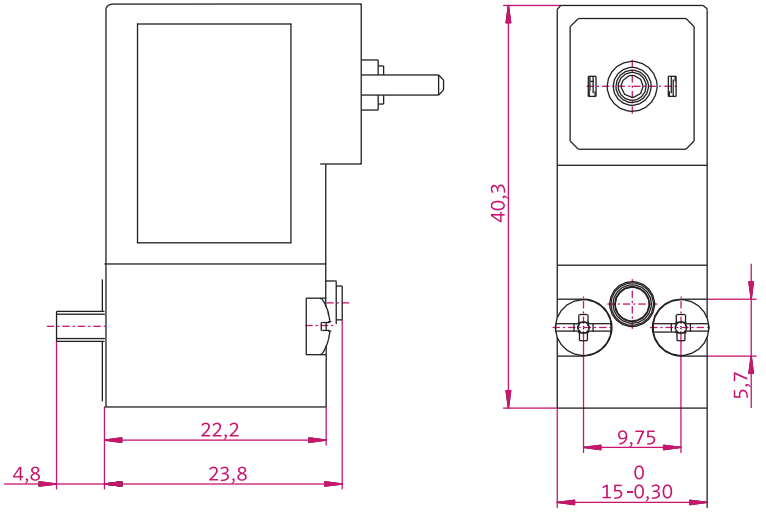


SOLENOID VALVE SYSTEM 6–15

Switching function:	3/2 way (2/2 way on request)
De-energized state:	NC (normally closed), NO (normally open)
Electrical connection:	form C – EN 175301-803-C
Operating voltage:	24 V DC
Sealing material:	sealing element HNBR, gasket NBR

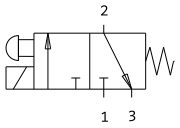
General Data

Voltage tolerance	± 10 %
Ambient temperature	- 10 °C to + 50 °C
Relative duty cycle	100 %
Activation/deactivation period according to ISO/CD12238	nominal 8 ms/6 ms
Insulation class of insulating materials according to DIN VDE 0580	F
Degree of protection according to EN 60529	IP 65
Class of protection	I/III, je nach Operating voltage
Quality of medium according to ISO 8573-1	compressed air class 3, 3, 3
Mounting position	any (preferably plunger in vertical direction)
Imprint	*nass magnet* (customer imprint possible)



Pneumatic Diagram

Pneumatic connection according to ISO 15218



Note: The picture shows the 3/2 way NC type with electric/pneumatic interface on opposite side (OPS) with a 2-pole connector form C.

Technical Data 3/2 Way Standard Versions

Part No.	Nom. Orif. [mm] inlet	exhaust	NC	NO	Pressure [bar]	Flow Rate [l/min] 1–2	2–3	Voltage	Rated Power [W]	Man. Overr. monostable	Interface Pos.	Degree of Prot.
131-070-0017	0,6	0,7	X		1 to 10	10	12	24 V DC	0,4	X	OPS[1]	I
131-070-0018	1,0	1,1	X		1 to 10	25	35	24 V DC	1,2	X	OPS	I
131-070-0019	1,2	1,3	X		1 to 10	35	45	24 V DC	1,8	X	OPS	I
131-070-0008	0,6	0,7	X		1 to 10	10	12	24 V DC	0,4	X	OPS	III
131-070-0009	1,0	1,1	X		1 to 10	25	35	24 V DC	1,2	X	OPS	III
131-070-0011	1,2	1,3	X		1 to 10	35	45	24 V DC	1,8	X	OPS	III

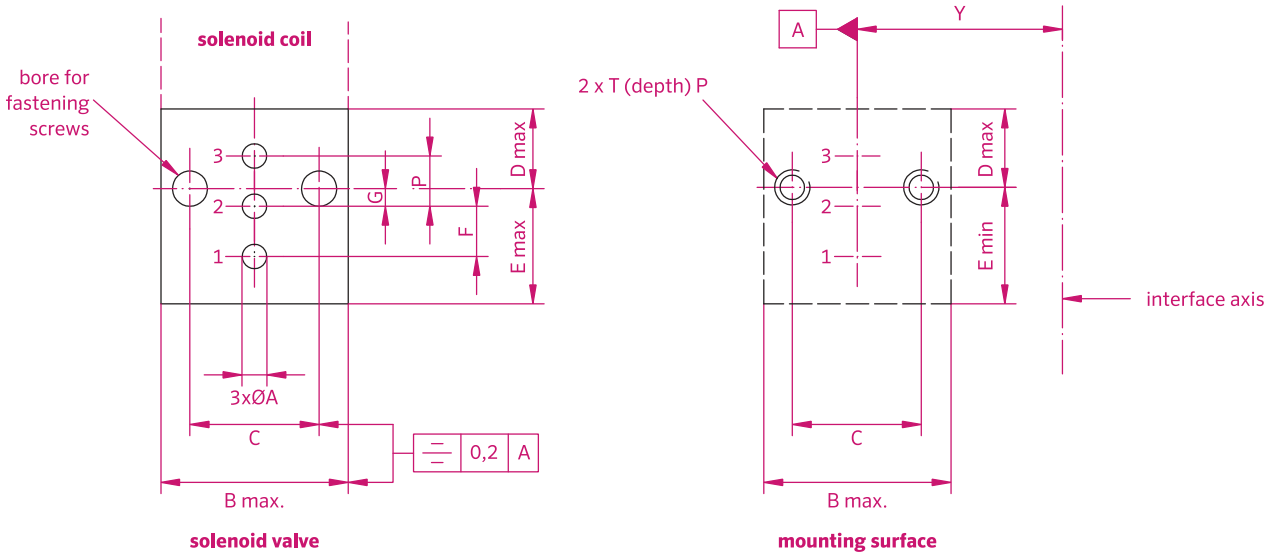
Available on request:

- 2/2 way and NO versions;
- two-core wire;
- electric/pneumatic interface on the same side (SAS);
- alternative operating voltages such as 24 V AC/115 V AC/230 V AC;
- alternative sealing materials;
- alternative manual operation modes such as bistable/latching;
- UL-/ATEX-certification

1 OPS: electric/pneumatic interface on opposite side

PNEUMATIC CONNECTION OF SOLENOID VALVE SYSTEM 6–15

ACCORDING TO ISO 15218



Sizes [mm]

A min:	1,6
A max:	2,0
B min:	15,0
B max:	16,0
C ± 0,1:	9,7
D min:	6,0
D max:	6,3
E min:	9,0
E max:	9,3
F ± 0,1:	3,8
G ± 0,1:	1,4
T:	M 3,0
P min:	6,0
Y min:	17,0

The type Cartridge 13 (C 13) stands for a compact, cylindric valve cartridge with a diameter of 13 mm. This allows for block assembly on a 15 mm grid. Therefore, C 13 satisfies the power characteristics of the solenoid valve type 6–15.

APPLICATION OF CARTRIDGE 13

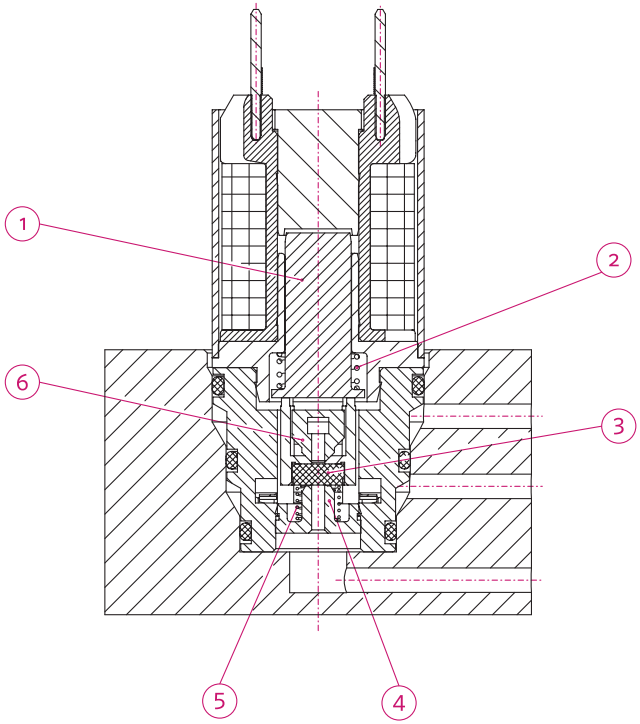
Usually, valve cartridges are used in automation as 3/2 way valves or 2/2 way valves with the switching functions *normally closed (NC)* or *normally open (NO)*. Typical maximum operating pressure and nominal orifice for the 3/2 way model are 13 bar/1.1 mm. This type has been designed for the use with filtered compressed air and inert gases. The use of other substances, especially in medical applications, requires prior agreement with *nass magnet*.

FUNCTION

The plunger[1] of C 13 is being pushed into the extreme position by the reset spring[2]. The plunger itself does not feature any sealing elements. The plunger movement transfers to the actuator, which is gathering the sealing element[3].

In a de-energized state, the reset spring is taking effect on the sealing insert through the plunger and the actuator. The sealing element is pushed on the lower valve seat[4]. The plunger will move once the solenoid coil is under current. The actuator is now unloaded and moves upwards, supported by the lower pressure spring[5].

The seal element exposes the lower valve seat and seals towards the upper valve seat[6]. The 2/2 way model does not require a modified spring. It can be derived from the 3/2 way model by closing the aspiration channel in the customer-provided cavity.



Note: The shown cavity is to illustrate the customer's pneumatic interface and is not included in the scope of delivery of C 13.

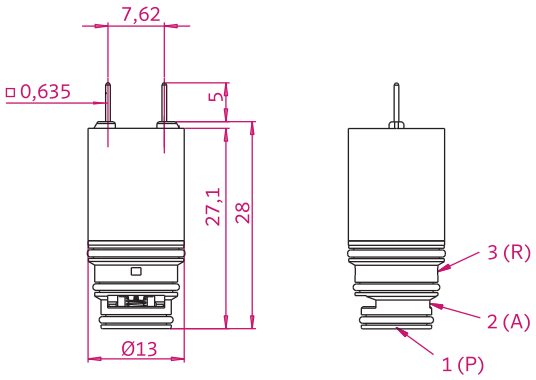
SOLENOID VALVE CARTRIDGE 13

Switching function:	3/2 way, 2/2 way
De-energized state:	NC (normally closed), NO (normally open)
Operating voltage:	6 V DC, 12 V DC , 24 V DC
Sealing material:	sealing element NBR

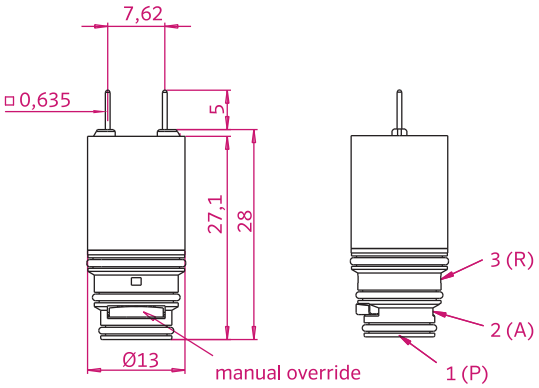
General Data

Voltage tolerance	± 10 %
Ambient temperature	- 10 °C to + 50 °C (+ 70 °C with accessoires possible)
Relative duty cycle	100 %
Activation/deactivation period according to ISO/CD12238	nominal 5 ms/6 ms
Insulation class of insulating materials according to DIN VDE 0580	F
Degree of protection according to EN 60529	IP 00
High voltage test according to VDE 0580	500 V
Class of protection	III
Quality of medium according to ISO 8573-1	compressed air class 3, 3, 3
Mounting position	any (preferably plunger in vertical direction)

Without manual override



Monostable manual override



Note: The picture shows the 3/2 way NC type without optional electronics. The NO version features an inverted order from 1 (P) to 3 (R).

Technical Data 3/2 Way Standard Versions

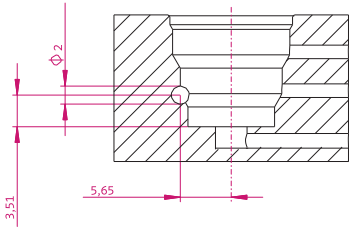
Part No.	**Switching function**	**Nominal Orifice** [mm] inlet	exhaust	**Pressure** [bar]	**Flow Rate** [l/min] 1–2	2–3	**Voltage**	**Rated Power** [W]	**Manual Override** monostable
121-070-0037	NC	0,8	0,8	1 to 10	15	17	6 V DC	0,8	
121-070-0002	NC	0,8	0,8	1 to 10	15	17	12 V DC	0,8	
121-070-0004	NC	0,8	0,8	1 to 13	15	17	12 V DC	1,0	
121-070-0021	NC	1,1	1,2	1 to 8	24	27	12 V DC	1,2	
121-070-0001	NC	0,8	0,8	1 to 10	15	17	24 V DC	0,8	
121-070-0005	NO	0,8	0,8	1 to 8	15	17	24 V DC	0,8	
121-070-0006	NC	0,8	0,8	1 to 10	15	17	24 V DC	0,8	X

Available on request (amongst others):

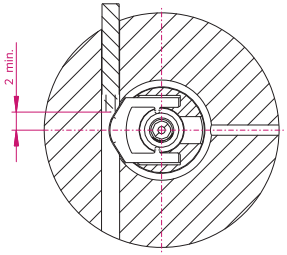
- electronic protective circuit;
- PWM power reduction;
- increased ambient temperature;
- increased voltage tolerances;
- individual voltages.

PNEUMATIC CONNECTION OF SOLENOID VALVE CARTRIDGE 13

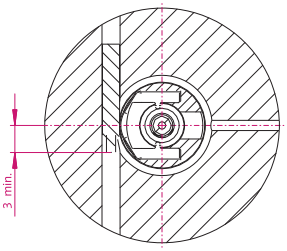
Interface for manual override



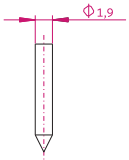
Inactive



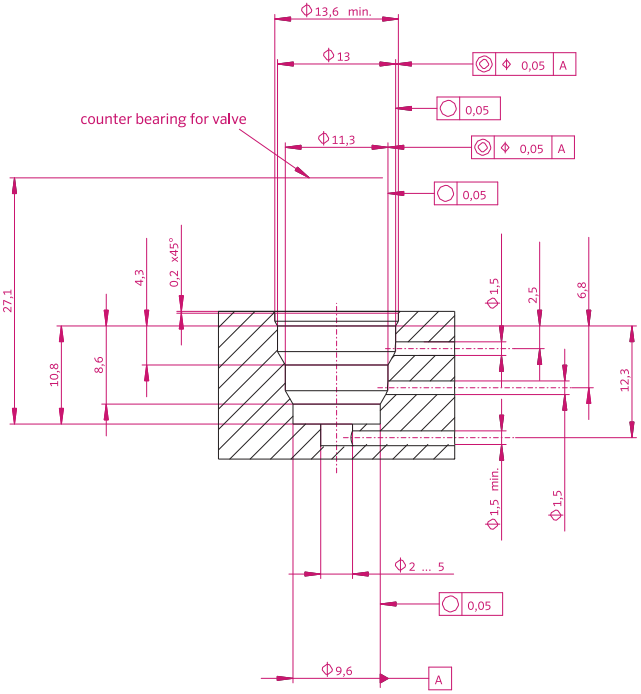
Active



Actuating pin



Pneumatic interface



The type Cartridge 9 (C 9) identifies a high-compact, cylindric valve cartridge with a diameter of 9,5 mm. This allows for block assembly on a 12 mm grid.

APPLICATION OF CARTRIDGE 9

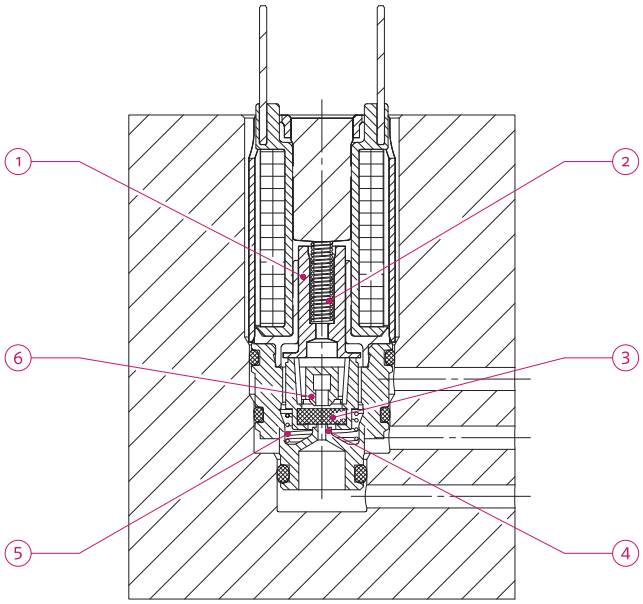
Usually, valve cartridges are used in automation as 3/2 way valves or 2/2 way valves with the switching functions *normally closed (NC)* or *normally open (NO)*. Typical maximum operating pressure and nominal orifice for the 3/2 way model are 10 bar/0.5 mm. This type has been designed for the use with filtered compressed air and inert gases. The use of other substances, especially in medical applications, requires prior agreement with *nass magnet*.

FUNCTION

The plunger[1] of Cartridge 9 is pushed into the extreme position by the reset spring[2]. The plunger itself does not feature any sealing elements. The plunger movement transfers to the actuator, which is gathering the sealing element[3].

In a de-energized state, the reset spring is taking effect on the sealing element through the plunger and the actuator. The sealing element is pushed on the lower valve seat[4]. The plunger will move once the solenoid coil is under current. The actuator is now being unloaded and moves upwards, supported by the lower pressure spring[5].

The sealing element exposes the lower valve seat and seals towards the upper valve seat[6].



Note: The shown cavity is to illustrate the customer's pneumatic interface and is not included in the scope of delivery of of C 9.

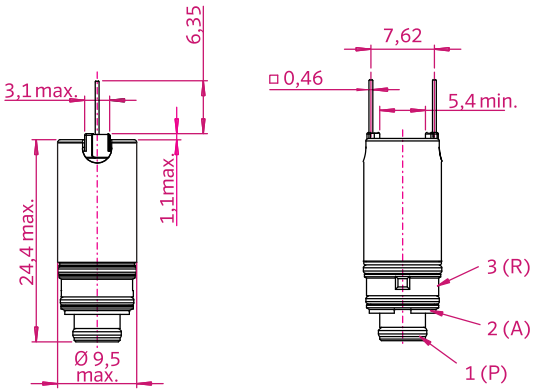
SOLENOID VALVE CARTRIDGE 9

Switching function:	3/2 way, 2/2 way
De-energized state:	NC (normally closed), NO (normally open)
Operating voltage:	24 V DC
Sealing material:	sealing element NBR

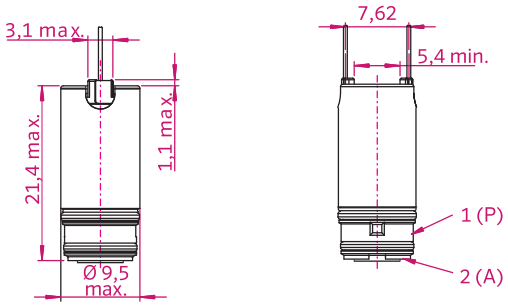
General Data

Voltage tolerance	± 10 %
Ambient temperature	- 10 °C to + 40 °C (+ 50 °C with accessoires possible)
Relative duty cycle	100 %
Activation/deactivation period according to ISO/CD12238	nominal 6 ms/6 ms
Insulation class of insulating materials according to DIN VDE 0580	Y
Degree of protection according to EN 60529	IP 00
High voltage test according to VDE 0580	500 V
Quality of medium according to ISO 8573-1	compressed air class 2, 3, 3
Mounting position	any (preferably plunger in vertical direction)

3/2 way NC (normally closed)



2/2 way NO (normally open)



Technical Data Standard Versions

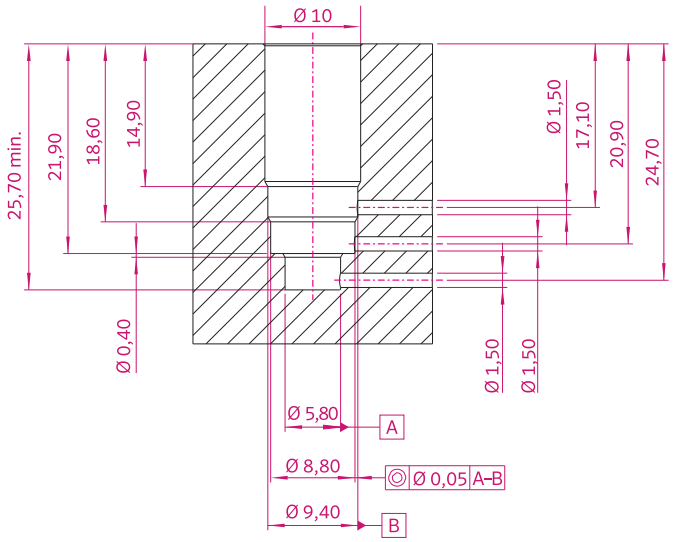
Part No.	**Switching function**	**Nominal Orifice** [mm] inlet	exhaust	**Pressure** [bar]	**Flow Rate** [l/min] 1-2	2-3	**Rated Power** [W]
120-070-0001	3/2 way NC	0,5	0,8	5,0 to 10	10	17	1,0
120-070-0002	2/2 way NO	0,5	0,8	2,8 to 4,6	17		1,0

Available on request (amongst others):

- electronic protective circuit;
- PWM power reduction;
- increased ambient temperature;
- increased voltage change;
- modified pressure tolerances;
- individual voltages.

PNEUMATIC CONNECTION OF SOLENOID VALVE CARTRIDGE 9

3/2 way NC (normally closed)



2/2 way NO (normally open)