DRAFT
15/10/08

OIL & GAS TECHNOLOGIES

ENGINEERINGADVANTAGE

NORGREN

WatsonSmith HERION Maxseal Buschjost

Proven solutions for the oil and gas industry

Safe, reliable and cost-effective integrated solutions for actuation control applications:

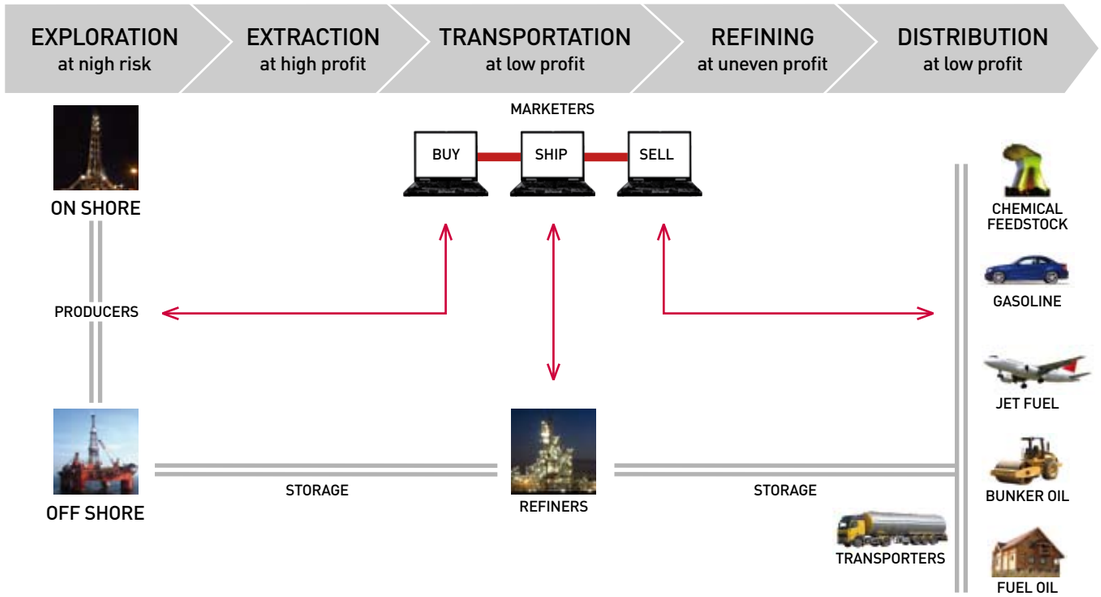
» Control of process pneumatic actuators (single or double acting; rotary- and stroke-drive)
» Control and handling of neutral and aggressive gases and liquids

Typically stainless steel housings and Ex-proof coils, and a broad choice of materials for seals.

Market-leading product brands: Norgren, Maxseal, Herion, Buschjost, Watson Smith.

CONTENTS

Petroleum Process Industry



OIL / CRUDE OIL	PETROLEUM

The Norgren oil and gas instrumentation range covers a wide rrange of applications, in many of the processes all the way through on-shore and off-shore extraction through to distribution.

With references from some of the key major players in the industry. We have proven expertise and rehability.

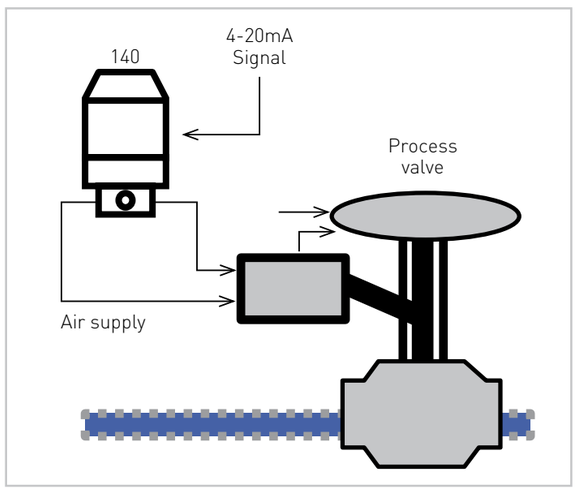
GTL Qatar Project

The solenoid valves are used for the control of all pneumatic operated valves in this plant. Due to the environment on this plant in Qatar high resistant, explosion proof products are requested for the highest safety levels.

»Solution

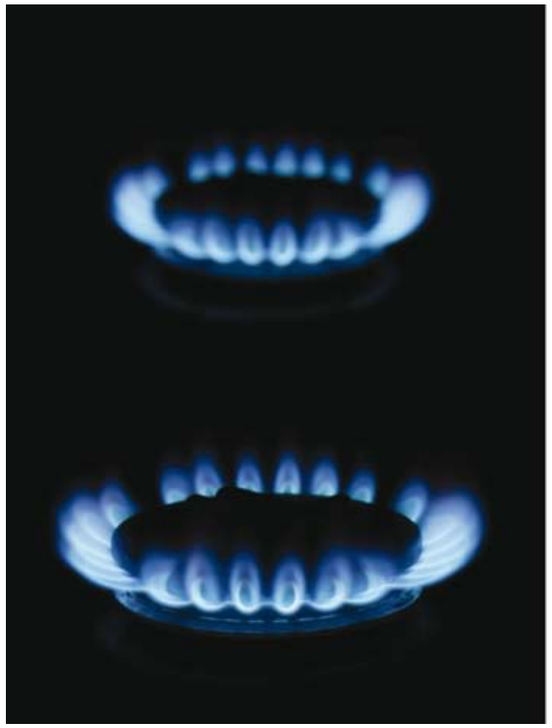
The Type 140 can be used to position a large process valve. This allows for high flows and pressures.

To control a process valve the Type 140 is used alongside a positioner. The positioner uses the 3-15psi signal to control the valve. It will include some sort of mechanical feedback connection to the valve.



Industry

Any Industry requiring the positioning of valves



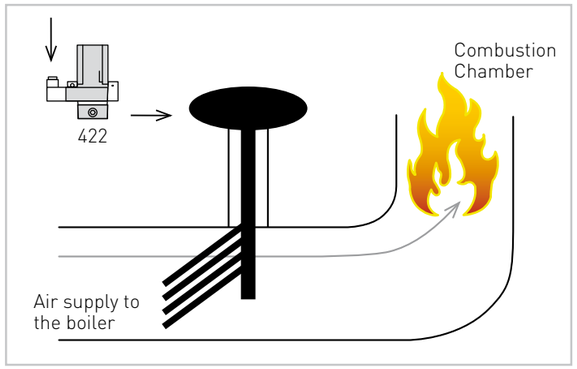
»Solution

The Type 422's unique characteristic of freezing the output pressure when power to the unit fails, in an I/P, is an essential feature in maintaining safety critical aspects of the temperature chamber. 4-20mA control signal and reaching output pressures up to 8bar (120psig), the 422 is compact, closed loop and therefore offers a high level of accuracy output.

If there is a power failure, failfreeze is important as large costs would be incurred for the re-purging of pipelines.

The damper valves are used to maintain a level of temperature in combustion of the water in creating steam and therefore power and failure of this could be catastrophic.

The 422 is an individual effective method of maintaining the integrity of the damper valve



Industry

Any industry incorporating damper valves, particularly used in thermal power stations and gas transmission systems.

Maxseal's Presence at Terminal LNG de Altamira

Maxseal has received a positive response to their Intrinsically Safe Solenoid Valves located at Terminal LNG de Altamira.

Terminal LNG de Altamira is a joint venture between Royal Dutch Shell Plc, Total and Mitsui. The terminal consists of two 150,000 cubic meter capacity full containment outer concrete / inner steal tanks for LNG storage.

The harsh sea environment of Terminal LNG de Altamira often results in the competitor's products rusting and therefore suffering from a lack of consumer confidence at their ability to operate. Maxseal has been complimented on its Intrinsically Safe Solenoid Valves retaining their original appearance through the robust design and the fully stainless steal casting. This feature results in a high level of consumer confidence that the valve will operate at the crucial moment which is backed up by Maxseal's high level of reliability.

A Maxseal Sales Engineer was informed of the success of the Intrinsically Safe Solenoid Valves on a recent visit to the terminal and is confident of Maxseal's involvement in future projects.

FPSO & Maxseal

Maxseal have been expanding their products to offer offshore sites high quality, reliable equipment and their IC04S was designed specifically for the North Sea's harsh environment. The IC04S has proved to be a great success.

The fully stainless steal construction, robust design, high flow, low power consumption, 5 kilogram spring force, guaranteed voltage drop capability and the capacity to be manufactured from other exotic materials such as titanium has enabled Maxseal to develop strong relationships with key clients worldwide.

The benefits of using Maxseal's IC04S and the superb track record of Maxseal's products has lead to SBM specifying Maxseal in all shutdown valves used on their site. SBM are responsible for the design, procurement and construction of many FPSO sites around the globe.

SBM have expressed complete satisfaction towards the IC04S's performance and also the response that maintenance engineers and operators running FPSO sites receive from Maxseal, who are based in Poole, UK.

During previous marketing campaigns SBM Brazil stated that the Maxseal components operating on Frade, Espadarte, Brazil, Capixaba and the Marlim Sul FPSO were exceptionally reliable. Operators of the different FPSO's quote Maxseal to be the most reliable solenoid valve on the market.

»Petrobras - Refinery RPBC

Brazil: We supply 3/2 universal solenoid valves direct acting and spring return, explosion proof certified, (24000 Series), for driving "Blowers" of SIEMENS turbine, in the process called "Catalytic Cracking" that is an important stage to produce Gasoline and Oil Gas. These valves are acting in an emergency shut down operation, with a 'trip' functionality included.

»Petrochemical Suzano

Redundant panel, with pilot carried through for valves of series 24011, with solenoids of increased security, commanding a safety valve maximum 5/2 ways, through the pilot of the simultaneous commands. Objective is the drive of actuators of great size that command rotary valves for processes in the petrochemical industry.

What is a zone?

The IEC has defined 3 areas of hazardous gas or vapor release as follows:

ZONE 0

Explosive Atmosphere is continuously present

Zone in wich an explosive mixture of gas, vapor or mist is continuously present.

ZONE 1

Explosive Atmosphere is often present

Zone in wich an explosive mixture of gas, vapor or mist is likely to occur during normal operation.

ZONE 2

Explosive Atmosphere may accidentally be present

Zone in wich an explosive mixture is not likely to occur in normal operation, and if it occurs will only exist for a short time (leaks or maintenance).

Comparing IEC zones and NEC®divisions

Determining a "zone" requires answering 4 essential questions

1. What is emission level of gas/vapor?

a) continuous
b) first level emission
(released during normal operation)
c) second level emission
(released during abnormal operation)

2. What type of openings currently exist?

a) continuously open
b) normally closed
c) weatherproof
d) emergency open only

3. What is ventilation?

a) very good
b) good
c) poor

4. What is level of ventilation?

a) high
b) average
c) weatherproof
d) weak

MOTION CONTROL VALVES

Category
II 3 G, zone 2
II 3 D, zone 22
Model
40200
40300
V60 – 63...
VS18/VS26
VM series
ISO*STAR
SXE series
MIDI*STAR
SXE series

Category
II 2 G, zone 1, 2
II 2 D, zone 22
Model
ISO*STAR
SXE series
SXP series
MIDI*STAR
SXE series
SXP series
Mini ISO

PROPORTIONAL VALVES/IP CONVERTER

Category
II 3 G, zone 2
II 3 D, zone 22
Model
VP 21...
VP 23...
VP 60...

Category
II 1 G, zone 0
Model
100

Category
II 1 G, zone 0
II 2 G, zone 1
II 3 G, zone 2
Model
122
140

Category
II 1 G, zone 0
II 3 G, zone 2
Model
422

FLUID CONTROL VALVES

Category
II 2 G, zone 1, 2
II 2 D, zone 21, 22
Valve Model
15200
21000
21023
21025
23200
24000
24010
24011
24100
25000
25003
26220
26230
26360
70300
80100
80200
82080
82360
82370
82400
82530
82540
82560
82730
82860
82960
84660
84680
85000
85040
85140
85300
82470
83050
83580
83340
84320
84340
85100
85200
85700
91000
95000
95100
96000
97100
97100 (Namur)
97105
97105 (Namur)
98015
98015 (Namur)
98025
98025 (Namur)

Category
II 2 G, zone 1, 2
II 2 D, zone 21, 22
Solenoid Model
0290x
148x
168x
2003
205x
42xx
46xx
8036-8045
8186-8195
8336-8345
8436-8445
8900-8909
8920-8929
9136-9145
9186-9195
9336-9345
9350-9360
9540-9564

Category
II 2 G, zone 1, 2
Solenoid Model
144x
157x
208x
3039
306x

Category
II 3 G, zone 2
II 3 D, zone 22
Solenoid Model
3046, 3047
3213 - 3219
3713 - 3719,
3813 - 3819
8026, 8176,
8326, 8426,
9116, 9176,
9326, 9426,
9526

PRESSURE SWITCH

Category
II 2 G, zone 1, 2
II 2 D, zone 21, 22
Model
20D series
184....
185....

Category
II 3 G, zone 2
II 3 D, zone 22
Model
18D series
088..80
088..81

FIELUS I/O Modules

Category
II 3 G, zone 2
II 3 D, zone 22
ModeFD 67 series

ACTUATORS

Category
II 2 G, zone 1, 2
II 2 D, zone 21, 22
Model
M/46000/M/EX
M/46100/M/EX
M/46200/M/EX
M/61200/M/EX
PRA/182000/M/EX
PVA/182000/EX#

Category
II 2 G, zone 1, 2
II 2 D, zone 21, 22
Model
RA/8000/M/EX
RM/192000/M/EX
RM/8000/M/EX
RM/92000/M/EX
RT/57200/M/EX

SWITCH (MAGNETICALLY OPERATED)

Category
II 3 D, zone 22
Model
M/50/EXP/5V

AIRLINE EQUIPMENT

Category
II 2 G, zone 1, 2
II 2 D, zone 21, 22
Model
1002
11-004, 11-008,
11-018, 11-204,
11-808, 11-818,
11-908, 11-918
20AG, 20AL
40AC
61A2, 61B2
B07, F0 R07, V07
B38, R38

Category
II 2 G, zone 1, 2
II 2 D, zone 21, 22
Model
B64, F64, P64,
R64, T64, V64
B68, F68, P68,
R68, T68, V68
B72, F72, R72,
T72, V72
B73, F73, R73,
T73, V73
B74, F74, R74,
T74, V74
F17, R17
F18, R18
F22, R22
F39
F47
R05, V05

FITTINGS

Model
Ball Valves
Blow Guns
BSP and Hose
Compression
Pneufit
Pneufit C
Push-on
Quick Release Couplings
Silencers
Stainless steel PIF (S0 Series)
Tubing
Weldfit

For further information see ATEX product selector delivery on request or contact our Technic Service
#Without magnetic version

CHEMICAL PROCESS TECHNOLOGIES

- Internationally recognized for safety, quality and reliability
- High performing solutions
- Low power consuming products
- Low and High flow capability
- Low and High temperature capability
- Resilient in hazardous environments

With products and solutions supporting the improvement of your process efficiency and product quality, ensuring safe working environments based on IEC 61 508, TUV, ATEX and IEC Ex, Norgren are focussed on adopting your goals as our own.

With technologies developed from world renown product ranges including **Herion**, **Buschjost**, **Maxseal** and **Watson Smith**, we develop solutions contributing to a reduction in waste, total cost of ownership and maintenance.

EMERGENCY SHUT-DOWN SOLUTIONS

PROCESS SAFETY, RELIABILITY & EFFICIENCY

Safety in the Process Industry is currently playing an increasingly and vitally important role.

In a more complex and multidisciplinary engineering environment there is a growing need for engineers, technicians and management involved in process engineering to be aware of the implications of designing and operating safety-related systems.

Early in 1990's a group of Herion engineers believed that the products which were currently being used for ESD (Emergency Shut Down) Systems could meet DIN Standard (DIN 19251) which was a forerunner of IEC 61508. To obtain this approval required a large number of valves to be tested over a 5 year period in actual Plant conditions. A program was initiated and in June of 1997 Herion became the first Solenoid Valve Manufacturer to obtain TÜV Approval to DIN 19251 AK7 (AK 7 is equal to SIL4).

As IEC 61508 became the International Standard (a development of DIN 19251) it was a natural progression for Norgren/Herion to apply for and obtain TÜV Approval to IEC 61508 for the 24011 Series valve, another world first for Norgren/Herion when TUV approval was issued in 2001 with SIL 4.

Working with the Petrochemical, Oil and Gas and other Industries where reliable and safe operating is required, Norgren/Herion continues to develop a series of safe reliable integrated solutions of the highest quality and reliability.

NORGREN POSITIONING TECHNOLOGY
EXPERTS IN SMART CONTROL

NORGREN INSIGHT NORGREN'S ABILITY TO HAVE A CLEAR IN-DEPTH AND EXPERIENCED UNDERSTANDING OF A COMPLICATED PROBLEM OR SITUATION

- Norgren has many years of partnering with our Key OEM's to offer solutions to their problems – be it, resource, technical validation or complete value added intelligence.
- From our experience and market knowledge, this capability has naturally evolved from pneumatic control of positioner technology, to electro-pneumatic interfacing to intelligent diagnostics and 'smart' control. We can offer as little or as much of a complete positioner solution as required, because we have the 'insight'.
- Each part of the technology is proven, field tested and validated through our years of experience of certification requirements, environmental conditions, to offer continued reliability and quality of our integrated solutions.

BRINGING TOGETHER A WEALTH OF EXPERIENCE...

TROUGHOUT YOUR OIL AND GAS PROCESS

IMPROVING EFFICIENCY, PRODUCTIVITY AND QUALITY THROUGH KNOWLEDGE

Oil and Gas is becoming increasingly competitive in finding the optimum solution in improving efficiency as well as productivity with minimised down-time.

From instrumentation for accurate, precision control to rapid speed of response on/off control, actuation and control systems, Norgren not only has a wealth of experience and knowledge but a wide range of suitable products for improving efficiency, productivity and quality e end process.

Our goal is to introduce you to our knowledge, and through our joint engineering solutions, allow us to focus on strengthening your product portfolio.

Your Success is Our Passion!

FITTINGS SOLUTIONS FOR
OIL & GAS INDUSTRY

COMPREHENSIVE SIZE AND RANGE - METRIC & INCHES

- » Push-in fittings
- » Compression fittings
- » Push-on fittings
- » BSP and hose fittings
- » Accessories

Fittings are available within our range, including stainless steel - please ask for details.

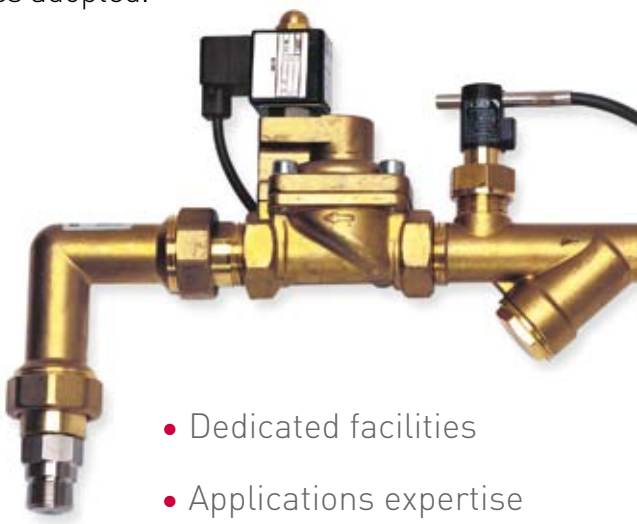
COMPLETE SOLUTIONS ADVANTAGE

NORGREN brings industry and applications expertise and is knowledgeable about legislation, standards and specifications. Typical applications here include custom built control systems complying to ISO9001:2000, ISO 14001 with EMC best practices adopted.

Norgren also offers a range of ATEX solutions for explosion protection.

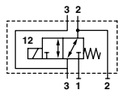




- Dedicated facilities
- Applications expertise
- Legislation aware
- Integrated solutions

3/2 Directional control valves
Direct solenoid operated poppet valves
Internal thread: G1/4, 1/4-18 NPT or flanged with NAMUR interface



NAMUR interface

Switching function:
pressure port at 1, 2 or 3

Main application: single operated process actuators

TÜV-approval based on IEC 61 508, DIN V 19 251

Approvals: DIN EN 161/3394 DVGW, group Rm and EN 13611

Valves for safety systems to SIL 4 or AK 7

Standard NAMUR type

- manifold system for easy assembly

- redundancy: 1 of 2
2 of 3

- add-on manual override or inductive limit switches

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

Rest position in the event of power failure provided by mechanical return spring

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

Solenoids and valves are ATEX approved (see solenoid table), additional protection class (FM, CSA) XP

Technical data

Medium:
Neutral gaseous liquids or aggressive fluids

Operation:
Solenoid

Flow direction:
Optional

Flow rate:
340 l/min

Port size:
G1/4, 1/4 NPT or NAMUR interface

Orifice:
DN 5

Operating pressure:
0 ... 10 bar

Temperature:

Fluid: -25 ... +80°C (NBR)
-10 ... +120°C (FKM) – water up to +95°C
-40 ... +60°C (VMQ)

Solenoid temperature: see solenoid table

Mounting:
Optional, preferably vertical

Materials

Body: stainless steel 1.4404/316, brass, hard anodized aluminium

Seat seal: FKM, NBR (Perbunan), (VMQ) silicon

Inner parts: stainless steel, brass

With threaded connection
Brass valves

Symbol	Type *1	Solenoid group	Connection	Operating pressure (bar)*	Material Seat seal	Manual override	Weight (kg)	Test certificate IEC 61 508 *2)	Dimensions No.
	2401103	A + B	G 1/4	0 ... 10	NBR		0.65	X	1
	2401107	A + B	G 1/4	0 ... 10	NBR	push only	0.70		1
	2401119	A + B	G 1/4	0 ... 10	NBR	push and lock	0.70		1
	2401149	A + B	G 1/4	0 ... 10	NBR		0.65	X	1
	2401126	A + B	G 1/4	0 ... 10	FKM		0.65	X	1
	2401153	A + B	G 1/4	0 ... 10	Silicon *3)		0.65	X	1
	2401154	A + B	G 1/4	0 ... 10	Silicon *3)	semi-automatic	0.70		1
	2401138	A + B	1/4 NPT	0 ... 10	NBR		0.65	X	1
	2401148	A + B	1/4 NPT	0 ... 10	NBR	push only	0.70		1
	2401136	A + B	1/4 NPT	0 ... 10	NBR	push and lock	0.70		1
	2401140	A + B	1/4 NPT	0 ... 10	NBR	semi-automatic	0.70		1
	2401131	A + B	1/4 NPT	0 ... 10	FKM		0.65	X	1
	2401106	A + B	1/4 NPT	0 ... 10	Silicon *3)		0.65	X	1
	1025226	A + B	1/4 NPT	0 ... 10	Silicon *3)	semi-automatic	0.70		1

Stainless steel valves (1.4404) for aggressive environment

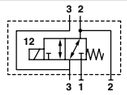
Symbol	Type *1	Solenoid group	Connection	Operation pressure (bar)*	Material Seat seal	Manual override	Weight (kg)	Test certificate IEC 61 508 *2)	Dimensions No.
	2401186	A + B	G 1/4	0 ... 10	NBR	–	0.65	X	1
	2401112	A + B	1/4 NPT	0 ... 10	NBR	–	0.65	X	1

Symbol	Type *1	Solenoid group	Connection	Operation pressure (bar)*	Material Seat seal	Manual override	Weight (kg)		Dimensions No.
	2401127	A	G 1/4	0 ... 10	FKM		0.70		1
	2401170	A	G 1/4	0 ... 10	FKM	push only	0.70		1
	2401139	A	G 1/4	0 ... 10	FKM	push and lock	0.70		1
	2401155	A	G 1/4	0 ... 10	Silicon *3)		0.65		1
	2401147	A	1/4 NPT	0 ... 10	FKM		0.65		1
	2401146	A	1/4 NPT	0 ... 10	FKM	semi-automatic	0.70		1
	2401168	A	1/4 NPT	0 ... 10	Silicon *3)		0.65		1

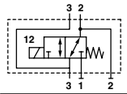
*1) When ordering please indicate solenoid, voltage and current type (frequency)
*2) Approval is not included in delivery, part No. 0695241
* Viscosity for gaseous or liquid fluids up to 40 mm^2/s
- Particulary for valves with TÜV approval and attachment in plants based on safety standards DIN V 19250, IEC 61511, taking into account to the operating and maintance instructions document 7503444.
- The responsibility for the maintance and repair of the solenoid valves lies with the users or the supervisory authority for these process systems.

*3) For ambient temperature down to -40°C

With NAMUR interface
Aluminium valves anodized

Symbol	Type *1)	Solenoid group	Connection	Operating pressure (bar)*	Material Seat seal	Manual override	Variants	Weight (kg)	Test certificate IEC 61 508 *2)	Dimensions No.
	2401191	A + B	G 1/4	0 ... 10	NBR	add-on		0.55	X	2
	1025333	A + B	G 1/4	0 ... 10	NBR	add-on	with limit switch	0.70		2
	1025254	A + B	1/4 NPT	0 ... 10	NBR	add-on		0.55	X	2
	2401133	A + B	G 1/4	0 ... 10	Silicon *3)	add-on		0.55	X	2
	2401109	A + B	G 1/4	0 ... 10	NBR	add-on	P in flange interface 3	0.55	X	3

Stainless steel valves (1.4404) for aggressive environment

Symbol	Type *1)	Solenoid group	Connection	Operating pressure (bar)	Material* Seat seal	Manual override	Variants	Weight (kg)	Test certificate IEC 61 508 *2)	Dimensions No.
	2401196	A + B	G 1/4	0 ... 10	NBR	add-on		1.00	X	2
	2401142	A	G 1/4	0 ... 10	Silicon *3)	add-on		1.00		2
	1025212	A + B	G 1/4	0 ... 10	NBR	add-on	P in flange interface *4)	1.00	X	3
	1025328	A + B	1/4 NPT	0 ... 10	NBR	add-on	P in flange interface *4)	1.00	X	3

*1) When ordering please indicate solenoid, voltage and current type (frequency).
*2) Approval is not included in delivery, part No. 0695241
* Viscosity for gaseous or liquid fluids up to 40 mm²/s
Approval S 137/01, SIL 4 for low demand mode, SIL 3 for high demand mode,
Approval S 83/96, AK 7 (request from manufactor)
- Particulary for valves with TÜV approval and attachment in plants based on safety standards DIN V 19250, IEC 61511, taking into account to the operating and maintance instructions document 7503444.
- The responsibility for the maintance and repair of the solenoid valves lies with the users or the supervisory authority for these process systems.

*3) For ambient temperature down to -40 °C
*4) Acc. to VDI/VDE 3845 port P in flange for attachment of positioners

Solenoid operators group A

	Type	Power consumption 24V DC (W)	230V AC (VA)	Rated current 24V DC (mA)	230V AC (mA)	Protection class	Temperature range Ambient/Fluid °C	Electrical connection	Weight (kg)	Dimensions No.	Circuit diagram No.
	0800 *7)	16.9	-	703	-	IP00 w/o connector *5) IP65 with connector *5)	-25...+60 Form A *6)	DIN EN175W301-803	0.33	6	1
	3803 *7)	-	18	-	185	P00 w/o connector *5) IP65 with connector *5)	-25...+60 Form A *6)	DIN EN175W301-803	0.34	7	6
	4270 *8)	8.9	-	369		EEx me II T4/T5 *2) IP66 T130°C	-40....65/55	M20x1,5 *6)	0.6	8	4
	4271 *8)	-	10		43	EEx me II T4/T5 *2) IP66 T130°C	-40....65/55	M20x1,5 *6)	0.6	8	7
	4670 *8)	8.9	-	369		EEx md IIC T4/T6 *3) EEx me IIC TT4/T6 *3) IP66 T130°C	-40....+65/55	1/2 NPT *6)	0.8	9	4
	4671 *8)	-	10		43	EEx md IIC T4/T6 *3) EEx me IIC TT4/T6 *3) IP66 T130°C	-40....+65/55	1/2 NPT *6)	0.8	9	7
	4672 *8)	8.9	-	369		EEx md IIC T4/T6 *3) EEx me IIC TT4/T6 *3) IP66 T130°C	-40....+65/55	M20x1,5 *6)	0.8	9	4
	4673 *8)	-	10		43	EEx md IIC T4/T6 *3) EEx me IIC T6 *3) IP66 T130°C	-40....+65/55	M20x1,5 *6)	0.8	9	7
Stainless steel 	4872	8.9	–	369	–	Ex mb d IIC T4/T6 or	Cat. II 2G (gas) -40 ... +50 (T4) -40 ... +40 (T6)	M20x1,5 *6)	1.2	10	12
	4873	–	10	–	43	Ex mb e II T4/T6 Ex mbD 21 tDA21 IP66 T100°C *1)	Cat. II 2D (dust) T100°C	M20x1,5 *6)	1.2	10	7
	3826	13.6	-	566	-	XP NEMA *4) 4, 4X, 6, 6P, 7, 9	-20....+60	Flying leads 450 mm long	0.4	11	1
	3827	-	15.7	-	68	XP NEMA *4) 4, 4X, 6, 6P, 7, 9	-20....+60	Flying leads 450 mm long	0.4	11	5

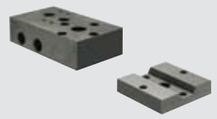
Standardvoltages 24V DC, 230V AC. other voltages on request. Design acc. to VDE 0580, EN 50014/50028.100% duty cycle.
*2) Categorie II 2 GD, EC-Type-Examination-Certificate KEMA 98 ATEX 4452 X
*3) Categorie II 2 GD, EC-Type-Examination-Certificate PTB 02 ATEX 2085 X
*4) CSA-LR 57643-6, FM approved, for hazardous locations: Div. 1 and 2, Class I, II, III
*5) Required connector: type 0570275.
*6) Connector cable gland not supplied
*7) IP65 according to DIN 40050/IEC 529 and DIN EN 600068-2-38
*8) This solenoid has a fuse with an appropirate rating.

Solenoids operators group B

	Type	Power consumption 24V DC (W)	230V AC (VA)	Current 24V DC (mA)	230V AC (mA)	Protection class	Temperatures Ambient/Fluid °C	Electrical connection	Weight (kg)	Dimensions No.	Circuit diagram No.
	0827 *7)	6.8	-	282	-	IIP00 without plug *5) IP65 with plug *5)	-25...+60	DIN EN175W301-803 Form A *6)	0.33	6	1
	3805 *7)	-	10.6	-	46	IP00 without plug *5) IP65 with plug *5)	-25...+60	DIN EN175W301-803 Form A *6)	0.34	7	6
	4260 *8)	4	-	162		EEx me II T4/T6 *2) IP66 T130°C	-40...+80/+55	M20 x 1,5 *6)	0.6	8	4
	4261 *8)	-	5.3		23	EEx me II T4/T6 *2) IP66 T130°C	-40...+80/+55	M20x1,5 *6)	0.6	8	7
	4660 *8)	4	-	162		EEx md IIC T4/T6 *3) EEx me IIC T4/T6 *3) IP66 T130°C	-40...+80/+55	1/2 NPT *6)	0.8	9	4
	4661 *8)	-	5.3		23	EEx md IIC T4/T6 *3) EEx me IIC T4/T6 *3) IP66 T130°C	-40...+80/+55	1/2 NPT *6)	0.8	9	7
	4662 *8)	4	-	162		EEx md IIC T4/T6 *3) EEx me IIC T4/T6 *3) IP66 T130°C	-40...+80/+55	M20x1,5 *6)	0.8	9	4
	4663 *8)	-	5.3		23	EEx md IIC T4/T6 *3) EEx me IIC T4/T6 *3) IP66 T130°C	-40...+80/+55	M20x1,5 *6)	0.8	9	7
Stainless steel 	4862	3.9	–	162	–	Ex mb d IIC T4/T6 or Ex mb e II T4/T6 Ex mbD 21 tDA21 IP66 T100°C *1)	Cat. II 2G (gas) -40 ... +75 (T5) -40 ... +55 (T6) Cat. II 2D (dust) T100°C	M20x1,5 *6)	1.2	10	12
	4863	–	5.3	–	23			M20x1,5 *6)	1.2	10	7
	3824	8.9	-	370	-	NEMA *4) 4, 4X, 6, 6P, 7, 9	-20...+60	Flying leads 450 mm long	0.4	11	1
	3825	-	9.5	-	41	NEMA *4) 4, 4X, 6, 6P, 7, 9	-20...+60	Flying leads 450 mm long	0.4	11	5

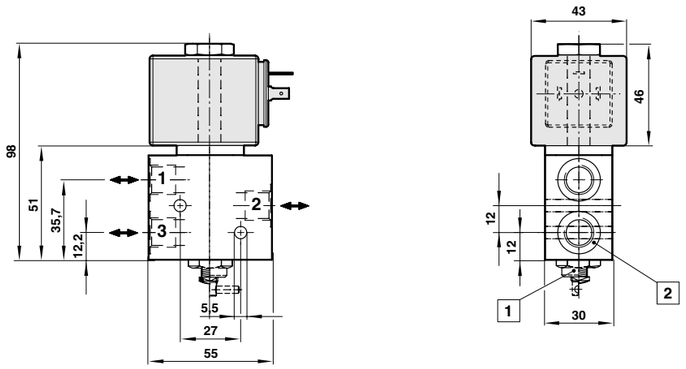
Standardvoltages 24V DC, 230V AC. other voltages on request. Design acc. to VDE 0580, EN 50014/50028.100% duty cycle.
*2) Categorie II 2 GD, EC-Type-Examination-Certificate KEMA 98 ATEX 4452 X
*3) Categorie II 2 GD, EC-Type-Examination-Certificate PTB 02 ATEX 2085 X
*4) CSA-LR 57643-6, FM approved, for hazardous locations: Div. 1 and 2, Class I, II, III
*5) Required connector: type 0570275.
*6) Connector cable gland not supplied
*7) IP65 according to DIN 40050/IEC 529 and DIN EN 600068-2-38
*8) This solenoid has a fuse with an appropirate rating.

Accessories

Cable gland Protection class EEx e (Atex), MS nickel plated brass/stainless steel 	Silencer 	Connectors 	Flange plate 	Yoke 
EEx e 0588819 (for solenoid 42xx / 46xx M20 x 1,5)	C/S2 1/4 NPT	0570275	0612790 (NAMUR single connection plate)	0540593
EEx d 0588851 (for solenoid 46xx M20 x 1,5)	M/S2 G 1/4		0612791 NAMUR rip use in combination with 0612790 (Alu)	
EEx d, EEx e 0588925 (for solenoid 46xx 1/2-14 NPT)				
II 2 G/D EEx d IIC 0589387 (for solenoid 48xx M20x1,5; Ø 10...14 mm)				
II 2 G/D EEx e II 0589385 (for solenoid 48xx M20x1,5; Ø 9...13 mm)				

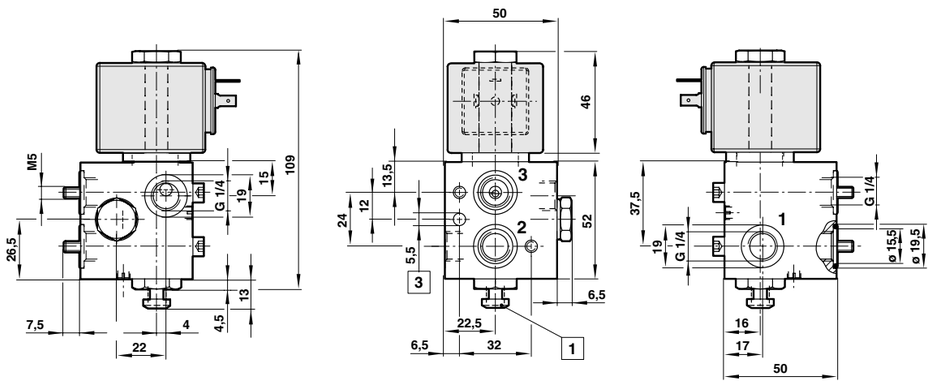
Basic dimensions for valves

①

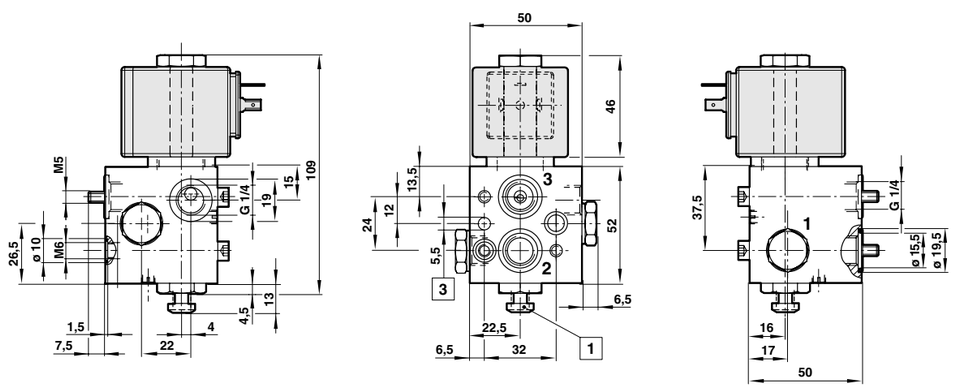


1. Add-on manual override see page 7
2. Port size G 1/4 or 1/4 NPT
3. 3 mm deep

②

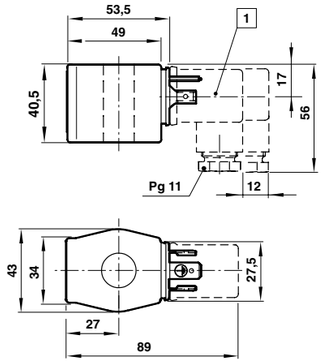


③

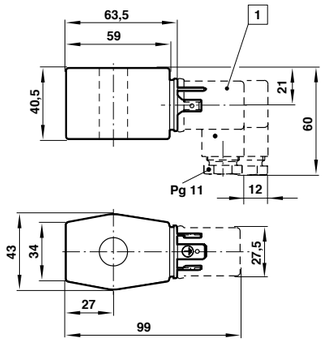


Basic dimensions for solenoid operators

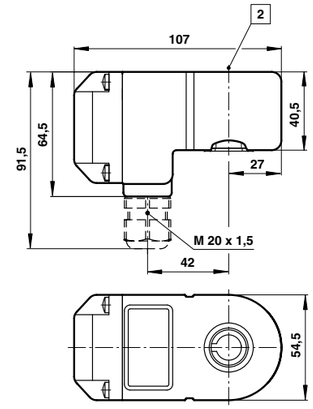
⑥



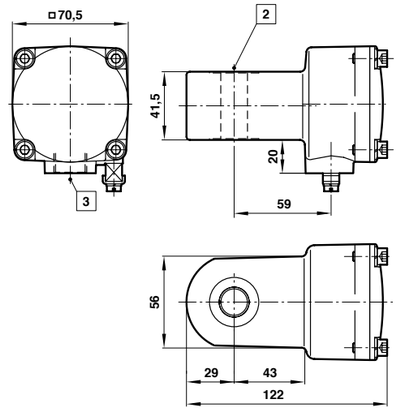
⑦



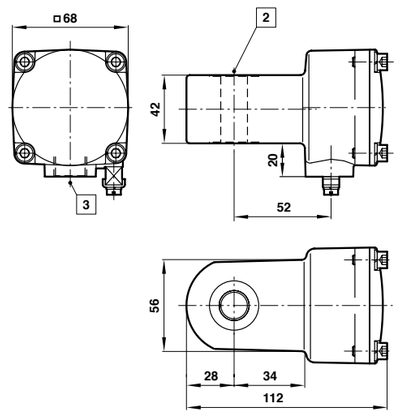
⑧



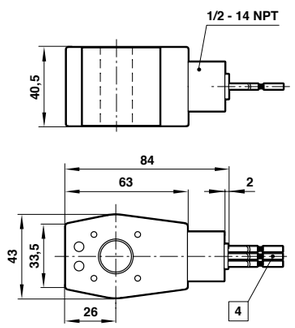
⑨



⑩

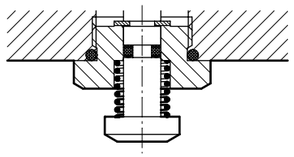


⑪

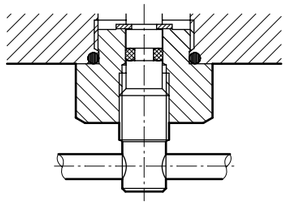


1. Connector can be indexed by 4 x 90°
2. Ø 13 (with spacer tube)
3. M20 x 1,5 or 1/2 - 14 NPT
4. Flying leads AWG 18 (450 mm long)

Add-on manual override for versions with NAMUR interface
Type: 0600205



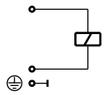
With detent
Type: 0601765



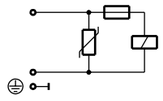
Please note: add-on manual override for NAMUR valves provided only for commissioning and tests

Circuit diagrams

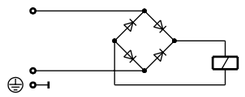
1



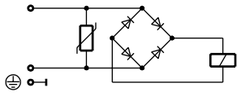
4



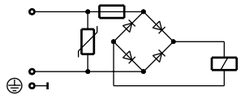
5



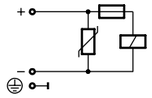
6



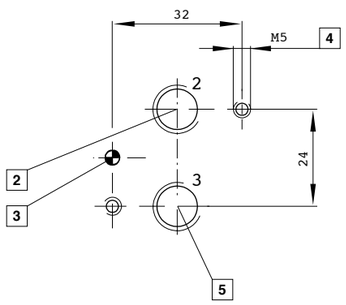
7



12



NAMUR hole pattern

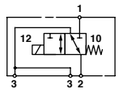


2 **Port 2 (A)**
3 **Coding stud threaded**
4 **M5 (10 deep)**
5 **Port 3 (R)**

NAMUR quick exhaust module for a better kv-value by exhaust see data sheet 7502144

NAMUR interlinking plates in redundancy design for “safety exhausting“ and “safety ventilating“ see data sheet **5.15.**300 (7503386)

3/2 Directional control valves
Direct solenoid operated poppet valves
Internal thread G 1/2, 1/2 NPT or flanged with NAMUR interface



NAMUR interface

Switching function:
pressure port at 1, 2 or 3

Main application: single operated actuators for plants

TÜV-approval based on IEC 61 508,DIN V 19 251 Statistic proof of process field operation

Valves for safety systems to SIL 4 or AK 7

Add-on manual override or inductive limit switches

The solenoids are applicable in the protection class EEx me, EEx md, XP (Div 1) for zones 1, 2 (gases), 21, 22 (dusts) ATEX cat. II 2GD

Rest position in the event of power failure provided by mechanical return spring

Suitable for outdoor installation if equipped with corresponding solenoid

Technical data

Medium:
Filtered, non-lubricate and dried compressed air, instrument air, nitrogen and or other non-flammable neutral,
dry fluids (liquid and aggressive fluids on request)

Operation:
Solenoid, directly controlled

Flow direction:
Optional

Port size:
G 1/2, 1/2 NPT, NAMUR interface

Orifice:
ND 8

Flow rate:
1000 l/min

Operating pressure:
0 to 10 bar

Temperature range:

Fluid: -40 to +80°C, SNBR (Special perbunan)

Ambient: -40 to +80°C (dependent on solenoid)

Mounting:
Optional, preferably vertical

Materials

Body: stainless steel 1.4404/316,brass 2.0401, Aluminium 3.0615 anodized

Seat seal: SNBR (Special perbunan)

Inner parts: stainless steel, brass

Protect all connections against the penetration of moisture.

Follow the mounting and operating instruction 7503476

TÜV

Option selector

9801★★5.★★★★.★★★★.★★

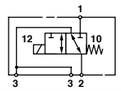
Material	Substitute
Aluminium	5
Brass	6
Stainless steel	7

Voltage	Substitute
24 V DC	024.00
230 V AC	230.60

Solenoids	Substitute
See table above	4

Port size	Substitute
NAMUR, G1/4	0
NAMUR, 1/4 NPT	1
G1/2	5
1/2 NPT	6

3/2 directional valves

Symbol	Type	Port size 1, 3	Port size 2, (3)	Operating pressure (bar)	Material	Weight (kg)	Dimensions No.
	9801505	G 1/4, G1/2	NAMUR, G1/4	0 - 10 bar	Aluminium	0.7	1
	9801515	1/4-NPT, 1/2 NPT	NAMUR, 1/4 NPT	0 - 10 bar	Aluminium	0.7	1
	9801755	G 1/2	G 1/2	0 - 10 bar	Stainless steel	0.9	2
	9801765	1/2-NPT	1/2-NPT	0 - 10 bar	Stainless steel	0.9	2
	9801655	G 1/2	G 1/2	0 - 10 bar	Brass	0.9	2
	9801665	1/2-NPT	1/2-NPT	0 - 10 bar	Brass	0.9	2

Solenoid operators

	Type	Power consumption 24V DC (W)	Power consumption 230V AC (VA)	Rated current 24V DC (mA)	Rated current 230V AC (mA)	Protection class	Temperature Ambient/Fluid °C	Electroport size	Weight (kg)	Dimensions No.	Circuit diagram No.
	0800 *7]	16.9	-	703	-	IP00 w/o connector *5) IP65 with connector *5)	-25...+60	DIN EN175W301-803 Form A	0.33	3	1
	3803 *7]	-	17.3	-	75	P00 w/o connector *5) IP65 with connector *5)	-25...+60	DIN EN175W301-803 Form A	0.34	4	6
	4270 *8]	8.9	-	369		EEx me II T4/T5 *2) IP66 T130°C	-40....65/55	M20x1,5 6)	0.6	5	4
	4271 *8]	-	10		43	EEx me II T4/T5 *2) IP66 T130°C	-40....65/55	M20x1,5 6)	0.6	5	7
	4670 *8]	8.9	-	369		EEx md IIC T4/T6 *3) EEx me IIC TT4/T6 *3) IP66 T130°C	-40....+65/55	1/2 NPT 6)	0.8	6	4
	4671 *8]	-	10		43	EEx md IIC T4/T6 *3) EEx me IIC TT4/T6 *3) IP66 T130°C	-40....+65/55	1/2 NPT 6)	0.8	6	7
	4672 *8]	8.9	-	369		EEx md IIC T4/T6 *3) EEx me IIC TT4/T6 *3) IP66 T130°C	-40....+65/55	M20x1,5 6)	0.8	6	4
	4673 *8]	-	10		43	EEx md IIC T4/T6 *3) EEx me IIC T6 *3) IP66 T130°C	-40....+65/55	M20x1,5 6)	0.8	6	7
Stainless steel 	4872	8.9	–	369	–	Ex mb d IIC T4/T6 bzw. Ex mb e II T4/T6	Kat. II 2G (gas) -40 ... +50 (T4) -40 ... +40 (T6) Kat. II 2D (dust) T100°C	M20 X 1,5 *6)	1.2	7	12
	4873	–	10	–	43	Ex mbD 21 tDA21 IP66 T100°C *1)		M20 X 1,5 *6)	1.2	7	7
	3826	13.6	-	566	-	XP NEMA *4) 4, 4X, 6, 6P, 7, 9	-20....+60	Flying leads 450 mm long	0.4	8	1
	3827	-	15.7	-	68	XP NEMA *4) 4, 4X, 6, 6P, 7, 9	-20....+60	Flying leads 450 mm long	0.4	8	5

Standard voltages 24V DC, 230V AC. other voltages on request
Design acc. to VDE 0580, EN 50014/50028.100% duty cycle.
*2) Categorie II 2 GD, EC-Type-Examination-Certificate KEMA 98 ATEX 4452 X
*3) Categorie II 2 GD, EC-Type-Examination-Certificate PTB 02 ATEX 2085 X
*4) CSA-LR 57643-6, FM approved, for hazardous locations: Div. 1 and 2, Class I, II, III
*5) Required connector: type 0570275.
*6) Cable gland is not indicated in delivery
*7) IP65 according to DIN 40050/IEC 529 and DIN EN 600068-2-38
*8) This solenoid has a fuse with an appropirate rating.

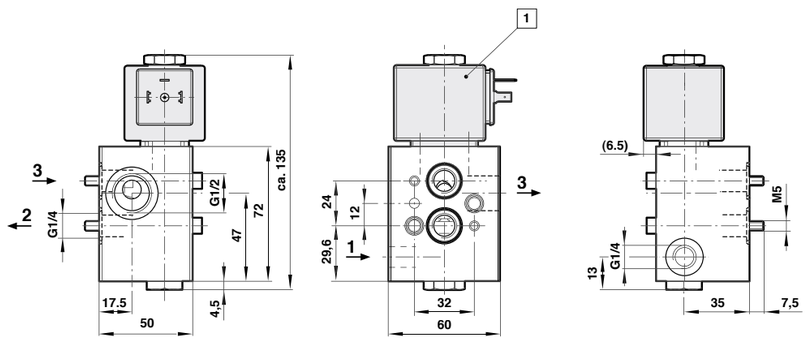
Accessories

Silencer	Cable gland protection class EEx e, EEx d (ATEX), Ms nickel plated brass	Connectors	Flange plate	Yoke
				
0014800 (G1/2) *1)	EEx e 0588819 (for solenoid 42xx / 46xx M20 x 1,5)	0570275	0612790 sigle connection plate	0540593
	EEx d 0588851 (for solenoid 46xx M20 x 1,5)	0663303 (with rectifier)	0612791 NAMUR Rippe in combination with 0612790 (Alu)	
	EEx d, EEx e 0588925 (for solenoid 46xx 1/2-14 NPT)			
	II 2 G/D EEx d IIC 0589387 (for solenoid 48xx M20x1,5; Ø 10...14 mm)			
	II 2 G/D EEx e II 0589385 (for solenoid 48xx M20x1,5; Ø 9...13 mm)			

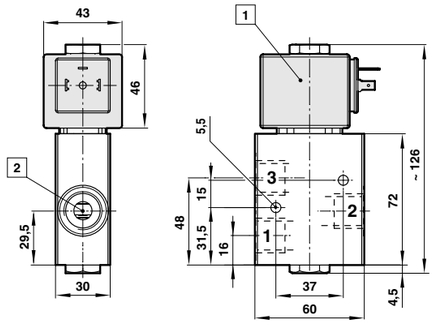
*1) For indoors use

Basic dimensions for valves

①



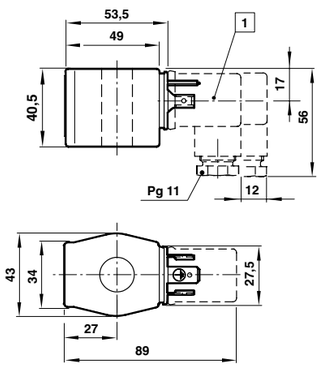
②



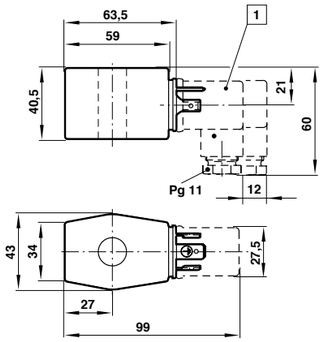
1 Solenoid optional turnable, for dimensions see page 4
2 Working port G 1/2 or 1/2 NPT

Basic dimensions actuation solenoid operators

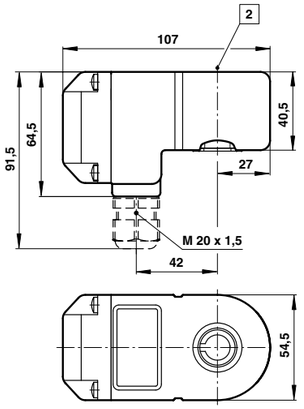
③



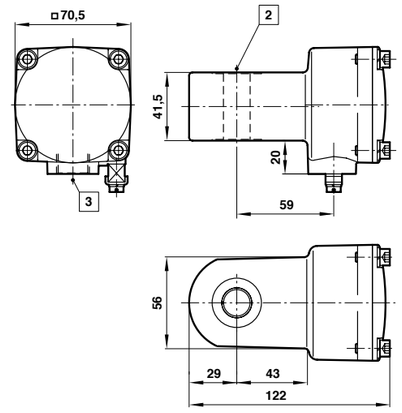
④



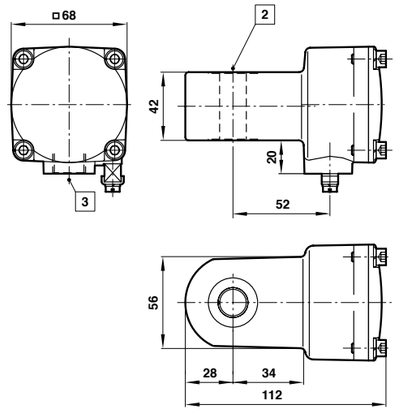
⑤



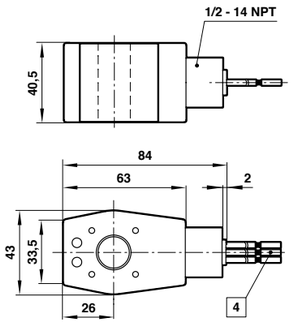
⑥



⑦

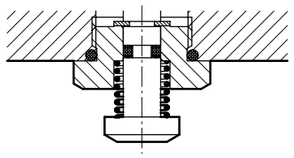


⑧

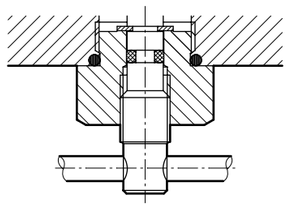


1 Connector can be indexed by 4 x 90°
2 Ø 16 or Ø 13 (with spacer tube)
3 M20 x 1,5 or 1/2 - 14 NPT
4 Flying leads AWG 18 (450 mm long)

Add-on manual override
Type: 0600205



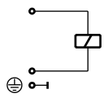
With detent
Type: 0601765



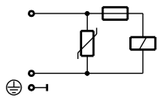
Please note: add-on manual override for NAMUR valves provided only for commissioning and tests

Circuit diagrams

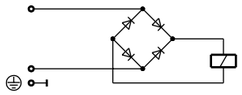
①



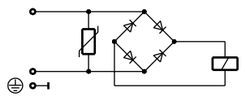
④



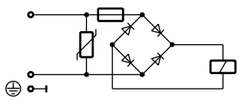
⑤



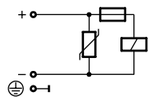
⑥



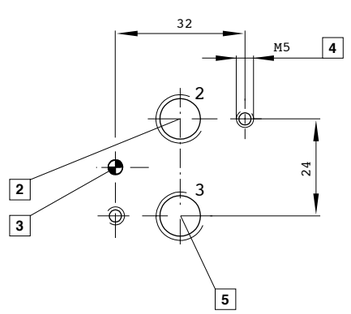
⑦



⑫

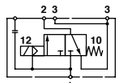


NAMUR hole pattern



2 Port 2 (A)
3 Coding stud threaded
4 M5 (10 deep)
5 Port 3 (R)

3/2 Directional control valves
Indirect controlled solenoid operated poppet valves
Internal thread G1/2, 1/2 NPT
or flanged with NAMUR interface



NAMUR interface

Switching function:
pressure port at 1, 2 or 3

Main application: single operated process actuators

TÜV-approval based on IEC 61 508,DIN V 19 251 Statistic proof of process field operation

Valves released for safety systems to SIL 4 or AK 7

Add-on manual override and / or inductive limit switches

The solenoids are applicable in the protection class EEx me, EEx md, EEx m, EEx ia for zones 1, 2 (gases), 21 und 22 (dusts) ATEX cat.II 2 GD.

Additional protection class (FM, CSA): XP, IS, NI

Rest position in the event of power failure provided by mechanical return spring

Suitable for outdoor installation if equipped with corresponding solenoid

Technical data

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

Operation:
Solenoid operated, directly controlled

Flow direction:
fixed

Port size:
G 1/2, 1/2 NPT, NAMUR interface

Orifice:
ND 8

Flow rate:
1000 l/min (1 bar pressure differential)

Operating pressure:
2 to 8 bar

Temperature:

Fluid: -40 to +60°C, SNBR (special perbunan)

Ambient: -40 to +60°C (dependent on solenoid) (please consult our technical service for use below +2°C)

Mounting:
Optional, preferably vertical

Materials

Body:
stainless steel 1.4404/316,
brass 2.0401
Black aluminium 3.0615
anoized

Seat seal:
SNBR (special perbunan)

Inner parts:
stainless steel, brass

Protect all connections against the penetration of moisture.

Follow the mounting and operating instruction 7503476.

Option selector

9802★★5.★★★★.★★★.★★

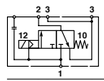
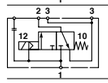
Material	Substitute
Aluminium	5
Brass	6
Stainless steel	7

Voltage	Substitute
24 V DC	024.00
230 V AC	230.60

Solenoids	Substitute
24V DC / 3-7 barg	1

Port size	Substitute
NAMUR, G1/4	0
NAMUR, 1/4 NPT	1
G1/2	5
1/2 NPT	6

3/2 indirectional valves

Symbol	Type	Port size 1, 3	Port size 2, (3)	Operating pressure (bar)	Material	Weight (kg)	Dimensions No.
	9802505	G 1/4, G1/2	NAMUR G1/4	2 ... 8	Aluminium	0.9	1
	9802515	1/4-NPT, 1/2 NPT	NAMUR 1/4 NPT	2 ... 8	Aluminium	0.9	1
	9802705	G 1/4, G1/2	NAMUR G1/4	2 ... 8	Stainless steel	1.5	1
	9802715	1/4-NPT, 1/2 NPT	NAMUR 1/4 NPT	2 ... 8	Stainless steel	1.5	1
	9802555	G 1/2	G 1/2	2 ... 8	Aluminium	0.6	2
	9802565	1/2-NPT	1/2-NPT	2 ... 8	Aluminium	0.6	2
	9802755	G 1/2	G 1/2	2 ... 8	Stainless steel	1.0	2
	9802765	1/2-NPT	1/2-NPT	2 ... 8	Stainless steel	1.0	2
	9802655	G 1/2	G 1/2	2 ... 8	Brass	1.0	2
	9802665	1/2-NPT	1/2-NPT	2 ... 8	Brass	1.0	2

Solenoid operators

	Type	Power consumption 24V DC (W)	230V AC (VA)	Rated current 24V DC (mA)	230V AC (mA)	Protection class	Temperature range Ambient/Fluid °C	Electroport size	Weight (kg)	Dimensions No.	Circuit diagram No.
	0763 *7)	1.9	2.1 *5)	78	-	IP00 w/o connector *5) IP65 with connector *5)	-25 ... +60	DIN EN 175 301-803 Form A	0.3	6	1
	0298 *8)	3.2	-	135	-	EEx m II T4 *1) IP66 T110°C	-20 ... +70	3 m Cable	0.4	7	4
	0299 *8)	-	4.6	-	18	EEx m II T4 *1) IP66 T110°C	-20 ... +70	3 m Cable	0.4	7	7
	4200 *8)	0.8	-	33	-	EEx me II T5/T6 *2) IP66 T130°C	-40 ... +80 (T5) -40 ... +70 (T6)	M20 X 1,5 *6)	0.85	8	4
	4201 *8)	-	1.3	-	26	EEx me II T4/T6 *2) IP66 T130°C	-40 ... +80 (T4) -40 ... +55 (T6)	M20 X 1,5 *6)	0.85	8	7
	4600 *8)	0.8	-	33	-	EEx me IIC T5/T6 *3) EEx md II T5/T6 *3)	-40 ... +80 (T5) -40 ... +70 (T6)	1/2 NPT *6)	0.85	9	4
	4602 *8)	0.8	-	33	-	IP66 T130°C		M20 X 1,5 *6)			
	4601 *8)	-	1.3	-	26	EEx me IIC T5/T6 *3) EEx md II T5/T6 *3)	-40 ... +80 (T5) -40 ... +70 (T6)	1/2 NPT *6)	0.85	9	7
	4603 *8)	-	1.3	-	26	IP66 T130°C		M20 X 1,5 *6)			
Stainless steel 	4802	0.8	–	33	–	Ex mb d IIC T4/T6 or Ex mb e II T5/T6 Ex mbD 21 tDA21 IP66 T100°C	Cat. II 2G (gas) -40 ... +80 (T4) -40 ... +70 (T6) Cat. II 2D (dust)		1.2	18	12
	4803		1.3	–	6				1.2	18	7
	3720	1.4	-	59	-	XP (NEMA) *4) 4, 4X, 6, 6P, 7, 9 3	-20 ... +60	Flying leads 450 mm long	0.4	10	1

Standardvoltages 24 V DC, 230 V AC. other voltages on request. Design acc. to VDE 0580, EN 50014/50028.100% duty cycle.
Stainless steel solenoid operators on request
*1) Categorie II 2 GD, EC-Type-Examination-Certificate KEMA 02 ATEX 1347X
*2) Categorie II 2 GD, EC-Type-Examination-Certificate KEMA 98 ATEX 4452 X
*3) Categorie II 2 GD, EC-Type-Examination-Certificate PTB 02 ATEX 2085 X
*4) CSA-LR 57643-6, FM approved, for hazardous locations: Div. 1 and 2, Class I, II, III
*5) Required connector for DC: type 0570275. Valves can be operated with DC only.
For 230V AC application please use 200V DC coil, plus plug with rectifier
*6) Cable gland is not indicated in delivery
*7) IP65 according to DIN 40050/IEC 529 and DIN EN 600068-2-38
*8) This solenoid has a fuse with an appropirate rating.

Solenoid actuators for intrinsically-safe circuits, protection class EEx ia IIC T5/T6, cat.II G, II 2 D, IP66, T90°C, EC type examin. certificate KEMA 03 ATEX 1051X

Type	Nominal resist. RN coil (Ω)	Min. required switching current (mA)	Resistance Rw 60 coil * (Ω)	Required voltage at terminal ($R_{w\,60}$)	Temperature range Ambient/Fluid T5	T6	Weight (kg)	Dimensions No.	Circuit diagram No.
2050	200	33	240	8	-40...+80°C	-40...+70°C	0.85	8	10
2051	391	24	470	11	-40...+80°C	-40...+70°C	0.85	8	10
2052	736	17	880	15	-40...+80°C	-40...+70°C	0.85	8	10
2053	1220	13	1460	19	-40...+80°C	-40...+70°C	0.85	8	10

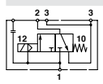
Cable gland is included in delivery
When selecting an intrinsically safe power supply, the permissible maximum values according to the Certificate of Conformity should be taken into acount.
The low effective inductivity and capacity can be ignored.

Accessories

Silencer	Cable gland protection class EEx e, EEx d (ATEX), Ms nickel plated brass/ stainless steel	Manual override	Connectors	Flan plate	Yoke
					
0014800 (G1/2) *1)	EEx e 0588819 (for solenoid 42xx / 46xx M20 x 1,5)	0553886 (without detent) *2)	0570275	0612790 sigle connection plate	0540593
	EEx d 0588851 (for solenoid 46xx M20 x 1,5)	0553887 (with detent) *2)	0663303 (with rectifier)	0612791 NAMUR-rip use in combination with 0612790 (Alu)	
	EEx d, EEx e 0588925 (for solenoid 46xx 1/2-14 NPT)				
	II 2 G/D EEx d IIC 0589387 (for solenoid 48xx M20x1,5; Ø 10...14 mm)				
	II 2 G/D EEx e II 0589385 (for solenoid 48xx M20x1,5; Ø 9...13 mm)				

*1) For indooruse
*2) Useable only with the valvesn page 2

3/2 indirectional control valves with pilot 23,2 mW/ 6,3 mW

Symbol	Type	Port size 1, 3	Port size 2, (3)	Operating pressure (bar)	Material	Weight (kg)	Dimensions
	9802509	G 1/4	NAMUR	2 ... 8	Aluminium	0.9	3
	9802519	1/4-NPT	NAMUR	2 ... 8	Aluminium	0.9	3
	9802559	G 1/2	G 1/2	2 ... 8	Aluminium	0.6	4
	9802569	1/2-NPT	1/2-NPT	2 ... 8	Aluminium	0.6	4

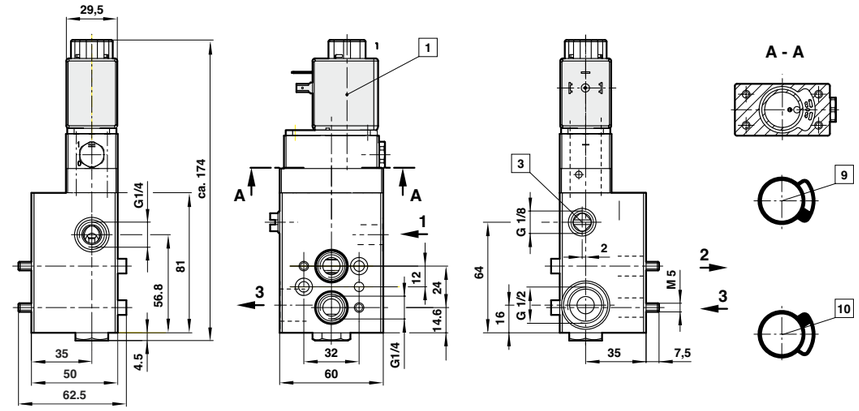
Solenoid opators protection class EEx ia II C T4/T6

	Type	Power P (+20°C)	Switch-on voltage Uon (+20°C)	Switch-on voltage Uon (+80°C)	Switch-off voltage Uoff (+20°C)	Switch-off voltage Uoff (-25°C)	Rated current Iein	Resistance coil R (+20°C)	max. values EEx i Ui	Ii	Pi	Type of protection *4)	Ambient temperature	Circuit diagram No.
									25 V	150 mA	250 mW			
									27 V	125 mA	250 mW			
	2085	6.3 mW	≥4.3 V	≥5.2 V	≤1.44 V	≤1.2 V	≥1.45 mA	2800 Ω	28 V	115 mA	250 mW	EEx ia IIC T4	-40 bis +80°C	11
	2086	23.2 mW	≥16 V	≤16.8 V	≤5.4 V	≤4.7 V	≥1.45 mA	10900 Ω	30 V	100 mA	250 mW	EEx ia IIC T6	-40 bis +60°C	11
									32 V	85 mA	250 mW			

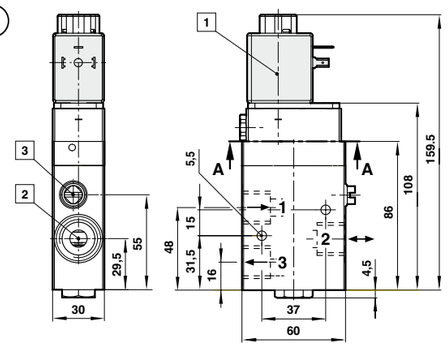
*4) Categorie II2G, EC-Examinaon certificate no. PTB 06 ATEX 2001U
Air consumption: home position ≤ 60 l/h, operating position ≤ 15 l/h

Basic dimensions for valves

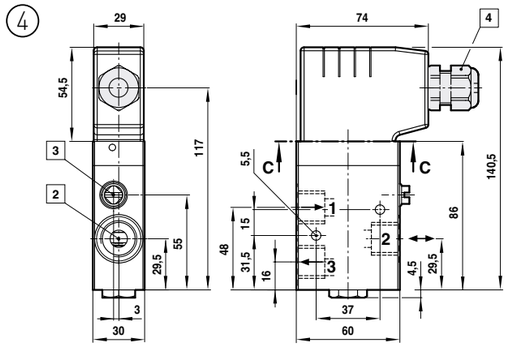
①



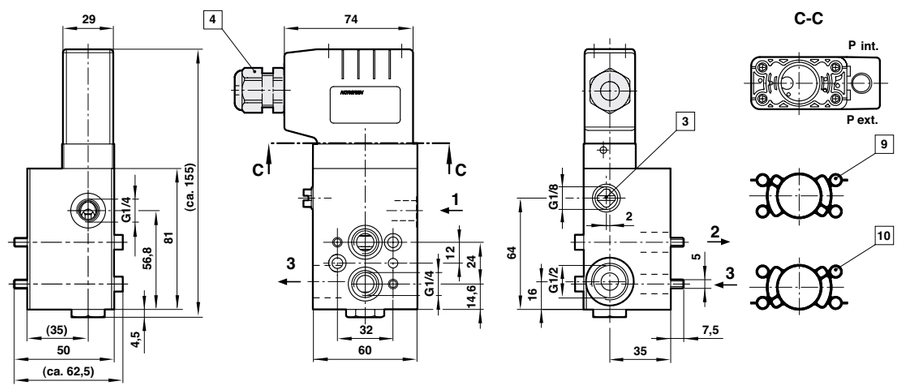
②



④

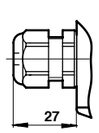


③



Electrical connection

005

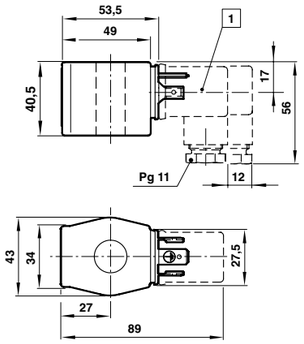


1. Solenoid optional turnable
2. Working port G1/2 or 1/2 NPT
3. External control pressure connection G1/8 or 1/8 NPT
4. Electrical connection selectable version 005

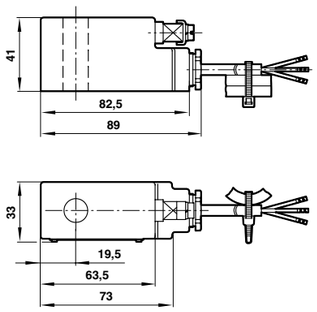
3. Position of gasket internal pilot air
4. Position of gasket external pilot air

Basic dimensions actuation solenoid operators

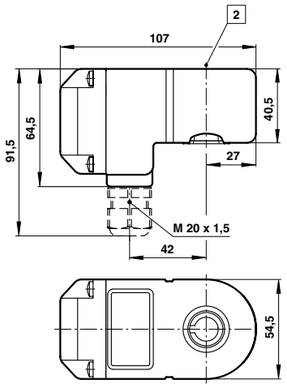
⑥



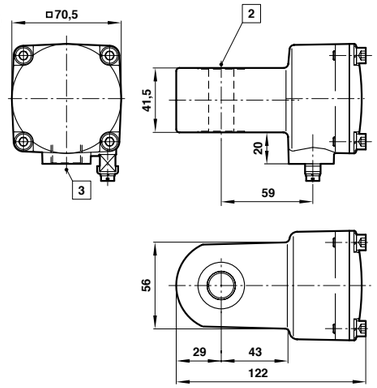
⑦



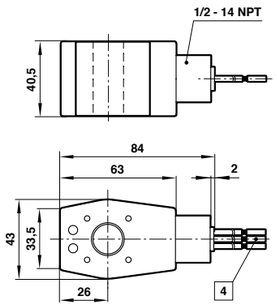
⑧



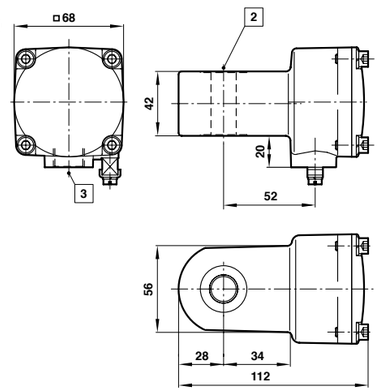
⑨



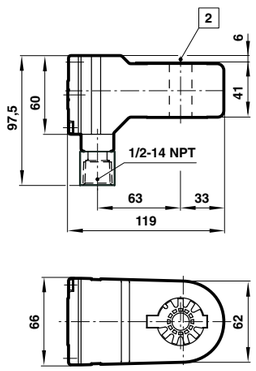
⑩



⑱



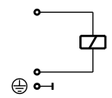
⑲



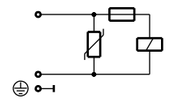
1 Conector can beindeed by 4 x 90°
2 16 or 13 (with spacer tube)
3 M20 1,5 or 1/2 - 14 NPT
4 Flying leads AWG 18 (450 mm long)

Circuit diagrams

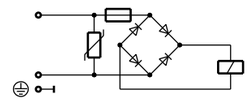
①



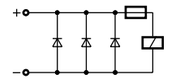
④



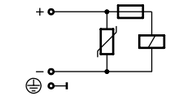
⑦



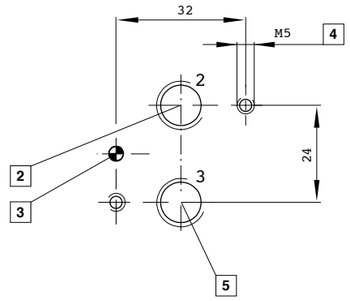
⑪



⑫



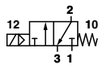
NAMUR hole pattern



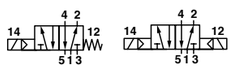
2 Port 2 (A)
3 Coding stud threaded
4 M5 (10 deep)
5 Port 3 (R)

3/2, 5/2 and 5/3 directional valves
Actuation: electromagnetic
Indirectly controlled soft seal spool valves
Port size: G 1/4, 1/4 NPT, G 1/2, 1/2 NPT

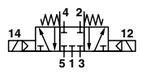
3/2



5/2



5/3



For single and double operated actuators

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

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

Rest position in the event of power failure provided by mechanical return spring (monostable design)

Add-on manual override

Suitable for outdoor installation if equipped with corresponding solenoid

The solenoid valves are applicable in the protection classes Ex me, Ex md, Ex m, Ex ia for zones 1 & 2 (gases), 21 & 22 (dusts), ATEX cat. II 2GD

International certifications: IECEx, FM, CSA, others on request

Technical data

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

Operation:
Solenoid, indirectly controlled

Mounting position:
Optional; Impulse valves preferably horizontally

Nominal diameter:
ND 6 mm, ND 8 mm

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

Operating pressure:
2.5 ... 8 bar with internal air supply
0 ... 8 bar with external air supply, control pressure 2.5 ... 8 bar

Temperature:
Valve: *1)
-40 ... +65°C (NBR),
-25 ... +80°C (HNBR)
Solenoid: see solenoid table
(please consult our technical service for use below +2°C, if installed in the open protect all connections against the penetration of moisture!)

Materials

Body: aluminium 3.0615 with surface treatment for rough environmental conditions (condensate test with alternating temperatures in sulphuric environment, salt spray test with different sodium chloride solutions, tested in ammonia environment) Brass 2.0401/Ms 58, stainless steel 1.4404/316

Seals: NBR (special perbunan) or HNBR

Option selector

971★★★★.★★★★.★★★.★★

Function	Number code
5/2 way valve with spring return	0
5/2 way impuls	1
5/3 way valve with spring return (APB)	2
3/2 way valve with spring return	3

Materials: body/seals	Number code
aluminium/HNBR (-25° .... + 80°C)*	2
brass/HNBR (-25° .... + 80°C)*	3
stainless steel/HNBR (-25° .... + 80°C)*	4
aluminium/NBR (-40° .... + 65°C)*	5
brass/NBR (-40° .... + 65°C)*	6
stainless steel/NBR (-40° .... + 65°C)*	7

Port size	Number code
G 1/4	3
1/4 NPT	4
G 1/2	5
1/2 NPT	6

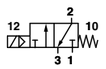
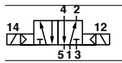
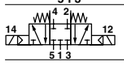
Air supply	Number code
internal	0
external	Z

Voltage	Number code
24 V DC	024.0
230 V AC	230.5

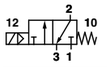
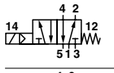
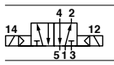
Solenoid	Number code
see solenoid table	

Version	Number code
without manual override (retrofit)	5
semi automatic (on request)	7
low power pilot (see page 5 and 6)	9

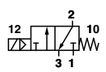
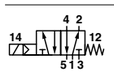
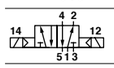
3/2, 5/2 and 5/3 directional valves, seals NBR -40 ... +65°C *3)
Aluminium anodized body

Symbol	Type *1)	Port size	Function	Actuation	Operating pressure (bar)	Flow (l/min)	Test certificate IEC 61508 *2)	Weight (kg)	Dimensions No.
	9713535	G 1/4	3/2	Solenoid/Spring	2.5 ... 8 bar	1300	x	0.5	1
	9713545	1/4 NPT	3/2	Solenoid/Spring	2.5 ... 8 bar	1300	x	0.5	1
	9713555	G 1/2	3/2	Solenoid/Spring	2.5 ... 8 bar	2600		0.5	2
	9713565	1/2 NPT	3/2	Solenoid/Spring	2.5 ... 8 bar	2600		0.5	2
	9710535	G 1/4	5/2	Solenoid/Spring	2.5 ... 8 bar	1300	x	0.7	3
	9710545	1/4 NPT	5/2	Solenoid/Spring	2.5 ... 8 bar	1300	x	0.7	3
	9710555	G 1/2	5/2	Solenoid/Spring	2.5 ... 8 bar	2600		0.7	4
	9710565	1/2 NPT	5/2	Solenoid/Spring	2.5 ... 8 bar	2600		0.7	4
	9711535	G 1/4	5/2	Solenoid/Solenoid	2.5 ... 8 bar	1300		0.7	5
	9711545	1/4 NPT	5/2	Solenoid/Solenoid	2.5 ... 8 bar	1300		0.7	5
	9712535	G 1/4	5/3	Solenoid/Solenoid mid position APB	2.5 ... 8 bar	950		0.7	6
	9712545	1/4 NPT	5/3	Solenoid/Solenoid mid position APB	2.5 ... 8 bar	950		0.7	6

Brass body

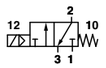
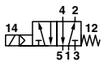
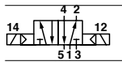
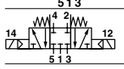
Symbol	Type *1)	Port size	Function	Actuation	Operating pressure (bar)	Flow (l/min)	Test certificate IEC 61508 *2)	Weight (kg)	Dimensions No.
	9713635	G 1/4	3/2	Solenoid/Spring	2.5 ... 8 bar	1300	x	1.0	1
	9713645	1/4 NPT	3/2	Solenoid/Spring	2.5 ... 8 bar	1300	x	1.0	1
	9713655	G 1/2	3/2	Solenoid/Spring	2.5 ... 8 bar	2600		1.0	2
	9713665	1/2 NPT	3/2	Solenoid/Spring	2.5 ... 8 bar	2600		1.0	2
	9710635	G 1/4	5/2	Solenoid/Spring	2.5 ... 8 bar	1300	x	1.7	3
	9710645	1/4 NPT	5/2	Solenoid/Spring	2.5 ... 8 bar	1300	x	1.7	3
	9710655	G 1/2	5/2	Solenoid/Spring	2.5 ... 8 bar	2600		1.7	4
	9710665	1/2 NPT	5/2	Solenoid/Spring	2.5 ... 8 bar	2600		1.7	4
	9711635	G 1/4	5/2	Solenoid/Solenoid	2.5 ... 8 bar	1300		1.7	5
	9711645	1/4 NPT	5/2	Solenoid/Solenoid	2.5 ... 8 bar	1300		1.7	5

Stainless steel body

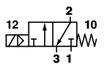
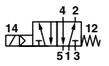
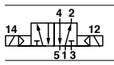
Symbol	Type *1)	Port size	Function	Actuation	Operating pressure (bar)	Flow (l/min)	Test certificate IEC 61508 *2)	Weight (kg)	Dimensions No.
	9713735	G 1/4	3/2	Solenoid/Spring	2.5 ... 8 bar	1300	x	1.1	1
	9713745	1/4 NPT	3/2	Solenoid/Spring	2.5 ... 8 bar	1300	x	1.1	1
	9713755	G 1/2	3/2	Solenoid/Spring	2.5 ... 8 bar	2600		1.1	2
	9713765	1/2 NPT	3/2	Solenoid/Spring	2.5 ... 8 bar	2600		1.1	2
	9710735	G 1/4	5/2	Solenoid/Spring	2.5 ... 8 bar	1300	x	1.8	3
	9710745	1/4 NPT	5/2	Solenoid/Spring	2.5 ... 8 bar	1300	x	1.8	3
	9710755	G 1/2	5/2	Solenoid/Spring	2.5 ... 8 bar	2600		1.8	4
	9710765	1/2 NPT	5/2	Solenoid/Spring	2.5 ... 8 bar	2600		1.8	4
	9711735	G 1/4	5/2	Solenoid/Solenoid	2.5 ... 8 bar	1300		1.8	5
	9711745	1/4 NPT	5/2	Solenoid/Solenoid	2.5 ... 8 bar	1300		1.8	5

*1) When ordering please indicate solenoid, voltage and current type (frequency)
*2) Since May 2008, Date code A8192
*3) For operation in plants according to IEC 61511/61508 -40 ... +40°C see test certificate (on request)
Valve function: APB = All Ports Blocked

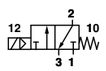
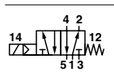
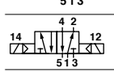
3/2, 5/2 and 5/3 directional valves, seals HNBR -25 ... +80°C *3)
Aluminium anodized body

Symbol	Type *1)	Port size	Function	Actuation	Operating pressure (bar)	Flow (l/min)	Test certificate IEC 61508 *2)	Weight (kg)	Dimensions No.
	9713235	G 1/4	3/2	Solenoid/Spring	2.5 ... 8 bar	1300	x	0.5	1
	9713245	1/4 NPT	3/2	Solenoid/Spring	2.5 ... 8 bar	1300	x	0.5	1
	9713255	G 1/2	3/2	Solenoid/Spring	2.5 ... 8 bar	2600	x	0.5	2
	9713265	1/2 NPT	3/2	Solenoid/Spring	2.5 ... 8 bar	2600	x	0.5	2
	9710235	G 1/4	5/2	Solenoid/Spring	2.5 ... 8 bar	1300	x	0.7	3
	9710245	1/4 NPT	5/2	Solenoid/Spring	2.5 ... 8 bar	1300	x	0.7	3
	9710255	G 1/2	5/2	Solenoid/Spring	2.5 ... 8 bar	2600	x	0.7	4
	9710265	1/2 NPT	5/2	Solenoid/Spring	2.5 ... 8 bar	2600	x	0.7	4
	9711235	G 1/4	5/2	Solenoid/Solenoid	2.5 ... 8 bar	1300		0.7	5
	9711245	1/4 NPT	5/2	Solenoid/Solenoid	2.5 ... 8 bar	1300		0.7	5
	9712235	G 1/4	5/3	Solenoid/Solenoid mid position APB	2.5 ... 8 bar	950		0.7	6
	9712245	1/4 NPT	5/3	Solenoid/Solenoid mid position APB	2.5 ... 8 bar	950		0.7	6

Brass body

Symbol	Type *1)	Port size	Function	Actuation	Operating pressure (bar)	Flow (l/min)	Test certificate IEC 61508 *2)	Weight (kg)	Dimensions No.
	9713335	G 1/4	3/2	Solenoid/Spring	2.5 ... 8 bar	1300	x	1.0	1
	9713345	1/4 NPT	3/2	Solenoid/Spring	2.5 ... 8 bar	1300	x	1.0	1
	9713355	G 1/2	3/2	Solenoid/Spring	2.5 ... 8 bar	2600	x	1.0	2
	9713365	1/2 NPT	3/2	Solenoid/Spring	2.5 ... 8 bar	2600	x	1.0	2
	9710335	G 1/4	5/2	Solenoid/Spring	2.5 ... 8 bar	1300	x	1.7	3
	9710345	1/4 NPT	5/2	Solenoid/Spring	2.5 ... 8 bar	1300	x	1.7	3
	9710355	G 1/2	5/2	Solenoid/Spring	2.5 ... 8 bar	2600	x	1.7	4
	9710365	1/2 NPT	5/2	Solenoid/Spring	2.5 ... 8 bar	2600	x	1.7	4
	9711335	G 1/4	5/2	Solenoid/Solenoid	2.5 ... 8 bar	1300		1.7	5
	9711345	1/4 NPT	5/2	Solenoid/Solenoid	2.5 ... 8 bar	1300		1.7	5

Stainless steel body

Symbol	Type *1)	Port size	Function	Actuation	Operating pressure (bar)	Flow (l/min)	Test certificate IEC 61508 *2)	Weight (kg)	Dimensions No.
	9713435	G 1/4	3/2	Solenoid/Spring	2.5 ... 8 bar	1300	x	1.1	1
	9713445	1/4 NPT	3/2	Solenoid/Spring	2.5 ... 8 bar	1300	x	1.1	1
	9713455	G 1/2	3/2	Solenoid/Spring	2.5 ... 8 bar	2600	x	1.1	2
	9713465	1/2 NPT	3/2	Solenoid/Spring	2.5 ... 8 bar	2600	x	1.1	2
	9710435	G 1/4	5/2	Solenoid/Spring	2.5 ... 8 bar	1300	x	1.8	3
	9710445	1/4 NPT	5/2	Solenoid/Spring	2.5 ... 8 bar	1300	x	1.8	3
	9710455	G 1/2	5/2	Solenoid/Spring	2.5 ... 8 bar	2600	x	1.8	4
	9710465	1/2 NPT	5/2	Solenoid/Spring	2.5 ... 8 bar	2600	x	1.8	4
	9711435	G 1/4	5/2	Solenoid/Solenoid	2.5 ... 8 bar	1300		1.8	5
	9711445	1/4 NPT	5/2	Solenoid/Solenoid	2.5 ... 8 bar	1300		1.8	5

*1) When ordering please indicate solenoid, voltage and current type (frequency)
*2) Since May 2008, Date code A8192
*3) For operation in plants according to IEC 61511/61508 -25 ... +65°C or 0 ... +80°C see test certificate (on request)
Valve function: APB = All Ports Blocked

Actuation solenoids

	Type	Power consumption 24V DC (W)	230V AC (VA)	Rated current at 24V DC (mA)	230V AC (mA)	Protection class	Temp. range Ambient/ Fluid (°C)	Electroport size	Weight (kg)	Dimensions No.	Circuit diagram No.
	0763	1.9	2.1 *5)	78	-	IP00 w/o connector IP65 with connector *7)	-25 ... +60	Connector DIN EN 175 301-803 Form A *5)	0.3	14	1
	0298 *8)	3.6	-	150	-	EEx m II T4 *1) IP66 T110°C	-20 ... +70	3 m cable	0.4	15	17
	0299 *8)	-	4.6	-	18	EEx m II T4 *1) IP66 T110°C	-20 ... +70	3 m cable	0.4	15	18
	4200 *8)	0.8	-	33	-	EEx me II T5/T6 *2) IP66 T130°C	-40 ... +80 (T5) -40 ... +70 (T6)	Screw thread M20 X 1,5 *6)	0.85	16	4
	4201 *8)	-	1.3	-	6	EEx me II T5/T6 *2) IP66 T130°C	-40 ... +80 (T4) -40 ... +55 (T6)	Screw thread M20 X 1,5 *6)	0.85	16	7
	4600 *8) 4602 *8)	0.8 0.8	- -	33 33	- -	EEx me II T5/T6 *3) EEx md IIC T5/T6 *3) IP66 T130°C	-40 ... +80 (T5) -40 ... +70 (T6)	Screw thread 1/2 NPT *6)	0.85	17	4
	4601 *8) 4603 *8)	- -	1.3 1.3	- -	6 6	EEx me II T5/T6 *3) EEx md II T5/T6 *3) IP66 T130°C	-40 ... +80 (T5) -40 ... +70 (T6)	Screw thread M20 X 1,5 *6)	0.85	17	7
Stainless steel 	4802 *8)	0.8	–	33	–	Ex mb d IIC T4/T6 Ex mb e II T4/T6 Ex mbD 21 tDA21 IP66 T100°C *9)*10)	Cat. II 2G (gas) -40 ... +80 (T4) -40 ... +70 (T6)	Screw thread M20 X 1,5 *6)	1.2	19	4
	4803 *8)		1.3	–	6			Screw thread M20 X 1,5 *6)	1.2	19	7
	3720	1.4	-	59	-	XP *4) NEMA 4, 4X,7, 9	-20 ... +60	Flying leads 450 mm long	0.4	18	1

Standard voltages 24V DC, 230V AC. Other voltages on request.
100% duty cycle.
*1) Category II 2 GD, EC-Type-Examination-Certificate KEMA 02 ATEX 1347X
*2) Category II 2 GD, EC-Type-Examination-Certificate KEMA 98 ATEX 4452 X
*3) Categorie II 2 GD, EC-Type-Examination-Certificate PTB 02 ATEX 2085 X
*4) Ex-certification FM and CSA for Div. 1 and 2, Class I, II, III Grp. A - G
*5) Connector is not included in delivery. Required connector for DC: Type 0570275
Connector with rectifier plug for AC or UC: Type 066330
*6) Cable gland is not included in delivery, see page 7
*7) IP65 according to DIN 40050/IEC 529 and DIN EN 600068-2-38
*8) This solenoid has a fuse with an appropirate rating
*9) EC-Type-Examination PTB 06 ATEX 2054 X
*10) IECEx Certificate of Conformity according to IECEx PTB 07.0039X

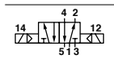
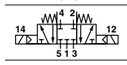
Solenoid actuators for intrinsically-safe circuits

EC-Type-Examination PTB 07 ATEX 2019 (Cat. II 2 GD)
IECEx Certificate of Conformity IECEx PTB 07.0017

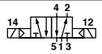
	Type	Nominal resist. RN coil (Ω)	Min. required switching current (mA)	Resistance $R_{w\ 60}$ coil* (Ω)	Required voltage at terminal ($R_{w\ 60}$)	Protection class	Temp. range Ambient/fluid (°C)	Weight (kg)	Dimensions No.	Circuit diagram No.
	2050	200	33	240	8	Ex ia IIC T6	-40...+60°C	0.85	16	10
	2051	391	24	470	11	Ex ia IIC T4	-40...+80°C			
	2052	736	17	880	15	Ex iaD 21 T80°C	-40...+60°C			
	2053	1220	13	1460	19	Ex iaD 21 T100°C	-40...+80°C			

When selecting an intrinsically safe power supply, the permissible maximum values according to the certificate should be taken in account. On the other hand, the low effective inductivity and capacity can be ignored.
Ui = 45 V Ii = 500 mA according to Tab. A. 1, EN 60079-11
Pi = 2.0 W, Li und Ci can be ignored.
Cable gland is included in delivery

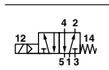
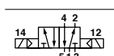
3/2, 5/2 and 5/3 directional valves with low power pilot in protection class Ex ia IIC T4/T6, seals NBR -40 ... +65°C
Aluminium anodized body

Symbol	Type *1)	Port size	Function	Actuation	Operating pressure (bar)	Flow (l/min)	Weight (kg)	Dimensions No.
	9713539	G 1/4	3/2	Solenoid/Spring	2.5 ... 8 bar	1300	0.5	7
	9713549	1/4 NPT	3/2	Solenoid/Spring	2.5 ... 8 bar	1300	0.5	7
	9713559	G 1/2	3/2	Solenoid/Spring	2.5 ... 8 bar	2600	0.5	8
	9713569	1/2 NPT	3/2	Solenoid/Spring	2.5 ... 8 bar	2600	0.5	8
	9710539	G 1/4	5/2	Solenoid/Spring	2.5 ... 8 bar	1300	0.7	9
	9710549	1/4 NPT	5/2	Solenoid/Spring	2.5 ... 8 bar	1300	0.7	9
	9710559	G 1/2	5/2	Solenoid/Spring	2.5 ... 8 bar	2600	0.7	10
	9710569	1/2 NPT	5/2	Solenoid/Spring	2.5 ... 8 bar	2600	0.7	10
	9711539	G 1/4	5/2	Solenoid/Solenoid	2.5 ... 8 bar	1300	0.7	11
	9711549	1/4 NPT	5/2	Solenoid/Solenoid	2.5 ... 8 bar	1300	0.7	11
	9712539	G 1/4	5/3	Solenoid/Solenoid mid position APB	2.5 ... 8 bar	950	0.7	12
	9712549	1/4 NPT	5/3	Solenoid/Solenoid mid position APB	2.5 ... 8 bar	950	0.7	12

Brass body

Symbol	Type *1)	Port size	Function	Actuation	Operating pressure (bar)	Flow (l/min)	Weight (kg)	Dimensions No.
	9713639	G 1/4	3/2	Solenoid/Spring	2.5 ... 8 bar	1300	1.0	7
	9713649	1/4 NPT	3/2	Solenoid/Spring	2.5 ... 8 bar	1300	1.0	7
	9713659	G 1/2	3/2	Solenoid/Spring	2.5 ... 8 bar	2600	1.0	8
	9713669	1/2 NPT	3/2	Solenoid/Spring	2.5 ... 8 bar	2600	1.0	8
	9710639	G 1/4	5/2	Solenoid/Spring	2.5 ... 8 bar	1300	1.7	9
	9710649	1/4 NPT	5/2	Solenoid/Spring	2.5 ... 8 bar	1300	1.7	9
	9710659	G 1/2	5/2	Solenoid/Spring	2.5 ... 8 bar	2600	1.7	10
	9710669	1/2 NPT	5/2	Solenoid/Spring	2.5 ... 8 bar	2600	1.7	10
	9711639	G 1/4	5/2	Solenoid/Solenoid	2.5 ... 8 bar	1300	1.7	11
	9711649	1/4 NPT	5/2	Solenoid/Solenoid	2.5 ... 8 bar	1300	1.7	11

Stainless steel body

Symbol	Type *1)	Port size	Function	Actuation	Operating pressure (bar)	Flow (l/min)	Weight (kg)	Dimensions No.
	9713739	G 1/4	3/2	Solenoid/Spring	2.5 ... 8 bar	1300	1.1	7
	9713749	1/4 NPT	3/2	Solenoid/Spring	2.5 ... 8 bar	1300	1.1	7
	9713759	G 1/2	3/2	Solenoid/Spring	2.5 ... 8 bar	2600	1.1	8
	9713769	1/2 NPT	3/2	Solenoid/Spring	2.5 ... 8 bar	2600	1.1	8
	9710739	G 1/4	5/2	Solenoid/Spring	2.5 ... 8 bar	1300	1.8	9
	9710749	1/4 NPT	5/2	Solenoid/Spring	2.5 ... 8 bar	1300	1.8	9
	9710759	G 1/2	5/2	Solenoid/Spring	2.5 ... 8 bar	2600	1.8	10
	9710769	1/2 NPT	5/2	Solenoid/Spring	2.5 ... 8 bar	2600	1.8	10
	9711739	G 1/4	5/2	Solenoid/Solenoid	2.5 ... 8 bar	1300	1.8	11
	9711749	1/4 NPT	5/2	Solenoid/Solenoid	2.5 ... 8 bar	1300	1.8	11

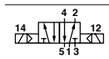
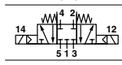
*1) When ordering please indicate pilot. Code for electrical connection: 005 = M 16 x 1,5, see below
Valve function: APB = All Ports Blocked

Pilot in protection class Ex ia II C T4/T6

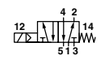
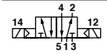
	Type	Resist. coil R (+20°C)	Rated current I on	Power P (+20°C)	Switch-on voltage Uon (+20°C)	Switch-off voltage Uoff (+20°C)	Switch-on voltage Uon (+80°C)	Switch-off voltage Uoff (-25°C)	max. values EEx i Ui	Ii	Pi (only 2085)	Protection class *4)	Ambient temperature	Circuit diagram No.
									25 V	150 mA	250 mW			
									27 V	125 mA	250 mW			
	2085	2800 Ω	≥1.45 mA	6.3 mW	≥4.3 V	≤1.44 V	≥5.2 V	≤1.2 V	28 V	115 mA	250 mW	EEx ia IIC T4	-40 bis +80°C	10
	2086	10900 Ω	≥1.45 mA	23.2 mW	≥16 V	≤5.4 V	≤16.8 V	≤4.7 V	30 V	100 mA	250 mW	EEx ia IIC T6	-40 bis +60°C	10
									32 V	85 mA	250 mW			

*4) Categorie II2G, EC-Examination certificate no. PTB 06 ATEX 2001U
Air consumption: home position ≤ 60 l/h, operating positions≤ 15 l/h

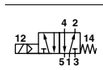
3/2, 5/2 and 5/3 directional valves with low power pilot in protection class Ex ia IIC T4/T6, seals HNBR -25 ... +80°C
Aluminium anodized body

Symbol	Type *1)	Port size	Function	Actuation	Operating pressure (bar)	Flow (l/min)	Weight (kg)	Dimensions No.
	9713239	G 1/4	3/2	Solenoid/Spring	2.5 ... 8 bar	1300	0.5	7
	9713249	1/4 NPT	3/2	Solenoid/Spring	2.5 ... 8 bar	1300	0.5	7
	9713259	G 1/2	3/2	Solenoid/Spring	2.5 ... 8 bar	2600	0.5	8
	9713269	1/2 NPT	3/2	Solenoid/Spring	2.5 ... 8 bar	2600	0.5	8
	9710239	G 1/4	5/2	Solenoid/Spring	2.5 ... 8 bar	1300	0.7	9
	9710249	1/4 NPT	5/2	Solenoid/Spring	2.5 ... 8 bar	1300	0.7	9
	9710259	G 1/2	5/2	Solenoid/Spring	2.5 ... 8 bar	2600	0.7	10
	9710269	1/2 NPT	5/2	Solenoid/Spring	2.5 ... 8 bar	2600	0.7	10
	9711239	G 1/4	5/2	Solenoid/Solenoid	2.5 ... 8 bar	1300	0.7	11
	9711249	1/4 NPT	5/2	Solenoid/Solenoid	2.5 ... 8 bar	1300	0.7	11
	9712239	G 1/4	5/3	Solenoid/Solenoid mid position APB	2.5 ... 8 bar	950	0.7	12
	9712249	1/4 NPT	5/3	Solenoid/Solenoid mid position APB	2.5 ... 8 bar	950	0.7	12

Brass body

Symbol	Type *1)	Port size	Function	Actuation	Operating pressure (bar)	Flow (l/min)	Weight (kg)	Dimensions No.
	9713339	G 1/4	3/2	Solenoid/Spring	2.5 ... 8 bar	1300	1.0	7
	9713349	1/4 NPT	3/2	Solenoid/Spring	2.5 ... 8 bar	1300	1.0	7
	9713359	G 1/2	3/2	Solenoid/Spring	2.5 ... 8 bar	2600	1.0	8
	9713369	1/2 NPT	3/2	Solenoid/Spring	2.5 ... 8 bar	2600	1.0	8
	9710339	G 1/4	5/2	Solenoid/Spring	2.5 ... 8 bar	1300	1.7	9
	9710349	1/4 NPT	5/2	Solenoid/Spring	2.5 ... 8 bar	1300	1.7	9
	9710359	G 1/2	5/2	Solenoid/Spring	2.5 ... 8 bar	2600	1.7	10
	9710369	1/2 NPT	5/2	Solenoid/Spring	2.5 ... 8 bar	2600	1.7	10
	9711339	G 1/4	5/2	Solenoid/Solenoid	2.5 ... 8 bar	1300	1.7	11
	9711349	1/4 NPT	5/2	Solenoid/Solenoid	2.5 ... 8 bar	1300	1.7	11

Stainless steel body

Symbol	Type *1)	Port size	Function	Actuation	Operating pressure (bar)	Flow (l/min)	Weight (kg)	Dimensions No.
	9713439	G 1/4	3/2	Solenoid/Spring	2.5 ... 8 bar	1300	1.1	7
	9713449	1/4 NPT	3/2	Solenoid/Spring	2.5 ... 8 bar	1300	1.1	7
	9713459	G 1/2	3/2	Solenoid/Spring	2.5 ... 8 bar	2600	1.1	8
	9713469	1/2 NPT	3/2	Solenoid/Spring	2.5 ... 8 bar	2600	1.1	8
	9710439	G 1/4	5/2	Solenoid/Spring	2.5 ... 8 bar	1300	1.8	9
	9710449	1/4 NPT	5/2	Solenoid/Spring	2.5 ... 8 bar	1300	1.8	9
	9710459	G 1/2	5/2	Solenoid/Spring	2.5 ... 8 bar	2600	1.8	10
	9710469	1/2 NPT	5/2	Solenoid/Spring	2.5 ... 8 bar	2600	1.8	10
	9711439	G 1/4	5/2	Solenoid/Solenoid	2.5 ... 8 bar	1300	1.8	11
	9711449	1/4 NPT	5/2	Solenoid/Solenoid	2.5 ... 8 bar	1300	1.8	11

*1) When ordering please indicate pilot. Code for electrical connection: 005 = M 16 x 1,5, see below
Valve function: APB = All Ports Blocked

Pilot in protection class Ex ia II C T4/T6

	Type	Resist. coil R (+20°C)	Rated current I on	Power P (+20°C)	Switch-on voltage Uon (+20°C)	Switch-off voltage Uoff (+20°C)	Switch-on voltage Uon (+80°C)	Switch-off voltage Uoff (-25°C)	max. values EEx i Ui	Ii	Pi (only 2085)	Protection class *4)	Ambient temperature	Circuit diagram No.
									25 V	150 mA	250 mW			
									27 V	125 mA	250 mW			
	2085	2800 Ω	≥1.45 mA	6.3 mW	≥4.3 V	≤1.44 V	≥5.2 V	≤1.2 V	28 V	115 mA	250 mW	EEx ia IIC T4	-40 bis +80°C	10
	2086	10900 Ω	≥1.45 mA	23.2 mW	≥16 V	≤5.4 V	≤16.8 V	≤4.7 V	30 V	100 mA	250 mW	EEx ia IIC T6	-40 bis +60°C	10
									32 V	85 mA	250 mW			

*4) Categorie II2G, EC-Examination certificate no. PTB 06 ATEX 2001U
Air consumption: home position ≤ 60 l/h, operating positions≤ 15 l/h

Accessories

Manual override	Silencer	Connectors
		
0553886 (without detent) *2)	0014600 (G1/4) *1)	0570275
0553887 (with detent) *2)	0014800 (G1/2) *1)	0663303 (with rectifier)

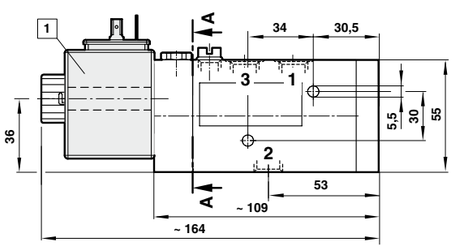
For detailed information about connectors
see page: N/UK **7.7.**002
*1) For indoors use
*2) Useable only with the valves on page 2

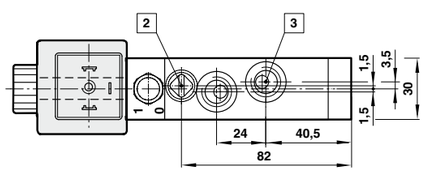
Cable gland
Protection class Ex e, Ex d (ATEX),
Ms nickel plated brass/stainless steel

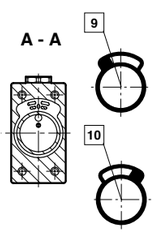
Type	For Solenoid	Ex-Category	Protection class	Material	Electrical connection	For cable Ø (mm)
0588819	42xx, 46xx	II 2 GD	EEx e II	Ms nickel plated brass	M20x1,5	5...8
0588851	46xx	II 2 GD	EEx d IIC	Ms nickel plated brass	M20x1,5	10...14
0588925	46xx	II 2 GD	EEx e II, EEx d IIC	Ms nickel plated brass	1/2-14 NPT	7.5...11.9
0589385	48xx	II 2 GD	EEx e II	Stainless steel 1.4571	M20x1,5	9...13
0589387	48xx	II 2 GD	EEx d IIC	Stainless steel 1.4404	M20x1,5	10...14
0589395	48xx	II 2 GD	EEx d IIC	Stainless steel 1.4404	M20x1,5	7...12

Basic dimensions valves

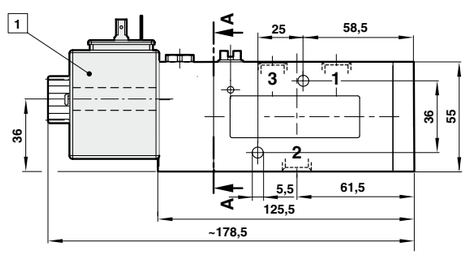
①

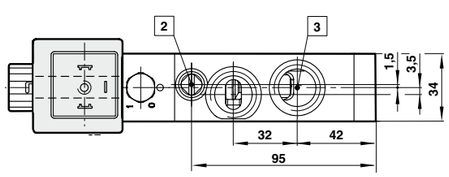






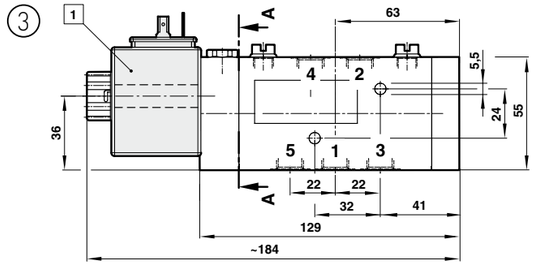
②

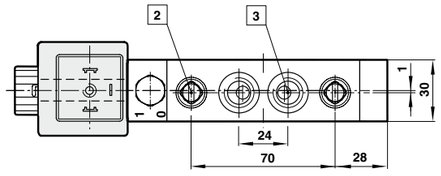




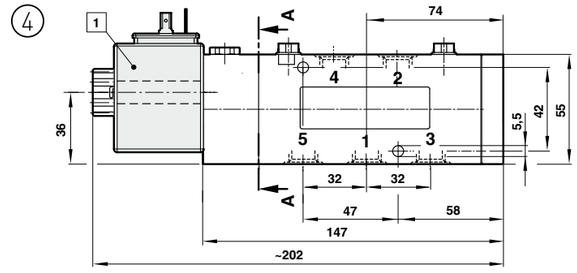
1	Solenoid dimensions see page 12
2	External control pressure connection G1/8
3	Working port G1/4, G1/2 or 1/4 NPT, 1/2 NPT
9	Position of gasket internal pilot air
10	Position of gasket external pilot air

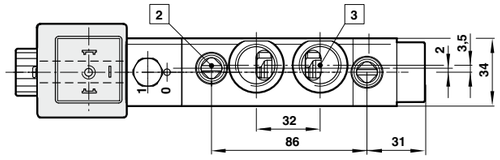
③



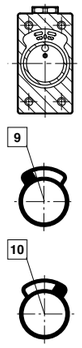


④



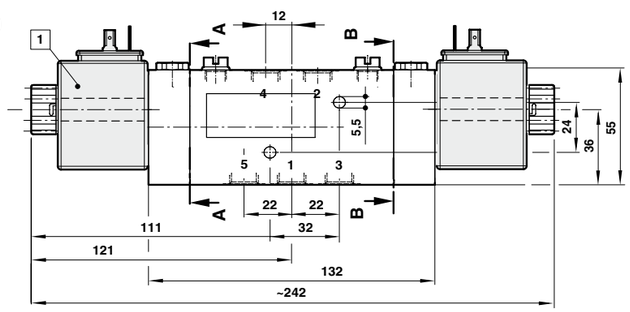


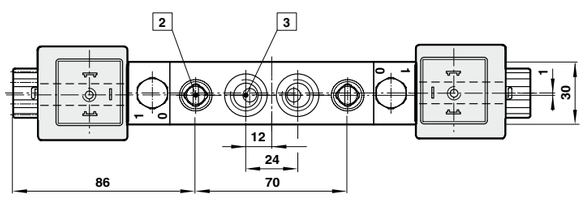
A - A



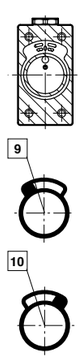
1	Solenoid dimensions see page 12
2	External control pressure connection G1/8
3	Working port G1/4, G1/2 or 1/4 NPT, 1/2 NPT
9	Position of gasket internal pilot air
10	Position of gasket external pilot air

⑤

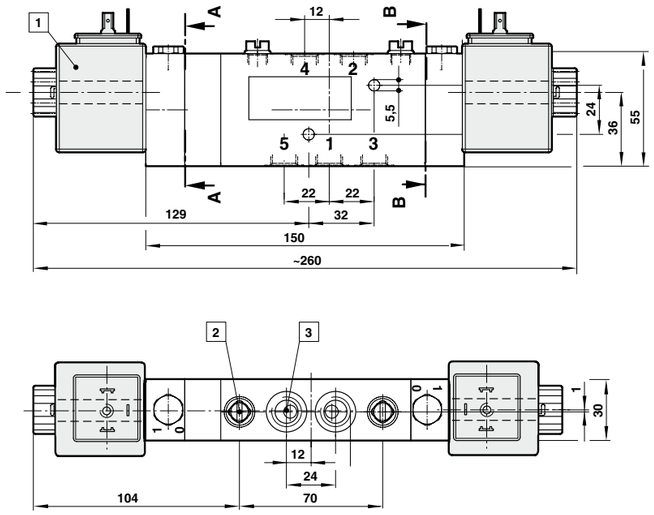




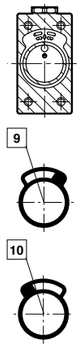
A - A



6

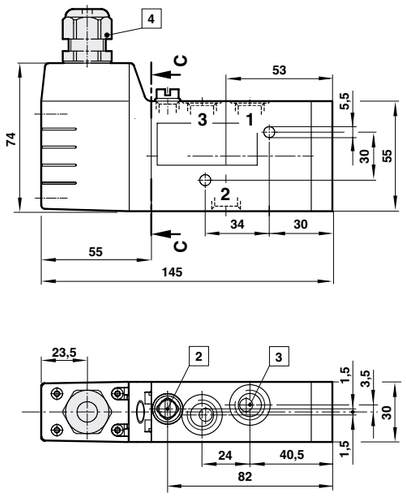


B - B

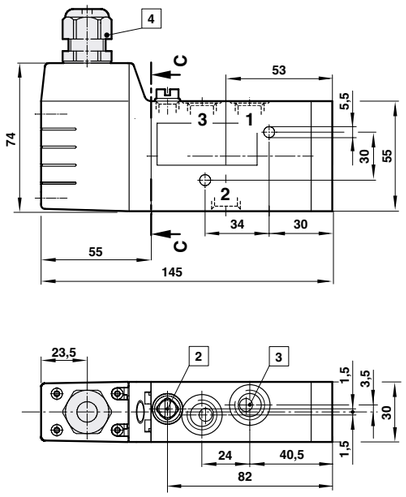


1 Solenoid dimensions see page 12
2 External control pressure connection G1/8
3 Working port G1/4, G1/2 or 1/4 NPT, 1/2 NPT
9 Position of gasket internal pilot air
10 Position of gasket external pilot air

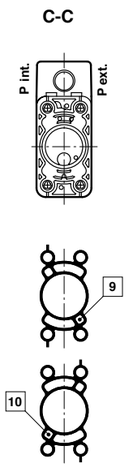
7



8

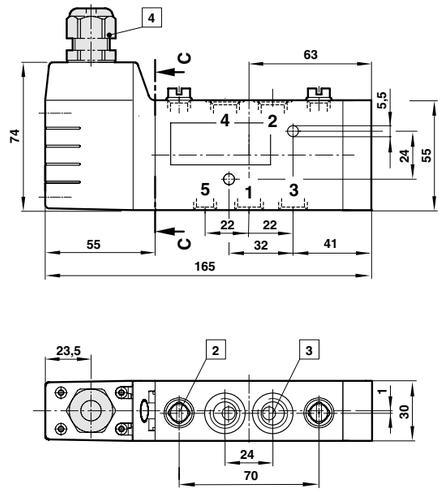


C-C

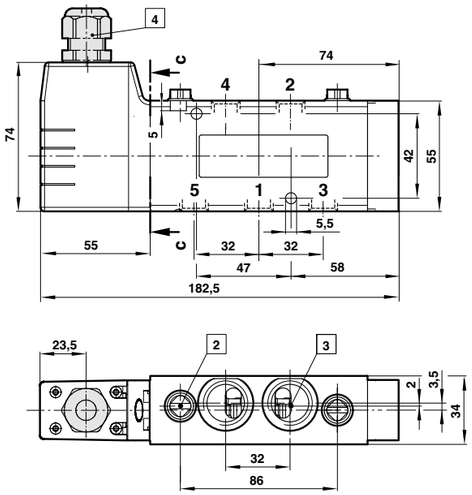


2 External control pressure connection G1/8
3 Working port G1/4, G1/2 or 1/4 NPT, 1/2 NPT
4 Electrical connection, M16x1,5
9 Position of gasket internal pilot air
10 Position of gasket external pilot air

9

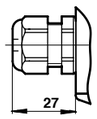


10



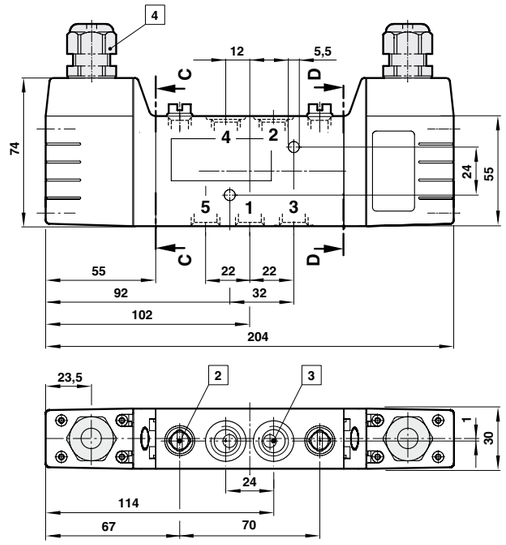
Electrical connection

005

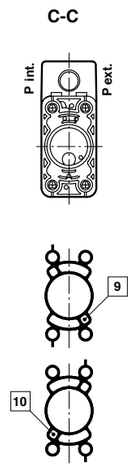


2 External control pressure connection G1/8
3 Working port G1/4, G1/2 or 1/4 NPT, 1/2 NPT
4 Electrical connection, M16x1,5
9 Position of gasket internal pilot air
10 Position of gasket external pilot air

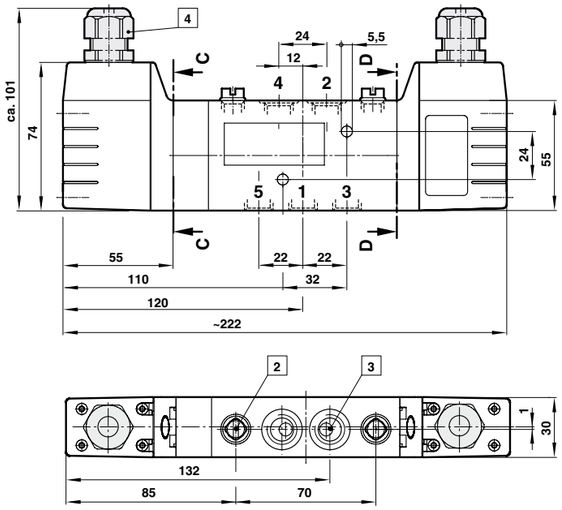
11



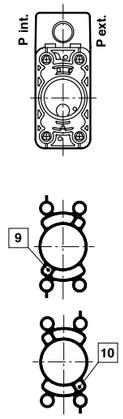
C-C



(12)

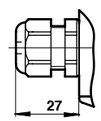


D-D



Electrical connection

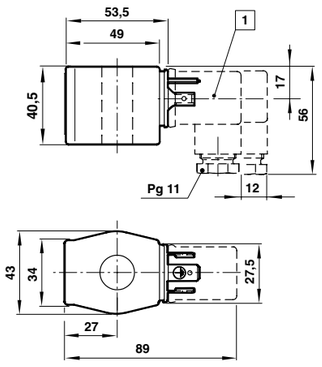
005



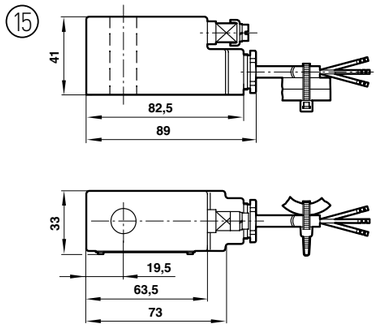
- 2 External control pressure connection G1/8
- 3 Working port G1/4, G1/2 or 1/4 NPT, 1/2 NPT
- 4 Electrical connection, M16x1,5
- 9 Position of gasket internal pilot air
- 10 Position of gasket external pilot air

Basic dimensions solenoids

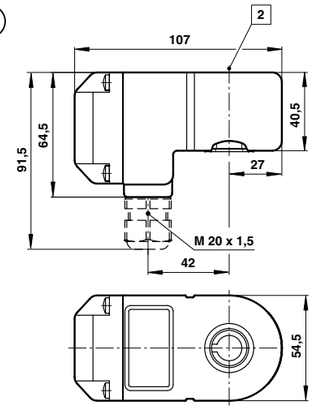
(14)



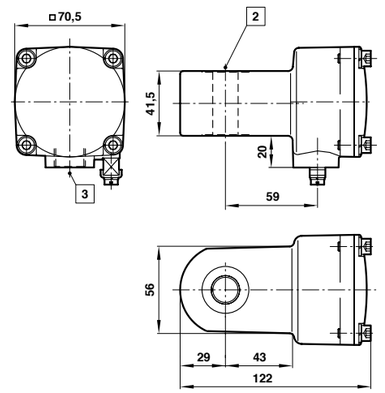
(15)



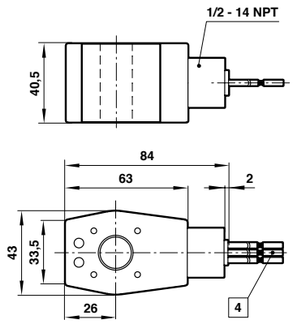
(16)



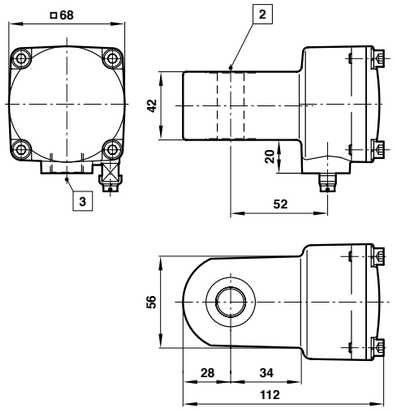
(17)



(18)



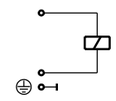
(19)



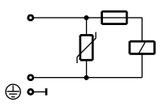
- 1 Connector can be indexed by 4 x 90° Ø 16 Ø
- 2 16 or 13 (with spacer tube)
- 3 M20 x 1,5 or 1/2 - 14 NPT
- 4 Flying leads AWG 18 (450 mm long)

Circuit diagrams

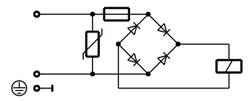
(1)



(4)



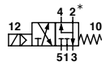
(7)

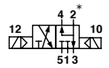


(10) (17) (18)

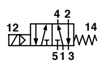
3/2, 5/2 and 5/3 directional valves
Actuation: electromagnetic
Indirectly controlled soft seal spool valves
Port size: G 1/4, 1/4 NPT, G 1/2, 1/2 NPT
NAMUR-interface

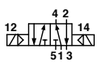
3/2



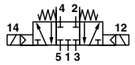


5/2





5/3



* Waste air repatriation from drive

For single and double operated actuators

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

Crossover-free switching, switch-over function

guaranteed even with small cross section

Rest position in the event of power failure provided by mechanical return spring (monostable design)

Add-on manual override

Suitable for outdoor installation if equipped with corresponding solenoid

The solenoid valves are applicable in the protection classes Ex me, Ex md, Ex m, Ex ia for zones 1 & 2 (gases), 21 & 22 (dusts), ATEX cat. II 2GD

International certifications: IECEx, FM, CSA, others on request

Technical data

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

Operation:
Solenoid, indirectly controlled

Mounting position:
Optional, impuls valves preferably horizontally

Nominal diameter:
ND 6 mm, ND 8 mm

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

Operating pressure:
2.5 ... 8 bar with internal air supply
0 ... 8 bar with external air supply, control pressure 2.5 ... 8 bar
(only for G1/2, 1/2 NPT or low power pilot)

Temperature:
Valve: *1)
-40 ... +65°C (NBR),
-25 ... +80°C (HNBR)
Solenoid: see solenoid table
(please consult our technical service for use below +2°C, if installed in the open protect all connections against the penetration of moisture!)

Materials

Body: aluminium 3.0615 with surface treatment for rough environmental conditions (condensate test with alternating temperatures in sulphuric environment, salt spray test with different sodium chloride solutions, tested in ammonia environment)
Brass 2.0401/Ms 58, stainless steel 1.4404/316

Seals: NBR (special perbunan) or HNBR

Option selector

971★★★★.★★★★.★★★.★★

Function	Number code
5/2 way with spring return (3/2 way with adapter plate for NAMUR flange)	0
5/2 way impuls (3/2 way with adapter plate for NAMUR flange)	1
5/3 way with spring return (ABP)	2

Materials: body/seals	Number code
aluminium/HNBR (-25° .... + 80°C)*	2
brass/HNBR (-25° .... + 80°C)*	3
stainless steel/HNBR (-25° .... + 80°C)*	4
aluminium/NBR (-40° .... + 65°C)*	5
brass/NBR (-40° .... + 65°C)*	6
stainless steel/NBR (-40° .... + 65°C)*	7

Port size	Number code
G 1/4	0
1/4 NPT	1
G 1/2	9
1/2 NPT (in connection with version Number code 6)	9

Air supply	Number code
internal	0
external	Z

Voltage	Number code
24 V DC	024.0
230 V AC	230.5

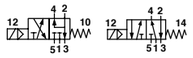
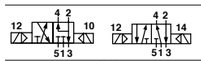
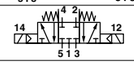
Solenoid	Number code
see solenoid table	

Version	Number code
without manual override (retrofit)	5
semi automatic (on request)	7
low power pilot (page 5)	9
for 1/2 NPT + NAMUR (manual override retrofit)	6

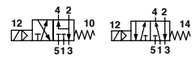
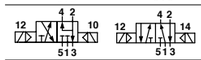
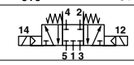
3/2, 5/2 and 5/3 directional valves, seals NBR -40° ... +65°C *3)

3/2 or 5/2 way function (conversion instruction see page 13)

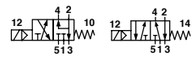
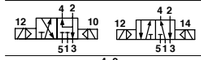
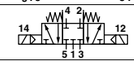
Aluminium anodized body

Symbol	Type *1)	Port size 1, 3, (5)	2.4	Actuation	Operating pressure (bar)	Flow (l/min)	Test certificate IEC 61508 *2)	Weight (kg)	Dimensions No.
	9710505	G 1/4	Flange	Solenoid/Spring	2.5...8	1300	x	0.45	1
	9710515	1/4 NPT					x		
	9710595	G 1/2	Flange	Solenoid/Spring	2.5...8	1700		0.80	7
	9710596	1/2 NPT							
	9711505	G 1/4	Flange	Solenoid/Solenoid	2.5...8	1300		0.65	2
	9711515	1/4 NPT							
	9712505	G 1/4	Flange	Solenoid/Solenoid mid position APB	2.5...8	950		0.7	3
	9712515	1/4 NPT							

Brass body

Symbol	Type *1)	Port size 1, 3, (5)	2.4	Actuation	Operating pressure (bar)	Flow (l/min)	Test certificate IEC 61508 *2)	Weight (kg)	Dimensions No.
	9710605	G 1/4	Flange	Solenoid/Spring	2.5...8	1300	x	1.0	1
	9710615	1/4 NPT					x		
	9711605	G 1/4	Flange	Solenoid/Solenoid	2.5...8	1300		1.4	2
	9711615	1/4 NPT							
	9712605	G 1/4	Flange	Solenoid/Solenoid mid position APB	2.5...8	950		1.5	3
	9712615	1/4 NPT							

Stainless steel body

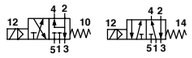
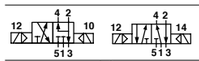
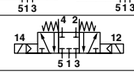
Symbol	Type *1)	Port size 1, 3, (5)	2.4	Actuation	Operating pressure (bar)	Flow (l/min)	Test certificate IEC 61508 *2)	Weight (kg)	Dimensions No.
	9710705	G 1/4	Flange	Solenoid/Spring	2.5...8	1300	x	1.0	1
	9710715	1/4 NPT					x		
	9711705	G 1/4	Flange	Solenoid/Solenoid	2.5...8	1300		1.4	2
	9711715	1/4 NPT							
	9712705	G 1/4	Flange	Solenoid/Solenoid mid position APB	2.5...8	950		1.5	3
	9712715	1/4 NPT							

*1) When ordering please indicate solenoid, voltage and current type (frequency)
*2) Since May 2008, Date code A8192
*3) For operation in plants according to IEC 61511/IEC 61508 -40 ... +40°C see test certificate (on request)
Valve function: APB = All Ports Blocked

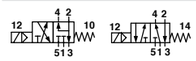
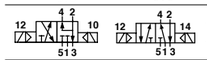
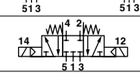
3/2, 5/2 and 5/3 directional valves, seals HNBR -25 ... +80°C *3)

3/2 or 5/2 way function (conversion instruction see page 13)

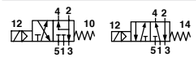
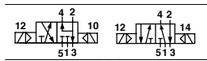
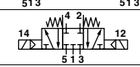
Aluminium anodized body

Symbol	Type *1)	Port size 1, 3, (5)	2.4	Actuation	Operating pressure (bar)	Flow (l/min)	Test certificate IEC 61508 *2)	Weight (kg)	Dimensions No.
	9710205	G 1/4	Flange	Solenoid/Spring	2.5...8	1300	x	0.45	1
	9710215	1/4 NPT					x		
	9710295	G 1/2	Flange	Solenoid/Spring	2.5...8	1700	x	0.80	7
	9710296	1/2 NPT					x		
	9711205	G 1/4	Flange	Solenoid/Solenoid	2.5...8	1300		0.65	2
	9711215	1/4 NPT							
	9712205	G 1/4	Flange	Solenoid/Solenoid mid position APB	2.5...8	950		0.7	3
	9712215	1/4 NPT							

Brass body

Symbol	Type *1)	Port size 1, 3, (5)	2.4	Actuation	Operating pressure (bar)	Flow (l/min)	Test certificate IEC 61508 *2)	Weight (kg)	Dimensions No.
	9710305	G 1/4	Flange	Solenoid/Spring	2.5...8	1300	x	1.0	1
	9710315	1/4 NPT					x		
	9711305	G 1/4	Flange	Solenoid/Solenoid	2.5...8	1300		1.4	2
	9711315	1/4 NPT							
	9712305	G 1/4	Flange	Solenoid/Solenoid mid position APB	2.5...8	950		1.5	3
	9712315	1/4 NPT							

Stainless steel body

Symbol	Type *1)	Port size 1, 3, (5)	2.4	Actuation	Operating pressure (bar)	Flow (l/min)	Test certificate IEC 61508 *2)	Weight (kg)	Dimensions No.
	9710405	G 1/4	Flange	Solenoid/Spring	2.5...8	1300	x	1.0	1
	9710415	1/4 NPT					x		
	9711405	G 1/4	Flange	Solenoid/Solenoid	2.5...8	1300		1.4	2
	9711415	1/4 NPT							
	9712405	G 1/4	Flange	Solenoid/Solenoid mid position APB	2.5...8	950		1.5	3
	9712415	1/4 NPT							

*1) When ordering please indicate solenoid, voltage and current type (frequency)
*2) Since May 2008, Date code A8192
*3) For operation in plants according to IEC 61511/IEC 61508 -40 ... +40°C see test certificate (on request)
Valve function: APB = All Ports Blocked

Actuation solenoids

	Type	Power consumption 24V DC (W)	230V AC (VA)	Rated current at 24V DC (mA)	230V AC (mA)	Protection class	Temp. range Ambient/ Fluid (°C)	Electroport size	Weight (kg)	Dimensions No.	Circuit diagram No.
	0763	1.9	2.1 *5)	78	-	IP00 w/o connector IP65 with connector *7)	-25 ... +60	Connector DIN EN 175 301-803 Form A *5)	0.3	14	1
	0298 *8)	3.6	-	150	-	EEx m II T4 *1) IP66 T110°C	-20 ... +70	3 m cable	0.4	15	17
	0299 *8)	-	4.6	-	18	EEx m II T4 *1) IP66 T110°C	-20 ... +70	3 m cable	0.4	15	18
	4200 *8)	0.8	-	33	-	EEx me II T5/T6 *2) IP66 T130°C	-40 ... +80 (T5) -40 ... +70 (T6)	Screw thread M20 X 1,5 *6)	0.85	16	4
	4201 *8)	-	1.3	-	6	EEx me II T5/T6 *2) IP66 T130°C	-40 ... +80 (T4) -40 ... +55 (T6)	Screw thread M20 X 1,5 *6)	0.85	16	7
	4600 *8)	0.8	-	33	-	EEx me II T5/T6 *3) EEx md IIC T5/T6 *3)	-40 ... +80 (T5) -40 ... +70 (T6)	Screw thread 1/2 NPT *6)	0.85	17	4
	4602 *8)	0.8	-	33	-	IP66 T130°C					
	4601 *8)	-	1.3	-	6	EEx me II T5/T6 *3) EEx md II T5/T6 *3)	-40 ... +80 (T5) -40 ... +70 (T6)	Screw thread M20 X 1,5 *6)	0.85	17	7
	4603 *8)	-	1.3	-	6	IP66 T130°C					
Stainless steel 	4802 *8)	0.8	–	33	–	Ex mb d IIC T4/T6 Ex mb e II T4/T6 Ex mbD 21 tDA21	Cat. II 2G (gas) -40 ... +80 (T4) -40 ... +70 (T6)	Screw thread M20 X 1,5 *6)	1.2	19	4
	4803 *8)		1.3	–	6	IP66 T100°C *9)*10)		Screw thread M20 X 1,5 *6)	1.2	19	7
	3720	1.4	-	59	-	XP *4) NEMA 4, 4X,7, 9	-20 ... +60	Flying leads 450 mm long	0.4	18	1

Standard voltages 24V DC, 230V AC. Other voltages on request.
100% duty cycle.
*1) Category II 2 GD, EC-Type-Examination-Certificate KEMA 02 ATEX 1347X
*2) Category II 2 GD, EC-Type-Examination-Certificate KEMA 98 ATEX 4452 X
*3) Categorie II 2 GD, EC-Type-Examination-Certificate PTB 02 ATEX 2085 X
*4) Ex-certification FM and CSA for Div. 1 and 2, Class I, II, III Grp. A - G
*5) Connector is not included in delivery. Required connector for DC: Type 0570275
Connector with rectifier plug for AC or UC: Type 066330
*6) Cable gland is not included in delivery, see page 7
*7) IP65 according to DIN 40050/IEC 529 and DIN EN 600068-2-38
*8) This solenoid has a fuse with an appropirate rating
*9) EC-Type-Examination PTB 06 ATEX 2054 X
*10) IECEx Certificate of Conformity according to IECEx PTB 07.0039X

Solenoid actuators for intrinsically-safe circuits

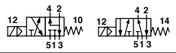
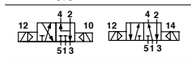
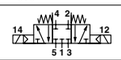
EC-Type-Examination PTB 07 ATEX 2019 (Cat. II 2 GD)
IECEx Certificate of Conformity IECEx PTB 07.0017

	Type	Nominal resist. RN coil (Ω)	Min. required switching current (mA)	Resistance $R_{w\ 60}$ coil* (Ω)	Required voltage at terminal ($R_{w\ 60}$)	Protection class	Temp. range Ambient/fluid (°C)	Weight (kg)	Dimensions No.	Circuit diagram No.
	2050	200	33	240	8	Ex ia IIC T6	-40...+60°C	0.85	16	10
	2051	391	24	470	11	Ex ia IIC T4	-40...+80°C			
	2052	736	17	880	15	Ex iaD 21 T80°C	-40...+60°C			
	2053	1220	13	1460	19	Ex iaD 21 T100°C	-40...+80°C			

When selecting an intrinsically safe power supply, the permissible maximum values according to the certificate should be taken in account. On the other hand, the low effective inductivity and capacity can be ignored.
Ui = 45 V Ii = 500 mA according to Tab. A. 1, EN 60079-11
Pi = 2.0 W, Li und Ci can be ignored.
Cable gland is included in delivery

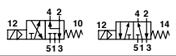
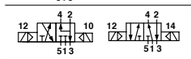
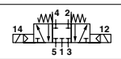
3/2, 5/2 and 5/3 directional valves with low power pilot in protection class Ex ia IIC T4/T6, seals NBR -40 ... +65°C

3/2 or 5/2 way function (conversion instruction see page 13)

Symbol	Type *1)	Port size 1, 3, (5)	2, 4	Actuation	Material	Operating pressure (bar)	Flow (l/min)	Weight (kg)	Dimensions No.
	9710509	G 1/4	Flange	Solenoid/Spring	Aluminium	2.5 ... 8	1300	0.45	4
	9710519	1/4 NPT							
	9711509	G 1/4	Flange	Solenoid/Solenoid	Aluminium	2.5 ... 8	1300	0.65	5
	9711519	1/4 NPT							
	9712509	G 1/4	Flange	Solenoid/Solenoid mid position APB	Aluminium	2.5 ... 8	950	0.7	6
	9712519	1/4 NPT							

3/2, 5/2 and 5/3 directional valves with low power pilot in protection class Ex ia IIC T4/T6, seals NBR -25° ... +80°C

3/2 or 5/2 way function (conversion instruction see page 13)

Symbol	Type *1)	Port size 1, 3, (5)	2, 4	Actuation	Material	Operating pressure (bar)	Flow (l/min)	Weight (kg)	Dimensions No.
	9710209	G 1/4	Flange	Solenoid/Spring	Aluminium	2.5 ... 8	1300	0.45	4
	9710219	1/4 NPT							
	9711209	G 1/4	Flange	Solenoid/Solenoid	Aluminium	2.5 ... 8	1300	0.65	5
	9711219	1/4 NPT							
	9712209	G 1/4	Flange	Solenoid/Solenoid mid position APB	Aluminium	2.5 ... 8	950	0.7	6
	9712219	1/4 NPT							

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

Pilot in protection class Ex ia II C T4/T6

	Type	Resist. coil R (+20°C)	Rated current I on	Power P (+20°C)	Switch-on voltage Uon (+20°C)	Switch-off voltage Uoff (+20°C)	Switch-on voltage Uon (+80°C)	Switch-off voltage Uoff (-25°C)	max. values EEx i Ui	Ii	Pi (only 2085)	Protection class *4)	Ambient temperature	Circuit diagram No.
									25 V	150 mA	250 mW			
									27 V	125 mA	250 mW			
	2085	2800 Ω	≥1.45 mA	6.3 mW	≥4.3 V	≤1.44 V	≥5.2 V	≤1.2 V	28 V	115 mA	250 mW	EEx ia IIC T4	-40 bis +80°C	10
	2086	10900 Ω	≥1.45 mA	23.2 mW	≥16 V	≤5.4 V	≤16.8 V	≤4.7 V	30 V	100 mA	250 mW	EEx ia IIC T6	-40 bis +60°C	10
									32 V	85 mA	250 mW			

*4) Categorie II2G, EC-Examination certificate no. PTB 06 ATEX 2001U
Air consumption: home position ≤ 60 l/h, operating positions≤ 15 l/h

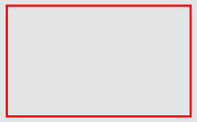
Accessories

Silencer	Manual override	Connectors
		
0014600 (G1/4) *1)	0553886 (without detent) *2)	0570275
0014800 (G1/2) *1)	0553887 (with detent) *2)	0663303 (with rectifier)

*1) For indoors use
*2) Useable only with the valves on page 2 and 3

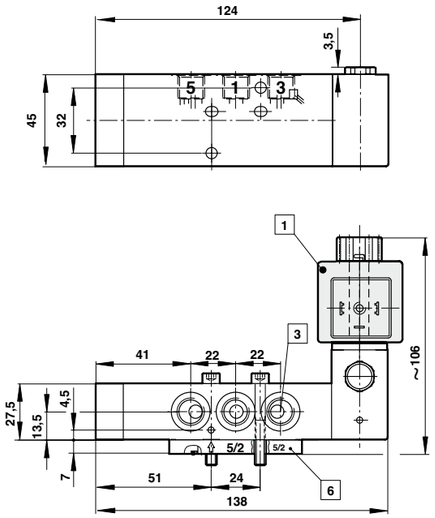
Cable gland
Protection class Ex e, Ex d (ATEX),
Ms nickel plated brass/stainless steel

Type	For Solenoid	Ex-Category	Protection class	Material	Electrical connection	For cable Ø (mm)
0588819	42xx, 46xx	II 2 GD	EEx e II	Ms nickel plated brass	M20x1,5	5...8
0588851	46xx	II 2 GD	EEx d IIC	Ms nickel plated brass	M20x1,5	10...14
0588925	46xx	II 2 GD	EEx e II, EEx d IIC	Ms nickel plated brass	1/2-14 NPT	7.5...11.9
0589385	48xx	II 2 GD	EEx e II	Stainless steel 1.4571	M20x1,5	9...13
0589387	48xx	II 2 GD	EEx d IIC	Stainless steel 1.4404	M20x1,5	10...14
0589395	48xx	II 2 GD	EEx d IIC	Stainless steel 1.4404	M20x1,5	7...12

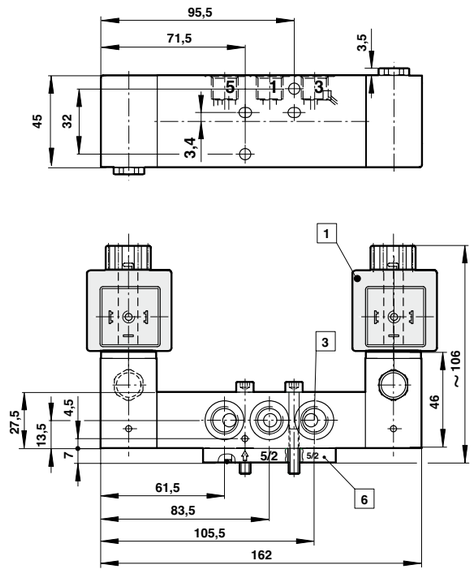
Throttle plate	Flange plate	Yoke
		
4040239 (only for G 1/4)	0612790 NAMUR single connection plate (only for G 1/4)	0540593
	0612791 NAMUR-rip use in combination with 0612790 (Alu, only for G 1/4)	

Basic dimensions valves

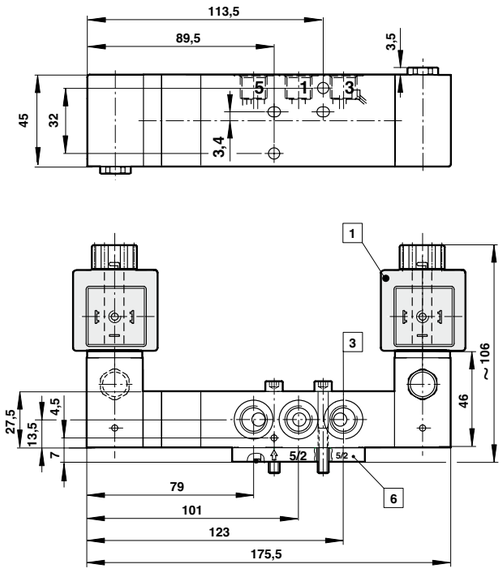
①



②

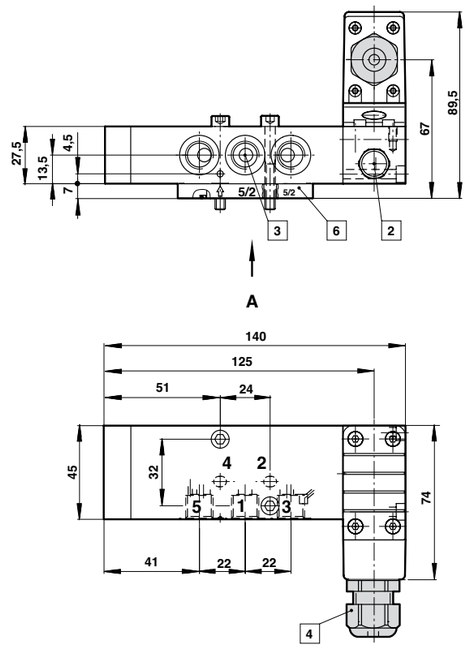


③

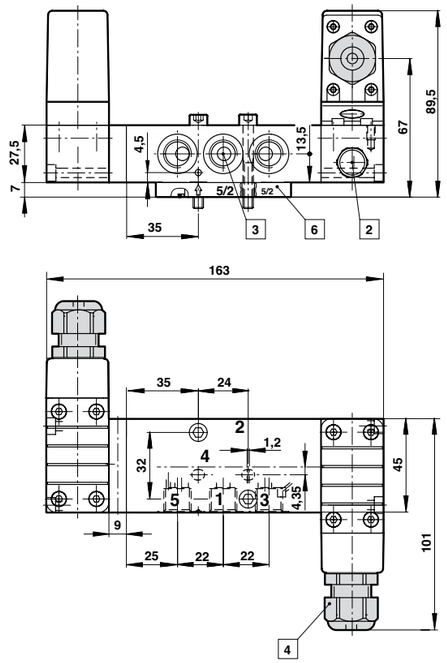


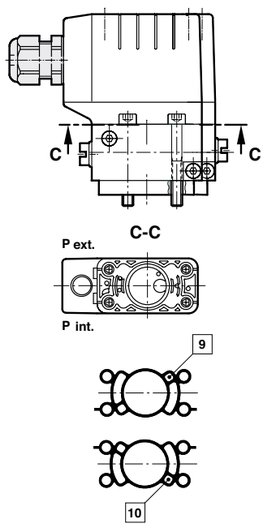
1	Solenoid dimensions see page 11
3	Working port G1/4 or 1/4 NPT
6	NAMUR connection plate 3/2 or 5/2 way function via 2 plates

④



⑤

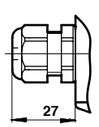




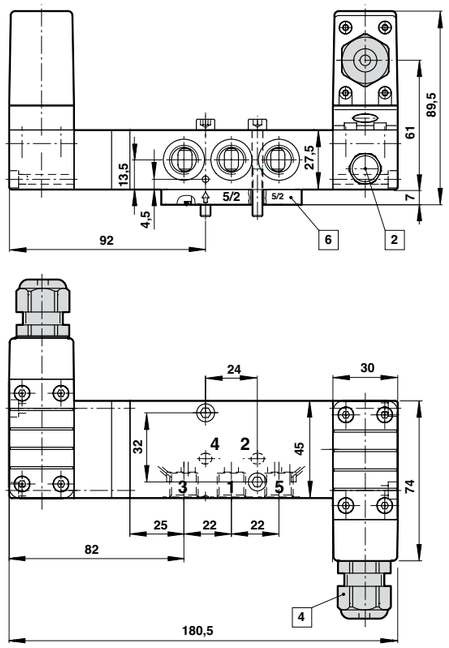
2	External control pressure connection G1/8 or 1/8 NPT
3	Working port G1/4 or 1/4 NPT
4	Electrical connection version 005
6	NAMUR connection plate 3/2 or 5/2 way function via 2 plates
9	Position of gasket internal pilot air
10	Position of gasket external pilot air

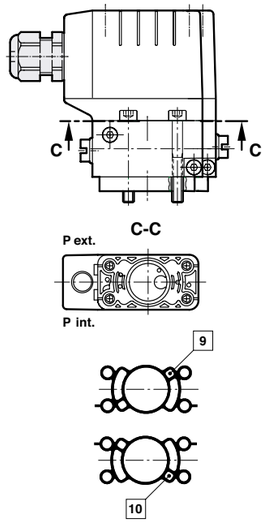
Electrical connection

005



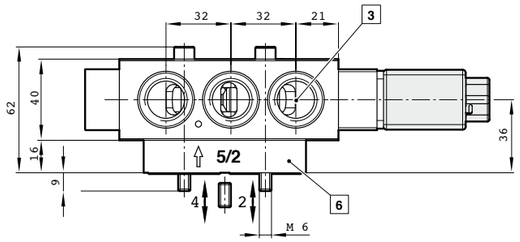
⑥

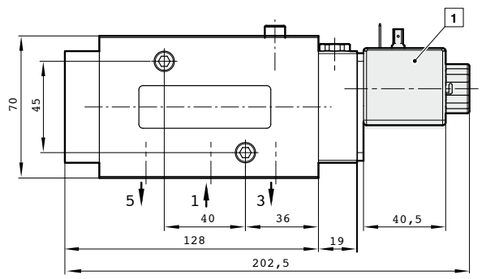




2	External control pressure connection G1/8 or 1/8 NPT
3	Working port G1/4 or 1/4 NPT
4	Electrical connection version 005
6	NAMUR connection plate 3/2 or 5/2 way function via 2 plates
9	Position of gasket internal pilot air
10	Position of gasket external pilot air

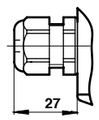
⑦





Electrical connection

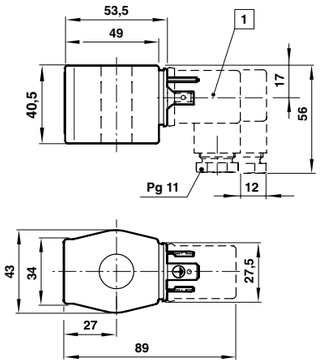
005



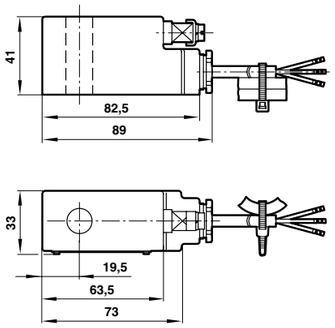
1	Solenoid dimensions see page 11
3	Working port G1/4 or 1/4 NPT
6	NAMUR connection plate 3/2 or 5/2 way function via 2 plates

Basic dimensions solenoids

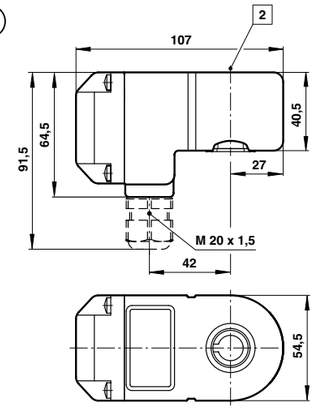
⑭



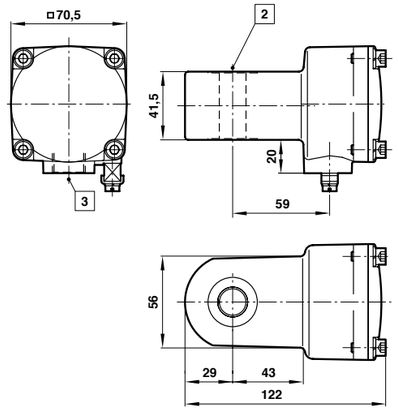
⑮



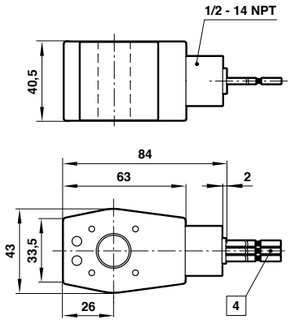
⑯



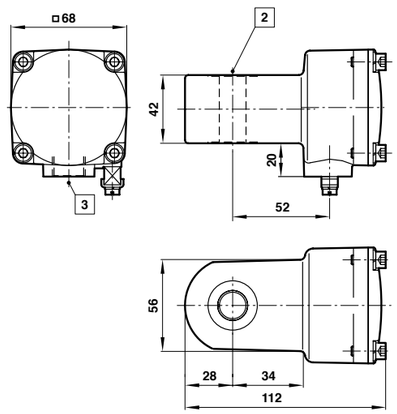
⑰



⑱



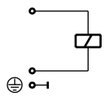
⑲



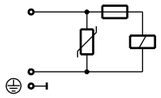
1	Connector can be indexed by 4 x 90° Ø 16 Ø
2	16 or 13 (with spacer tube)
3	M20 x 1,5 or 1/2 - 14 NPT
4	Flying leads AWG 18 (450 mm long)

Circuit diagrams

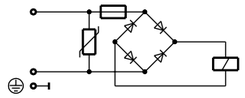
1



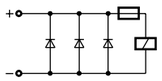
4



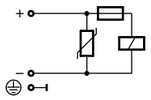
7



11



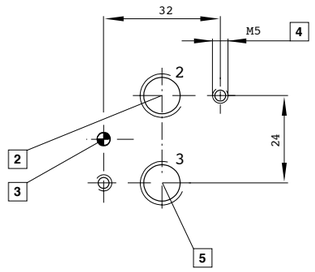
12



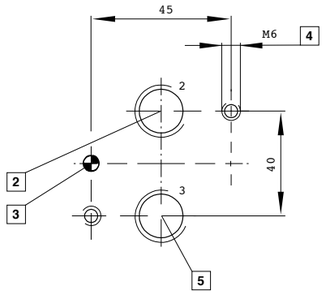
Throttle plate

NAMUR hole pattern

Port size G1/4



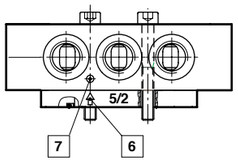
Port size G1/2



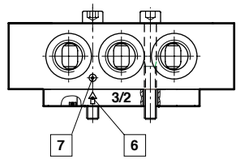
2 Port 2 (A)
3 Coding stud threaded
4 M5 & M6 (10 deep)
5 Port 3 (R)

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

5/2 way function (original mode of supply)



3/2 way function



3/2 resp. 5/2 way function can be achieved just by swapping enclosed adaptor plates. Make sure Marker and Arrow do match as shown on above drawing. Original mode of supply: 5/2 function.

6 arrow
7 Marker

ATEX categorie II 2 GD suitable for zone 1 and 2 (gas) and zone 21 and 22 (dust) Protection class Ex mb d IIC T4/T6 and Ex mb e II T4/T6 Ex mbD21 tDA21

ATEX CE

For 2/2-, 3/2-, 5/2- and 5/3 valves

Power consumption from 0,7 up to 8 Watt

High chemical and corrosion resistance

Body: stainless steel like 316L

Suitable for outdoor installation

For high and low ambient temperature

Userfriendly junction box clamps without screws for wire 0 to 2,5 mm²

Protection class Ex mb d or Ex mb e depending on cable glands (with ATEX approval) in Ex d or Ex e

Materials

Solenoid body: stainless steel

Following corrosion tests have been performed:

- Saltspray test acc. to ISO 9227 (duration 500 h)
- Testing in a saturated atmosphere in the presence of sulphur dioxide acc. to EN ISO 6988/DIN 50018 (7 cycles)

After the tests no visible attack of the stainless steel housing was to be found. So the solenoids are suitable for rough environmental conditions

Technical data

EG-Type examination certificate:
PTB 06ATEX2054X

Duty cycle:
100% ED

Fuse:
Integrated

Operating temperature:
min.: -40°C
max.: see table overleaf

Rel. air humidity:
max. 95%

Coil insulation:
Thermic class H

Standard voltages:
DC 24 V
UC 24 V
AC 110 V, 230 V (40 - 60 Hz)
further voltages on request

Protection class (EN 60529):
IP 66

Weight:
1200 g

For core tube (Ø 13 mm)

Type	Power consumption 24 V DC (W)	230 V AC (VA)	Voltage 24 V d.c. (mA)	230 V a.c. (mA)	Protection class	Temperatures Fluid or ambient Fluid (°C)	Weight (kg)	Dimensions No.	Circuit diagram No.
4802	0.8	–	33	–	Ex mb d IIC T4/T6	Cat. II 2G (gas) -40 ... +80 (T4)	1.2	1	12
					or	-40 ... +70 (T6)			
4803		1.3	–	6	Ex mb e II T5/T6 Ex mbD 21 tDA21 IP66 T100°C	Cat. II 2D (dust) T100°C	1.2	1	7
4812	3.9	–	162	–	Ex mb d IIC T4/T6	Cat. II 2G (gas) -40 ... +75 (T4)	1.2	1	12
					or	-40 ... +55 (T6)			
4813	–	–	5.3	23	Ex mb e II T4/T6 Ex mbD 21 tDA21 IP66 T100°C	Cat. II 2D (dust) T100°C	1.2	1	7
4822	8.9	–	369	–	Ex mb d IIC T4/T6	Cat. II 2G (gas) -40 ... +50 (T4)	1.2	1	12
					or	-40 ... +40 (T6)			
4823	–	10	–	43	Ex mb e II T4/T6 Ex mbD 21 tDA21 IP66 T100°C	Cat. II 2D (dust) T100°C	1.2	1	7

For core tube (Ø 16 mm)

Type	Power consumption 24 V DC (W)	230 V AC (VA)	Voltage 24 V d.c. (mA)	230 V a.c. (mA)	Protection class	Temperatures Fluid or ambient Fluid (°C)	Weight (kg)	Dimensions No.	Circuit diagram No.
4862	3.9	–	162	–	Ex mb d IIC T4/T6	Cat. II 2G (gas) -40 ... +75 (T5)	1.2	1	12
					or	-40 ... +55 (T6)			
4863	–	5.3	–	23	Ex mb e II T4/T6 Ex mbD 21 tDA21 IP66 T100°C	Cat. II 2D (dust) T100°C	1.2	1	7
4872	8.9	–	369	–	Ex mb d IIC T4/T6	Cat. II 2G (gas) -40 ... +50 (T4)	1.2	1	12
					or	-40 ... +40 (T6)			
4873	–	10	–	43	Ex mb e II T4/T6 Ex mbD 21 tDA21 IP66 T100°C	Cat. II 2D (dust) T100°C	1.2	1	7

Accessories/ cable glands

Stainless steel

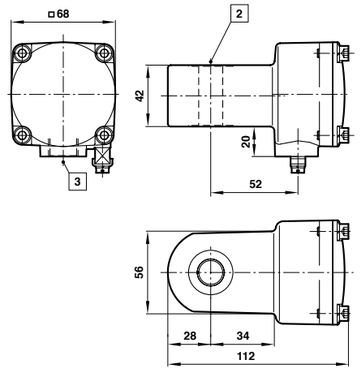
Type	Protection class	Material	Thread Ø
0589387	II 2 G/D EEx d IIC	1.4404/316 L	10 ... 14 mm
0589385	II 2 G/D EEx e II	1.4571/316 TI	9 ... 13 mm

The solenoids below are suitable for the listed valve series

Solenoid	Valve	Data sheet
4802 / 4803	97105, 98025	5.4.285, 5.4.335, 5.4.370
4822 / 4823	95100,	5.4.345
4862 / 4863	24011	5.4.306
4872 / 4873	25003, 98015,	5.4.307, 5.4.369

Dimensions

9

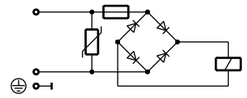


1 Ø 13 or 16 mm (with spacer tube)

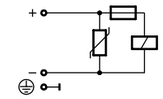
2 M20 x 1,5

Circuit diagrams

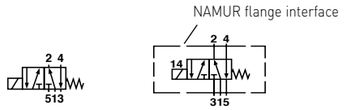
7



12



5/2 Directional control valves
Actuation: electromagnetic
Directly controlled poppet valves
Port size G 1/4, 1/4-18 NPT or flange mounting with NAMUR hole pattern



Working from 0 bar up

Suitable for medium-high vacuum down to 1.33 x 10-2 mbar

Easily interchangeable solenoid

Ports 2 and 4 can be controlled by throttle check valves

Solenoid system with integrated rectifier for AC supply (40 to 60 Hz)

The solenoids in the protection EEx me, EEx md for zone 1, 2, 21 and 22 (ATEX Cat. II 2GD) and XP (Div 1 and 2)

Materials**:

Valve housing: brass, stainless steel 1.4571, hard-anodised aluminium (NAMUR version)

Seals: NBR (Perbunan), FKM

Internal parts: brass, stainless steel 1.4522, 1.4571

**Depending on the chemical corrosivity of the environment or fluid

Technical data

Medium:
Neutral or aggressive gases and liquids (install an upstream filter when using contaminated fluids)

Operation:
Electromagnetic, directly controlled

Flow direction:
Defined

Mounting position:
Any, but preferably with solenoid vertical

Connections:
G 1/4, 1/4 NPT

Operating pressure:
0 to 8 bar

Temperatures:

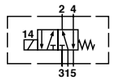
Fluid: -20 to +80°C (NBR)
-10 to +120°C (FKM), water up to +95°C

Ambient: -20 to +60°C

Solenoid temperature: see solenoid table

Switching cycles:
100/min.

5/2 directional valves

Symbol	Type *1)	Connection	Operating pressure*2) (bar)	kv-value (Cv (US) =kv x 1.2	Poppet seal	Material Valve housing	Weight without solenoid (kg)	Dimensions No.
	2500335	G 1/4 NAMUR	0 ... 8	0.48	NBR	Aluminium	0.65	2
	2500300	G 1/4	0 ... 8	0.48	NBR	Brass	1.15	1
	2500306	1/4 NPT	0 ... 8	0.48	NBR	Brass	1.15	1
	2500311*3)	G 1/4	0 ... 8	0.48	NBR	Brass	1.15	1
	2500316*4)	G 1/4	0 ... 8	0.48	NBR	Brass	1.15	1
	2500302	G 1/4	0 ... 8	0.48	FKM	1.4571	1.35	1
	2500308	1/4 NPT	0 ... 8	0.48	FKM	1.4571	1.35	1

*1) Please add solenoid, voltage and power supply data (frequency) when ordering
*2) With gaseous and liquid fluids up to 40 mm²
*3) With detening manual overrid
*4) With non-detening manual override

Solenoid operators

	Type	Power consumption 24V DC (W)	230V AC (VA)	Rated current 24V DC (mA)	230V AC (mA)	Protection class	Temperature Ambient/Fluid °C	Electrical connection	Weight (kg)	Dimensions No.	Circuit diagram No.
	0800 *7)	16.9	-	703	-	IP00 w/o connector *5) IP65 with connector *5)	-25...+60	DIN EN175 301-803 *6)	0.33 Form A	3	1
	3803 *7)	-	18	-	185	P00 w/o connector *5) IP65 with connector *5)	-25...+60	DIN EN175 301-803 *6)	0.34 Form A	4	6
	4270 *8)	8.9	-	369		EEx me II T4/T5 *2) IP66 T130°C	-40....65/55	M20x1,5 *6)	0.6	5	4
	4271 *8)	-	10		43	EEx me II T4/T5 *2) IP66 T130°C	-40....65/55	M20x1,5 *6)	0.6	5	7
	4670 *8)	8.9	-	369		EEx md IIC T4/T6 *3) EEx me IIC TT4/T6 *3) IP66 T130°C	-40....+65/55	1/2 NPT *6)	0.8	6	4
	4671 *8)	-	10		43	EEx md IIC T4/T6 *3) EEx me IIC TT4/T6 *3) IP66 T130°C	-40....+65/55	1/2 NPT *6)	0.8	6	7
	4672 *8)	8.9	-	369		EEx md IIC T4/T6 *3) EEx me IIC TT4/T6 *3) IP66 T130°C	-40....+65/55	M20x1,5 *6)	0.8	6	4
	4673 *8)	-	10		43	EEx md IIC T4/T6 *3) EEx me IIC T6 *3) IP66 T130°C	-40....+65/55	M20x1,5 *6)	0.8	6	7
Stainless steel 	4872	8.9	–	369	–	Ex mb d IIC T4/T6 bzw. Ex mb e II T4/T6 Ex mbD 21 tDA21 IP66 T100°C *1)	Kat. II 2G (gas) -40 ... +50 (T4) -40 ... +40 (T6) Kat. II 2D (dust) T100°C	M20 X 1,5 *6)	1.2	7	12
	4873	–	10	–	43			M20 X 1,5 *6)	1.2	7	7
	3826	13.6	-	566	-	XP NEMA *4) 4, 4X, 6, 6P, 7, 9	-20....+60	Flying leads 450 mm long	0.4	7	1
	3827	-	15.7	-	68	XP NEMA *4) 4, 4X, 6, 6P, 7, 9	-20....+60	Flying leads 450 mm long	0.4	7	5

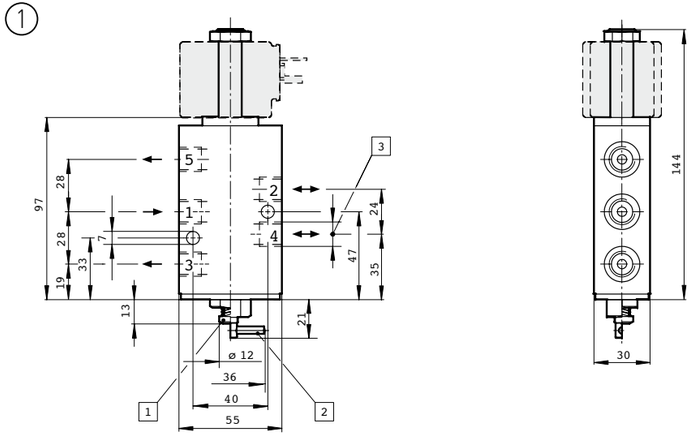
Standard voltages 24V DC, 230V AC. other voltages on request
Design acc. to VDE 0580, EN 50014/50028.100% duty cycle.
*2) Categorie II 2 GD, EC-Type-Examination-Certificate KEMA 98 ATEX 4452 X
*3) Categorie II 2 GD, EC-Type-Examination-Certificate PTB 02 ATEX 2085 X
*4) CSA-LR 57643-6, FM approved, for hazardous locations: Div. 1 and 2, Class I, II, III
*5) Required connector for DC: type 0570275.
*6) Connector/cable gland not supplied
*7) IP65 according to DIN 40050/IEC 529 and DIN EN 600068-2-38
*8) This solenoid has a fuse with an appropirate rating.

Accessories

Cable gland Protection class EEx e (Atex), MS nickel plated brass/stainless steel	Connectors	Flange plate	Yoke
			
EEx e 0588819 (for solenoid 42xx / 46xx M20 x 1,5)	0570275	0612790 (NAMUR single connection plate)	0540593
EEx d 0588851 (for solenoid 46xx M20 x 1,5)		0612791 NAMUR rip use in combination with 0612790 (Alu)	
EEx d, EEx e 0588925 (for solenoid 46xx 1/2-14 NPT)			
EEx d, EEx e 0588925 (for solenoid 46xx 1/2-14 NPT)			
II 2 G/D EEx d IIC 0589387 (for solenoid 48xx M20x1,5; Ø 10...14 mm)			
II 2 G/D EEx e II 0589385 (for solenoid 48xx M20x1,5; Ø 9...13 mm)			

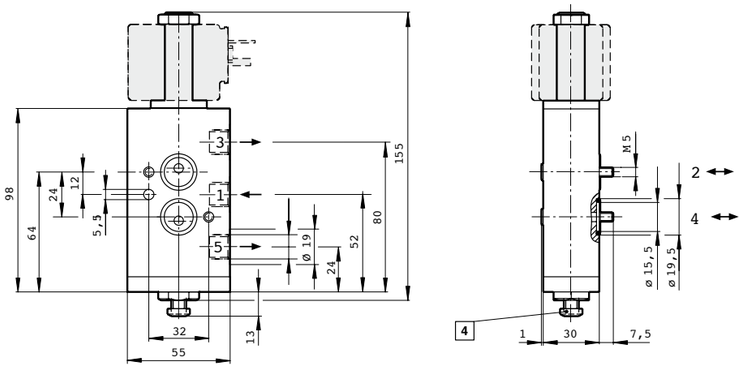
Basic dimensions for valves

①

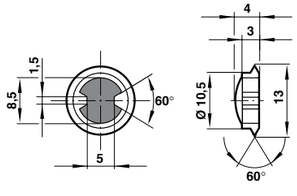


1 Manual override without detent
2 Manual override with detent
3 For port size see general information
4 Add-on manual override see page 5

②



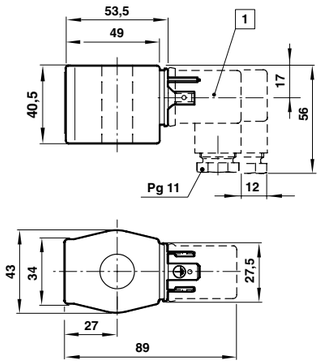
Filter (for G1/4 and 1/4 NPT threads)
Type: 0681173



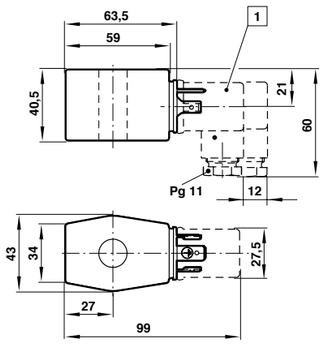
Thread pitch diameter
max. 11,85 mm

Basic dimensions for solenoid operators

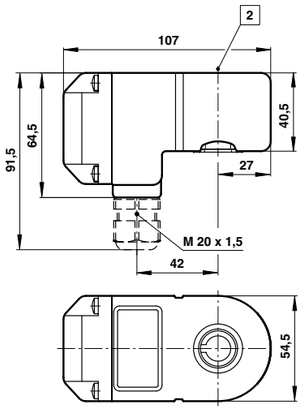
③



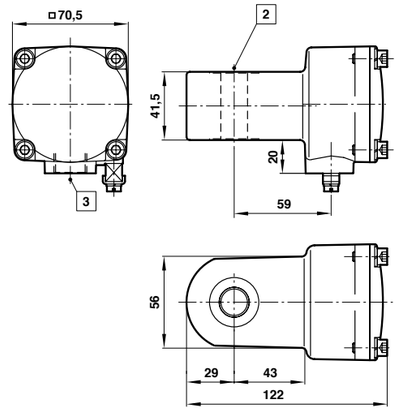
④



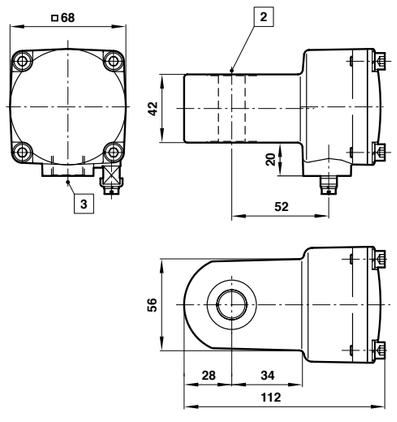
⑤



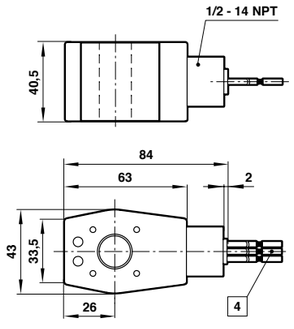
⑥



⑦

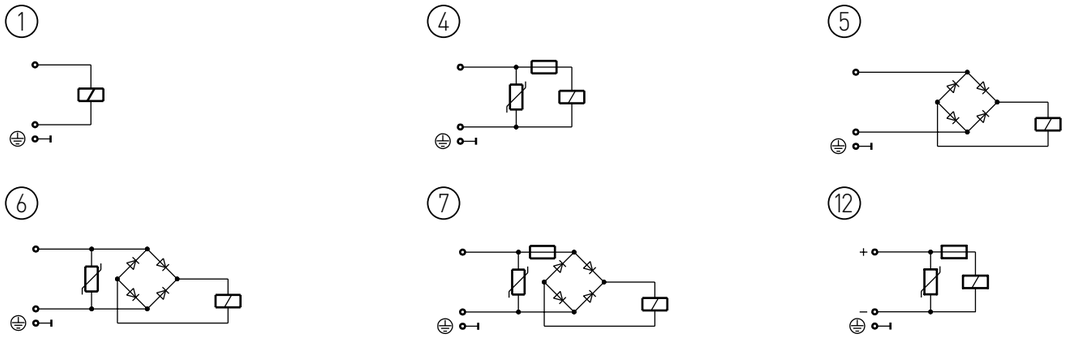


⑧

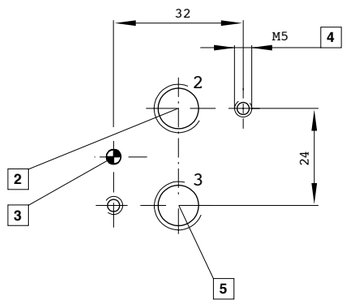


1 Connector can be indexed by 4 x 90°
2 Ø 16 or Ø 13 (with spacer tube)
3 M20 x 1,5 or 1/2 - 14 NPT
4 Flying leads AWG 18 (450 mm long)

Circuit diagrams



NAMUR hole pattern

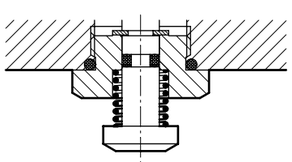


2 Port 2 (A)
3 Coding stud threaded
4 M5 (10 deep)
5 Port 3 (R)

Add-on manual override

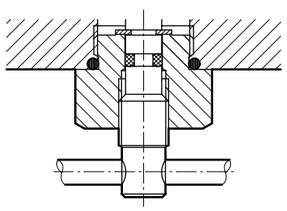
Without detent

Type: 0602767



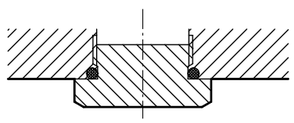
With detent

Type: 0602768



Screw plug

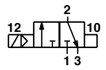
Type: 0602764



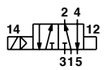
Please note: add-on manual override for NAMUR valves provided only for commissioning and tests

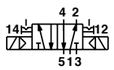
3/2 and 5/2 directional control valves NG 6 and 12
Operation: elektromagnetic
Indirectly controlled soft seal spool valves
Port size: G 1/4 and G 1/2

3/2



5/2





For single and double operated actuators

Manual override with and without detent

Simple design of soft seal spool system

Maintenance-free

Easily interchangeable solenoid

Valves and solenoids are ATEX approved (see solenoids on page 2)

Materials

Housing: aluminium anodized
Pilot flange: plastic (POM)
Seals: NBR (Perbunan)

Technical data

Medium:
Compressed air, filtered *1), lubricated or non-lubricated

Operation:
Solenoid, indirectly controlled

Port size:
G 1/4 and G 1/2

Operation pressure:
max. 10 bar (see specifications)

Flow direction:
Fixed

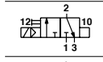
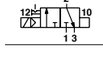
Mounting position:
Optional, preferably with solenoid on top

Operating temperature:
-10* to +60°C

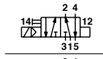
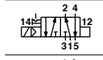
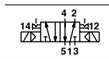
*Please contact our technical service for use below +2°C.

*1) Oil recommendation: Shell Hydrol DO 32, ESSO Febis K 32 (as of 07/92) or comparable oils with DVI values < 8 (DIN 53521) and ISO viscosity class 32 to 46 (DIN 51519)

3/2 way function

Symbol	Model	Port size	Operation pressure (bar) min.	max.	Flow l/min	Switching time (ms)	Manual override with/without detent	Weight without solenoid (kg)	Drawings No.
	8020766	G 1/4	1	10	1200	35	–	0.4	1
	8020767	G 1/4	1	10	1200	35	without	0.4	1
	8020867	G 1/2	1.5	10	3000	35	without	0.7	1
	8020765	G 1/4	1	10	1200	35	with	0.4	1
	8020865	G 1/2	1.5	10	3000	35	with	0.7	1

5/2 way function

Symbol	Model	Port size	Operation pressure (bar) min.	max.	Flow l/min	Switching time (ms)	Manual override with/without detent	Weight without solenoid (kg)	Drawings No.
	2636066	G 1/4	1	10	1200	35	–	0.55	2
	2636067	G 1/4	1	10	1200	35	without	0.55	2
	2636065	G 1/4	1	10	1200	35	with	0.55	2
	2637065	G 1/2	2	10	3000	40	with	0.83	3
	2636265	G 1/4	1	10	1200	30	with	0.90	4
	2637265	G 1/2	2	10	3000	35	with	1.30	5

Accessories

Silencer	Cable gland protection class EEx e, EEx d (ATEX), Ms nickel plated brass	Connector
		
0014700 (G1/2) *1)	EEx e 0588819 (for solenoid 42xx / 46xx M20 x 1,5)	0570275
0014600 (G1/4) *1)	EEx d 0588851 (for solenoid 46xx M20 x 1,5)	0663303 (with rectifier)
	EEx d, EEx e 0588925 (for solenoid 46xx 1/2-14 NPT)	

*1) For indoors use

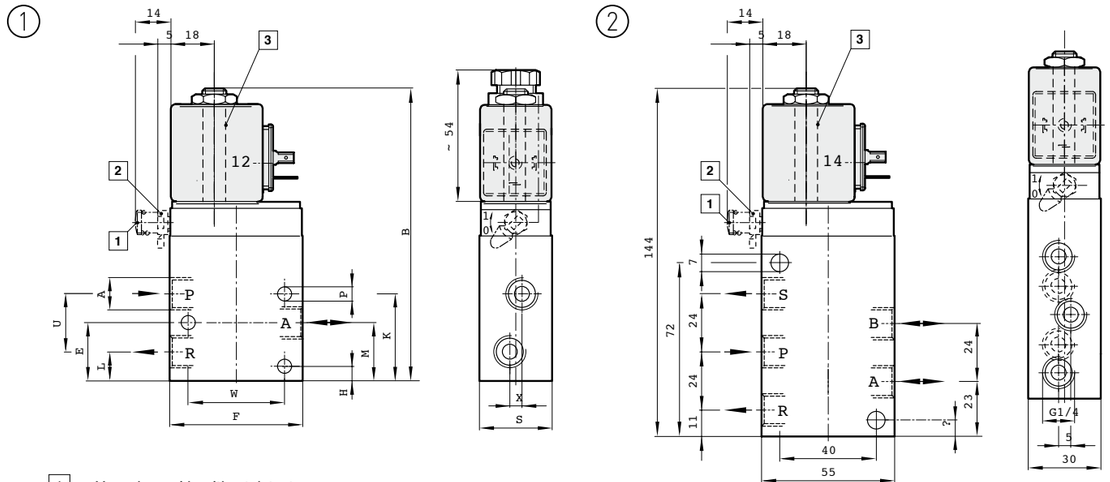
Solenoid operators group 13B

	Model	Power consumption 24 V DC (W)	230 V AC (VA)	Current 24 V DC (mA)	230 V AC (mA)	Protection class	Temperature Ambient/ Fluid °C	Electrical connection Form	Weight (kg)	Dimensions No.	Circuit diagram No.
	0242	2.7	-	113	-	IP 65 (with plug)*5)	-25 ... +60 Fluid: max. 80	DIN EN 175301-803 Form A *6)	0.150	5	1
	0245	-	4.2	-	-	IP 65 (with plug)*5)	-25 ... +60 Fluid: max. 80	DIN EN 175301-803 Form A *6)	0.150	5	1
	3215	2.7	-	113	-	EEx nA II T4 IP 65 T 110°C	-20 ... +60	DIN EN 175301-803 Form A with special screw	0.160	5	1
	0298	3.2	-	135	-	EEx m II T4 *1) IP 66 T110°C	-20 ... +70	Cable 3 m lang	0.400	9	4
	0299	-	3.5	-	15	EEx m II T4 *1) IP 66 T 110°C	-20 ... +70	Cable 3 m lang	0.400	9	7
	4210 *8)	3.9	-	162	-	EEx me II T4 *2) IP 66 T110°C	-40 ...+55 (T6) -40 ... +80 (T4)	M20 x 1,5 *6)	0.500	10	4
	4211 *8)	-	5.3	-	23	EEx me II T6/T4 *2) IP 66 T130°C	-40 ...+55 (T6) -40 ... +80 (T4)	M20 x 1,5 *6)	0.500	10	7
	4610 *8)	3.9	-	162	-	EEx md IIC T6/T4 *3) EEx me II T6/T4 *3) IP 66 T130°C	-40 ...+55 (T6) -40 ... +80 (T4)	1/2-14 NPT *6)	0.800	11	4
	4611 *8)	-	5.3	-	23	EEx md IIC T6/T4 *3) EEx me II T6/T4 *3) IP 66 T 130°C	-40 ...+55 (T6) -40 ... +80 (T4)	1/2-14 NPT *6)	0.800	11	7
	4612 *8)	3.9	-	162	-	EEx md IIC T6/T4 *3) EEx me II T6/T4 *3) IP 66 T130°C	-40 ...+55 (T6) -40 ... +80 (T4)	M20 x 1,5 *6)	0.800	11	7
	4613 *8)	-	5.3	-	23	EEx md IIC T6/T4 *3) EEx me II T6/T4 *3) IP 66 T130°C	-40 ...+55 (T6) -40 ... +80 (T4)	M20 x 1,5 *6)	0.800	11	7
	3722	-	5.3	-	23	NEMA 4,4X *4) 6,6P, 7,9 T3C (160°C)	-20 ... +60	Flying leeds 450 mm long	0.500	12	1
	3723	-	5.3	-	23	NEMA 4,4X *4) 6,6P, 7,9 T3C (160°C)	-20 ... +60	Flying leeds 450 mm long	0.500	12	5

Standardvoltages 24 V DC, 230 V AC. Other voltages on request.
Design acc. to VDE 0580, EN 50014/50028. 100% duty cycle.
*1) Categorie II 2 GD, EC-Type-Examination-Certificate KEMA 02 ATEX 1347X
*2) Categorie II 2 GD, EC-Type-Examination-Certificate KEMA 98 ATEX 4452 X
*3) Categorie II 2 GD, EC-Type-Examination-Certificate PTB 02 ATEX 2085 X
*4) CSA-LR 57643-6, FM approved, for hazardous locations: Div. 1 and 2, Class I, II, III
*5) Required connector for DC: type 0570275. Valves can be operated with DC only for 230V AC application please use 200V DC coil together with rectifier plug: type 063305
*6) Cable gland is not indicated in delivery
*7) IP65 according to DIN 40050/IEC 529 and DIN EN 6068-2-38
*8) This solenoid has a fuse with an appropirate rating.

Dimensions

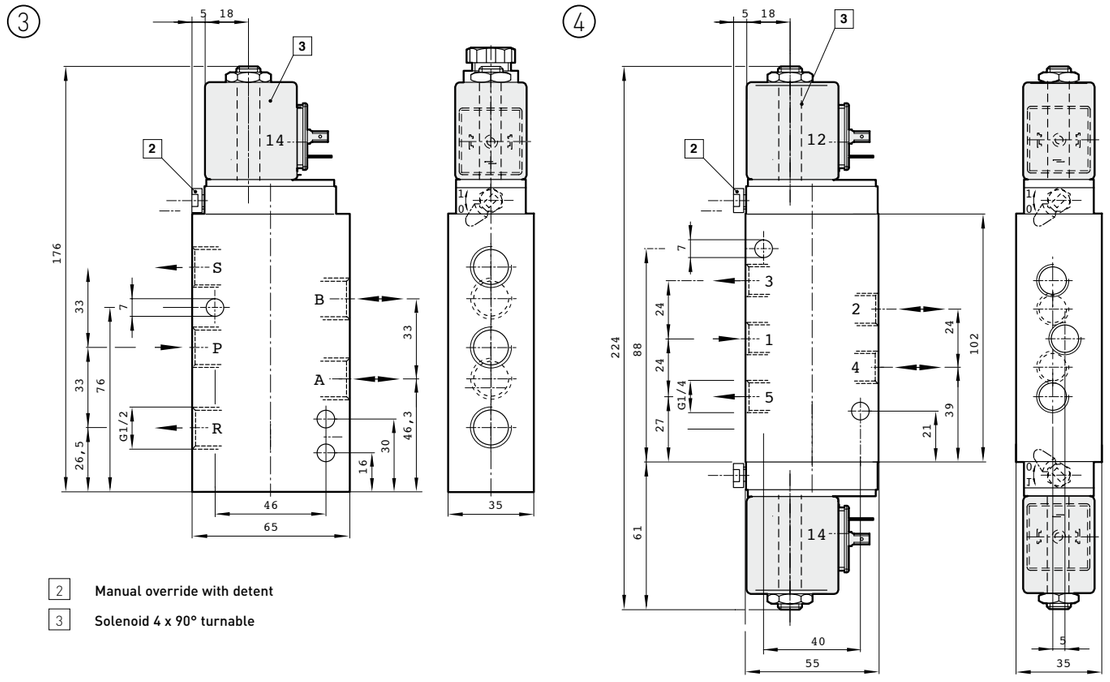
① ②



1 **Manual override without detent**
2 **Manual override with detent**
3 **Solenoid 4 x 90° turnable**

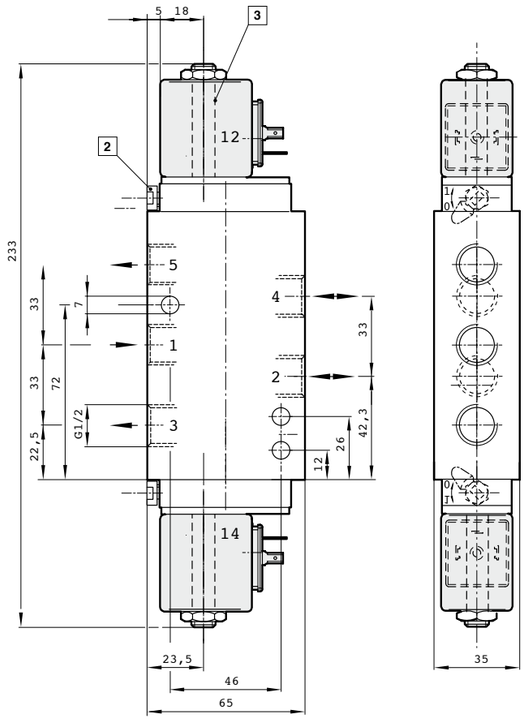
Model	A	B	C	E	F	H	K	L	M	P	S	T	U	W	X
8020766	G1/4	120	127	24.5	55	7.5	34.5	11	23	5.5	30	18.5	24	41	5
8020767	G1/4	120	127	24.5	55	7.5	34.5	11	23	5.5	30	18.5	24	41	5
8020765	G1/4	120	127	24.5	55	7.5	34.5	11	23	5.5	30	18.5	24	41	5
8020867	G1/2	148	155	77.5	65	31.5	–	29	50	7	35	23.5	33	46	–
8020865	G1/2	148	155	77.5	65	31.5	–	29	50	7	35	23.5	33	46	–

③ ④



2 **Manual override with detent**
3 **Solenoid 4 x 90° turnable**

5

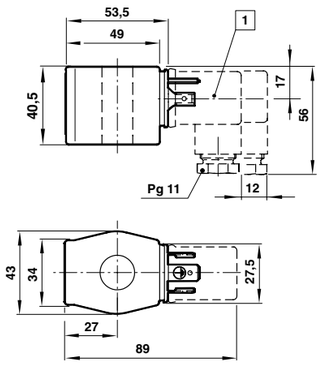


2 Manual override with detent

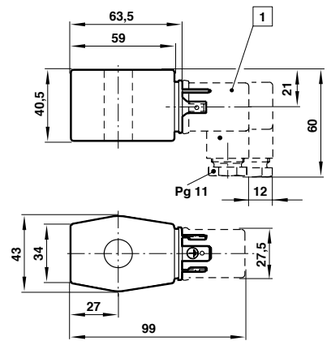
3 Solenoid 4 x 90° turnable

Dimensions for solenoid operators

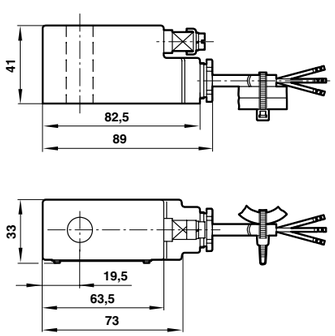
7



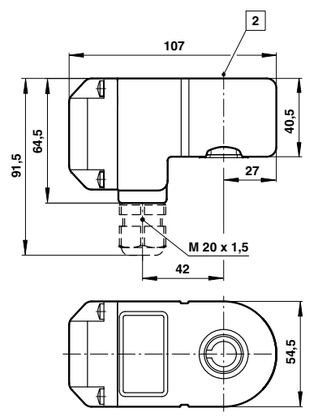
8



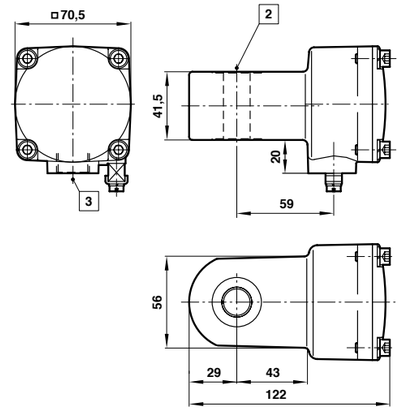
9



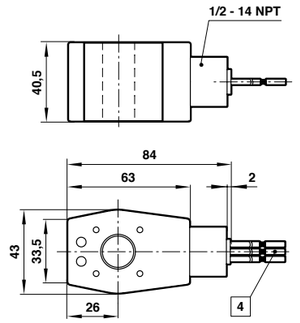
10



11



12



1 Connector can be indexed by 4 x 90°

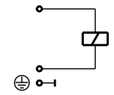
2 Ø 13 (with spacer tube)

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

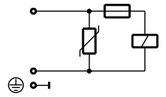
4 Flying leads 18 (450 mm long)

Circuit diagrams

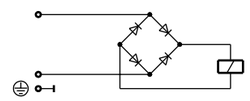
1



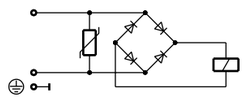
4



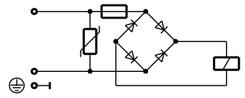
5



6

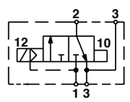


7

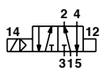


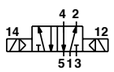
3/2-, 5/2- and 5/3 directional control valves
Opation: elektromagnetic
Indirectly controlled soft seal spool valves
Port size: G1/4
NAMUR-Interface

3/2

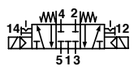


5/2





5/3



- For single and double operated actuators
- Manual override with and without detent
- Simple design of soft seal spool system
- Maintenance-free
- Easily interchangeable solenoid
- Valves and solenoids are ATEX approved (see solenoids on page 2)

Materials

Housing: aluminium anodized
Pilot flange: plastic (POM)
Seals: NBR (Perbunan)

Technical data

Medium:
Compressed air, filtered, lubricate*1) or non-lubricate

Operation:
Elektromagnetic, indirectly controlled

Port size:
G 1/4

Operating pressure:
max. 10 bar (see specifications)

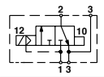
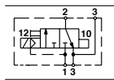
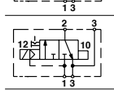
Flow:
Fixed

Operating temperature:
-10* to +60°C

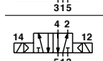
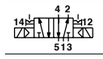
*Please contact our technicalservice for use below +2°C.

*1) Oil recommendation: Shell Hydrol DO 32, ESSO Febis K 32 (as of 07/92) or comparable oils with DVI values < 8 (DIN 53521) and ISO viscosity class 32 to 46 (DIN 51519)

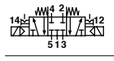
3/2 directional control valves

Symbol	Type	Port size 1, 3	2, 3	Operating pressure (bar) min.	max.	Flow l/min	Switching time (ms)	Manual override with/without detent	Weight without solenoid (kg)	Dimension
	8020745	G 1/4	Flange	1	10	1200	35	–	0.24	1
	8020746	G 1/4	Flange	1	10	1200	35	without	0.24	1
	8020747	G 1/4	Flange	1	10	1200	35	with	0.24	1

5/2 directional control valves

Symbol	Type	Port size 1, 3, 5	2, 4	Operating pressure (bar) min.	max.	Flow l/min	Switching time (ms)	Manual override with/without detent	Weight without solenoid (kg)	Dimension
	2636045	G 1/4	Flange	1	10	1200	35	–	0.55	2
	2636046	G 1/4	Flange	1	10	1200	35	without	0.55	2
	2636047	G 1/4	Flange	1	10	1200	35	with	0.55	2
	2636245	G 1/4	Flange	1	10	1200	30	–	0.90	3
	2636246	G 1/4	Flange	1	10	1200	30	without	0.90	3
	2636247	G 1/4	Flange	1	10	1200	30	with	0.90	3

5/3 directional control valves

Symbol	Type	Port size 1, 3, 5	2, 4	Operating pressure (bar) min.	max.	Flow l/min	Switching time (ms)	Manual override with/without detent	Weight without solenoid (kg)	Dimension
	2636447	G 1/4	Flange	3	10	950	40	with	1.0	4

Accessories

Silencer	Cable gland protection class EEx e, EEx d (ATEX), Ms nickel plated brass	Connector	Flange plate	Yoke	Spacer plate
					
0014600 (G1/4) *1) (for solenoid 42xx / 46xx	EEx e 0588819 M20 x 1,5)	0570275	0612790 single connection plate	0540593	0540109 when using solenoids 42xx, 46xx, 37xx
	EEx d 0588851 (for solenoid 46xx M20 x 1,5)	0663303 (with rectifier)	0612791 NAMUR rip use in combination with 0612790 (Alu)		
	EEx d, EEx e 0588925 (for solenoid 46xx 1/2-14 NPT)				

*1) For indoors use

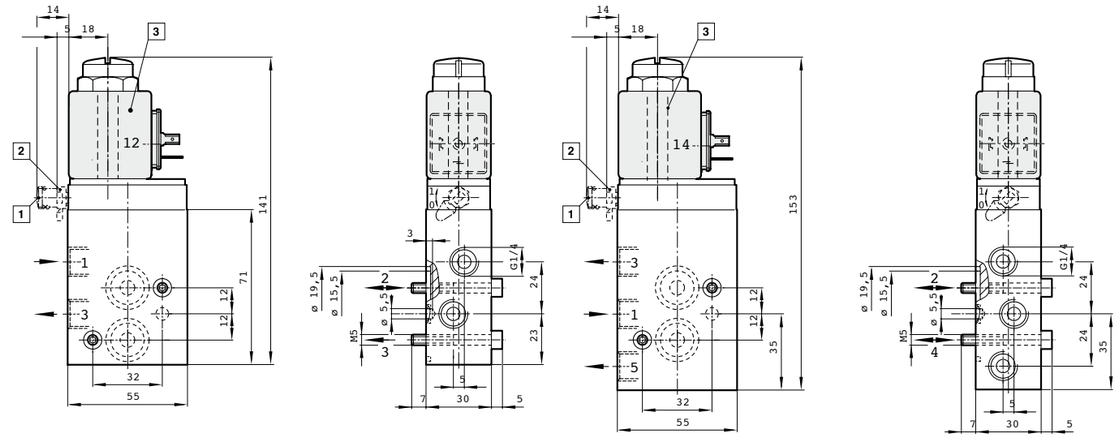
Actuation solenoids group 13B

	Type	Power consumption 24 V DC (W)	230 V AC (VA)	Rated current at 24 V DC (mA)	230 V AC (mA)	Protection class	Temperature Ambient/ Fluid °C	Electroport size	Weight (kg)	Dimensions No.	Circuit diagram No.
	0242	2.7	-	113	-	IP 65 (with plug)*5)	-25 ... +60 Fluid: max. 80	Connector DIN EN 175301-803 Form A *6)	0.150	5	1
	0245	-	4.2	-	-	IP 65 (with plug)*5)	-25 ... +60 Fluid: max. 80	Connector DIN EN 175301-803 Form A *6)	0.150	5	1
	3215	2.7	-	113	-	EEx nA II T4 IP 65 T 110°C	-20 ... +60	Connector DIN EN 175301-803 Form A with special screw	0.160	5	1
	0298	3.2	-	135	-	EEx m II T4 *1) IP 66 T110°C	-20 ... +70	Cable 3 m	0.400	9	4
	0299	-	3.5	-	15	EEx m II T4 *1) IP 66 T 110°C	-20 ... +70	Cable 3 m	0.400	9	7
	4210 *8)	3.9	-	162	-	EEx me II T4 *2) IP 66 T110°C	-40 ...+55 (T6) -40 ... +80 (T4)	M20 x 1,5 *6)	0.500	10	4
	4211 *8)	-	5.3	-	23	EEx me II T6/T4 *2) IP 66 T130°C	-40 ...+55 (T6) -40 ... +80 (T4)	M20 x 1,5 *6)	0.500	10	7
	4610 *8)	3.9	-	162	-	EEx md IIC T6/T4 *3) EEx me II T6/T4 *3) IP 66 T130°C	-40 ...+55 (T6) -40 ... +80 (T4)	1/2-14 NPT *6)	0.800	11	4
	4611 *8)	-	5.3	-	23	EEx md IIC T6/T4 *3) EEx me II T6/T4 *3) IP 66 T 130°C	-40 ...+55 (T6) -40 ... +80 (T4)	1/2-14 NPT *6)	0.800	11	7
	4612 *8)	3.9	-	162	-	EEx md IIC T6/T4 *3) EEx me II T6/T4 *3) IP 66 T130°C	-40 ...+55 (T6) -40 ... +80 (T4)	M20 x 1,5 *6)	0.800	11	7
	4613 *8)	-	5.3	-	23	EEx md IIC T6/T4 *3) EEx me II T6/T4 *3) IP 66 T130°C	-40 ...+55 (T6) -40 ... +80 (T4)	M20 x 1,5 *6)	0.800	11	7
	3722	-	5.3	-	23	NEMA 4,4X *4) 6,6P, 7,9 T3C (160°C)	-20 ... +60	Litze 450 mm lang	0.500	12	1
	3723	-	5.3	-	23	NEMA 4,4X *4) 6,6P, 7,9 T3C (160°C)	-20 ... +60	Litze 450 mm lang	0.500	12	5

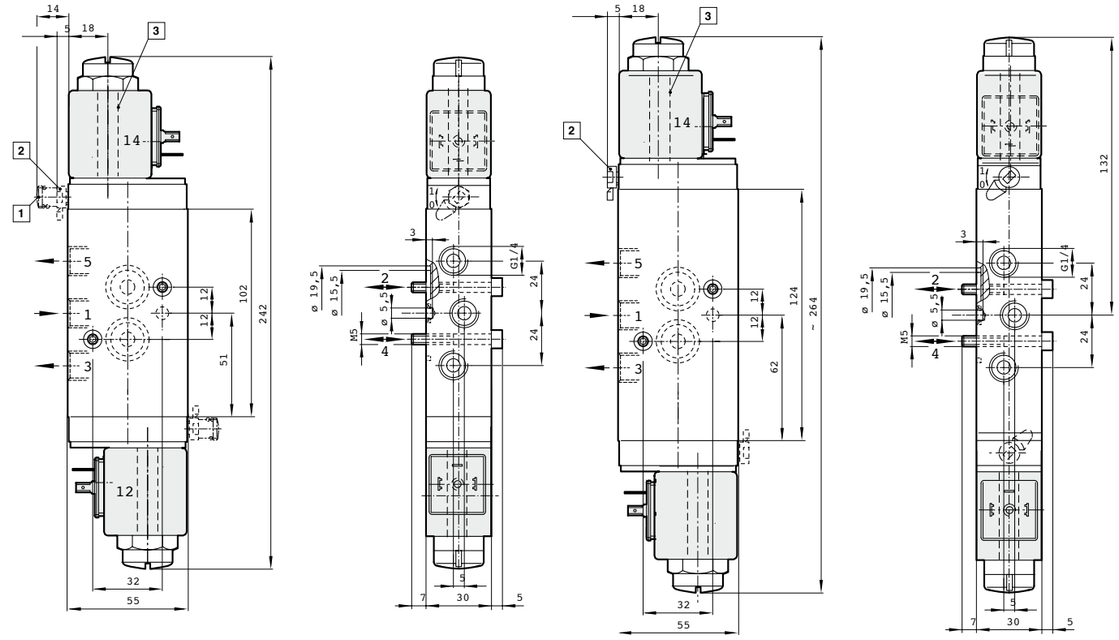
Standardvoltages 24 V DC, 230 V AC. Other voltages on request.
Design acc. to VDE 0580, EN 50014/50028. 100% duty cycle.
*1) Categorie II 2 GD, EC-Type-Examination-Certificate KEMA 02 ATEX 1347X
*2) Categorie II 2 GD, EC-Type-Examination-Certificate KEMA 98 ATEX 4452 X
*3) Categorie II 2 GD, EC-Type-Examination-Certificate PTB 02 ATEX 2085 X
*4) CSA-LR 57643-6, FM approved, for hazardous locations: Div. 1 and 2, Class I, II, III
*5) Required connector for DC: type 0570275. Valves can be operated with DC only for 230V AC application please use 200V DC coil together with rectifier plug: type 063305
*6) Cable gland is not indicated in delivery
*7) IP65 according to DIN 40050/IEC 529 and DIN EN 600068-2-38
*8) This solenoid has a fuse with an appropirate rating.

Dimensions

① ②



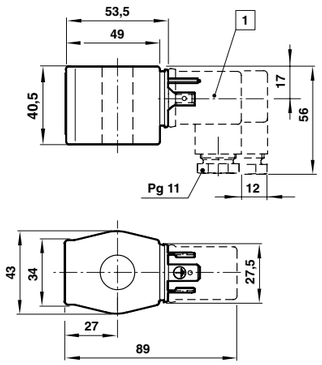
③ ④



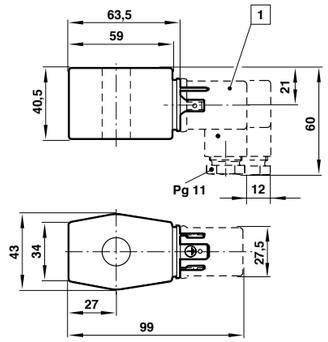
1 Manual override without detent
2 Manual override with detent
3 Solenoid 4 x 90° turnable

Dimensions for solenoid operators

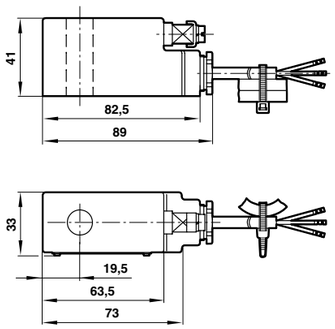
⑦



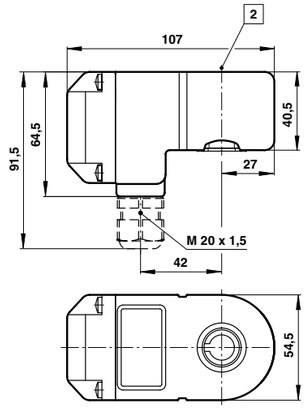
⑧



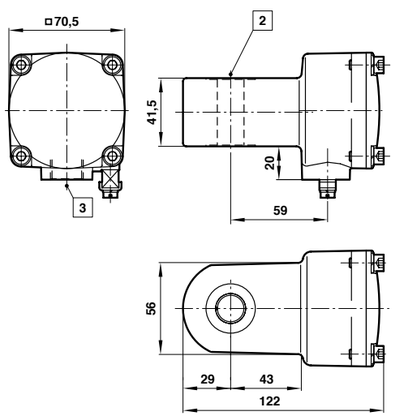
⑨



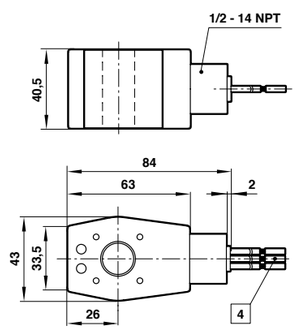
⑩



⑪



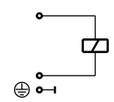
⑫



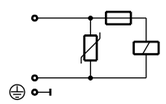
1 Connector can be indexed by 4 x 90°
2 Ø 13 (with spacer tube)
3 M20 x 1,5 or 1/2 - 14 NPT
4 Flying leads 18 (450 mm long)

Circuit diagrams

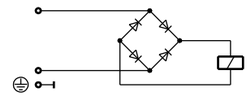
①



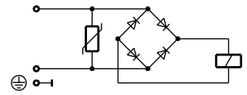
④



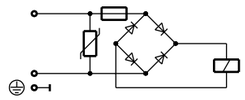
⑤



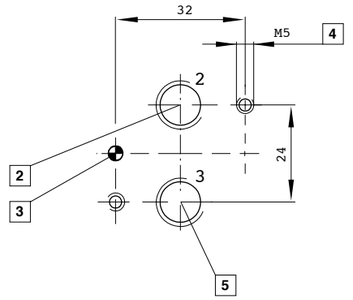
⑥



⑦



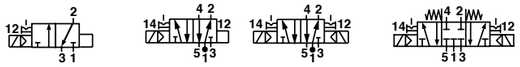
NAMUR hole pattern



2 Port 2 (A)
3 Coding stud threaded
4 M5 (10 deep)
5 Port 3 (R)

3/2-, 5/2- and 5/3 Directional control valves
Actuation: electromagnetic
Indirectly controlled soft seal spool valves
Port size: G 1/4, 1/4 NPT

3/2 5/2 5/3



For single and double operated actuators

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

Rest position in the event of power failure provided (monostable design)

Manual override with detent

Compact design

Simple design of soft seal spool system

Easily interchangeable solenoid

The sollenoid valves are applicable in the protection class EEx m and EEx ia, for zones 1, 2 (gases)
ATEX cat.II 2 G, EEx nA, for zones 2 (gases),
22 (dust) ATEX cat.II 3 GD

Technical data

Medium:
Filtered, non-lubricated and dry compressed air *1)

Operation:
Solenoid, indirectly controlled

Flow direction:
Fixed

Mounting position:
Optional

Nominal diameter:
6 mm

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

Electrical connection:
See solenoid table

Operating pressure:
Max. 8 bar

Temperatures:

Valve: -25* to +65°C

Solenoid: see solenoid table

* Please consult our technical service for use below +2°C. service for use below +2°C.

Materials

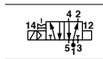
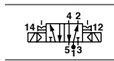
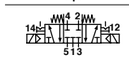
Housing: aluminium anodized

Pilot flange: plastic (POM)

Seals: NBR (Perbunan)

*1) Oil recommendation: Shell Hydrol DO 32, ESSO Febis K 32 (as of 07/92) or comparable oils with DVI values < 8 (DIN 53521) and ISO viscosity class 32 to 46 (DIN 51519)

3/2, 5/2 and 5/3 directional valves, standard design

Symbol	Type *1)	Port size	Function	Actuation	Operating pressure (bar)	Flow (l/min)	Weight (kg)	Dimensions No.
	9713032	G 1/4	3/2 NC	Solenoid Air/Spring	2 ... 8	750	0.25	1
	9713042	1/4 NPT	3/2 NC	Solenoid Air/Spring	2 ... 8	750	0.25	1
	9710032	G 1/4	5/2 NC	Solenoid Air/Spring	2 ... 8	750	0.25	2
	9710042	1/4 NPT	5/2 NC	Solenoid Air/Spring	2 ... 8	750	0.25	2
	9711032	G 1/4	5/2 NC	Solenoid/Solenoid	2 ... 8	750	0.35	3
	9711042	1/4 NPT	5/2 NC	Solenoid/Solenoid	2 ... 8	750	0.35	3
	9712032	G 1/4	5/3 APB	Solenoid/Solenoid mid pos. APB	2 ... 8	500	0.40	4
	9712042	1/4 NPT	5/3 APB	Solenoid/Solenoid mid pos. APB	2 ... 8	500	0.40	4

*1) When ordering, please indicate solenoid, voltage and current type (frequency).
Valve function: APB = All Ports Blocked

Solenoid actuators

	Type	Power consumption 24 V DC (W)	Power consumption 230 V AC (VA)	Rated current at 24 V DC (mA)	Rated current at 230 V AC (mA)	Ex Protection Categorie	Protection class	Temperature Ambient Fluid (°C)	Weight (kg)	Dimensional drawing No.	Circuit diagram No.
	3050	1.7	-	-	-		IP 65 (with connector) DIN EN 175301-803 Form B *6)	-40 ... +50	0.054	4	1
	3034	0.7	0.7 *2)	-	-		IP 65 (with connector) *6) DIN EN 175301-803 Form A	-40 ... +50	0.090	5	1
	3046	2	-	-	-	II3G II3D	EEx nA II T5 IP65 T 95°C with connector	-15 ... +50	0.300	5	1
	3062 *3)	2.7	-	115		II2G	EEx m II T5 Connector with 3 m cable	-20 ... +50	0.300	6	1
	3063 *3)	-	2.1		9	II2G	EEx m II T5 Connector with 3 m cable	-20 ... +50	0.300	6	8
	3071	2.7	-	115	-	-	IP 66 Connection M12x1 DIN EN 60947-5-2 Anh. D	-10 ... +50	0.110	7	8

Standard voltages 24 V DC, 230 V AC. Other voltages on request.Design acc. to VDE 0580, EN 50014/50028. 100% duty cycle.

For intrinsically safe circuits, protection class EEx ia IIC T6/T4

	Type	Nom. resistance R_N coil (▲)	Required switching current (mA)	Resistance $R_{w\,50}$ coil	Required voltage at terminal $R_{w\,50}$	Ambient temperature (°C)	Fluid temperature max. (°C)	Weight (kg)	Dimensional drawing No.	Circuit diagram No.
	3039 *4)	275	37	330	12.3	T6 -40 ... +80 T4 -40 ... +80	T6 +70 T4 +85	0.83	8	13

When selecting an intrinsically safe power supply, the permissible maximum values according to the Certificate of Conformity should be taken in account.
On the other hand, the low effective inductivity and capacity can be ignored.

*1) Valves can only be operated with DC solenoids
*2) Valves can be operated with DC only. For 230V AC application please use 206V DC coil together with recifier plug 0663303
*3) Certificate of Conformity PTB No. PTB 03 ATEX 2015X
*4) Certificate of Conformity PTB 03 Atex 2134 PTP 03 IEC 2166, CSA - Certificate No. LR 51090-4, FM approved.
Required connector acc. to DIN EN 17031-801 form A or ISO 4400. Installation acc. to requirements of FM and CSA.
*6) Connector is not indicated in delivery; required connector for DC: type 0680003 Form B, type 0570275 Form A.

Manifold system
Manifold plate

Valve ports	V61 Type	Weight (kg)
2	2221102 0000 000 00	0.28
3	2221103 0000 000 00	0.45
4	2221104 0000 000 00	0.72
6	2221106 0000 000 00	1.02
8	2221108 0000 000 00	1.32
10	2221110 0000 000 00	1.62
12	2221112 0000 000 00	1.92
14	2221114 0000 000 00	2.22
16	2221116 0000 000 00	2.52
18	2221118 0000 000 00	2.82
20	2221120 0000 000 00	3.12

Note: Only solenoid systems with 22 mm possible

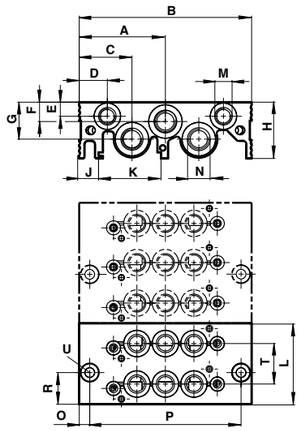
Accessories

Description	Type
Pressure shut-off part *1)	**0100569 0000 000 00**
Blanking plate complete *2)	**0100563 0000 000 00**

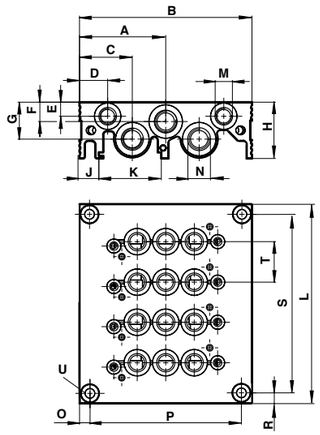
*1) Necessary for using 2 different pressures
*2) For blocking of unused valve station

Seals and mounting screws supplied.

General dimensions
Manifold plate 2 and 3 stations



Manifold plate 4 to 20 stations



Dimension table

Type	A	B	C	D	E	F	G	H	J	K	L	M	N	O	P	R	S	T	U
2er	52	104	26	9	8	13	20	33	10	35.5	52	G 1/8	G 3/8	40	24	26	–	26	for M5
3er	52	104	26	9	8	13	20	33	10	35.5	78	G 1/8	G 3/8	40	24	52	–	26	for M5
4-20er	52	104	26	9	8	13	20	33	10	35.5	(x·26)+23	G 1/8	G 3/8	40	24	6.5	(x·26)+10	26	for M5

Accessories

Silencer

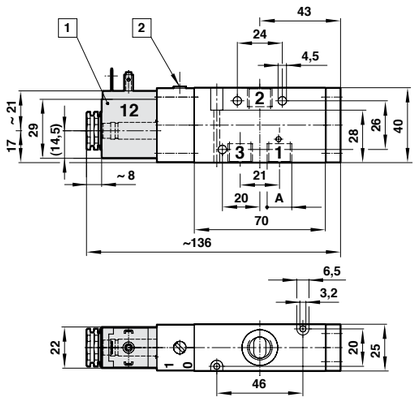
Connectors

0014600 (G1/4) *1)	0570275 form A
	0663303 (with rectifier)
	0680003 form B

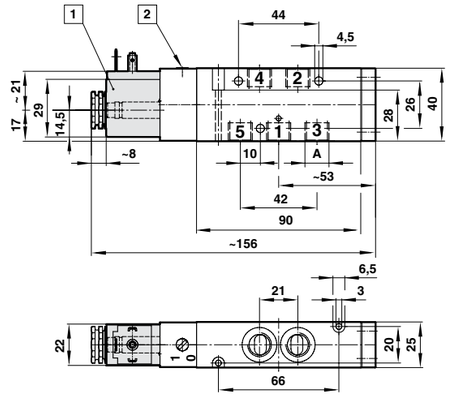
*1) For indoors use

Basic dimensions for valves

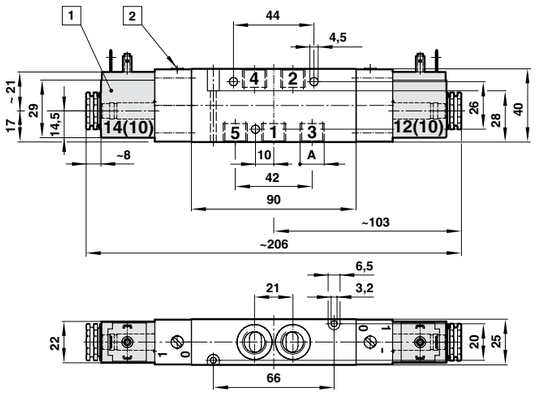
①



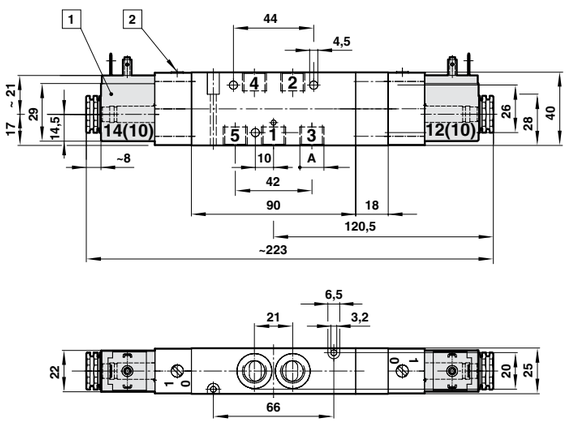
②



③



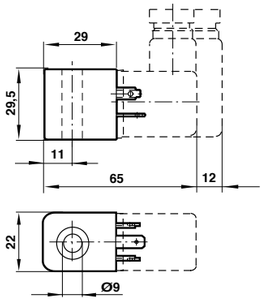
④



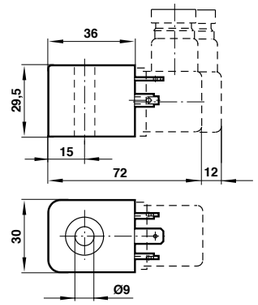
1 Solenoid 90° turnable
2 Manual override

Basic dimensions for solenoid operators

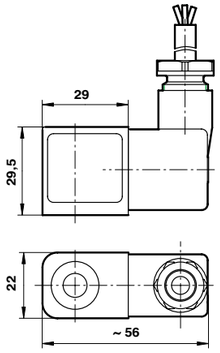
④



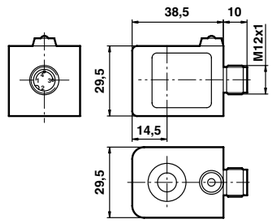
⑤



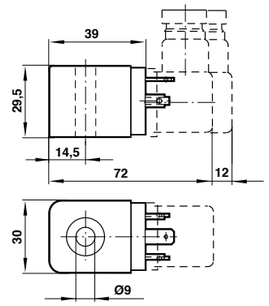
⑥



⑦

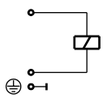


⑧

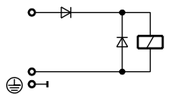


Circuit diagrams

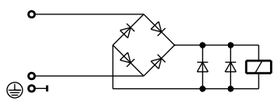
①



⑧

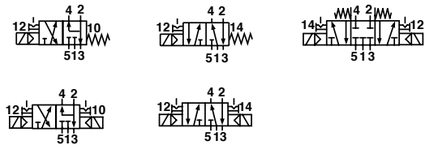


⑬



3/2-, 5/2- and 5/3 Directional control valves
Actuation: electromagnetic
Indirectly controlled soft seal spool valves
Port size: G 1/4, 1/4 NPT
NAMUR Interface

3/2 5/2 5/3



For single and double operated actuators

Exhaust air recirculation (3 way function)

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

Restposition in the event of power failure provided (monostable design)

3/2 or 5/2 way function in one valve

Manual override with detent

Compact design

Simple design of soft seal spool system

Easily interchangeable solenoid

The solenoid valves are applicable in the protection class EEx m and EEx ia, for zones 1, 2 (gases) ATEX cat. II 2 G, EEx nA, for zones 2 (gases), 22 (dust) ATEX cat. II 3 GD

Technical data

Medium:
Filtered, non-lubricated and dry compressed air *1)

Operation:
Solenoid, indirectly controlled

Flow direction:
Fixed

Mounting position:
Optional

Nominal diameter:
6 mm

Port size:
1: G 1/4, 1/4 NPT; 3 and 5: G 1/8, 1/8-NPT

Electrical connection:
See solenoid table

Operating pressure:
Max. 8 bar

Temperatures:

Valve: -25* to +50°C

Solenoid: see solenoid table

* Please consult our technical service for use below +2°C. service for use below +2°C.

Materials

Housing: aluminium anodized

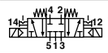
Pilot flange: plastic (PBT)

Seals: NBR (Perbunan)

*1) Oil recommendation: Shell Hydrol DO 32, ESSO Febis K 32 (as of 07/92) or comparable oils with DVI values < 8 (DIN 53521) and ISO viscosity class 32 to 46 (DIN 51519)

3/2-, 5/2- and 5/3 directional valves

3/2- or 5/2 way function see conversation instruction on page 9

Symbol	Type	port size 1	3, 5	2, 4	Actuation	Operation pressure (bar)	Flow (l/min)	Weight (kg)	Dimensions No.
	9710000*	G 1/4	G 1/8	Flange	Solenoid/Spring	2 ... 8	750	0.25	1
	9710010*	1/4 NPT	1/8 NPT	Flange					
	9711000*	G 1/4	G 1/8	Flange	Solenoid/Solenoid	2 ... 8	750	0.35	2
	9711010*	1/4 NPT	1/8 NPT	Flange					
	9712000*	G 1/4	G 1/8	Flange	Solenoid/Solenoid mid position APB	2 ... 8	500	0.40	3
	9712010*	1/4 NPT	1/8 NPT	Flange					

* When ordering please indicate solenoid, voltage and current type (frequency).
Outside free of nonferrous metals
Valve function: APB = All Ports Blocked

Solenoid actuators

	Type	Power consumption 24 V DC (W)	230 V AC (VA)	Ex Protection Categorie	Protection class	Temperature Ambient Fluid (°C)	Weight (kg)	Dimensions No.	Circuit diagram No.
	3036	1.6	3.5	-	IP 65 (with connector DIN EN 175301-803 Form A *6)	-40 ... +50	0.090	5	1
	3046	2	-	II3G II3D	EEx nA II T5 IP65 T 95°C with connector DIN EN 175301-803 Form A	-15 ... +50	0.300	5	1
	3047	-	4.0	II3G II3D	EEx nA II T5 IP65 T 95°C with connector DIN EN 175301-803 Form A	-15 ... +50	0.300	5	8
	3062 *3)	2.7	-	II2G	EEx m II T5 Stranded wire, 3 m long	-20 ... +50	0.300	6	1
	3063 *3)	-	2.1	II2G	EEx m II T5 Stranded wire, 3 m long	-20 ... +50	0.300	6	8
	3071	2.7	-	-	IP 66 Connection M12x1 DIN EN 60947-5-2	-10 ... +50	0.110	7	8

Standard voltages 24 V DC, 230 V AC. Other voltages on request.
For intrinsically safe circuits, protection class EEx ia IIC T6

*3) Certificate of Conformity PTB No. PTB 03 ATEX 2015X
*6) Connector is not indicated in delivery; Required connector 0570275

3/2, 5/2 and 5/3 directional valves for minimal electrical power, incl. EEx i

5/2 way or 3/2 way function (see conversion instructions page 6)

Symbol	Type	port size 1	3, 5	2, 4	Actuation	Operation pressure (bar)	Flow (l/min)	Weight (kg)	Dimensions No.
	9710002*	G 1/4	G 1/8	Flange	Solenoid/Spring	2 ... 8	750	0.25	1
	9710012*	1/4 NPT	1/8 NPT	Flange					
	9711002*	G 1/4	G 1/8	Flange	Solenoid/Solenoid	2 ... 8	750	0.35	2
	9711012*	1/4 NPT	1/8 NPT	Flange					
	9712002*	G 1/4	G 1/8	Flange	Solenoid/Solenoid	2 ... 8	500	0.40	3
	9712012*	1/4 NPT	1/8 NPT	Flange	mid position APB	2 ... 8	500	0.40	3

* When ordering please indicate solenoid, voltage and current type (frequency).
Outside free of nonferrous metals
Valve function: APB = All Ports Blocked

Solenoid actuators

	Type	Power consumption 24 V DC (W)	230 V AC (VA)	Rated current at 24 V DC (W)	230 V AC (VA)	Ex Protection Categorie	Protection class	Temperature Ambient/ Fluid (°C)	Weight (kg)	Dimensions No.	Circuit diagram No.
	3050	1.7	-	-	-		IP 65 (with connector) DIN EN 175301-803 Form B *6)	-40 ... +50	0.054	4	1
	3034	0.7	0.7 *2)	-	-		IP 65 (with connector) *6) DIN EN 175301-803 Form A	-40 ... +50	0.090	5	1
	3046	2	-	-	-	II3G II3D	EEx nA II T5 IP65 T 95°C with connector	-15 ... +50	0.300	5	1
	3062 *3)	2.7	-	115		II2G	EEx m II T5 Connector with 3 m cable	-20 ... +50	0.300	6	1
	3063 *3)	-	2.1 *2)		9 *2)	II2G	EEx m II T5 Connector with 3 m cable	-20 ... +50	0.300	6	8
	3071	2.7	-	115	-	-	IP 66 Connection M12x1 DIN EN 60947-5-2	-10 ... +50	0.110	7	8

Standard voltages 24 V DC, 230 V AC. Other voltages on request.Design acc. to VDE 0580, EN 50014/50028. 100% duty cycle.

For intrinsically safe circuits, protection class EEx ia IIC T6/T4

	Type	Nom. resistance R_N coil (▲)	Required switching current (mA)	Resistance $R_{w\,50}$ coil	Required voltage at terminal $R_{w\,50}$	Ambient temperature (°C)	Fluid temperature max. (°C)	Weight (kg)	Dimensional drawing No.	Circuit diagram No.
	3039 *4)	275	37	330	12.3	T6 -40 ... +80 T4 -40 ... +80	T6 +70 T4 +85	0.83	8	13

When selecting an intrinsically safe power supply, the permissible maximum values according to the Certificate of Conformity should be taken in account.
On the other hand, the low effective inductivity and capacity can be ignored.

*1) Valves can only be operated with DC solenoids
*2) Valves can be operated with DC only. For 230V AC application please use 206V DC coil together with recifier plug 0663303
*3) Certificate of Conformity PTB No. PTB 03 ATEX 2015X
*4) Certificate of Conformity PTB 03 Atex 2134 PTP 03 IEC 2166, CSA - Certificate No. LR 51090-4, FM approved.
Required connector acc. to DIN EN 17031-801 form A or ISO 4400. Installation acc. to requirements of FM and CSA.
*6) Connector is not indicated in delivery; required connector for DC: type 0680003 Form B, type 0570275 Form A.

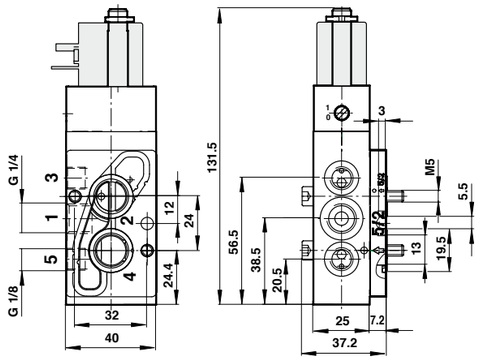
Accessories

Silencer	Connectors	Flange plate		Yoke
				
0014500 (G1/8) *1)	0570275 form A	0612790 NAMUR single connection plate		0540593
	0663303 with rectifier	0612791 NAMUR-rip use in combination with 0612790 (Alu)		
	0680003 form B			

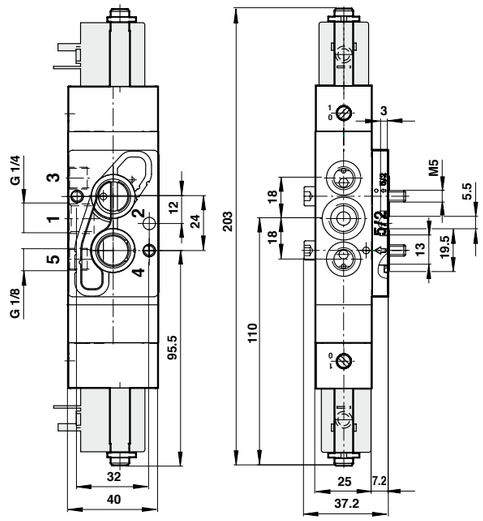
*1) For indoors use

Basic dimensions for valves

①, ②

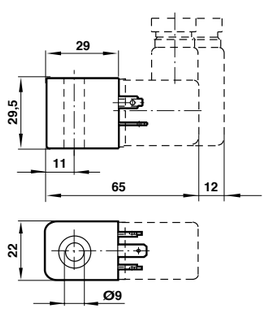


③

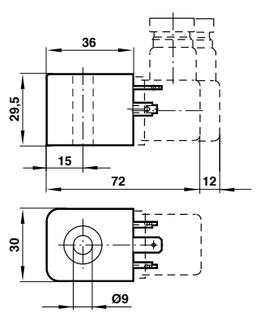


Basic dimensions for solenoid operators

④

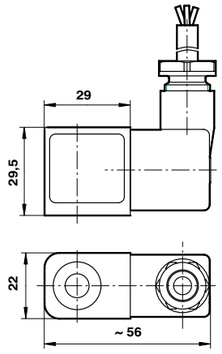


⑤

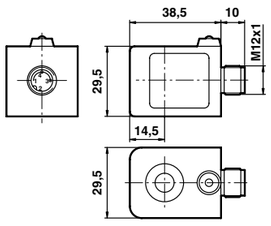


Basic dimensions for solenoid operators

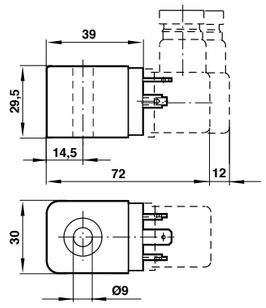
⑥



⑦

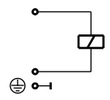


⑧

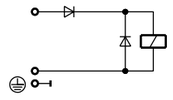


Circuit diagrams

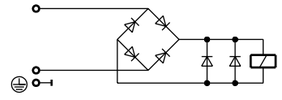
①



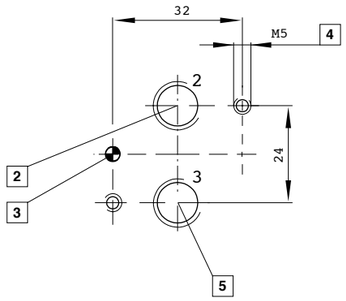
⑧



⑬



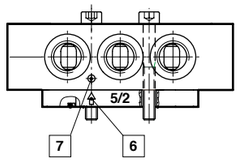
NAMUR hole pattern



2 Port 2 (A)
3 Coding stud threaded
4 M5 (10 deep)
5 Port 3 (R)

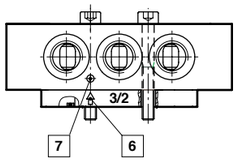
Conversion instructions of 5/2 into 3/2 way function

5/2 way function (original mode of supply)



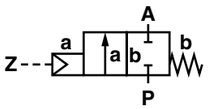
3/2 resp. 5/2 way function can be achieved just by swapping enclosed adaptor plates. Make sure Marker and Arrow do match as shown on above drawing. Original mode of supply: 5/2 function.

3/2 way function



6 arrow
7 Marker

2/2-way valves DN 15 to DN 50



For aggressive gases and liquids

Pressure actuated by external fluid

Seat valves

Internal thread G 1/2 to G 2 or 1/2" NPT to 2" NPT

Operation pressure: 0 - 16 bar (see technical data)

Suitable for contaminated process fluids

High flow rate

For robust industry applications

Damped closing (valve closes against flow direction)

Suitable for vacuum up to max. 90%

Technical data

Switching function:
Normally closed

Flow direction:
determined

Mounting position:
As required

Process fluid characteristics / Valve material

Fluid temperature:
-10 °C up to max. +180 °C

Ambient temperature:
-10 °C up to max. +60 °C

Body / Valve seat:
Stainless steel

Seat seal:
PTFE

Internal parts:
Stainless steel

Spindle sealing:
PTFE, FPM self-adjusting

Pilot fluid characteristics / Actuator material

Pilot connection:
G 1/4 or 1/4" NPT, respectively

Pilot fluid:
Neutral gases

Body / Valve seat:
Stainless steel

Fluid temperature:
max. +60 °C

Actuator:
Body:Stainless steel, Aluminium
Bottom: WEMA-Kor coated

Seal:
NBR

Internal parts:
Coated steel

Connection size G	DN mm	kv-Value m³/h	Part number	Operating pressure bar* PTFE 00	Normally open** 01	Electrical position indicator: 2 switches, Ex-protected 40	Electrical position indicator: on / off with micro switches 41	Stainless steel actuator for fluid temperature +200 °C 60
Actuator Ø 70 mm								
1/2	15	4.8	82382**XX**.0000.**00000**	0 - 16	0 - 16	0 - 16	0 - 16	0 - 16
3/4	20	10.0	82383**XX**.0000.**00000**	0 - 10	0 - 10	0 - 10	0 - 10	0 - 10
1	25	14.0	82384**XX**.0000.**00000**	0 - 10	0 - 10	0 - 10	0 - 10	0 - 10
1 1/4	32	23.0	82385**XX**.0000.**00000**	0 - 7	0 - 7	0 - 7	0 - 7	0 - 7
1 1/2	40	30.0	82386**XX**.0000.**00000**	0 - 4.5	0 - 4.5	0 - 4.5	0 - 4.5	0 - 4.5
2	50	37.0	82387**XX**.0000.**00000**	0 - 3	0 - 3	0 - 3	0 - 3	0 - 3
Actuator Ø 125 mm								
1 1/4	32	27.0	82485**XX**.0000.**00000**	0 - 16	0 - 16	0 - 16	0 - 16	0 - 16
1 1/2	40	37.0	82486**XX**.0000.**00000**	0 - 10	0 - 10	0 - 10	0 - 10	0 - 10
2	50	53.0	82487**XX**.0000.**00000**	0 - 10	0 - 10	0 - 10	0 - 10	0 - 10

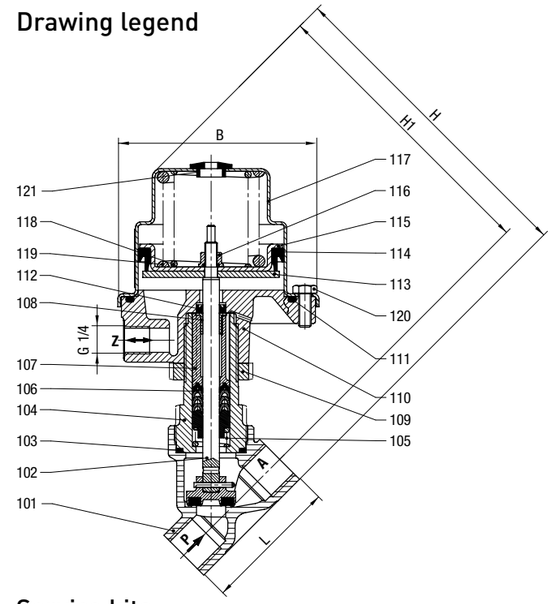
* Pilot pressure 3.5 - 8 bar
** Pilot pressure 1 - 6 bar

Drawing legend

Index	Description
101	Valve body
*102	Valve spindle assembly
*103	Gasket
104	Screw piece
*105	Pressure spring
*106	Spindle sealing
107	Spacer sleeve
*108	Sleeve bearing
109	Nut
110	Bottom of control head housing
*111	O-ring
*112	FPM lip seal
113	Round plate
*114	Lip seal
115	Round plate
*116	Seal-Lock® nut
117	Control head housing
*118	Pressure spring - for G 1 and G 2 only
*119	Pressure spring
120	Hexagon screw
121	Plug

* A service kit consists of these individual parts.

Drawing legend

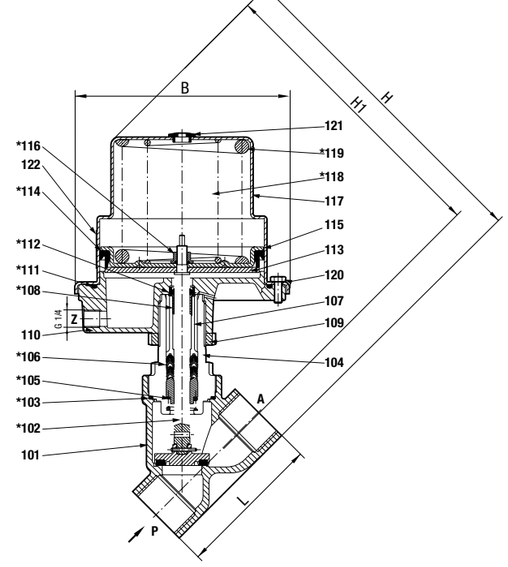


Connection size G	L mm	B mm	H mm	H1 mm
Actuator Ø 70 mm				
1/2	65	89.5	154.0	140.5
3/4	75	89.5	160.0	144.0
1	90	89.5	171.0	150.5
1 1/4	110	89.5	186.0	161.0
1 1/2	120	89.5	190.0	162.5
2	150	89.5	206.0	171.0
Actuator Ø 125 mm				
1 1/4	110	163.0	250.0	225.0
1 1/2	120	163.0	255.0	227.5
2	150	163.0	270.0	235.0

Service kits

For valves	Part number
Actuator Ø 70 mm	
8238200	1249651
8238300	1249652
8238400	1249653
8238500	1249654
8238600	1249655
8238700	1249656
Actuator Ø 70 mm	
109	1249657
110	1249658
*111	1249659

Service kits



Further options (valves)

XXXXX**03**.XXXX Seal: FPM maximum temperature +180 °C
XXXXX**22**.XXXX Operating pressure G 1/2: 25 bar, G 3/4: 16 bar
XXXXX**52**.XXXX Optical position indicator
XXXXX**80**.XXXX Spindle seal with stainless steel

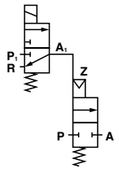
Further options on request

Accessories

3/2-way pilot valves 84660 / 84680, page 148

Please turn to page 276 for technical information on our valves.

2/2-way valves DN 15 to DN 25 with DVGW-approval



For natural gas and heating oil EL, L, M, S

Electropneumatic directly actuated

Seat valves

Flange connection: PN 40

Operating pressure: 0 to 25 bar

Qualification approval EN 264 / DIN 3394 T2 / EN 161

Short response time ← 1 s

Low pressure drop

Spindle bushing according to technical instructions on air quality

High operating cycles

Technical data

Switching function:
normally closed

Flow direction:
determined

Mounting position:
As required, preferably actuator vertical on top

Fluid temperature:
-10 °C up to max. +140 °C

Ambient temperature:
-10 °C up to max. +60 °C

Material

Body:
Cast steel, Stainless steel

Seat seal:
PTFE

Spindle sealing:
PTFE / FPM

Internal parts:
Brass, Stainless steel, Sandvik 1802

Pilot fluid:
Neutral liquids

Temperature:
-10 °C up to +80 °C

Connection size DN mm	kv-Value m³/h	Part number*	Operating pressure bar* PTFE	Electrical position indicator: on / off with micro switches	Electrical position indicator: 1 switch acting as limit switch
		→	**00**	**40**	**50**
15	5.5	83862**XX**.0247.**00000**	0 - 25	0 - 25	0 - 25
20	10.0	83863**XX**.0247.**00000**	0 - 25	0 - 25	0 - 25
25	12.5	83864**XX**.0247.**00000**	0 - 25	0 - 25	0 - 25

* For orders please state voltage and frequency, e.g.: 8386200.0247.23050 for 230V 50Hz or 8386200.0247.02400 for 24V DC

** pilot pressure: 4 - 8 bar

Solenoid 0247 (standard voltages)

DC	AC 50Hz	AC 60Hz
24V	24V	-
-	110V	120V
	230V	220V

Power consumption

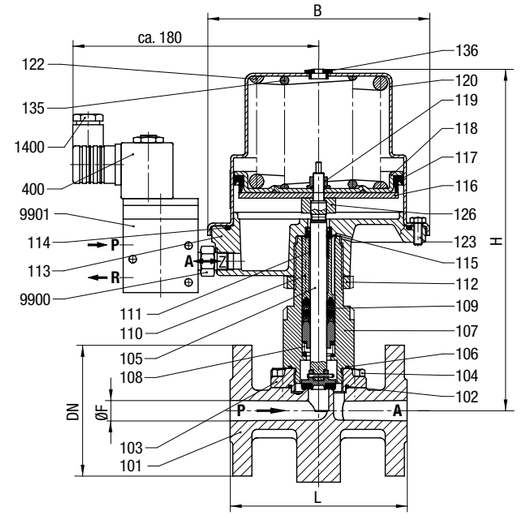
Solenoid	DC	AC Inrush	AC Holding
0247	7W	18VA	10VA

Design according to DIN VDE 0580
Voltage range +/-10%, duty cycle 100%
Protection class according to EN 60529: IP65
Electrical connector according to DIN EN 175301-803 (included)

Drawing legend

Index	Description
101	Valve body
*102	O-ring
103	Valve cover
104	Hexagon screw
*105	Valve spindle
*106	Gasket
107	Screw piece
*108	Pressure spring
*109	Spindle sealing
110	Spacer sleeve
*111	Sleeve bearing
112	Nut
113	Bottom of control head housing
*114	O-ring
*115	Lip seal: profile 1
116	Round plate
*117	Lip seal: profile 2
118	Round plate
*119	Seal-Lock® nut
120	Control head housing
*122	Pressure spring
123	Hexagon screw
126	Bushing
*135	Pressure spring
136	Plug
400	Solenoid
1400	Electrical connector
9900	Double screwed connection
9901	3/2-way pilot valve

* A service kit consists of these individual parts.



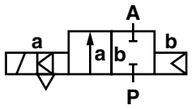
Connection size G	L mm	B mm	H mm	øF mm
15	130	163	250	96
20	150	163	265	105
25	160	163	265	105

Further options on request

- Solenoids in different EEx protection classes and other versions
- Inspection certificates according to DIN 50049 (EN 10204-3.1)

Please turn to page 276 for technical information on our valves.

2/2-way valves DN 20 to DN 65



- For air
- Indirectly solenoid actuated
- Diaphragm valves
- Internal thread G 3/4 to G 2 1/2 or 3/4" NPT to 2 1/2" NPT
- Operating pressure: 0.4 to 8 bar
- High flow rate
- All internal components captive
- Functional compact design
- Solenoid interchangeable without tools
- Integrated silencer
- One-piece diaphragm for longer life

Technical data

Switching function:
Normally closed

Flow direction:
Determined

Fluid temperature:
-40 °C up to max. +85 °C

Ambient temperature:
-20 °C up to max. +85 °C

Mounting position:
As required, preferably with solenoid vertical on top

Material

Body:
Aluminium

Seat seal:
TPE

Internal parts:
TPU

Connection size G	DN mm	kv-Value m^3/h	Part number*	Operating pressure bar TPE	ECO/FPM **
			→	**00**	**60**
3/4	20	18	82963**XX**.8171.**00000**	0.4 - 8	0.4 - 8
1	25	22	82964**XX**.8171.**00000**	0.4 - 8	0.4 - 8
1 1/2	40	59	82966**XX**.8171.**00000**	0.4 - 8	0.4 - 8
2	50	80	82967**XX**.8171.**00000**	0.4 - 8	-
2 1/2	65	93	82968**XX**.8171.**00000**	0.4 - 8	-

* For orders please state voltage and frequency, e.g.: 8296400.8171.23050 for 230V 50Hz or 8296400.8171.02400 for 24V DC

** Process gas temperatur: -10 °C up to +140 °C
Ambient temperature: -10 °C up to +85 °C
Backflushing gas temperature: -10 °C up to +85 °C

Solenoid 8171 (standard voltages)

DC	AC 50Hz	AC 60Hz
24V	24V	-
-	110V	120V
	230V	220V

Power consumption

Solenoid	DC	AC Inrush	AC Holding
8171	12W	-	-
8171	-	23VA	16VA

Design according to DIN VDE 0580
Voltage range +/-10%, duty cycle 100%
Protection class according to EN 60529: IP65
Electrical connector according to DIN EN 175301-803 (included)
The solenoids are UL listed and CSA approved

Drawing legend

Index	Description
101	Valve body
102	Valve cover
*103	Diaphragm
104	Allen head screw
*105	Diaphragm
106	Valve cover
*107	Silencer
108	Silencer housing
109	Allen head screw
*400	Solenoid
**702	Plunger
**705	Pressure spring
**706	Pressure spring
**707	Silencer
1400	Electrical connector (included)

* A service kit consists of these individual parts.
** Pilot service kit including solenoid

Connection size G	L	H1	L	L1
G 3/4	105.5	83	95	50
G 1	105.5	83	95	50
G 1 1/2	166.0	136	135	70
G 2	190.5	149	170	95
G 2 1/2	205.5	160	170	95

Service kits*

For valves with solenoid 8171 and seal TPE	Part number
8296300	1261253
8296400	1261253
8296600	1261402
8296700	1268274
8296800	1268274

Pilot service kit**
8298000.8170.XXXXX***

*** Specify voltage and frequency

Further options (valves)

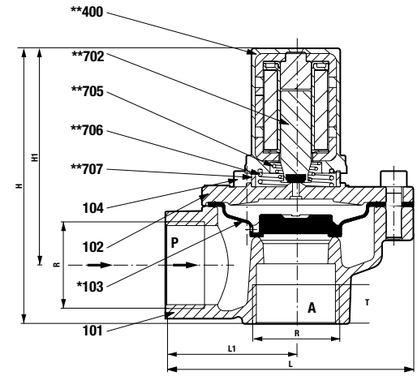
XXXXX**90**.XXXX Single-level; up to 4.5 bar (DN 40 only)

Further options (solenoids)

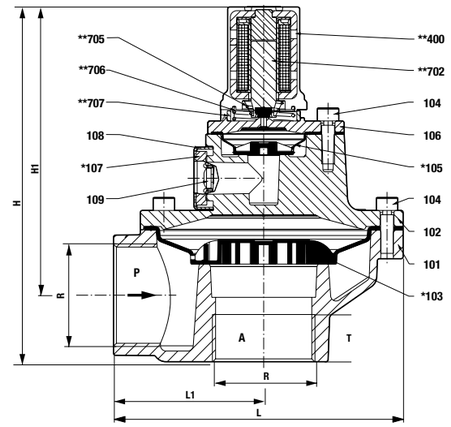
XXXXXXX.**8176** Solenoid in protection class ⟨Ex⟩ II 3 GD T 135 °C EEx nA II T4

XXXXXXX.**8186** Solenoid in protection class ⟨Ex⟩ II 2 GD EEx me II T4 T 140 °C

G 3/4 - G 1



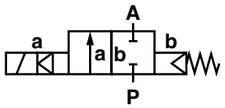
G 1 1/2 - G 2 1/2



Further options on request

Please turn to page 276 for technical information on our valves.

2/2-way valves DN 8 to DN 50



Click-on®
Solenoid interchangeable without tools

- For neutral gases and liquids
- Solenoid actuated, with forced lifting
- Piston seat valves
- Internal thread G 1/4 to G 2 or 1/4" NPT to 2" NPT
- Operating pressure: 0 to 25 bar (0 - 40 bar)
- High flow rate
- For robust industry applications
- Damped operation
- Suitable for vacuum
- For systems with low or fluctuating pressure
- Valve operates without differential pressure
- Stainless steel piston
- Solenoid interchangeable without tools (Click-on®) up to G 1 thread

Technical data

Solenoid valve for air, water, oil and other netural fluids

Switching function:
Normally closed

Flow direction:
Determined

Fluid temperature:
-20 °C up to max. +90 °C

Ambient temperature:
-20 °C up to max. +50 °C

Mounting position:
As required, preferably with solenoid vertical on top

Material

Body:
Brass

Seat seal:
NBR

Internal parts:
Stainless steel, PTFE/carbon

For contaminated fluids the use of a strainer upstream of the valve is recommended.

Connection size G	DN mm	kv-Value m^3/h	Part number for DC voltage*	Operating pressure bar* NBR	Normally open	Manual override	FPM 110 °C	PTFE** 110 °C	EPDM 110 °C	Position indicator 2 switches
			→	00	01	02	03	06	14	23
1/4	8	2.2	82382**XX**.0000.**00000**	0 - 25	0 - 25***	0 - 25	0 - 25	0 - 16	0 - 25	0 - 25***
3/8	10	3.4	82383**XX**.0000.**00000**	0 - 25	0 - 25***	0 - 25	0 - 25	0 - 16	0 - 25	0 - 25***
1/2	12	4.4	82384**XX**.0000.**00000**	0 - 25	0 - 25***	0 - 25	0 - 25	0 - 16	0 - 25	0 - 25***
3/4	20	7.0	82385**XX**.0000.**00000**	0 - 25	0 - 25***	0 - 25	0 - 25	0 - 16	0 - 25	0 - 25***
1	25	10.5	82386**XX**.0000.**00000**	0 - 25	0 - 25***	0 - 25	0 - 25	0 - 16	0 - 25	0 - 25***
1 1/4	32	25.0	82387**XX**.0000.**00000**	0 - 25	0 - 25	0 - 25	0 - 25	0 - 16	0 - 25	0 - 25
1 1/2	40	27.0	82485**XX**.0000.**00000**	0 - 25	0 - 25	0 - 25	0 - 25	0 - 16	0 - 25	0 - 25
2	50	43.0	82486**XX**.0000.**00000**	0 - 25	0 - 25	0 - 25	0 - 25	0 - 16	0 - 25	0 - 25

* For orders please state voltage and frequency, e.g.: 8570200.940**4.23049** for 230V 40-60Hz (AC with rectifier plug only, included) or 8570200.940**1.02400** for 24V DC
** Leak rate E according to EN 12266-1
*** With solenoid DC 8401 / AC 8404

Solenoid 9401 / 9404 / 8401 / 8404 (standard voltages)

DC	AC 40-60Hz	
24V	24V	-
-	110V	120V
	230V	220V

Design according to DIN VDE 0580
Voltage range +/-10%, duty cycle 100%
Protection class according to EN 60529: IP65
Electrical connector according to DIN EN 175301-803 (included)
AC with rectifier plug only
The solenoids 94XX are UL listed and CSA approved
(With the exception of solenoid 94XX up to 41V AC)

Power consumption

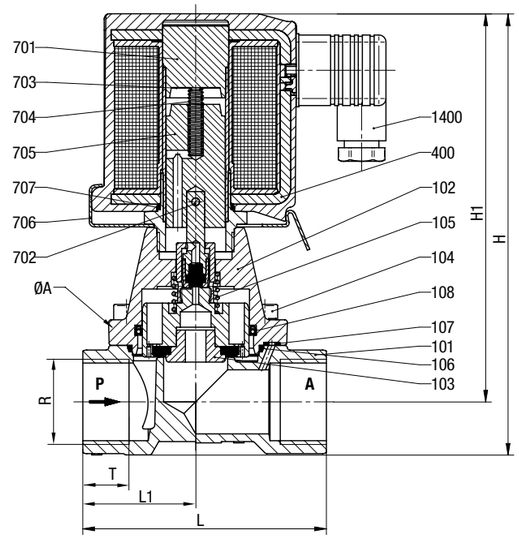
Solenoid	DC	AC Inrush	AC Holding
9401	38W		
9404		42VA	42VA
8401	40W		
8404		45VA	45VA

Drawing legend

Index	Description
101	Valve body
102	Valve cover
*103	Valve plate
104	Allen head screw
*105	Pressure spring
*106	Gasket
*107	O-ring
*108	Lip seal
400	Solenoid
701	Core tube
*702	Dowel pin
703	Round plate
*704	Pressure spring
*705	Plunger
706	Spring clip
*707	O-ring
1400	Electrical connector

* A service kit consists of these individual parts.

G 1/4 - G 1



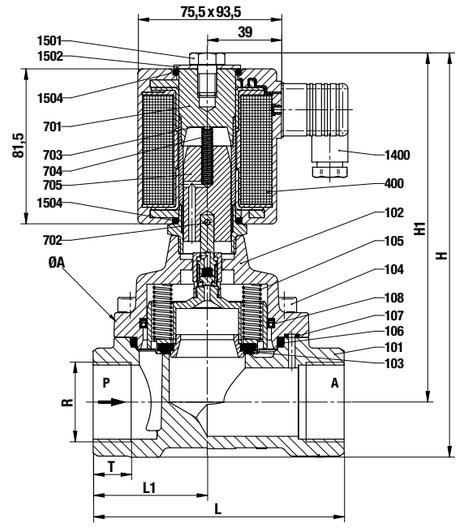
Connection size G	øA mm	H mm	H1 mm	L mm	L1 mm	T mm
1/4	44.0	152.0	140.5	60.0	27.5	12.0
3/8	44.0	152.0	140.5	60.0	27.5	12.0
1/2	44.0	154.5	140.5	67.0	31.0	14.0
3/4	50.0	162.0	146.5	80.0	36.5	16.0
1	62.0	183.0	162.0	95.0	44.0	18.0

Drawing legend

Index	Description
101	Valve body
102	Valve cover
*103	Valve plate
104	Allen head screw
*105	Pressure spring (2x)
*106	Gasket
*107	O-ring
*108	Lip seal
400	Solenoid
701	Core tube
*702	Dowel pin
703	Round plate
*704	Pressure spring
*705	Plunger
1400	Electrical connector
1501	Hexagon screw
1502	Round plate
1504	O-ring (2x)

* A service kit consists of these individual parts.

G 1 1/4 - G 2



Connection size G	øA mm	H mm	H1 mm	L mm	L1 mm	T mm
1 1/4	92.0	212.5	183.5	132.0	60.0	20.0
1 1/2	92.0	212.5	183.5	132.0	60.0	22.0
2	109.0	226.5	192.0	160.0	74.0	24.0

Service kits

For valves with solenoid 9401	Part number
8570000	1263105
8570100	1263105
8570200	1263105
8570300	1263108
8570400	1263111
For valves with solenoid 8401	**Part number**
8570500	1263114
8570600	1263114
8570700	1263117

Further options (valves)

XXXXX**17**.XXXX Normally open, seat seal: FPM, fluid temperature -10 °C up to +110 °C*, mounting position: with solenoid vertical on top, only with solenoid 8400

XXXXX**22**.XXXX Maximum operating pressure: 40 bar

XXXXX**25**.XXXX Seat seal: FPM, with larger bleed orifices in the piston, for fluids such as fuel and oil, viscosity: 80 mm²/s (cSt) fluid temperature -10 °C up to +110 °C*

XXXXX**28**.XXXX Low temperature design: down to -20 °C

Accessories:
- Manual override conversion kit
- Mounting bracket kit

Further options (solenoids)

XXXXXXX.8426** Solenoid in protection class Ex II 3 GD EEx nA II T4 T 135 °C

XXXXXXX.**8441** Solenoid in protection class Ex II 2 GD EEx me II T3 T 140 °C

XXXXXXX.9426** Solenoid in protection class Ex II 3 GD EEx nA II T4 T 135 °C

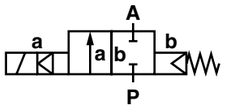
Further options on request

* Up to max. +200 °C fluid temperature with solenoid for higher temperature

**DC only, for AC solenoids with EC type examination, category 2, use XXXXXXX.8441

Please turn to page 276 for technical information on our valves.

2/2-way valves DN 8 to DN 50



Click-on®
Solenoid interchangeable without tools

- For slightly aggressive gases and liquids
- Solenoid actuated, with forced lifting
- Piston seat valves
- Internal thread G 1/4 to G 2 or 1/4" NPT to 2" NPT
- Operating pressure: 0 to 25 bar (40 bar)
- High flow rate
- For robust industry applications
- Damped operation
- Suitable for vacuum
- For systems with low or fluctuating pressure
- Valve operates without differential pressure
- Solenoid interchangeable without tools (Click-on®) up to G 1 thread

Technical data

Solenoid valve for slightly aggressive gases and liquids

Switching function:
Normally closed

Flow direction:
Determined

Fluid temperature:
-20 °C up to max. +90 °C

Ambient temperature:
-20 °C up to max. +50 °C

Mounting position:
As required, preferably with solenoid vertical on top

Material

Body:
Stainless steel

Seat seal:
NBR-K (flexible at low temperatures)

Internal parts:
Stainless steel, PTFE/carbon

For contaminated fluids the use of a strainer upstream of the valve is recommended.

Connection size G	DN mm	kv-Value m^3/h	Part number for DC voltage*	Operating pressure bar NBR-K	Normally open	FPM 110 °C	PTFE** 110 °C	EPDM 110 °C	Position indicator 2 switches
			→	00	01	03	06**	14	23
1/4	8	1.9	85740**XX**.9401.**00000**	0 - 25	0 - 25***	0 - 25	0 - 16	0 - 25	0 - 25***
3/8	10	3.4	85741**XX**.9401.**00000**	0 - 25	0 - 25***	0 - 25	0 - 16	0 - 25	0 - 25***
1/2	12	3.8	85742**XX**.9401.**00000**	0 - 25	0 - 25***	0 - 25	0 - 16	0 - 25	0 - 25***
3/4	20	11.0	85743**XX**.9401.**00000**	0 - 25	0 - 25***	0 - 25	0 - 16	0 - 25	0 - 25***
1	25	13.0	85744**XX**.9401.**00000**	0 - 25	0 - 25***	0 - 25	0 - 16	0 - 25	0 - 25***
1 1/4	32	23.0	85745**XX**.9401.**00000**	0 - 25	0 - 25	0 - 25	0 - 16	0 - 25	0 - 25
1 1/2	40	25.0	85746**XX**.9401.**00000**	0 - 25	0 - 25	0 - 25	0 - 16	0 - 25	0 - 25
2	50	41.0	85747**XX**.9401.**00000**	0 - 25	0 - 25	0 - 25	0 - 16	0 - 25	0 - 25

* For orders please state voltage and frequency, e.g.: 8570200.940**4.23049** for 230V 40-60Hz (AC with rectifier plug only, included) or 8570200.940**1.02400** for 24V DC
** Leak rate E according to EN 12266-1
*** With solenoid DC 8401 / AC 8404

Solenoid 9401 / 9404 / 8401 / 8404 (standard voltages)

DC	AC 40-60Hz	
24V	24V	-
-	110V	120V
	230V	220V

Design according to DIN VDE 0580
Voltage range +/-10%, duty cycle 100%
Protection class according to EN 60529: IP65
Electrical connector according to DIN EN 175301-803 (included)
AC with rectifier plug only
The solenoids 94XX are UL listed and CSA approved
(With the exception of solenoid 94XX up to 41V AC)

Power consumption

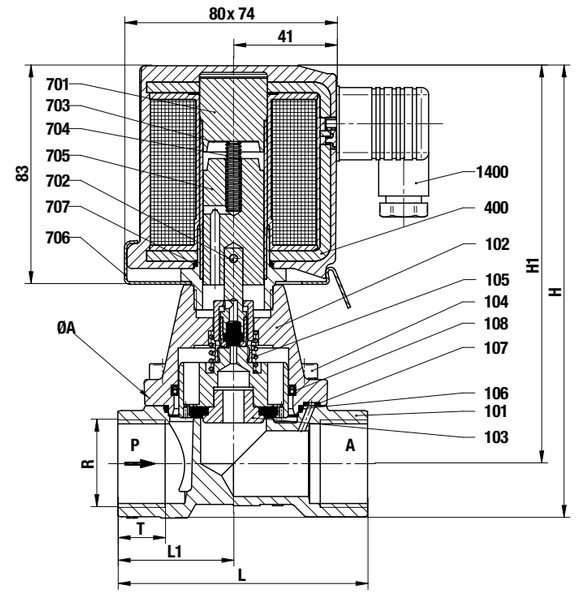
Solenoid	DC	AC Inrush	AC Holding
9401	38W		
9404		42VA	42VA
8401	40W		
8404		45VA	45VA

Drawing legend

Index	Description
101	Valve body
102	Valve cover
*103	Valve plate
104	Allen head screw
*105	Pressure spring
*106	Gasket
*107	O-ring
*108	Lip seal
400	Solenoid
701	Core tube
*702	Dowel pin
703	Round plate
*704	Pressure spring
*705	Plunger
706	Spring clip
*707	O-ring
1400	Electrical connector

* A service kit consists of these individual parts.

Up to G 1 thread



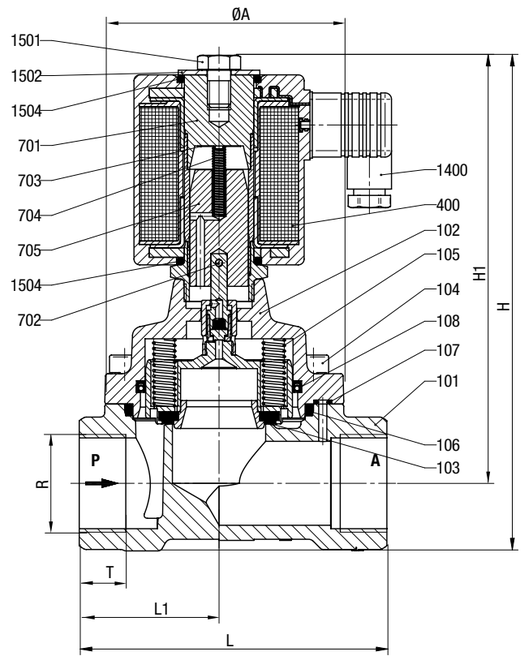
Connection size G	øA mm	H mm	H1 mm	L mm	L1 mm	T mm
1/4	44.0	152.0	140.5	60.0	27.5	12.0
3/8	44.0	152.0	140.5	60.0	27.5	12.0
1/2	44.0	154.5	140.5	67.0	31.0	14.0
3/4	50.0	162.0	146.5	80.0	36.5	16.0
1	62.0	183.0	162.0	95.0	44.0	18.0

Drawing legend

Index	Description
101	Valve body
102	Valve cover
*103	Valve plate
104	Allen head screw
*105	Pressure spring (2x)
*106	Gasket
*107	O-ring
*108	Lip seal
400	Solenoid
701	Core tube
*702	Dowel pin
703	Round plate
*704	Pressure spring
*705	Plunger
1400	Electrical connector
1501	Hexagon screw
1502	Round plate
1504	O-ring (2x)

* A service kit consists of these individual parts.

G 1 1/4 - G 2



Connection size G	øA mm	H mm	H1 mm	L mm	L1 mm	T mm
1 1/4	92.0	212.5	183.5	132.0	60.0	20.0
1 1/2	92.0	212.5	183.5	132.0	60.0	22.0
2	109.0	226.5	192.0	160.0	74.0	24.0

Service kits

For valves with solenoid 9401	Part number
8574000	1269067
8574100	1269067
8574200	1269067
8574300	1269068
8574400	1269069
For valves with solenoid 8401	**Part number**
8574500	1269070
8574600	1269070
8574700	1269071

Further options (valves)

XXXXX**02**.XXXX Manual override

XXXXX**17**.XXXX Normally open,
seat seal: FPM, fluid temperature -10 °C up to +110 °C*,
mounting position: with solenoid vertical on top,
only with solenoid 8400

XXXXX**22**.XXXX Maximum operating pressure: 40 bar

XXXXX**25**.XXXX Seat seal: FPM, with larger bleed orifices in the piston,
for fluids such as fuel and oil, viscosity: 80 mm2/s (cSt),
fluid temperature: -10 °C up to +110 °C*

Accessories:
- Manual override conversion kit
- Mounting bracket kit

Further options (solenoids)

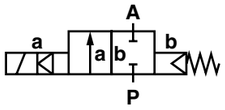
XXXXXXX.8426** Solenoid in protection class Ex II 3 GD EEx nA II T4 T 135 °C
XXXXXXX.**8441** Solenoid in protection class Ex II 2 GD EEx me II T3 T 140 °C
XXXXXXX.9426** Solenoid in protection class Ex II 3 GD EEx nA II T4 T 135 °C

* Up to maximum +200 °C fluid temperature with solenoid for higher temperature
**DC only, for AC solenoids with design inspection certificate according to category 2,
e.g. XXXXXXX.8441

Please turn to page 276 for technical information on our valves.

Further options on request

2/2-way valves DN 8 to DN 25 with DVGW-approval



For neutral gaseous and liquid fuels

Solenoid actuated, with forced lifting

Diaphragm valves

Internal thread G 1/4 to G 1

Operating pressure: 0 to 4 bar / 8 bar

EC-Type Examination Certificate

Product ID-No.: CE-0085AU0323

Valve class A G 1/4-G 1/2; B G 3/4 and G 1; valve group 2

Qualification approval EN 161/3394 part 1 and EN 264

High functional reliability

Short response time ← 1 s

Technical data

Solenoid valve for neutral gaseous and liquid fuels

Switching function:
Normally closed

Flow direction:
Determined

Fluid temperature:
-10 °C up to max. +60 °C

Ambient temperature:
-10 °C up to max. +50 °C

Mounting position:
As required, preferably with solenoid vertical on top

Material

Body:
Brass

Seat seal:
FPM

Internal parts:
Stainless steel, Brass, PVDF

Note: Strainer with maximum mesh size of 0.25 mm is necessary upstream of the valve

Connection size G	DN mm	kv-Value m^3/h	Part number for DC voltage*	Operating pressure bar* FPM **00**	Operating pressure bar* With compression pipe fitting (10 mm) **80**
1/4	8	1.6	82370**XX**.9381.**00000**	0 - 4	0 - 8
3/8	10	2.0	82371**XX**.9381.**00000**	0 - 4	0 - 8
1/2	12	2.3	82372**XX**.9381.**00000**	0 - 4	0 - 8
3/4	20	5.8	82373**XX**.9381.**00000**	0 - 4	0 - 8
1	25	6.1	82374**XX**.9381.**00000**	0 - 4	0 - 8

* For orders please state voltage and frequency, e.g.: 8237000.938**2.23049** for 230V 40-60Hz (AC with rectifier plug only, included) or 8237000.938**1.02400** for 24V DC

Solenoid 9381 / 9382 (standard voltages)

DC	AC 40-60Hz	
24V	24V	-
-	110V	120V
	230V	220V

Design according to DIN VDE 0580
Voltage range +/-10%, duty cycle 100%
Protection class according to EN 60529: IP65
Electrical connector according to DIN EN 175301-803 (included)
Approved to DVGW EN 161/3394 Part1, EN 264 cCSAus (coil only)
AC with rectifier plug only

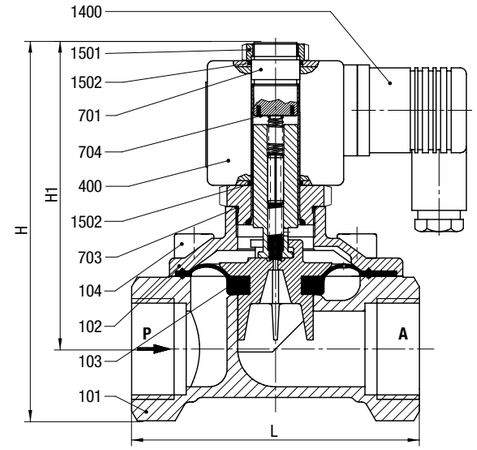
Power consumption

Solenoid	DC	AC 40-60Hz	
9381	18W	-	-
9382	-	20VA	20VA

Drawing legend

Index	Description
101	Valve body
102	Valve cover
*103	Diaphragm assembly
104	Oval head cap screw up to G 1/2 Allen head screw from G 3/4
400	Solenoid
701	Core tube
*703	O-ring
704	Round plate
1400	Electrical connector
1501	Hexagon nut
1502	O-ring

* A service kit consists of these individual parts.



Connection size G	L mm	B* mm	H mm	H1 mm
1/4	67	89.5	105	90
3/8	67	89.5	105	90
1/2	67	89.5	105	90
3/4	95	89.5	130	105
1	95	89.5	130	105

* B = maximum width

Service kits

For valves with solenoid 9381(2) and seal FPM	Part number
8237000	1261721
8237100	1261721
8237200	1261721
8237300	1266952
8237400	1266952

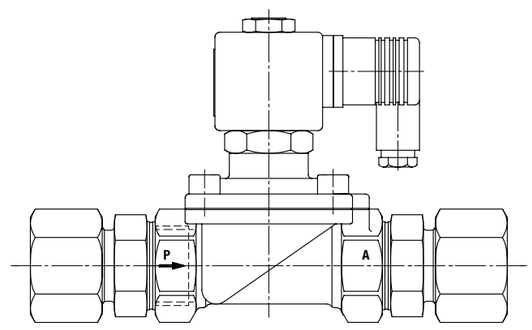
Further options (solenoids)

XXXXXXX.**9356** Solenoid in protection class Ⓔx II 2 GD EEx me II T3 T 140 °C

Further options on request

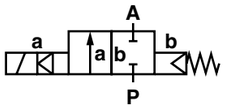
Please turn to page 276 for technical information on our valves.

Valve with compression fitting



Note:
Pressure-tight screw joints (e.g. NPT) are not approved for use with gaseous fuels and pressures exceeding 4 bar.

2/2-way valves DN 8 to DN 50



Click-on®
Solenoid interchangeable without tools

- For slightly aggressive gases and liquids
- Solenoid actuated, with forced lifting
- Piston seat valves
- Internal thread G 1/4 to G 2 or 1/4" NPT to 2" NPT
- Operating pressure: 0 to 25 bar (40 bar)
- High flow rate
- For robust industry applications
- Damped operation
- Suitable for vacuum
- For systems with low or fluctuating pressure
- Valve operates without differential pressure (Zero Delta P)
- Solenoid interchangeable without tools (Click-on®)

Technical data

Solenoid valve for air, water, oil and other neutral fluids

Switching function:
Normally closed

Flow direction:
Determined

Fluid temperature:
-10 °C up to max. +90 °C

Ambient temperature:
-10 °C up to max. +50 °C

Mounting position:
As required, preferably with solenoid vertical on top

Material

Body:
Brass

Seat seal:
NBR

For contaminated fluids the use of a strainer upstream of the valve is recommended.

In the near future with DVGW approval available!

Connection size G	DN mm	kv-Value m^3/h	Part number for DC voltage*	Operating pressure bar NBR 00	Normally open 01	FPM 110 °C 03	EPDM 110 °C 14
1/4	8	1.9	82540**XX**.8301.**00000**	0 - 16	0 - 16	0 - 16	0 - 16
1/4	8	1.9	82540**XX**.9151.**00000**	0 - 10	0 - 10	0 - 10	0 - 10
3/8	10	3.0	82541**XX**.8301.**00000**	0 - 16	0 - 16	0 - 16	0 - 16
3/8	10	3.0	82541**XX**.9151.**00000**	0 - 10	0 - 10	0 - 10	0 - 10
1/2	12	3.4	82542**XX**.8301.**00000**	0 - 16	0 - 16	0 - 16	0 - 16
1/2	12	3.4	82542**XX**.9151.**00000**	0 - 10	0 - 10	0 - 10	0 - 10
3/4	20	5.8	82543**XX**.8301.**00000**	0 - 16	0 - 16	0 - 16	0 - 16
3/4	20	5.8	82543**XX**.9151.**00000**	0 - 10	0 - 10	0 - 10	0 - 10
1	25	8.0	82544**XX**.8301.**00000**	0 - 16	0 - 16	0 - 16	0 - 16
1	25	8.0	82544**XX**.9151.**00000**	0 - 10	0 - 10	0 - 10	0 - 10
1 1/4	32	23.0	82545**XX**.9401.**00000**	0 - 16	0 - 16***	0 - 16	0 - 16
1 1/2	40	25.0	82546**XX**.9401.**00000**	0 - 16	0 - 16***	0 - 16	0 - 16
2	50	41.0	82547**XX**.9401.**00000**	0 - 16	0 - 16***	0 - 16	0 - 16

* For orders please state voltage and frequency, e.g.: 8254000.915**4.23049** for 230V 40-60Hz (AC with rectifier plug only, included) or 8254000.915**1.02400** for 24V DC
** With solenoid DC 8401 / AC 8404

Solenoid 9151 / 9154; 9401 / 9404; 8301 / 8304; 8401 / 8404 (standard voltages)

DC	AC 40-60Hz	
24V	24V	-
-	110V	120V
	230V	220V

Design according to DIN VDE 0580
Voltage range +/-10%, duty cycle 100%
Protection class according to EN 60529: IP65
Electrical connector according to DIN EN 175301-803 (included)
AC with rectifier plug only

Power consumption

Solenoid	DC	AC Inrush	AC Holding
915X	18W	20VA	20VA
940X	38W	42VA	42VA
840X	40W	45VA	45VA
830X	22W	25VA	25VA

The solenoids 915X and 940X are UL listed and CSA approved

Mounting bracket*

Content: 1 stainless steel mounting bracket and 2 screws

Connection size G	Part number
1/4, 3/8, 1/2	1258986
3/4	1258991
1	1258996
1 1/4, 1 1/2	1259005
2	1259007

* For image of valve with mounting bracket, see 82400 series (page 105)

Drawing legend

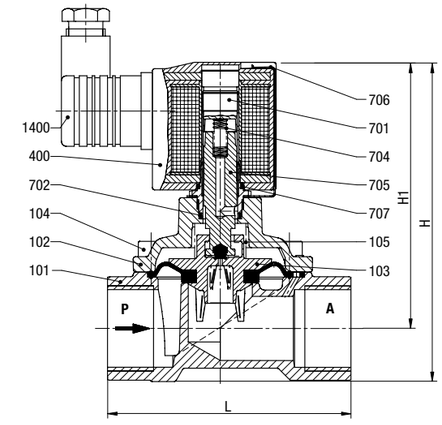
Index	Description
101	Valve body
102	Valve cover
*103	Diaphragm
104	Allen head screw
*105	Pressure spring
400	Solenoid
701	Core tube
*702	O-ring
703	Round plate
*704	Pressure spring
*705	Plunger
706	Spring clip
*707	O-ring
1400	Electrical connector

* A service kit consists of these individual parts.

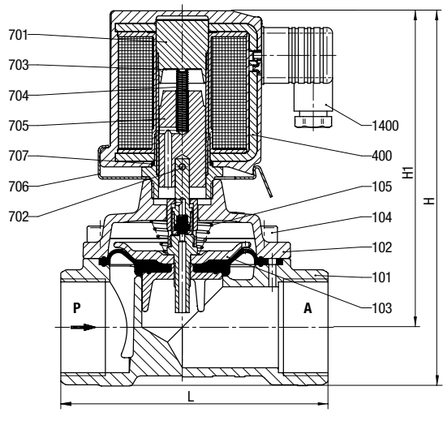
Connection size G	L mm	B* mm	H mm	H1 mm
1/4	60	44	104.0	92.5
3/8	60	44	104.0	92.5
1/2	67	44	108.0	94.5
3/4	80	50	115.0	99.0
1	95	62	124.0	103.5
1 1/4	132	92	186.0	157.0
1 1/2	132	92	186.0	157.0
2	160	109	201.5	167.0

* B = maximum width

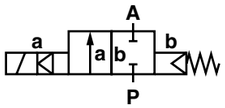
G 1/4 - G 1 with solenoid 915X



G 1 1/4 - G 2 with solenoid 940X



2/2-way valves DN 8 to DN 50



Click-on®
Solenoid interchangeable without tools

- For slightly aggressive gases and liquids
- Solenoid actuated, with forced lifting
- Diaphragm valves
- Internal thread G 1/4 to G 2
- Operating pressure: 0 to 16 bar (see technical data)
- High flow rate
- For robust industry applications
- Damped operation
- Suitable for vacuum
- For systems with low or fluctuating pressure
- Solenoid interchangeable without tools (Click-on®)
- Valve operates without differential pressure

Technical data

Solenoid valve for air, water, oil and other neutral fluids

Switching function:
normally closed

Flow direction:
Determined

Fluid temperature:
-10 °C up to max. +90 °C

Ambient temperature:
-10 °C up to max. +50 °C

Mounting position:
As required, preferably with solenoid vertical on top

Material

Body:
Stainless steel

Seat seal:
NBR-K (flexible at low temperatures)

Internal parts:
Stainless steel, PVDF

For contaminated fluids the use of a strainer upstream of the valve is recommended.

Connection size G	DN mm	kv-Value m^3/h	Part number for DC voltage*	Operating pressure bar NBR Normally open 00	FPM 110 °C 01	EPDM 110 °C 03	14
1/4	8	1.9	82590**XX**.9151.**00000**	0 - 10	0 - 10	0 - 10	0 - 10
3/8	10	3.0	82591**XX**.9151.**00000**	0 - 10	0 - 10	0 - 10	0 - 10
1/2	12	3.4	82592**XX**.9151.**00000**	0 - 10	0 - 10	0 - 10	0 - 10
3/4	20	5.8	82593**XX**.9151.**00000**	0 - 10	0 - 10	0 - 10	0 - 10
1	25	8.0	82594**XX**.9151.0**0000**	0 - 10	0 - 10	0 - 10	0 - 10
1 1/4	32	23.0	82595**XX**.9401.**00000**	0 - 16	0 - 16**	0 - 16	0 - 16
1 1/2	40	25.0	82596**XX**.9401.**00000**	0 - 16	0 - 16**	0 - 16	0 - 16
2	50	41.0	82597**XX**.9401.**00000**	0 - 16	0 - 16**	0 - 16	0 - 16

* For orders please state voltage and frequency, e.g.: 8259000.915**4.23049** for 230V 40-60Hz (AC with rectifier plug only, included) or 8259000.915**1.02400** for 24V DC
** With solenoid DC 8401 / AC 8404

Solenoid 9151/9154; 9401/9404; 8401/8404 (standard voltages)

DC	AC 40-60Hz	
24V	24V	-
-	110V	120V
	230V	220V

Design according to DIN VDE 0580
Voltage range +/-10%, duty cycle 100%
Protection class according to EN 60529: IP65

Power consumption

Solenoid	DC	AC Inrush	Holding
915X	18W	20VA	20VA
940X	38W	42VA	42VA
840X	40W	45VA	45VA

The solenoids 94XX are UL listed and CSA approved (With the exception of solenoid 94XX up to 41V AC).
Electrical connector according to DIN EN 175301-803 (included)
AC with rectifier plug only

Mounting bracket*

Content: 1 stainless steel mounting bracket and 2 screws

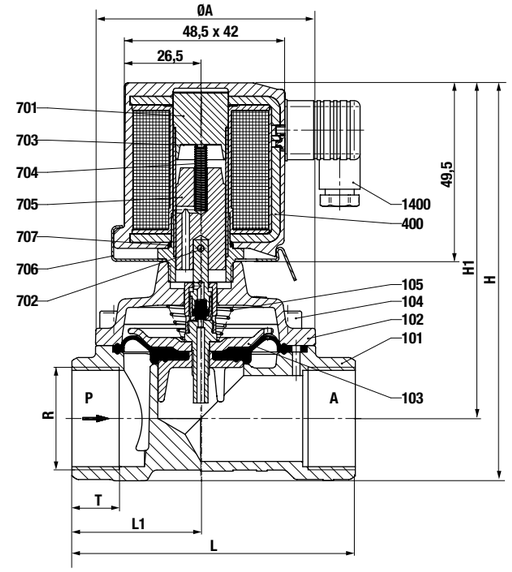
Connection size G	Part number
1/4, 3/8, 1/2	1258986
3/4	1258991
1	1258996
1 1/4, 1 1/2	1259005
2	1259007

* For image of valve with mounting bracket, see 82400 series (page 105)

Drawing legend

Index	Description
101	Valve body
102	Valve cover
*103	Diaphragm
104	Allen head screw
*105	Pressure spring
400	Solenoid
701	Core tube
702	O-ring
*704	Pressure spring
*705	Plunger
*706	Spring clip
*707	O-ring
1400	Electrical connector

* A service kit consists of these individual parts.



Connection size G	øA mm	H mm	H1 mm	L mm	L1 mm	T mm
1/4	44	104.0	92.5	60	27.5	12.0
3/8	44	104.0	92.5	60	27.5	12.0
1/2	44	108.0	94.5	67	31.0	14.0
3/4	50	115.0	99.0	80	36.5	16.0
1	62	124.0	103.5	95	44.0	18.0
1 1/4	92	186.0	157.0	132	60.0	20.0
1 1/2	92	186.0	157.0	132	60.0	22.0
2	109	201.5	167.0	160	74.0	24.0

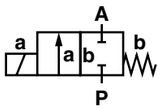
Further options (solenoids)

XXXXXXX.**9191** Solenoid in protection class Ex II 2 GD EEx me II T3 T 140 °C

Further options on request

Please turn to page 276 for technical information on our valves.

82660



- 2/2-way valves DN 15 to DN 50
- For neutral and aggressive gases and liquids
- Directly solenoid actuated
- Seat valves
- Internal thread G 1/2 to G 2
- Functional compact design
- High flow rate
- Solenoid interchangeable without tools (Click-on®)

Click-on®

Solenoid interchangeable without tools

Technical data

Solenoid valve for town gas, natural gas, and other neutral and aggressive fluids

Switching function:
Normally closed

Flow direction:
Determined

Fluid temperature:
-10 °C up to max. +90 °C

Ambient temperature:
-10 °C up to max. +50 °C

Mounting position:
Valve standing or lying, solenoid at 45° angle

Material

Body:
Brass

Seat seal:
NBR

Internal parts:
Stainless steel

Connection size G	DN mm	kv-Value m^3/h	Part number for DC voltage*	Operating pressure bar NBR 00
1/2	15	3.0	82662**XX**.8301.**00000**	0 - 0.6
1/2	15	3.0	82662**XX**.9401.**00000**	0 - 1.5
3/4	20	5.5	82663**XX**.9401.**00000**	0 - 1.0
1	25	6.1	82664**XX**.9401.**00000**	0 - 0.4
1 1/4	32	8.7	82665**XX**.9401.**00000**	0 - 0.25
1 1/2	40	16.3	82666**XX**.8401.**00000**	0 - 0.2
2	50	27.6	82667**XX**.8401.**00000**	0 - 0.15

* For orders please state voltage and frequency, e.g.: 8266200.940**4.23049** for 230V 40-60Hz (AC with rectifier plug only; included) or 8266200.940**1.02400** for 24V DC

Solenoid 8301 / 8304; 9401 / 9404; 8401 / 8404 (standard voltages)

DC	AC 40-60Hz	
24V	24V	-
-	110V	120V
	230V	220V

Design according to DIN VDE 0580
Voltage range +/-10%, duty cycle 100%
Protection class according to EN 60529: IP65
Electrical connector according to DIN EN 175301-803 (included)
AC with rectifier plug only
The solenoids 94XX are UL listed and CSA approved
(With the exception of solenoid 94XX up to 41V AC)

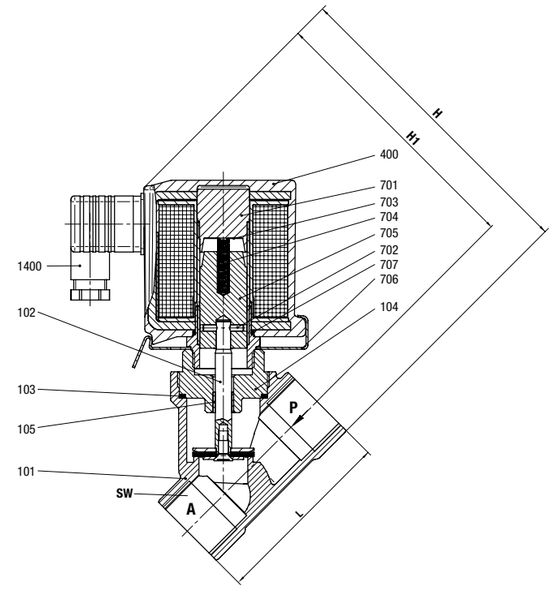
Power consumption

Solenoid	DC	AC Inrush	AC Holding
830X	22W	25VA	25VA
940X	38W	42VA	42VA
840X	40W	45VA	45VA

Drawing legend

Index	Description
101	Valve body
102	Valve spindle
*103	Gasket
104	Screw piece
*105	Sleeve bearing
400	Solenoid
701	Core tube
*702	Dowel pin
703	Round plate
*704	Pressure spring
*705	Plunger
706	Spring clip
707	O-ring
1400	Electrical connector

* A service kit consists of these individual parts.



Connection size G	L mm	H mm	H1 mm
1/2	65	123.40	109.90
1/2	65	137.68	125.18
3/4	75	145.42	129.92
1	90	154.70	134.20
1 1/4	110	175.99	151.49
1 1/2	120	184.86	136.86
2	150	195.58	163.58

Further options (valves)

NPT-thread

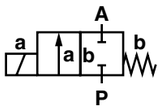
Further options (solenoids)

XXXXXXX.**8441** Solenoid in protection class Ex II 2 GD EEx me II T3 T 140 °C

Further options on request

Please turn to page 276 for technical information on our valves.

2/2-way valves DN 15 to DN 50



Click-on®
Solenoid interchangeable without tools

For neutral and aggressive gases and liquids
Directly solenoid actuated
Seat valves
Internal thread G 1/2 to G 2
Functional compact design
High flow rate
Solenoid interchangeable without tools (Click-on®)

Technical data

Solenoid valve for town gas, natural gas, and other neutral and aggressive fluids

Switching function:
Normally closed

Flow direction:
Determined

Fluid temperature:
-10 °C up to max. +110 °C

Ambient temperature:
-10 °C up to max. +50 °C

Mounting position:
Valve standing or lying, solenoid at 45° angle

Material

Body:
Stainless steel

Seat seal:
FPM

Internal parts:
Stainless steel

Connection size G	DN mm	kv-Value m^3/h	Part number for DC voltage*	Operating pressure bar NBR 03
1/2	15	3.0	82672**XX**.8301.**00000**	0 - 0.6
1/2	15	3.0	82672**XX**.9401.**00000**	0 - 1.5
3/4	20	5.5	82673**XX**.9401.**00000**	0 - 1.0
1	25	6.1	82674**XX**.9401.**00000**	0 - 0.4
1 1/4	32	8.7	82675**XX**.9401.**00000**	0 - 0.25
1 1/2	40	16.3	82676**XX**.8401.**00000**	0 - 0.2
2	50	27.6	82677**XX**.8401.**00000**	0 - 0.15

* For orders please state voltage and frequency, e.g.: 8267200.940**4.23049** for 230V 40-60Hz (AC with rectifier plug only; included) or 8267200.940**1.02400** for 24V DC

Solenoid 8301 / 8304; 9401 / 9404; 8401 / 8404 (standard voltages)

DC	AC 40-60Hz	
24V	24V	-
-	110V	120V
	230V	220V

Design according to DIN VDE 0580
Voltage range +/-10%, duty cycle 100%
Protection class according to EN 60529: IP65
Electrical connector according to DIN EN 175301-803 (included)
AC with rectifier plug only
The solenoids 94XX are UL listed and CSA approved
(With the exception of solenoid 94XX up to 41V AC)

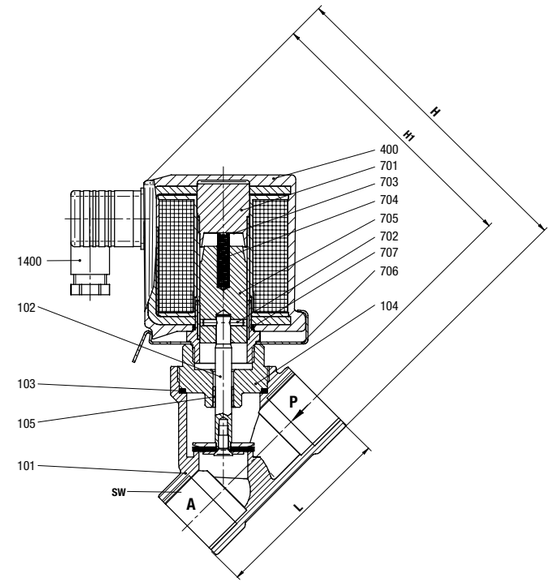
Power consumption

Solenoid	DC	AC Inrush	AC Holding
830X	22W	25VA	25VA
940X	38W	42VA	42VA
840X	40W	45VA	45VA

Drawing legend

Index	Description
101	Valve body
102	Valve spindle
*103	Gasket
104	Screw piece
*105	Sleeve bearing
400	Solenoid
701	Core tube
*702	Dowel pin
703	Round plate
*704	Pressure spring
*705	Plunger
706	Spring clip
707	O-ring
1400	Electrical connector

* A service kit consists of these individual parts.



Connection size G	L mm	H mm	H1 mm
1/2	65	123.40	109.90
1/2	65	137.68	125.18
3/4	75	145.42	129.92
1	90	154.70	134.20
1 1/4	110	175.99	151.49
1 1/2	120	184.86	136.86
2	150	195.58	163.58

Further options (valves)

NPT-thread

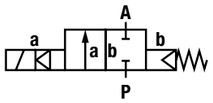
Further options (solenoids)

XXXXXXX.**8441** Solenoid in protection class Ex II 2 GD EEx me II T3 T 140 °C

Further options on request

Please turn to page 276 for technical information on our valves.

2/2-way valves DN 15 to DN 50



- For neutral gases and liquid fluids
- Solenoid actuated, with forced lifting
- Diaphragm valves
- Flange connection, pressure rating PN 16
- Operating pressure 0 to 10/16 bar
- High flow rate
- For robust industry solutions
- Damped operation
- Suitable for vacuum
- Valve operates without differential pressure
- Solenoid interchangeable without tools (Click-on®)
- Fluids of Group 2 acc. Pressure Equipment Directive 97/23/EC

Technical data

Solenoid valve for e.g. air, water, oil

Switching function:
Normally closed

Flow direction:
Determined

Fluid temperature:
–10 °C up to max. +90 °C

Ambient temperature:
–10 °C up to max. +50 °C

Mounting position:
Optional, preferably solenoid vertical on top

Material

Body:
Cast steel, Brass

Seat seal:
NBR-K

Internal parts:
Stainless steel, PVDF, Brass

Click-on®

Part Number Solenoid with ⎓	Part Number Solenoid with ~	Nominal Diameter (mm)	Operating pressure* min. (bar)	Operating pressure* max. (bar)	kv-value ** (Base m³/h)	Weight total (kg)
8304200.9151	8304200.9154	15	0	10	3.4	1.9
8304200.8301	8304200.8304	15	0	16	3.4	2.4
8304300.9151	8304300.9154	20	0	10	5.8	2.5
8304300.8301	8304300.8304	20	0	16	5.8	3.0
8304400.9151	8304400.9154	25	0	10	8.0	3.0
8304400.8301	8304400.8304	25	0	16	8.0	3.5
8304500.9401	8304500.9404	32	0	16	23.0	6.7
8304600.9401	8304600.9404	40	0	16	25.0	7.4
8304700.9401	8304700.9404	50	0	16	41.0	10.0

* For gases and liquid fluids up to 25 mm²/s (cSt)
** Cv-value (US) ≈ kv-value x 1.2

State voltage [V] and frequency [Hz]

Solenoid 9101 / 9154; 9401 / 9404; 8301 / 8304; 8401 / 8404 (standard voltages)

DC ⎓	AC ~ 40-60Hz
24V	24V
	110V
	230V

Design acc. to DIN VDE 0580
Voltage range ±10 %
100 % duty cycle
Protection class acc. to EN 60529 IP65
Socket Form A acc. to DIN EN 175301-803 (included)
AC with rectifier plug

Power consumption

According to DIN VDE 0580 at coil temperature +20 °C.
In operation the power consumption of the solenoid decreases by approx. 30 %.

Solenoid	DC	AC ~ Inrush	AC ~ Holding
9151*	18W		
9154*		20VA	20VA
9401*	38W		
9404*		42VA	42VA
8301	22W		
8304		25VA	25VA
8401	40W		
8404		45VA	45VA

* c SP us coil only
(with the expection of solenoid 94XX up to 41 V AC)

Attention! The conditions imposed on the Ex approvals lead to reduction of the permissible standard temperature ranges in the cases of explosion protected solenoids.

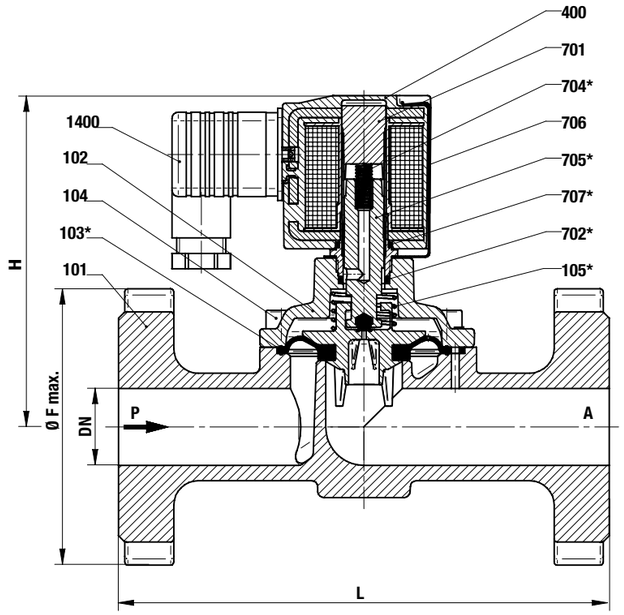
DN 15 - DN 25 with solenoid 915x (10 bar)

Solenoid rotatable 360°
Socket turnable 4 x 90°
(Socket included)

Part Number	Nominal Diameter	L mm	H mm	Ø F max. mm	Ø B mm
8304200.915x	15	130	97	96	44
8304300.915x	20	150	105	110	50
8304400.915x	25	160	108	115	62

101	Valve body
102	Valve cover
*103	Diaphragm
104	Socket head cap screw
*105	Pressure spring
400	Solenoid
701	Core tube
*702	O-ring
*703	Round plate
*704	Pressure spring
*705	Core
706	Spring clip
*707	O-ring
1400	Socket (included)

*These individual parts form a complete wearing unit.
When ordering spare parts please state Cat.-No. and series No



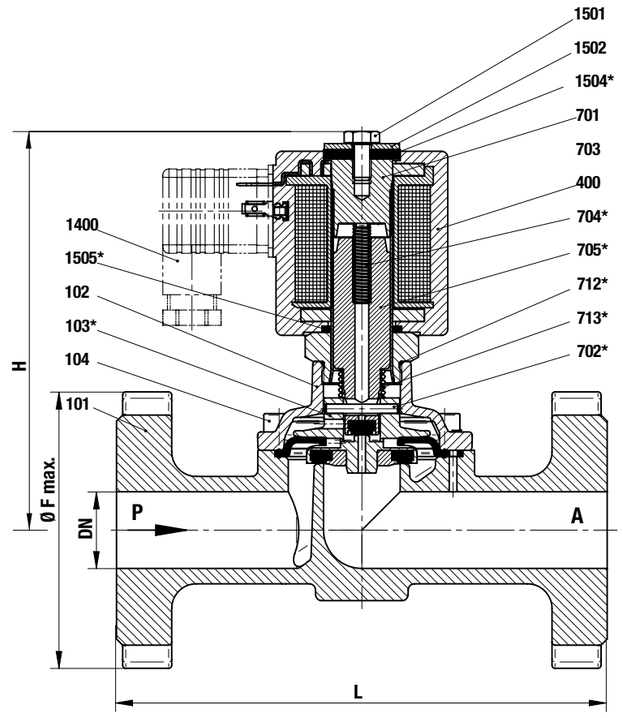
DN 15 - DN 25 with solenoid 830x (16 bar)

Solenoid rotatable 360°
Socket turnable 4 x 90°
(Socket included)

Part Number	Nominal Diameter	L mm	H mm	Ø F max. mm	Ø B mm
8304200.830x	15	130	97	96	44
8304300.830x	20	150	105	110	50
8304400.830x	25	160	108	115	62

101	Valve body
102	Valve cover
*103	Diaphragm
104	Socket head cap screw
*105	Pressure spring
400	Solenoid
701	Core tube
*702	O-ring
*704	Pressure spring
*705	Core
706	Spring clip
*707	O-ring
1400	Socket (included)
1501	Hexagon screw
1502	Round plate
*1504	Gasket
*1505	O-ring

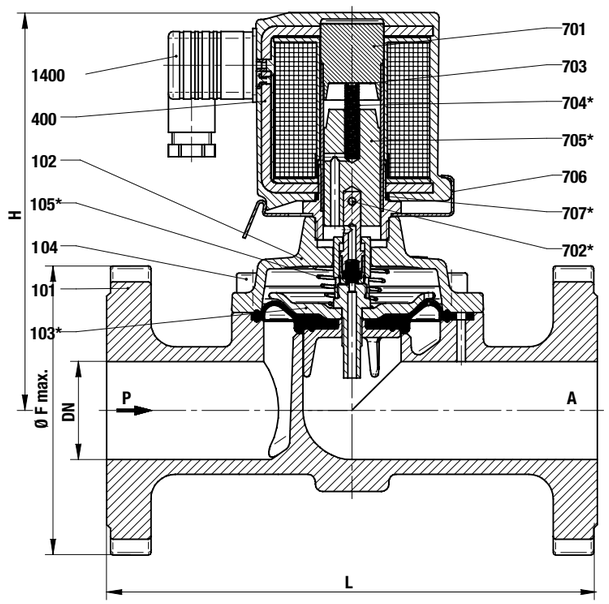
*These individual parts form a complete wearing unit.
When ordering spare parts please state Cat.-No. and series No



DN 32 - DN 50 with solenoid 940x (16 bar)

Solenoid rotatable 360°
Socket turnable 4 x 90°
(Socket included)

Part Number	Nominal Diameter	L mm	H mm	Ø F max. mm	Ø B mm
8304500.940x	32	180	158	140	92
8304600.940x	40	200	162	150	92
8304700.940x	50	230	171	165	109



101	Valve body
102	Valve cover
*103	Diaphragm
104	Socket head cap screw
*105	Pressure spring
400	Solenoid
701	Core tube
*702	Straight pin
703	Round plate
*704	Pressure spring
*705	Core
706	Spring clip
*707	O-ring
1400	Socket (included)

*These individual parts form a complete wearing unit.
When ordering spare parts please state Cat.-No. and series No

Further options (valves)

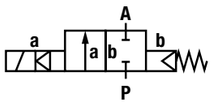
XXXXX**01**.XXXX	Normally open (NO), from DN 32 with solenoid 8400
XXXXX**02**.XXXX	Manual override only from DN 32
XXXXX**03**.XXXX	Seat seal FPM, fluid temperature –5 °C up to +110 °C
XXXXX**14**.XXXX	Seat seal EPDM, for hot water, fluid temperature –10 °C up to +110 °C
XXXXX**17**.XXXX	Normally open, seat seal FPM, fluid temperatur -5 °C up to +110 °C, from DN 32 only with solenoid 8400
XXXXX**47**.XXXX	Flanges acc.to ASME B 16.5 150 lb/sq.In.
On request	further versions

Further options (solenoids)

XXXXXXX.**9191**	Protection class Ⓔx II 2 GD EEx me II T3 T 140 °C
XXXXXXX.**8441**	Protection class Ⓔx II 2 GD EEx me II T3 T 140 °C
XXXXXXX.**9176** *	Protection class Ⓔx II 3 GD EEx nA II T4 T 135 °C
XXXXXXX.**9426** *	Protection class Ⓔx II 3 GD EEx nA II T4 T 135 °C
XXXXXXX.**8426** *	Protection class Ⓔx II 3 GD EEx nA II T4 T 135 °C
On request	further versions

* DC only, for AC solenoids with design certificate acc.to category 2, e.g. XXXXXXX.9191 or XXXXXXX.8441

2/2-way-valves DN 15 to DN 50



Click-on®

- For neutral gases and liquid fluids
- Solenoid actuated, with forced lifting
- Piston valves
- Flange connection, pressure rating PN 40
- Operating pressure 0 to 25 bar (40 bar)
- High flow rate
- For robust industry solutions
- Damped operation
- Suitable for vacuum
- For systems with low or fluctuating pressure
- Stainless steel piston
- Valve operates without differential pressure (Zero Delta P)
- Solenoid interchangeable without tools (Click-on®) up to DN 25
- Fluids of Group 2 acc. Pressure Equipment Directive 97/23/EC

Technical data

Solenoid valve for e.g. air, water, oil

Switching function:
Normally closed

Flow direction:
Determined

Fluid temperature:
–20 °C up to max. +90 °C

Ambient temperature:
–20 °C up to max. +50 °C

Mounting position:
Optional, preferably solenoid vertical on top

Material

Body:
Cast steel, Brass

Seat seal:
NBR-K

Internal parts:
Stainless steel, PTFE / Carbon

Part Number Solenoid with ⎓	Part Number Solenoid with ~	Nominal Diameter (mm)	Operating pressure* min. (bar)	Operating pressure* max. (bar)	kv-value ** (Base m^3/h)	Weight total (kg)
8550200.9401	8550200.9404	15	0	25	4.4	3.8
8550300.9401	8550300.9404	20	0	25	7.0	4.2
8550400.9401	8550400.9404	25	0	25	10.5	4.8
8550500.9401	8550500.9404	32	0	25	25.0	9.6
8550600.9401	8550600.9404	40	0	25	27.0	10.0
8550700.9401	8550700.9404	50	0	25	43.0	11.5

* For gases and liquid fluids up to 25 mm^2/s (cSt) State voltage [V] and frequency [Hz]
** Cv-value (US) ≈ kv-value x 1.2

Solenoid 9401 / 9404 and 8401 / 8404 (standard voltages)

DC ⎓	AC ~ 40-60Hz
24V	24V
	110V
	120V
	230V

Design acc.to DIN VDE 0580
voltage range ±10 %
100 % duty cycle
Protection class acc.to EN 60529 IP65
Socket Form A acc.to DIN EN 175301-803 (included)
AC solenoid with rectifier plug

Power consumption

According to DIN VDE 0580 at coil temperature +20 °C.
In operation the power consumption of the solenoid decreases by approx. 30 %.

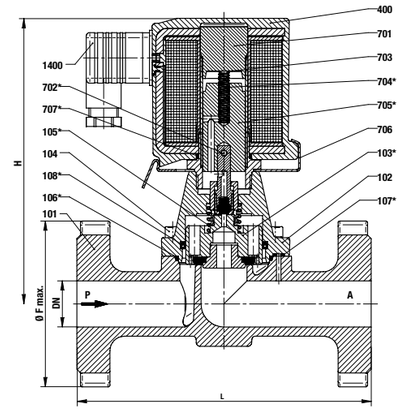
Solenoid	DC	AC ~ Inrush	AC ~ Holding
9401*	38W		
9404*		42VA	42VA
8401	40W		
8404		45VA	45VA

* cULus coil only
(with the expection of solenoid 94XX up to 41 V AC)

Attention! The conditions imposed on the Ex approvals lead to reduction of the permissible standard temperature ranges in the cases of explosion protected solenoids.

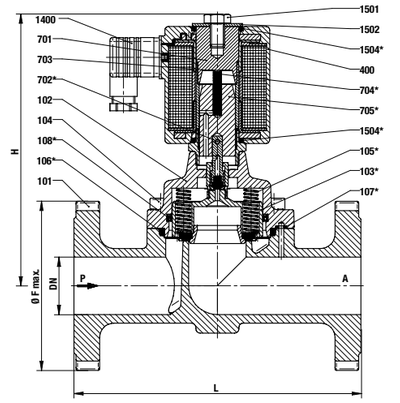
up to DN 25

101	Valve body
102	Valve cover
*103	Valve piston
104	Socket head cap screw
*105	Pressure spring
*106	Grooved ring
*107	O-ring
*108	Seal ring
400	Solenoid
701	Core tube
*702	Straight pin
703	Round plate
*704	Pressure spring
*705	Core
706	Spring clip
*707	O-ring
1400	Socket (included)



from DN 32

101	Valve body
102	Valve cover
*103	Valve piston
104	Socket head cap screw
*105	Pressure spring (2x)
*106	Seal ring
*107	O-ring
*108	Grooved ring
400	Solenoid
701	Core tube
*702	Straight pin
703	Round plate
*704	Pressure spring
*705	Core
1400	Socket (included)
1501	Hexagon screw
1502	Round plate
*1504	O-ring (2x)



*These individual parts form a complete wearing unit.
When ordering spare parts please state Cat.-No. and series No

Further options (valves)

XXXXX**01**.XXXX Normally open (NO), only with solenoid 8400, mounting position: solenoid vertical on top
XXXXX**02**.XXXX Manual override
XXXXX**03**.XXXX Seat seal FPM, fluid temperature –10 °C up to +110 °C [1])
XXXXX**6**.XXXX Seat seal PTFE, fluid temperature –20 °C up to +110 °C [1]), leakage rate E acc. to DIN EN 12266-1
XXXXX**14**.XXXX Seat seal EPDM, fluid temperature –20 °C up to +110 °C
XXXXX**17**.XXXX Normally open, Seat seal FPM, fluid temperature –10 °C up to +110 °C, mounting position: solenoid vertical on top [1]), only with solenoid 8400
XXXXX**22**.XXXX Max. operating pressure 40 bar
XXXXX**23**.XXXX Electrical position indicator with two magnetic field sensors (only solenoid 8400)
XXXXX**25**.XXXX Seat seal FPM, with larger bleed orifices in the piston, for e.g. fuel and oil, max. viscosity 80 mm^2/s (cSt), fluid temperature –10 °C up to +110 °C [1])
XXXXX**47**.XXXX Flanges acc. to ASME B 16.5 150 lb/sq. In.
XXXXX**48**.XXXX Flanges acc. to ASME B 16.5 300 lb/sq. In.
On request further versions

Solenoid rotatable 360°
Socket turnable 4 x 90°
(Socket included)

Part Number	Nominal Diameter	L mm	H mm	Ø F max. mm	Ø B mm
8550200.940x	15	130	142	96	44
8550300.940x	20	150	150	110	50
8550400.940x	25	160	155	115	62
8550500.840x	32	180	184	140	92
8550600.840x	40	200	189	150	92
8550700.840x	50	230	197	165	109

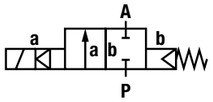
Contact face acc. to DIN EN 1092-1/B

Further options (solenoids)

XXXXXXX.**8441** Protection class ⟨Ex⟩ II 2 GD EEx me II T3 T 140 °C
XXXXXXX.**9426*** Protection class ⟨Ex⟩ II 3 GD EEx nA II T4 T 135 °C
XXXXXXX.**8426*** Protection class ⟨Ex⟩ II 3 GD EEx nA II T4 T 135 °C
XXXXXXX.**8920** Protection class ⟨Ex⟩ II 2 GD EEx d II C T4 and T5 T 130 °C / 95 °C
On request further versions

* DC only, for AC solenoids with design inspection certificate acc. to category 2, e.g. XXXXXXX.8441
[1]) Up to max. +200 °C fluid temperature with solenoid for higher temperature

2/2-way valves DN 15 to DN 50



- For slightly aggressive gases and liquid fluids
- Solenoid actuated, with forced lifting
- Piston valves
- Flange connection, pressure rating PN 40
- Operating pressure 0 to 25 (40 bar)
- High flow rate
- For robust industry solutions
- Damped operation
- Suitable for vacuum
- Valve operates without differential pressure
- Solenoid interchangeable without tools (Click-on®) up to DN 25
- Fluids of Group 1 and 2 acc. Pressure Equipment Directive 97/23/EC

Technical data

Solenoid valve for e.g. slightly aggressive fluids

Switching function:
Normally closed

Flow direction:
Determined

Fluid temperature:
–20 °C up to max. +90 °C

Ambient temperature:
–20 °C up to max. +50 °C

Mounting position:
Optional, preferably solenoid vertical on top

Material

Body:
Stainless steel (1.4408)

Seat seal:
NBR-K

Internal parts:
Stainless steel

Click-on®

Part Number Solenoid with ⎓	Part Number Solenoid with ~	Nominal Diameter (mm)	Operating pressure* min. (bar)	Operating pressure* max. (bar)	kv-value ** (Base m^3/h)	Weight total (kg)
8554200.9401	8554200.9404	15	0	25	4.4	3.8
8554300.9401	8554300.9404	20	0	25	7.0	4.2
8554400.9401	8554400.9404	25	0	25	10.5	4.8
8554500.8401	8554500.8404	32	0	25	25.0	9.6
8554600.8401	8554600.8404	40	0	25	27.0	10.0
8554700.8401	8550700.8404	50	0	25	43.0	11.5

* For gases and liquid fluids up to 25 mm^2/s (cSt)
** Cv-value (US) ≈ kv-value x 1.2

State voltage [V] and frequency [Hz]

Solenoid 9401 / 9404 and 8401 / 8404 (standard voltages)

DC ⎓	AC ~ 40-60Hz
24V	24V
	110V
	120V
	230V

Design acc. to DIN VDE 0580
Voltage range ±10 %
100 % duty cycle
Protection class acc. to EN 60529 IP65
Socket Form A acc. to DIN EN 175301-803 (included)
AC with rectifier plug

Power consumption

According to DIN VDE 0580 at coil temperature +20 °C.
In operation the power consumption of the solenoid decreases by approx. 30 %.

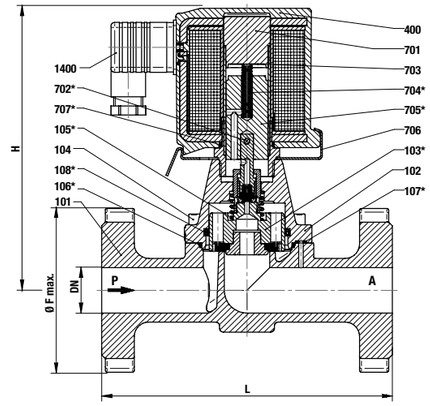
Solenoid	DC	AC ~ Inrush	AC ~ Holding
9401*	38W		
9404*		42VA	42VA
8401	40W		
8404		45VA	45VA

* cULus coil only
(with the expection of solenoid 94XX up to 41 V AC)

Attention! The conditions imposed on the Ex approvals lead to reduction of the permissible standard temperature ranges in the cases of explosion protected solenoids.

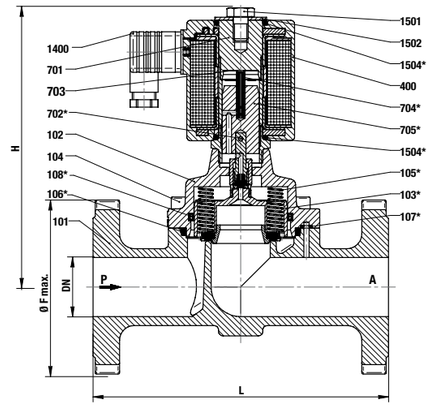
up to DN 25

101	Valve body
102	Valve cover
*103	Valve piston
104	Socket head cap screw
*105	Pressure spring
*106	Seal ring
*107	O-ring
*108	Grooved ring
400	Solenoid
701	Core tube
*702	Straight pin
703	Round plate
*704	Pressure spring
*705	Core
706	Spring clip
*707	O-ring
1400	Socket (included)



from DN 32

101	Valve body
102	Valve cover
*103	Valve piston
104	Socket head cap screw
*105	Pressure spring
*106	Seal ring
*107	O-ring
*108	Grooved ring
400	Solenoid
701	Core tube
*702	Straight pin
703	Round plate
*704	Pressure spring
*705	Core
1400	Socket (included)
1501	Hexagon screw
1502	Round plate
*1504	O-ring (2x)



*These individual parts form a complete wearing unit.
When ordering spare parts please state Cat.-No. and series No

Further options (valves)

XXXXX**01**.XXXX Normally open (NO), only with solenoid 8400, mounting position: solenoid vertical on top
XXXXX**02**.XXXX Manual override
XXXXX**03**.XXXX Seat seal FPM, fluid temperature –10 °C up to +110 °C [1]
XXXXX**6**.XXXX Seat seal PTFE, fluid temperature –20 °C up to +110 °C [1], leakage rate E acc. to DIN EN 12266-1; for fluids of group 1 and 2 of the Pressure Equipment Directive 97/23/EC
XXXXX**14**.XXXX Seat seal EPDM, for hot water, fluid temperature –20 °C up to +110 °C
XXXXX**17**.XXXX Normally open, fluid temperature –10 °C up to +110 °C, Seat seal FPM, only with solenoid 8400, mounting position solenoid vertical on top [1]
XXXXX**22**.XXXX Max. operating pressure 40 bar
XXXXX**23**.XXXX Position indicator with two magnetic field sensors (only with solenoid 8400)
XXXXX**25**.XXXX Seat seal FPM, with larger bleed orifices in the piston, for e.g. fuel and oil, max. viscosity 80 mm^2/s (cSt), fluid temperature –10 °C up to +110 °C [1]
XXXXX**47**.XXXX Flanges acc. to ASME B 16.5 150 lb/sq. In.
XXXXX**48**.XXXX Flanges acc. to ASME B 16.5 300 lb/sq. In.
On request further versions

Solenoid rotatable 360°
Socket turnable 4 x 90°
(Socket included)

Part Number	Nominal Diameter	L mm	H mm	Ø F max. mm	Ø B mm
8554200.940x	15	130	142	96	44
8554300.940x	20	150	150	110	50
8554400.940x	25	160	155	115	62
8554500.840x	32	180	184	140	92
8554600.840x	40	200	190	150	92
8554700.840x	50	230	197	165	109

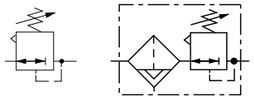
Contact face acc. to DIN EN 1092-1/B

Further options (solenoids)

XXXXXXX.**8441** Protection class Ex II 2 GD EEx me II T3 T 140 °C
XXXXXXX.**9426*** Protection class Ex II 3 GD EEx nA II T4 T 135 °C
XXXXXXX.**8426*** Protection class Ex II 3 GD EEx nA II T4 T 135 °C
XXXXXXX.**8920** Protection class Ex II 2 GD EEx d II C T4 and T5 T 130 °C / 95 °C
On request further versions

* DC only, for AC solenoids with design inspection certificate acc. to category 2, e.g. XXXXXXX.8441
[1] Up to max. +200 °C fluid temperature with solenoid for higher temperature

Precision stainless steel filter regulators



1/4" PTF, 1/2" PTF

R38 and B38 Lloyds Register Type Approved

Materials meet NACE* recommendations (MR-0175, 2002 revision)

Suitable for marine, offshore, food processing and dental applications

B38 models for precision regulation and high flow rates

* National Association of Corrosion Engineers – recognised oil-field recommendation for resistance to sulphide stress cracking common in well-head and other corrosive environments

Technical data

Medium:
Compressed air only

Maximum inlet pressure:
17 bar (autodrain)
31 bar (manual drain)

Gauge ports:
1/4 PTF

Ambient temperature:
-40°C to +80°C (R38, B38)

Consult our Technical Service for use below +2°C

Materials

Body, bowl, bonnet & adjusting screw:
Stainless steel

Elastomers:
Synthetic rubber

Filter element:
High density polyethylene (25 µm), ceramic pyrolith (5 µm)

Port size	Flow (dm³/s)	Element (µm)	Drain	Range (bar)	Operation	kg	Model	Service kit
1/4 PTF	8*	25	Manual	0.25 ... 7	Relieving	1.40	B38-244-B2KA	R38-101R & B38-100S (25)
1/4 PTF	8*	25	Manual	0.07 ... 4	Relieving	1.40	B38-244-B2FA	R38-101R & B38-100S (25)
1/4 PTF	8*	25	Auto	0.07 ... 4	Relieving	1.60	B38-244-A2FA	R38-101R & B38-100S (25)
1/2 PTF	50**	25	Manual	0.3 ... 9	Relieving	1.40	B38-444-M2LA #	2787-41 & 2787-44
1/2 PTF	50**	25	Auto	0.3 ... 9	Relieving	2.10	B38-444-A2LA ‡	2787-41 & 2787-44

Can be adjusted to zero outlet pressure, and, generally, to pressures in excess of those specified.
* Typical flow with 7 bar inlet pressure, 1 bar set pressure and a droop of 0,05 bar.
** Typical flow with 12 bar inlet pressure, 8 bar set pressure and a droop of 1 bar.

Drain kits:
Manual drain 2787-43
‡ Auto drain 3000-87

Option selector

B38-★4★-★★★★

Port size	Substitute
1/4	2
1/2	4

Diaphragm	Substitute
Relieving with panel nut	4
Non relieving with panel nut	2

Drain	Substitute
Automatic	A
Manual – short bowl	B
Manual – long bowl	M

Element	Substitute
5 µm	1
25 µm	2

Thread	Substitute
PTF	A
ISO RC Taper	B
ISO G Parallel	D

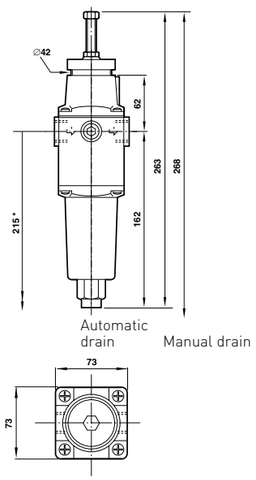
Outlet pressure adjustment range*	Substitute
0,04 ... 2	C
0,07 ... 4	F
0,25 ... 7	K#
0,50 ... 10	M
0,3 ... 9	L‡

Accessories

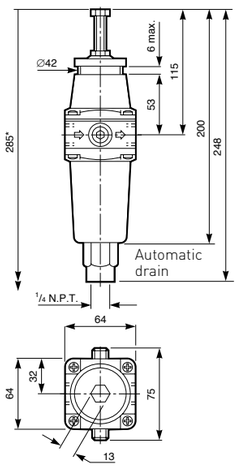
Series	Neck mounting bracket	Gauge (0 ... 10 bar)#	Panel mounting	Plastic adjusting knob
				
R38	18-001-973 (includes panel nut)	18-013-913*	5988-02 (Nut only)	74630-04

Other pressure ranges available – see page 486
* Stainless steel items not strictly to NACE standard MR-01-75

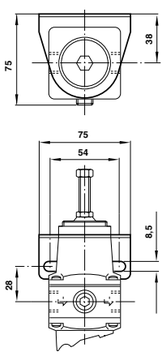
B38 (1/2)



B38 (1/4)

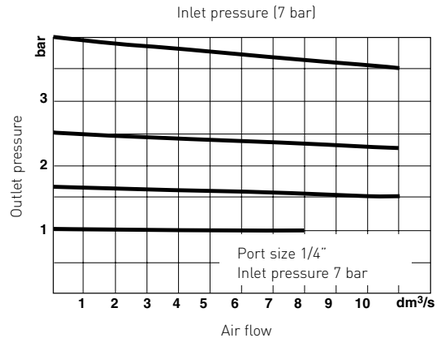


Bracket mounting

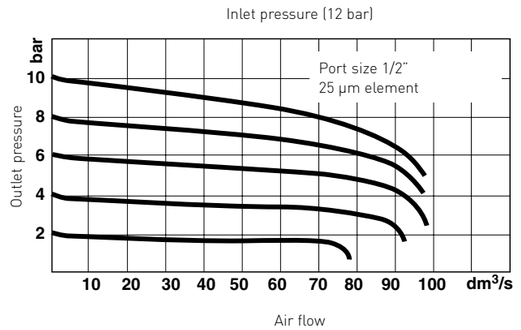


Flow characteristics

1/4"



1/2"



Electronic pressure switches (pneumatic/allfluid)

Display of system pressure and unit (pressure unit programmable)

Compact and robust design

Easy programming of set points and additional functions

Transistor output signals 1 x PNP/2 x PNP/1 x PNP +

4 to 20 mA

Electronic lock

Switching status indicated by LED

Standard M12x1 electrical connection (IP 65)

For pneumatic, all fluid and hydraulic applications

Technical data

Medium:
Filtered compressed air, lubricated or unlubricated, neutral gases

Display:
LCD 4 digits illuminated, pressure unit programmable for bar, psi, mpa
Customer-specific pressure unit available on request

Mounting position:
Optional

Operating pressure:
-1 to 16 bar (pneumatic)
0 to 630 (hydraulic/allfluid)

Temperature sensitivity (zero point):
0,4% of final value/10 K

Temperature sensitivity (range):
0,4% of final value/10 K

Ambient temperature:
-10°C to 60°C

Fluid temperature:
-10°C to 80°C

Consult our Technical Service for use below +2°C.

Switching point:
Adjustable between 0 and 100% of full scale

Reset point:
Adjustable between 0 and 100% of full scale

Electrical connection:
M12 x 1

Linearity:
< 0,2% of final value ±1 digit

Degree of protection to DIN 40 050:
IP 65 (with mounted plug)

Materials

Housing:
Aluminium/stainless steel

Seal:
Viton O-ring (FKM)

Sensor elements:
Pneumatic: silicium

Hydraulic/allfluid:
Stainless steel 1.4571 (0 to 250 bar versions), stainless steel 1.4542 (400 to 630 bar versions)
NPT versions with integrated damping element

Electrical connection M12 x 1 (standard pneumatic models)*

Port size	Measuring range (bar)** (Relative pressure)	Value max. (bar) (Over pressure)	Output signal	Model
G1/4	-1 ... 1	10	1 x PNP	0863012
Flange	-1 ... 1	10	1 x PNP	0863016
G1/4	-1 ... 1	10	2 x PNP	0863022
Flange	-1 ... 1	10	2 x PNP	0863026
G1/4	-1 ... 1	10	1 x PNP / 4...20 mA	0863042
Flange	-1 ... 1	10	1 x PNP / 4...20 mA	0863046
G1/4	0 ... 16	30	1 x PNP	0863212
Flange	0 ... 16	30	1 x PNP	0863216
G1/4	0 ... 16	30	2 x PNP	0863222
Flange	0 ... 16	30	2 x PNP	0863226
G1/4	0 ... 16	30	1 x PNP / 4...20 mA	0863242
Flange	0 ... 16	30	1 x PNP / 4...20 mA	0863246

Option selector

0863★★★

Pressure range (pneumatic)	Substitute
-1 ... 1 bar	0
0 ... 16 bar	2

Pressure range (allfluid)*	Substitute
0 ... 10 bar	1
0 ... 40 bar	3
0 ... 100 bar	4
0 ... 160 bar	5
0 ... 250 bar	6
0 ... 400 bar	7
0 ... 630 bar	8

Fluid/electrical connection	Substitute
G1/4M12 x 1	2
1/4 NPT/M12 x 1	4
Flange/M12 x 1	6

Output signal	Substitute
1 digital out	1
2 digital out	2
1 digital out/4 ... 20 mA	4

Electrical parameters

Electrical connection:	M12 x 1
Power supply:	10 ... 32 V d.c. (polarity safe) digital models 15 ... 32 V d.c. (polarity safe) analogue models
Permissible residual ripple:	10% (within 12 to 32 V)220V
Current consumption:	<50 mA (plus load current)

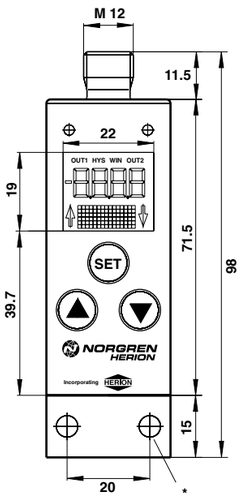
Electromagnetic compatibility

Interference emission	Conforming to EN 50081. Part 1
Interference immunity	Conforming to EN 50082. Part 2

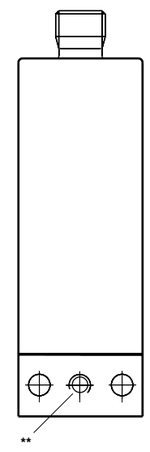
Electrical connection M12 x 1

Pin	Signal	Cable
1	Supply voltage	Brown
2	Out 2 (PNP) / analog 4 ... 20 mA	White
3	0 V	Blue
4	Out 1 (PNP)	Black
5	Free	Grey

Front view



Rear view (flange version)



* Suitable for M 5 x 35 screws
** Flange diameter 8 x 1,2 deep, O-ring 4,47 x 1,78 (Viton 90)

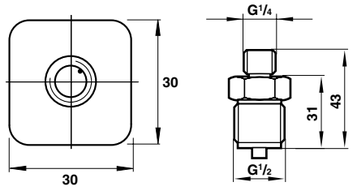
Switching output

Switching mode:	Potential-bound open collector switching to UB, suitable for inductive load
Output voltage:	Supply voltage -1,5 V
Analog output:	4 ... 20mA
Contact rating:	Imax = 500 mA (short-circuit proof)
Switching time:	< 10 ms
Damping:	5 ms ... 0,64 sec
Signal delay:	On/off 0 ... 20 sec
Service life:	min. 100 million switching cycles
Switching logic:	n.o. / n.c. programmable
Operating mode:	Standard, hysteresis and window mode Separately selectable for each output

Accessories

Plugs

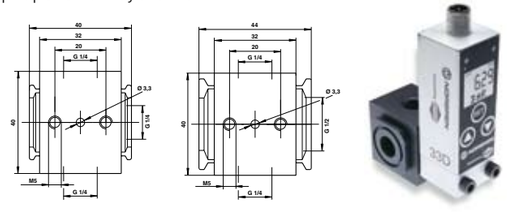
Description	Model
M12 x 1, straight without cable	0523055
M12 x 1, straight 2 m cable, 4-core	0523057
M12 x 1, straight 5 m cable, 4-core	0523052
M12 x 1, 90° without cable	0523056
M12 x 1, 90° 2 m cable, 4-core	0523058
M12 x 1, 90° 5 m cable, 4-core	0523053



Reducer G1/2 to G1/4, external thread – 0550083

Porting blocks

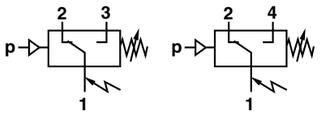
Adaptor for use with Excelon 72, 73, 74 air preparation systems



Excelon 72 0523109 | Excelon 73 & 74 0523110

Pneumatic pressure switch

Acc. to ATEX -1 to 30 bar



For Ex-applications conforms to ATEX 100a:

Zone 2 category ATEX 3G (gases)

Zone 22 category ATEX 3D (dusts)

TÜV (technical inspection agency) approval:

EX 8 03 01 11122 007

Microswitch with gold plated contacts

Vibration resistant to 15 g

Microswitch approved by UL and CSA

Intrinsically safe operation

Technical data

Medium:
For neutral, gaseous and liquid fluids

Operation:
Diaphragm

Port size:
G1/4, Flange

Operating pressure range:
-1 to 30 bar

Approvals:
TÜV (technical inspection agency) approval: EX 8 03 01 11122 007
Zone 2 category: Ex II 3 G EEx NA / C IIC T6
Zone 22 category: EX II 3 D IP 65 T 80°C

Temperature:
Fluid 0* to +80°C (FKM)
Ambient 0* to +80°C (FKM)

*Please contact our technical service for use below +2°C.

Operating viscosity:
Up to 1000 mm²/s

Repeatability:
±3%, for vacuum ±4% of final value (depending on regulating pressure)

Switching element:
Microswitch with gold plated contacts

Degree of protection:
IP65 for DIN EN 175301-803
IP67 (M12 x 1)

Mounting position:
Optional

Electrical connection:
Acc. to DIN EN 175301-803, form A
Acc. to IEC 947-5-2 (M12 x 1)

Weight:
0.2 kg

Materials

Housing:
Aluminium

Sealing:
Viton/brass

O-ring:
NBR

Electrical connection acc. to DIN EN 175301-803, form A

The Ex approval refers to the pressure switch in combination with the supplied device plug-in facility

Type	Pressure range *1) (bar)	Switching pressure difference		Max. over pressure*2) (bar)	Switching cycles (1/min)	Materials pressure sensor		Port size
		Lower range (bar)	Upper range (bar)			Housing	Sealing	
0880180	-1 to 0	0.15	0.18	80	100	AL	FKM/MS/NBR	G1/4
0880280	0.2 to 2	0.20	0.35	80	100	AL	FKM/MS/NBR	G1/4
0880380	0.5 to 8	0.35	0.85	80	100	AL	FKM/MS/NBR	G1/4
0880480	1 to 16	0.40	1.20	80	100	AL	FKM/MS/NBR	G1/4
0880680	1 to 30	1	5	80	100	AL	FKM/MS/NBR	G1/4
0881180	-1 to 0	0.15	0.18	80	100	AL	FKM/MS/NBR	Flange
0881280	0.2 to 2	0.20	0.35	80	100	AL	FKM/MS/NBR	Flange
0881380	0.5 to 8	0.35	0.85	80	100	AL	FKM/MS/NBR	Flange
0881480	1 to 16	0.40	1.20	80	100	AL	FKM/MS/NBR	Flange
0881680	1 to 30	1	5	80	100	AL	FKM/MS/NBR	Flange

Electrical connection M12x1 max. allowable voltage 30 V

Wire socket see page 4! Wire socket are not in delivery, please order seperately.
The pressure switch will loose the Ex approval when using othe wire sockets than those listed in the data sheet.

Type	Pressure range *1) (bar)	Switching pressure difference		Max. over pressure*2) (bar)	Switching cycles (1/min)	Materials pressure sensor		Port size
		Lower range (bar)	Upper range (bar)			Housing	Sealing	
0880181	-1 to 0	0.15	0.18	80	100	AL	FKM/MS/NBR	G1/4
0880281	0.2 to 2	0.20	0.35	80	100	AL	FKM/MS/NBR	G1/4
0880381	0.5 to 8	0.35	0.85	80	100	AL	FKM/MS/NBR	G1/4
0880481	1 to 16	0.40	1.20	80	100	AL	FKM/MS/NBR	G1/4
0880681	1 to 30	1	5	80	100	AL	FKM/MS/NBR	G1/4
0881181	-1 to 0	0.15	0.18	80	100	AL	FKM/MS/NBR	Flange
0881281	0.2 to 2	0.20	0.35	80	100	AL	FKM/MS/NBR	Flange
0881381	0.5 to 8	0.35	0.85	80	100	AL	FKM/MS/NBR	Flange
0881481	1 to 16	0.40	1.20	80	100	AL	FKM/MS/NBR	Flange
0881681	1 to 30	1	5	80	100	AL	FKM/MS/NBR	Flange

*1) Reference pressure is the atmospheric air pressure
*2) Setpoints should be ideally in the middle of the switching pressure range. Reference pressure = atmospheric pressure. Switching pressure must not exceed the indicated values

AL = aluminium
FKM = viton
MS = brass
NBR = nitrile

Accessories

Pressure port Reducing nipple	Surge damper	Cover (via adjustment screw)	Connector	Connector M 12 x 1 90°	
					
0574767 (brass)	0574773 (brass)	0554737	0570110	0523058 (2 m cable, 4-core)	0523056 (90° without cable)
0550083 (stainless steel)	0553258 (stainless steel)			0523053 (5 m cable, 4-core)	

Switching capacity
Commutator with gold plated contacts

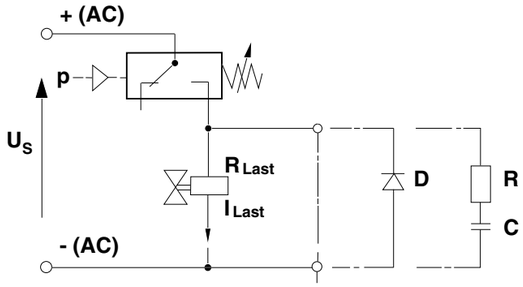
Load level	Current type (bar)	Load type	Umin [V]	Max. permanent current Imax [A] at U [V] 30 M 12x1	48	60	125	250	Contact life
Standard *3) (z.B. contractors, solenoids)	AC	ohmic	12	5	5	5	5	5	⩾ 10^7 switching cycles
	AC	inductive, cos φ ≈ 0,7	12	3	3	3	3	3	
	DC	ohmic	12	5	1.2	0.8	0.4	-	
	DC	inductive, L/R ≈ 10 ms	12	3	0.5	0.35	0.05	-	
Minor *4) (z.B. electronic circuits)	AC	ohmic	5 *6)	0.34	0.2	0.17	0.08	0.04	⩾ 10^7 switching cycles
	DC	inductive, L/R ≈ 10 ms	5 *6)	0.1	0.01	-	-	-	

Reference number: 30/min, Reference temperature: +30°C
Spark quenching with diode with DC and inductive load:
I max = 1,5 x I max of table
I min = 1 (mA)
Creepage and air paths correspond to insulation group B according to VDE Reg. 0110 (except contact clearance of microswitch).

*3) Gold-plating not required as it would decay.
Max. perm. in-rush current (appr. 30 ms) I AC = max. 15 A
*4) Gold-plating required (will not decay).
*6) Lower value of critical voltage guarantees sufficient contact safety. Lower voltages permissible under favourable conditions.

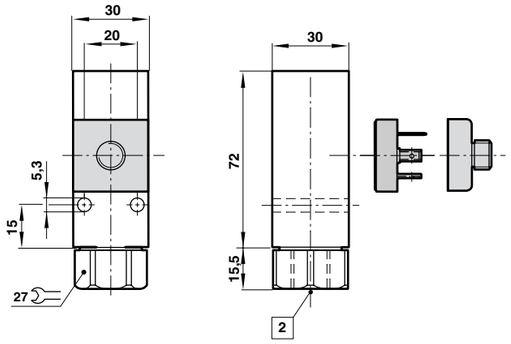
Spark quenching with DC voltage

1. Diode D in parallel to inductive load.
   Observance of correct polarity (positive pole to cathode).
   Dimensioning specifications for quenching diode:
   Rated voltage at diode: UD ⩾ 1,4 x Us
   Rated current at diode: I N ⩾ ILast
   Selection of a quick switching diode (recovery time trr ⩽ 200 [ms]).
2. RC link in parallel to load in parallel to switching contact.
   Suited for DC and AC voltage.
   Dimensioning principles:
   R in Ω ≈ 0,2 x R_{Load} in Ω
   C in [µF] ≈ I_{Load} in [A]



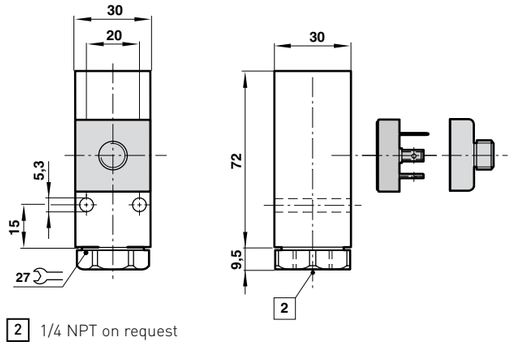
08803**, 08804** & 08806**

G 1/4



08801** & 08802**

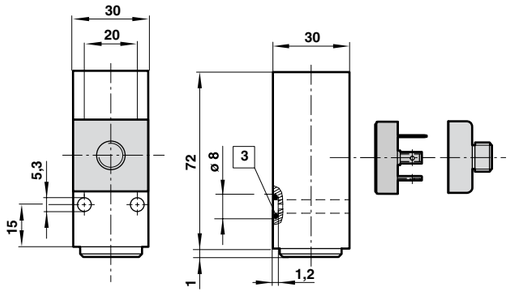
G 1/4



2 1/4 NPT on request

08801***

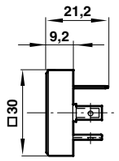
Flange



3 O-ring 5 x 1,5

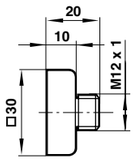
Elektrical connection

for plug according to
DIN EN 175301-803, form A



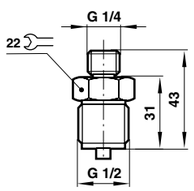
Elektrical connection

M12 x 1

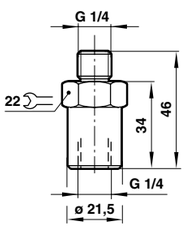


Accessories

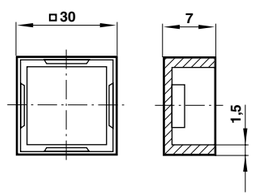
Pressure port/Reducing nipple
Material: brass
Type: **0574767**



Surge damper
Material: brass
Type: **0574773**

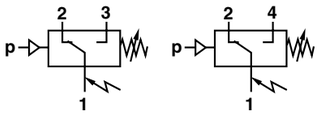


Cover
Type: **0554737**



Hydraulic pressure switch

Acc. to ATEX 5 to 420 bar



For Ex applications conforming to ATEX 100a:

Zone 2 category ATEX 3G (gases)

Zone 22 category ATEX 3D (dusts)

TÜV approval: EX 8 03 01 11122 007

Microswitch with gold plated contacts

High number of switching cycles

Vibration resistant to 15 g

Microswitch approved by UL and CSA

Intrinsically safe operation

Technical data

Medium:
For neutral, self lubricating fluids, e.g. hydraulic oil, lube oil, leight fuel oil

Operation:
Softseal piston

Port size:
G1/4, Flange

Operating pressure range:
5 to 420 bar

Approvals:
TÜV (technical inspection agency): EX 8 03 01 11122 007
Zone 2 category: Ex II 3 G EEx NA / C IIC T6
Zone 22 category: EX II 3 D IP 65 T 80°C

Temperature:
Fluid/Ambient: -25* to +80°C
*Please contact our technical service for use below +2°C.

Operating viscosity:
Up to 1000 mm²/s

Repeatability:
±3%, for vacuum ±4% of final value (depending on regulating pressure)

Switching element:
Microswitch with gold plated contacts

Degree of protection:
IP65 für DIN EN 175301-803, form A
IP67 (M12 x 1)

Mounting position:
Optional

Electrical connection:
Acc. to DIN EN 175301-803, form A
Acc. to IEC 947-5-2 (M12 x 1)

Weight:
0.2 kg

Materials

Housing:
Aluminium/steel

Sealing:
Teflon/perbunan

Electrical connection acc. to DIN EN 175301-803

The Ex approval refers to the pressure switch in combination with the supplied device plug-in facility

Type	Pressure range *1) (bar)	Switching pressure difference		Max. over pressure*2) (bar)	Switching cycles (1/min)	Materials pressure sensor		Port size
		Lower range (bar)	Upper range (bar)			Housing	Sealing	
0882180	5 to 70	10.5	15	400	100	AL/Stahl	PTFE/NBR	G1/4
0882280	10 to 160	11	17	400	100	AL/Stahl	PTFE/NBR	G1/4
0882380	25 to 250	13	21	400	100	AL/Stahl	PTFE/NBR	G1/4
0882480	40 to 420	17	38	400	100	AL/Stahl	PTFE/NBR	G1/4
0883180	5 to 70	10.5	15	400	100	AL/Stahl	PTFE/NBR	Flange
0883280	10 to 160	11	17	400	100	AL/Stahl	PTFE/NBR	Flange
0883380	25 to 250	13	21	400	100	AL/Stahl	PTFE/NBR	Flange
0883480	40 to 420	17	38	600	100	AL/Stahl	PTFE/NBR	Flange

Electrical connection M12x1 max. allowable voltage 30 V

Connectors see page 4! Connectors are not included in delivery, please order seperately.
The pressure switch will loose the Ex approval when using other connectors than those listed in the data sheet.

Type	Pressure range *1) (bar)	Switching pressure difference		Max. over pressure*2) (bar)	Switching cycles (1/min)	Materials pressure sensor		Port size
		Lower range (bar)	Upper range (bar)			Housing	Sealing	
0882181	5 to 70	10.5	15	400	100	AL/Stahl	PTFE/NBR	G1/4
0882281	10 to 160	11	17	400	100	AL/Stahl	PTFE/NBR	G1/4
0882381	25 to 250	13	21	400	100	AL/Stahl	PTFE/NBR	G1/4
0882481	40 to 420	17	38	600	100	AL/Stahl	PTFE/NBR	G1/4
0883181	5 to 70	10.5	15	400	100	AL/Stahl	PTFE/NBR	Flange
0883281	10 to 160	11	17	400	100	AL/Stahl	PTFE/NBR	Flange
0883381	25 to 250	13	21	400	100	AL/Stahl	PTFE/NBR	Flange
0883481	40 to 420	17	38	600	100	AL/Stahl	PTFE/NBR	Flange

*1) Reference pressure is the atmospheric air pressure
*2) Setpoints should be ideally in the middle of the switching pressure range. Reference pressure = atmospheric pressure. Switching pressure must not exceed the indicated values

AL = aluminium
FKM = viton
MS = brass
NBR = nitrile

Accessories

Pressure port Reducing nipple	Surge damper	Cover (via adjustment screw)	Connector M 12 x 1 90°	
				
0574767 (brass)	0574773 (brass)	0554737	0523058 (2 m cable, 4-core)	0523056 (90° without cable)
0550083 (stainless steel)	0553258 (stainless steel)		0523053 (5 m cable, 4-core)	

Switching capacity
Commutator with gold plated contacts

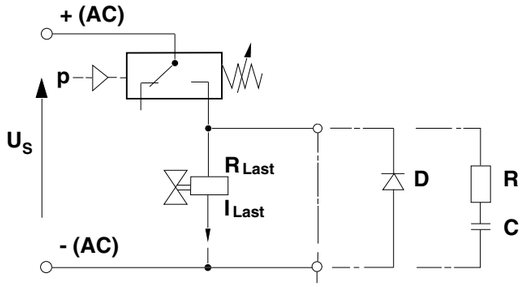
Load level	Current type (bar)	Load type	Umin [V]	Max. permanent current Imax [A] at U [V] 30 M 12x1	48	60	125	250	Contact life
Standard *3) (z.B. contractors, solenoids)	AC	ohmic	12	5	5	5	5	5	⩾ 10^7 switching cycles
	AC	inductive, cos φ ≈ 0,7	12	3	3	3	3	3	
	DC	ohmic	12	5	1.2	0.8	0.4	-	
	DC	inductive, L/R ≈ 10 ms	12	3	0.5	0.35	0.05	-	
Minor *4) (z.B. electronic circuits)	AC	ohmic	5 *6)	0.34	0.2	0.17	0.08	0.04	⩾ 10^7 switching cycles
	DC	inductive, L/R ≈ 10 ms	5 *6)	0.1	0.01	-	-	-	

Reference number: 30/min, Reference temperature: +30°C
Spark quenching with diode with DC and inductive load:
I max = 1,5 x I max of table
I min = 1 (mA)
Creepage and air paths correspond to insulation group B according to VDE Reg. 0110 (except contact clearance of microswitch).

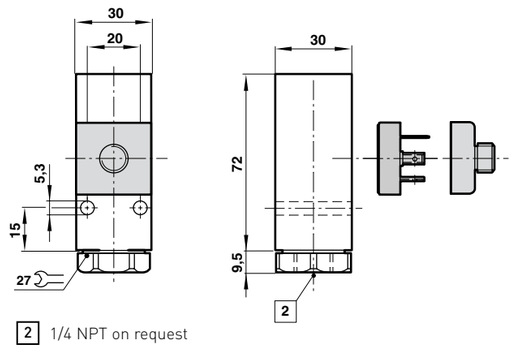
*3) Gold-plating not required as it would decay.
Max. perm. in-rush current (appr. 30 ms) I AC = max. 15 A
*4) Gold-plating required (will not decay).
*6) Lower value of critical voltage guarantees sufficient contact safety. Lower voltages permissible under favourable conditions.

Spark quenching with DC voltage

1. Diode D in parallel to inductive load.
   Observance of correct polarity (positive pole to cathode).
   Dimensioning specifications for quenching diode:
   Rated voltage at diode: UD ⩾ 1,4 x Us
   Rated current at diode: I N ⩾ ILast
   Selection of a quick switching diode (recovery time trr ⩽ 200 [ms]).
2. RC link in parallel to load in parallel to switching contact.
   Suited for DC and AC voltage.
   Dimensioning principles:
   R in Ω ≈ 0,2 x R_{Load} in Ω
   C in [µF] ≈ I_{Load} in [A]

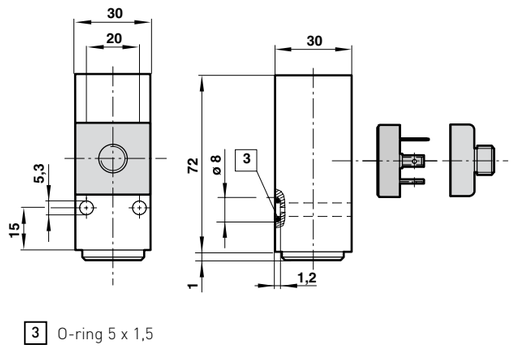


G 1/4



2 1/4 NPT on request

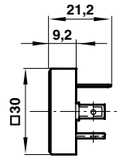
Flange



3 O-ring 5 x 1,5

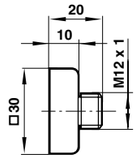
Elektrical connection

for plug according to
DIN EN 175301-803, form A



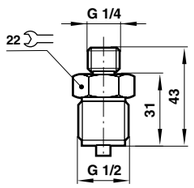
Elektrical connection

M12 x 1

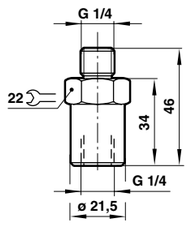


Accessories

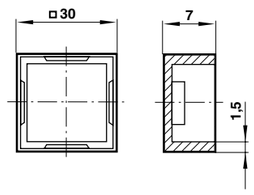
Pressure port/Reducing nipple
Material: brass
Type: **0574767**



Surge damper
Material: brass
Type: **0574773**

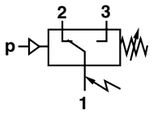


Cover
Type: **0554737**



Hydraulic pressure switch

Acc. to ATEX 5 to 420 bar



For Ex zones 1 and 2 (gases) as well as

Ex zones 21 and 22 (dusts) category II2G,

type of protection EEx de IIC T6

Microswitch with gold plated contacts

Electrical connection: connector M20 x 1,5

Robust metal housing in weather-resisting version

Technical data

Medium:
For neutral, self lubricating fluids, f.ex. hydraulic oil, lube oil, light fuel oil

Operation:
Piston

Port size:
G1/4

Operating pressure range:
5 to 400 bar

Temperature:
Fluid/Ambient: -10* ... +75°C
*Please contact our technical service for use below +2°C.

Operating viscosity:
Up to 1000 mm^2/s

Repeatability:
±1% of final value (depending on regulating pressure)

Switching element:
Microswitch with gold plated contacts

Degree of protection:
IP65 (DIN 40050)

Mounting position:
Optional

Shock-/vibrationproof (to avoid, it possible):
4 g max. (sinusoidal), max. 5 Hz

Sealing:
$\leq 10^{-7}$ mbar • l • s^{-1}

Pulsations:
Not permitted

Switching cycles:
Max. 20/min

Materials

Housing:
Aluminium diecast, anodised

Sensor:
Brass or steel

Sealing:
Steel piston (NBR or FKM)

Pressure range for 184 (fixed switching pressure difference)

Type	Switching pressure range*1) pvu min. to pvo max. (VDI 3283) (bar)	Max. over pressure *2) (bar)	Switching pressure difference (typical) Lower range (bar)	Upper range (bar)	Fluid contact parts	Sensor
1846505	5 to 160	300	5.00	9.00	Brass, steel, NBR	K
1846705	10 to 400	550	7.00	18.00	Brass, steel, FKM	K

Pressure range for 185 (adjustable switching pressure difference)

Type	Switching pressure range*1) pvu min. to pvo max. (VDI 3283) (bar)	Max. over pressure *2) (bar)	Switching pressure difference (typical) Lower range (bar)	Upper range (bar) min.	max.	Fluid contact parts	Sensor
1856505	5 to 160	300	8.00	22.00	120.00	Brass, steel, FKM	K
1856705	10 to 400	550	15.00	40.00	300.00	Brass, steel, FKM	K

*1) Reference pressure is the atmospheric air pressure
*2) Short-term pressure peaks are not allowed to exceed this limit value during operation. Operative utilization of the limit value is not permitted. The limit value corresponds to the maximum testing pressure
K = Piston
pvu = Switching point on falling pressure
pvo = Switching point on rising pressure

Further versions:

Type test certificate acc. to 97/23/EG
(DIN 3394-3/DIN EN 1854) on request

Accessories

Brackets	Surge damper	Pressure port Reducing nipple
		
0574772 (steel)	0553258 (stainless steel G1/4)	0553831 (G1/2 to 1//2 NPT)
0553908 (stainless steel)	0574773 (brass/steel) G1/4)	0550083 (G1/4 to G1/2)
0551894 (stainless steel G1/2)		0574764 (G1/4 to G3/8)
		0574765 (G1/4 to 1/4 NPT)

Switching capacity
Commutator with gold plated contacts

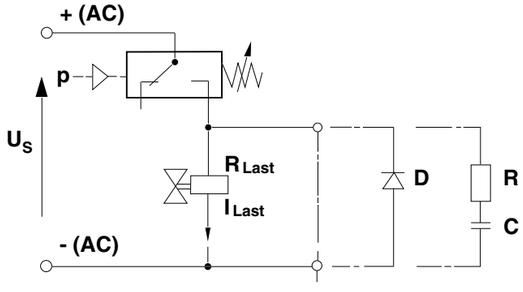
Load level	Current type (bar)	Load type	Umin [V]	Max. permanent current Imax [A] at U [V] 30 M 12x1	48	60	125	250	Contact life
Standard *3) (z.B. contractors, solenoids)	AC	ohmic	12	5	5	5	5	5	⩾ 10^7 switching cycles
	AC	inductive, cos φ ≈ 0,7	12	3	3	3	3	3	
	DC	ohmic	12	5	1.2	0.8	0.4	-	
	DC	inductive, L/R ≈ 10 ms	12	3	0.5	0.35	0.05	-	
Minor *4) (z.B. electronic circuits)	AC	ohmic	5 *6)	0.34	0.2	0.17	0.08	0.04	⩾ 10^7 switching cycles
	DC	inductive, L/R ≈ 10 ms	5 *6)	0.1	0.01	-	-	-	

Reference number: 30/min, Reference temperature: +30°C
Spark quenching with diode with DC and inductive load:
I max = 1,5 x I max of table
I min = 1 (mA)
Creepage and air paths correspond to insulation group B according to VDE Reg. 0110 (except contact clearance of microswitch).

*3) Gold-plating not required as it would decay.
Max. perm. in-rush current (appr. 30 ms) I AC = max. 15 A
*4) Gold-plating required (will not decay).
*6) Lower value of critical voltage guarantees sufficient contact safety. Lower voltages permissible under favourable conditions.

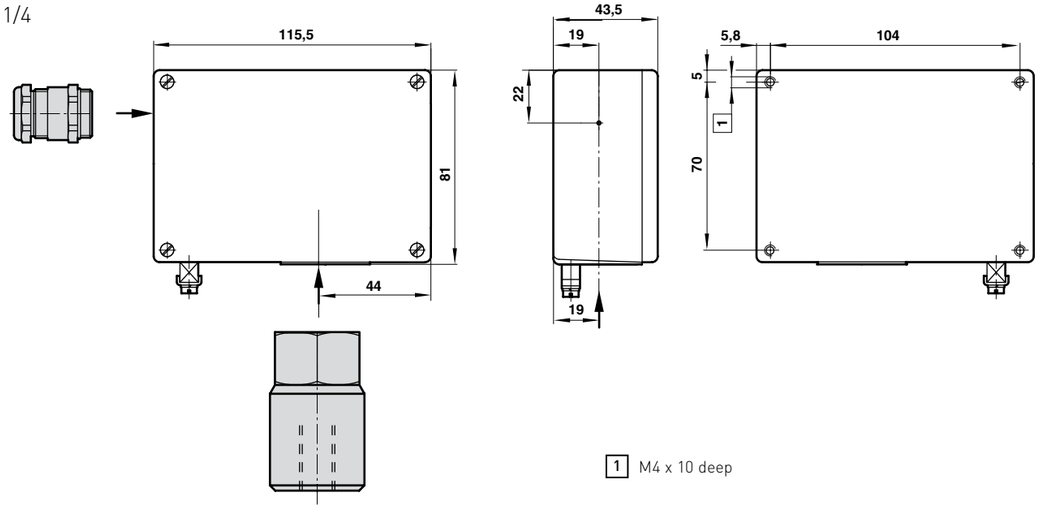
Spark quenching with DC voltage

1. Diode D in parallel to inductive load.
   Observance of correct polarity (positive pole to cathode).
   Dimensioning specifications for quenching diode:
   Rated voltage at diode: UD ⩾ 1,4 x Us
   Rated current at diode: I N ⩾ ILast
   Selection of a quick switching diode (recovery time trr ⩽ 200 (ms)).
2. RC link in parallel to load in parallel to switching contact.
   Suited for DC and AC voltage.
   Dimensioning principles:
   R in Ω ≈ 0,2 x R_{Load} in Ω
   C in [µF] ≈ I_{Load} in [A]



Basic dimensions

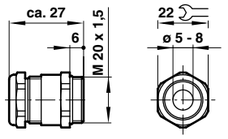
G 1/4



1 M4 x 10 deep

Elektrical port

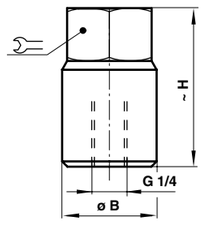
Connection M20 x 1,5 acc. to EEx e (ATEX),
MS nickel-plated for cable Ø 5 to 8 mm (Type: 0588819)



Sensor dimensions

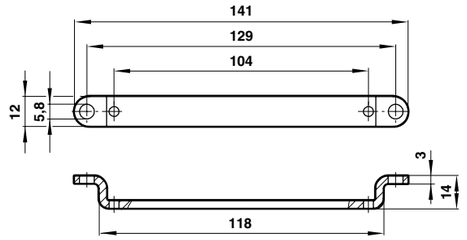
Switching pressure range Substitute	H	B	⌲
65	61.5	37	32
67	66	37	32

Sensor



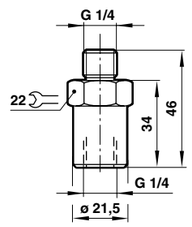
Brackets (2 brackets and 4 screws)

Steel **Type: 0574772**
Stainless steel 1.4301 (AISI 304) **Type: 0553908**

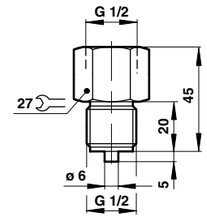


Surge damper

Stainless steel 1.4301 (AISI 304) **Type: 0553258**
Brass/steel **Type: 0574773**

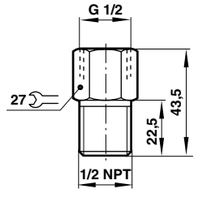


Stainless steel 1.4301 (AISI 304) **Type: 0551894**

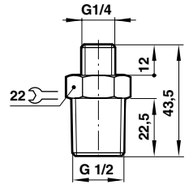


Pressure port/reducing nipple

G1/2 I to G1/2 NPT A
Stainless steel 1.4305
(AISI 303/304 S)
Type: 0553831

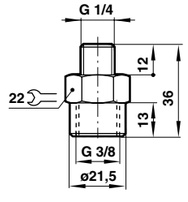


G1/4 A to G1/2 A
Stainless steel 1.4305
(AISI 303/304 S)
Type: 0550083



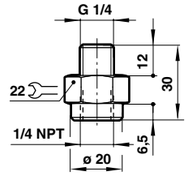
G1/4 A to G3/8
Steel

Type: 0574764



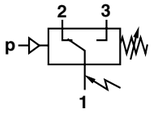
G1/4 A to 1/4 NPT
Brass

Type: 0574765



Allfluid pressure switches

Acc. to ATEX -1 to 63 bar



For Ex zones 1 and 2 (gases) as well as

Ex zones 21 and 22 (dusts) category II2G,

type of protection EEx de IIC T6

Microswitch with gold plated contacts

Electrical connection: connector M20 x 1,5

Robust metal housing in weather-resisting version

Technical data

Medium:
For neutral, non-inflammable gases and fluids

Operation:
Softseal piston
Stainless steel bellow

Fluid connection:
G1/2

Operating pressure range:
-1 ... 63 bar

Temperature:
Fluid/Ambient: -10* ... +75°C
*Please contact our technical service for use below +2°C.

Repeatability:
±1% of final value (depending on regulating pressure)

Switching element:
Microswitch with gold plated contacts

Degree of protection
IP65 (DIN 40050)

Mounting position:
Optional

Shock-/vibrationproof (to avoid, it possible):
4 g max. (sinusoidal) / 5 Hz max.

Sealing:
$\leqslant 10^{-7}$ mbar • l • s^{-1}

Pulsations:
Not permitted

Switching cycles:
Max. 20/min

Materials

Housing:
Aluminium diecast

Sensor:
Stainless steel

Sealing:
Stainless steel-bellows

Pressure range for 184 (fixed switching pressure difference)

Type	Switching pressure range*1) pvu min. to pvo max. (VDI 3283) (bar)	Max. over pressure *2) (bar)	Switching pressure difference (typical) Lower range (bar)	Upper range (bar)	Pressure sensor material	Sensor
1840115	-1 to 0	10	0.20	0.23	1.4404	B
1840215	-1 to 1	10	0.20	0.25	1.4404	B
1840415	-1 to 2.5	10	0.22	0.26	1.4404	B
1841115	0.05 to 1	10	0.16	0.18	1.4404	B
1841215	0 to 1.6	10	0.16	0.20	1.4404	B
1841415	0.5 to 4	20	0.50	0.55	1.4404	B
1841515	0.5 to 6	20	0.60	0.70	1.4404	B
1841615	0.5 to 10	20	0.70	0.90	1.4404	B
1841715	1 to 16	50	1.00	1.40	1.4404	F
1841815	1 to 25	50	1.30	1.80	1.4404	F
1841915	5 to 63	150	2.00	5.00	1.4404	H

Pressure range for 185 (adjustable switching pressure difference)

Type	Switching pressure range*1) pvu min. to pvo max. (VDI 3283) (bar)	Max. over pressure *2) (bar)	Switching pressure difference (typical) Lower range (bar)	Upper range (bar) min.	Upper range (bar) max.	Pressure sensor material	Sensor
1850115	-1 to 0	10	0.19	0.25	0.80	1.4404	B
1850215	-1 to 1	10	0.20	0.30	1.00	1.4404	B
1850415	-1 to 2.5	10	0.20	0.28	2.50	1.4404	B
1851115	0.05 to 1	10	0.16	0.18	0.80	1.4404	B
1851215	0 to 1.6	10	0.10	0.16	1.00	1.4404	B
1851315	0.1 to 2.5	10	0.18	0.22	2.00	1.4404	B
1851415	0.5 to 4	20	0.50	0.60	2.50	1.4404	B
1851515	0.5 to 6	20	0.60	0.70	5.00	1.4404	B
1851615	0.5 to 10	20	0.70	0.90	8.00	1.4404	B
1851715	1 to 16	50	1.60	1.40	12.00	1.4404	F
1851815	1 to 25	50	1.60	2.20	20.00	1.4404	F
1851915	5 to 63	150	2.00	5.00	20.00	1.4404	H

*1) Reference pressure is the atmospheric air pressure
*2) Short-term pressure peakes are not allowed to exceed this limit value during operations. Operative utilization of the limit value is not permitted. The limit value corresponds to maximum testing pressure.
F = bellows
pvu = switching point at decreasing pressure
pvo = switching point at increasing pressure

Further versions:

Examination test acc. to pressure equipment directive 79/23/EC (DIN 3394-3/DIN EN 1854) on request

Accessories

Brackets	Surge damper	Pressure port Reducing nipple
		
0574772 (steel)	0553258 (stainless steel G1/4)	0553831 (G1/2 to 1//2 NPT)
0553908 (stainless steel)	0574773 (brass/steel) G1/4)	0550083 (G1/4 to G1/2)
0551894 (stainless steel G1/2)		0574764 (G1/4 to G3/8)
		0574765 (G1/4 to 1/4 NPT)

Switching capacity
Commutator with gold plated contacts

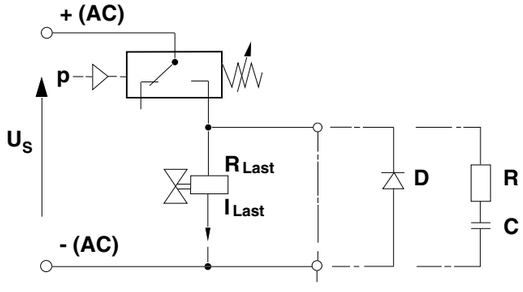
Load level	Current type (bar)	Load type	Umin [V]	Max. permanent current Imax [A] at U [V] 30 M 12x1	48	60	125	250	Contact life
Standard *3) (z.B. contractors, solenoids)	AC	ohmic	12	5	5	5	5	5	⩾ 10^7 switching cycles
	AC	inductive, cos φ ≈ 0,7	12	3	3	3	3	3	
	DC	ohmic	12	5	1.2	0.8	0.4	-	
	DC	inductive, L/R ≈ 10 ms	12	3	0.5	0.35	0.05	-	
Minor *4) (z.B. electronic circuits)	AC	ohmic	5 *6)	0.34	0.2	0.17	0.08	0.04	⩾ 10^7 switching cycles
	DC	inductive, L/R ≈ 10 ms	5 *6)	0.1	0.01	-	-	-	

Reference number: 30/min, Reference temperature: +30°C
Spark quenching with diode with DC and inductive load:
I max = 1,5 x I max of table
I min = 1 (mA)
Creepage and air paths correspond to insulation group B according to VDE Reg. 0110 (except contact clearance of microswitch).

*3) Gold-plating not required as it would decay.
Max. perm. in-rush current (appr. 30 ms) I AC = max. 15 A
*4) Gold-plating required (will not decay).
*6) Lower value of critical voltage guarantees sufficient contact safety. Lower voltages permissible under favourable conditions.

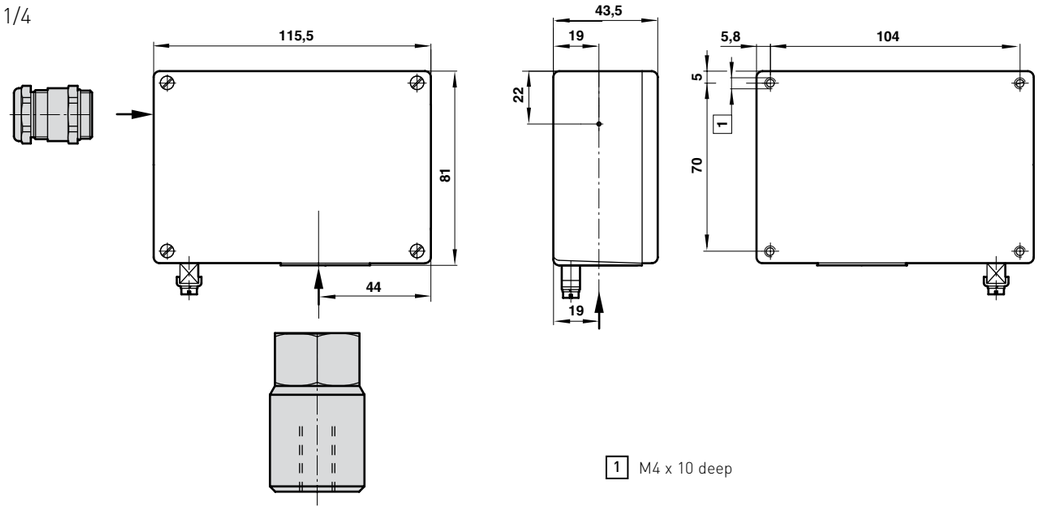
Spark quenching with DC voltage

1. Diode D in parallel to inductive load.
   Observance of correct polarity (positive pole to cathode).
   Dimensioning specifications for quenching diode:
   Rated voltage at diode: UD ⩾ 1,4 x Us
   Rated current at diode: I N ⩾ ILast
   Selection of a quick switching diode (recovery time trr ⩽ 200 (ms)).
2. RC link in parallel to load in parallel to switching contact.
   Suited for DC and AC voltage.
   Dimensioning principles:
   R in Ω ≈ 0,2 x R_{Load} in Ω
   C in [µF] ≈ I_{Load} in [A]

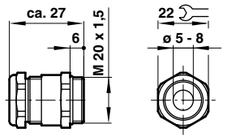


Basic dimensions

G 1/4



Connector M20 x 1,5 acc. to EEx e (ATEX), Nickel plated brass for cabel Ø 5 to 8 mm (Type: 0588819)



Sensor combinations

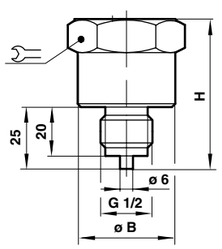
Switching pressure range Substitute	Sensor code 15	Sensor type
01	•	B
02	•	B
04	•	B
11	•	B
12	•	B
13	•	B
14	•	B
15	•	B
16	•	B
17	•	F
18	•	F
19	•	H

Sensor

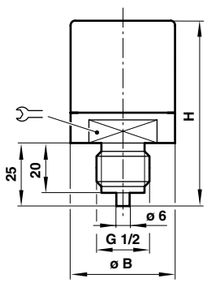
Sensor type	H	B	
B	75	42	32
F	37	32	41
H	53	37	32

Sensor

Style F+H

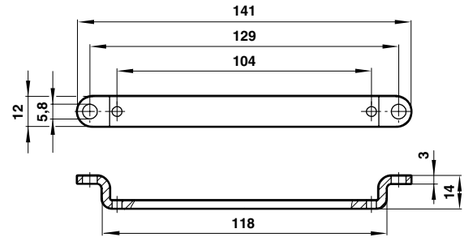


Style B



Brackets (2 brackets and 4 screws)

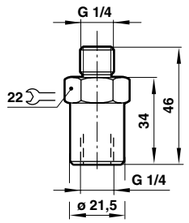
Steel **Type: 0574772**
Stainless steel 1.4301 (AISI 304) **Type: 0553908**

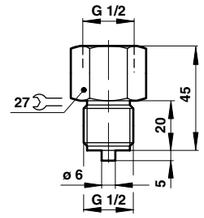


Surge damper

Stainless steel 1.4301 (AISI 304) **Type: 0553258**
Brass/steel **Type: 0574773**

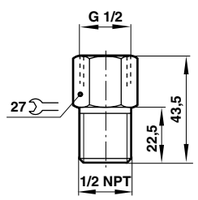
Stainless steel 1.4301 (AISI 304) **Type: 0551894**



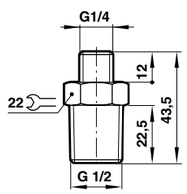


Pressure port/reducing nipple

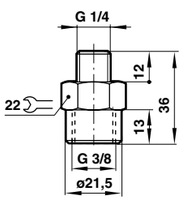
G1/2 I to G1/2 NPT A
Stainless steel 1.4305
(AISI 303/304 S)
Type: 0553831



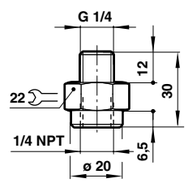
G1/4 A to G1/2 A
Stainless steel 1.4305
(AISI 303/304 S)
Type: 0550083



G1/4 A to G3/8
Steel
Type: 0574764

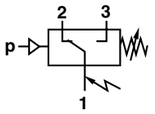


G1/4 A to 1/4 NPT
Brass
Type: 0574765



Pneumatic pressure switch

Acc. to ATEX 0 to 0,6 bar



For Ex zones 1 and 2 (gases) as well as

Ex zones 21 and 22 (dusts) category II2G,

type of protection EEx de IIC T6

Microswitch with gold plated contacts

Electrical connection: connector M20 x 1,5 (DIN 46320)

Robust metal housing in weather-resisting version

Technical data

Medium:
For neutral, gaseous fluids, non combustible

Operation:
Diaphragm

Port size:
G1/4

Operating pressure range:
0 to 0,6 bar

Temperature:
Fluid/Ambient: -10* ... +75°C
*Please contact our technical service for use below +2°C.

Repeatability:
±1% of final value (depending on regulating pressure)

Switching element:
Microswitch with gold plated contacts

Degree of protection
IP65

Mounting position:
Optional

Shock-/vibrationproof (to avoid, it possible):
4 g max. (sinusoidal) / 5 Hz max.

Sealing:
$\leq 10^{-7}$ mbar • l • s^{-1}

Pulsations:
Not permitted

Switching cycles:
Max. 20/min

Materials

Housing:
Aluminium diecast anodised

Sensor:
Stainless steel

Sealing:
Diaphragm

Pressure range for 184 (fixed switching pressure difference)

Type	Switching pressure range*1) pvu min. to pvo max. (VDI 3283) (bar)	Max. over pressure *2) (bar)	Switching pressure difference (typical) Lower range (bar)	Upper range (bar)	Fluid/Fluid contact parts	Sensor
1842715	0 to 0.16	0.5	0.015	0.02	Pneumatic / 1.4305/1.4301	K
1844115	0 to 0.6	15	0.06	0.16	Pneumatic / 1.4305/1.4301	L

Pressure range for 185 (adjustable switching pressure difference)

Type	Switching pressure range*1) pvu min. to pvo max. (VDI 3283) (bar)	Max. over pressure *2) (bar)	Switching pressure difference (typical) Lower range (bar)	Upper range (bar) min.	Upper range (bar) max.	Fluid/Fluid contact parts	Sensor
1852715	0 to 0.16	0.5	0.007	0.025	0.012	Pneumatic / 1.4305/1.4301	K
1854115	0 to 0.6	15	0.09	0.16	0.08	Pneumatic / 1.4305/1.4301	L

*1) Reference pressure is the atmospheric air pressure.
*2) Short-term pressure peaks are not allowed to exceed this limit value during operation. Operative utilization of the limit value is not permitted. The limit value corresponds to the maximum testing pressure
KM = Plastic diaphragm
pvu = Switching point on falling pressure
pvo = Switching point on rising pressure

Accessories

Brackets	Surge damper	Pressure port Reducing nipple
		
0574772 (steel)	0553258 (stainless steel G1/4)	0553831 (G1/2 to 1//2 NPT)
0553908 (stainless steel)	0574773 (brass/steel) G1/4)	0550083 (G1/4 to G1/2)
0551894 (stainless steel G1/2)		0574764 (G1/4 to G3/8)
		0574765 (G1/4 to 1/4 NPT)

Switching capacity
Commutator with gold plated contacts

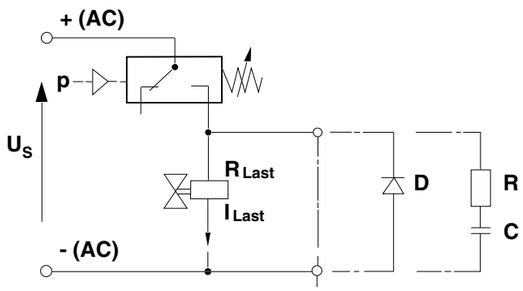
Load level	Current type (bar)	Load type	Umin [V]	Max. permanent current Imax [A] at U [V] 30 M 12x1	48	60	125	250	Contact life
Standard *3) (z.B. contractors, solenoids)	AC	ohmic	12	5	5	5	5	5	⩾ 10^7 switching cycles
	AC	inductive, cos φ ≈ 0,7	12	3	3	3	3	3	
	DC	ohmic	12	5	1.2	0.8	0.4	-	
	DC	inductive, L/R ≈ 10 ms	12	3	0.5	0.35	0.05	-	
Minor *4) (z.B. electronic circuits)	AC DC	ohmic	5 *6)	0.34	0.2	0.17	0.08	0.04	⩾ 10^7 switching cycles
		inductive, L/R ≈ 10 ms	5 *6)	0.1	0.01	-	-	-	

Reference number: 30/min, Reference temperature: +30°C
Spark quenching with diode with DC and inductive load:
I max = 1,5 x I max of table
I min = 1 (mA)
Creepage and air paths correspond to insulation group B according to VDE Reg. 0110 (except contact clearance of microswitch).

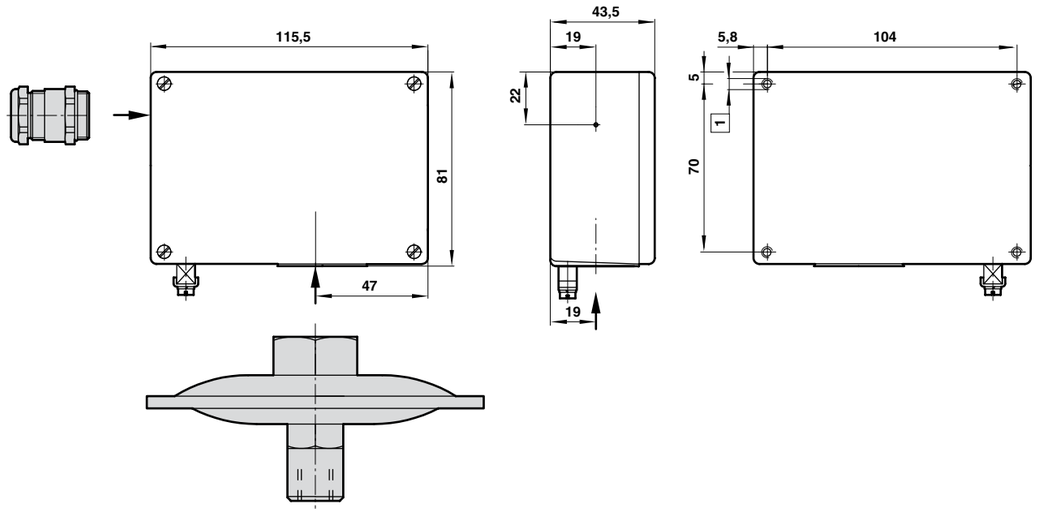
*3) Gold-plating not required as it would decay.
Max. perm. in-rush current (appr. 30 ms) I AC = max. 15 A
*4) Gold-plating required (will not decay).
*6) Lower value of critical voltage guarantees sufficient contact safety. Lower voltages permissible under favourable conditions.

Spark quenching with DC voltage

1. Diode D in parallel to inductive load.
   Observance of correct polarity (positive pole to cathode).
   Dimensioning specifications for quenching diode:
   Rated voltage at diode: UD ⩾ 1,4 x Us
   Rated current at diode: I N ⩾ ILast
   Selection of a quick switching diode (recovery time trr ⩽ 200 [ms]).
2. RC link in parallel to load in parallel to switching contact.
   Suited for DC and AC voltage.
   Dimensioning principles:
   R in Ω ≈ 0,2 x R_{Load} in Ω
   C in [µF] ≈ I_{Load} in [A]

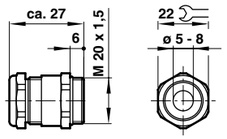


Basic dimensions



Elektrical port

Connection acc. to EEx e (ATEX),
MS nickel-plated for cable Ø 5 to 8 mm (Type: 0588819)

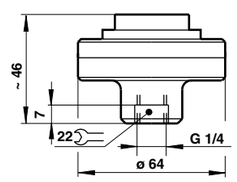


Sensor combinations

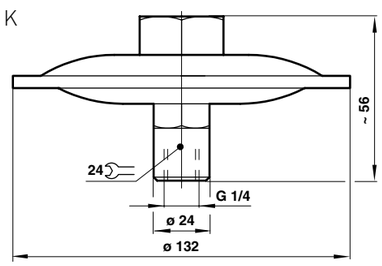
Switching pressure range Substitute	Sensor code 15	Sensor type
27	•	K
41	•	L

Sensor

Style L

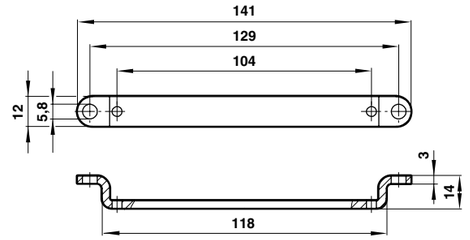


Style K



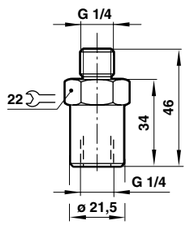
Brackets (2 brackets and 4 screws)

Steel **Type: 0574772**
Stainless steel 1.4301 (AISI 304) **Type: 0553908**

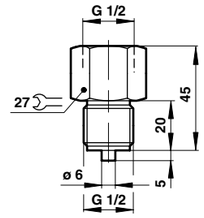


Surge damper

Stainless steel 1.4301 (AISI 304) **Type: 0553258**
Brass/steel **Type: 0574773**

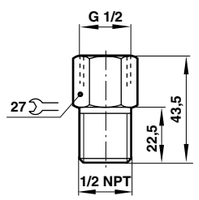


Stainless steel 1.4301 (AISI 304) **Type: 0551894**

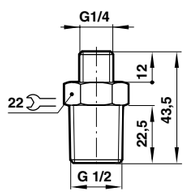


Pressure port/reducing nipple

G1/2 I to G1/2 NPT A
Stainless steel 1.4305
(AISI 303/304 S)
Type: 0553831

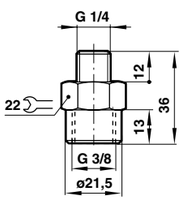


G1/4 A to G1/2 A
Stainless steel 1.4305
(AISI 303/304 S)
Type: 0550083



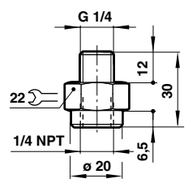
G1/4 A to G3/8
Steel

Type: 0574764



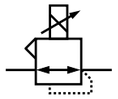
G1/4 A to 1/4 NPT
Brass

Type: 0574765



140 failsafe series

Current to pressure (I/P) electronic converter



Advanced electronic control
ATEX certified
Explosion proof / Intrinsically safe / Type nL
Complete Electronics Modularity For Ease of Maintenance
Jack Socket for On-site Monitoring
Fail-Safe (unit pressure falls to zero on signal failure)
Field replaceable filter
Weatherproof (IP66)
High performance
High accuracy
Fast response
Minimal temperature effect
Large flow capacity

Technical data

Output Pressure:
0.2-1bar (3-15psig)

Air Supply:
Oil free, dry air, min filtered to 50 microns; Internal in-built air filter , 1.2-10bar (18-150psig)

Flow Capacity:
up to 300nL/min (12scfm)

Air Consumption:
< 2.5 nL/min (0.025scfm) at 50% signal

Linearity:
mean < 0.05% of span

Hysteresis:
mean < 0.05% of span & Deadband

Response Time:
1 second (from 0 to 90% or 100 to 10% of output pressure into a 0.5 litre load)

Temperature Sensitivity:
Typically less than 0.035% span/ °C between -40°C to +85°C

Supply Sensitivity:
Less than 0.1% of span over full supply pressure range

Port Sizes:
1/4" NPT female standard (plus integral 1/8" NPT gauge port 1/8"NPT (exhaust baffle)

Calibration:
Independent control of 0% and 100% set points.

Adjustable by potentiometers up to 20% of output range. Unit is factory calibrated to within 1% of span.

Operating Temperature:
-40°C to +85°C (-40 to +185°F)

I.P. Rating:
IP66, NEMA 4X (when mounted upright)

Electromagnetic compatibility:
Compliant with EC requirements EN 50081-2:1994 (Emissions) and EN 50082-2:1995 (Immunity)

Material of Construction:
Aluminium and zinc diecasting with nitrile diaphragms, black epoxy powder coating standard

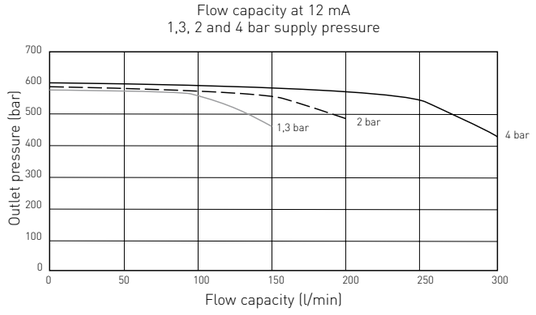
Weight:
2.07Kg

Maintenance:
Modular Electronics and in-built filter offered as field replaceable parts

Mounting Position:
Integral bracket allows for flat surface or 2" (50mm) pipe mounting in any orientation. Designed for mounting with 57-73mm pitch U bolts.

Vibration Effect:
Output pressure changes less than 3% for vibration amplitude 4mm 5-15Hz, 2g 15-150Hz

Characteristic curves



Materials

Body: aluminium and zinc diecasting

Diaphragms: nitrile

Black epoxy powder coating standard

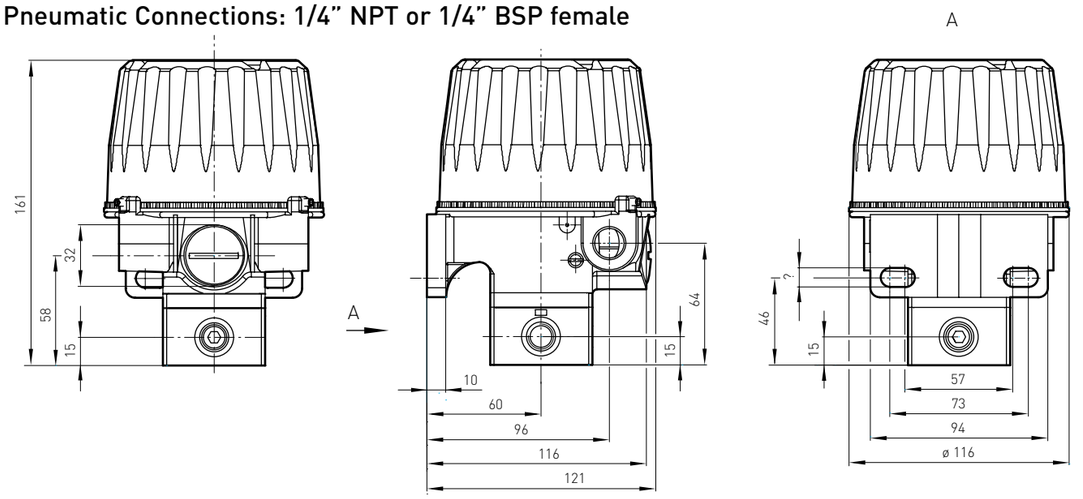
ORDERING INFORMATION & ACCESSORIES

CERTIFICATION	OUTPUT PRESSURE	ORDER CODE Multi Certified Units Only – IS/Type N/Exd
CENELEC ONLY (M20x1.5)	0.2-1bar	EX140 01BK4LE2
	3-15psig	EX140 01BK4LE2
Triple certification / Triple agency	0.2-1bar	EX140 01BK4EE1
	3-15psig	EX140 01BK4EE1

Standard models: conduit entry 1/2" NPT

Options available :conduit entry M20 1/8" output pressure monitoring gauge

Pneumatic Connections: 1/4" NPT or 1/4" BSP female



Certification

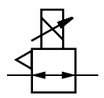
CERTIFICATION AGENCY	EXPLOSION PROOF/ FLAME PROOF	INTRINSICALLY SAFE	TYPE N/ NON-INCENDIVE	OTHERS
SIRA (CENELEC ATEX approved) CE Ex II	EEx d IIC T4 Ta=-20°C to +40°C EExd IIB+H2 T5/T6 Ta=-20°C to +80°C (T5) Ta=-20°C to +65°C (T6) Umax=30V Sira 01ATEX1006 2G(T4/T5/T6)/2D(95°C)	EEx ia IIC T4 Ta=-40°C to +85°C Ui=30V, Ii=110mA Pi=0.84W Ci=6nF, Li=100µH Sira 01ATEX2007X 1G(T4)/1D(95°C)	EEx nL IIC T5 Ta=-40°C to +85°C Ii=24mA Ci=6nF, Li=100µH Sira 01ATEX4008X 3G(T5)/3D(95°C)	
FACTORY MUTUAL FM APPROVED	Class I, Division 1, Group B, C, D; T6, Ta=75°C; T5, Ta=85°C	Class I, II, III, Division 1, Group A, B, C, D, E, F, G; T4, Ta=85°C	Class I, Division 2, Group A, B, C, D; T6, Ta=75°C; T5, Ta=85°C	Dust Ingress Protection: Class II, III, Division 1, Group E, F, G; T6, Ta = 75°C; T5, Ta = 85°C Suitable for: Class II, III, Division 2, Group F, G; T6, Ta=75°C; T5, Ta=85°C
CSA	Class I, Group B, C, D; Class II, Group E, F, G; Class III; Ex d IIC; T4 Ex d IIB+H_2; T5/T6	Class I, Group A, B, C, D; Class II, Group E, F, G; Class III; Ex ia IIC; T4	Class I, Division 2, Group A, B, C, D; Ex nL IIC; T5; Class II, Division 2, Group E, F, G; Class III	

Electrical information

Input Signal	4-20mA (two wire) Terminal voltage < 6.5V @ 20mA
Failure Mode	Signal falls to below 15mbar (0.2psig) in < 2sec, when input signal fails
Overload Protection	100mA max overload current
Insulation Resistance	> 100MOhm at 850Vdc, electrical terminals to case
Connections	1/2" NPT or M20; internal terminal block with capacity up to 2.5mm2 cable
Span/Zero	Adjustable up to 4.5mA to achieve tight shut off
Input Impedance	The impedance changes with applied current, because it's terminal voltage remains fairly constant, therefore 4mA = approx 1370 ohms 12mA = approx 470 ohms 20mA = approx 290 ohms

422 failfreeze series

Current to pressure (I/P) electronic converter



Advanced electronic control

Failfreeze operation (output pressure retained on power failure)

Vibration immune

IP65 environment protection

ATEX approved

Technical data

Output Pressure:
0.2 to 1bar (3 to 15psi) standard low pressure unit
0.2 to 8bar (3 to 120psi) standard high pressure unit
See Ordering Options

Air Supply:
Oil free, dry air, filtered to 5 microns; at least 0.7bar above maximum required output pressure

Flow Capacity:
Up to 300nL/min (10scfm)

Air Consumption:
0.2 l/min typical (0.007scfm) low pressure; 0.4 l/min typical (0.013scfm) high pressure

Linearity:
Maximum < 0.5 of span

Hysteresis:
Maximum < 0.1% of span

Response Time:
6 seconds (low pressure unit)/ 12 seconds (high pressure unit) (from 10 to 90% of output pressure into a 2 litre load)

Temperature Sensitivity:
Typically < ± 1% span between -10°C and +60°C

Supply Sensitivity:
Negligible effect

Port Sizes:
1/4" NPT female standard (plus two integral 1/4" NPT gauge ports)
Other options available on request

Operating Temperature:
-20°C to +70°C

I.P. Rating:
IP65

Electromagnetic compatibility:
Compliant and CE marked in accordance with the EC Directive 89/336/EEC Compatibility Tested to standards: BS EN50082-2: 1995, BS EN50081-2: 1994

Material of Construction:
Zinc diecasting passivated and epoxy painted, Verton glass/nylon cover; Nitrile diaphragms

Weight:
800g

Mounting Position:
Operation in any orientation is possible without recalibration; integral surface mounting bracket provided for vertical mounting

Vibration Effect:
Negligible effect for vibration level up to 3g, 5-500Hz

Materials

Body: zinc diecasting passivated and epoxy painted

Cover: Verton glass/nylon

Diaphragms: nitrile

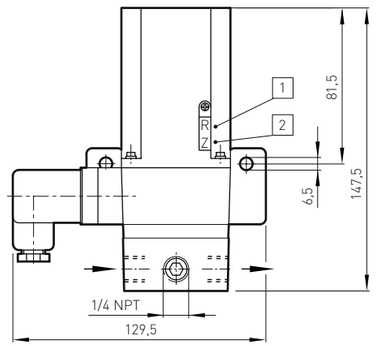
ORDERING INFORMATION & ACCESSORIES

Standard Models: 4-20mA input, forward action, DIN connector

OUTPUT PRESSURE	ORDER CODE
0.2-1bar	AC2400
0.2-8bar	AC2100
3-15psig	AC2100
3-120psig	AC2400

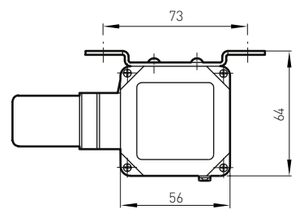
Options to special order:
- Alternative pressure ranges
- Conduit entry (M20 / ½" NPT)
- 50mm pipe mounting bracket
- Intrinsically safe certification
- Type 'nL' certification
- Reverse Acting
- Captured Bleed

Pneumatic Connections: 1/4" NPT or 1/4" BSP female

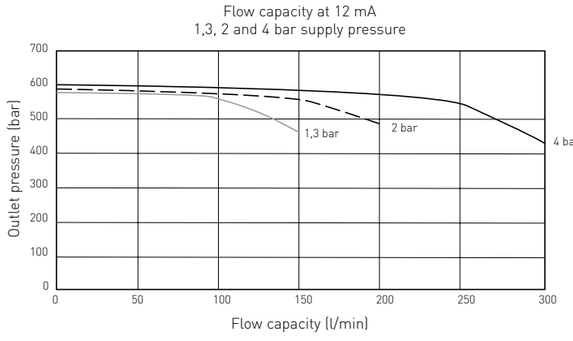


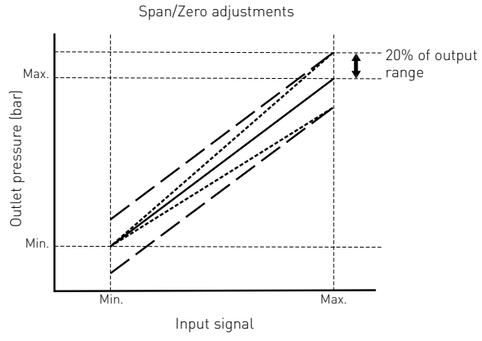
1 Range
2 Zero

Pneumatic connections: 1/4 NPT female or 1/4 BSP female
Electrical connections: 30 mm square connector DIN 43650 (provided)



Characteristic curves





Certification

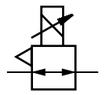
Hazardous area approvals:
The 422 is available for: Intrinsically safe applications to EN50020:2002 with ⟨Ex⟩ II 1G EEx ia IIC T4 (Ta= -40°C to +80°C)
Type nL applications to EN50021:1999 with ⟨Ex⟩ II 3G EEx nL IIC T6 (Ta = -40°C to +70°C)

Electrical information

Input Signal	4-20mA (two wire); load presents 6 volts (±0.5V) constant voltage drop to the current source at 20mA
Failure Mode	Output pressure held at previous value when input signal fails; drift rate 0.02% in 30 seconds
Connections	30mm square connector DIN 43650 provided, mountable in four directions
Span/Zero	Adjustable 20% output range

100X series

Proportional pressure control valves



Reliable, rugged, open loop control

ATEX and FM certified units are available as

Intrinsically Safe, Type N

Proportional I/P and E/P converters

Minimum Vibration Effects

IP65 environmental protection

Mounting Bracket and Connector Included

Technical data

Output Pressure:
Ranges up to 4bar (2 wire), up to 8bar (3 wire)
See Ordering Options

Air Supply:
Oil free, dry air, filtered to 5 microns; at least 0.5bar above maximum required output pressure; maximum 5bar for a standard 100X (upto 10bar for 101X)

Flow Capacity:
Up to 300nL/min (10scfm) forward flow, 150nL/min (5scfm) relief

Air Consumption:
1.4 l/min (0.06scfm) typical

Linearity:
Maximum 0.5% of span for 100X

Hysteresis:
Maximum 0.35% of span for 100X

Response Time:
Typically less than 0.5 seconds (dependent on input for 10-90% step change in outlet pressures) into a 10cc load

Temperature Sensitivity:
< 0.1% span/°C for span and zero over operating range

Supply Sensitivity:
Better than 0.075% span output change per % supply pressure change

Port Sizes:
1/4" NPT or 1/4" BSP

Operating Temperature:
-40°C to +85°C

I.P. Rating:
IP65 in normal operation

Electromagnetic compatibility:
This is a passive electro-pneumatic instrument and is unaffected by interfering high frequency signals

Material of Construction:
Zinc diecasting passivated and epoxy paint, nitrile diaphragms, Be_2Cu flapper nozzle & supply valve

Weight:
825g

Mounting Position:
Integral surface mounting bracket provided for preferred vertical mounting
Alternative mounting available

Vibration Effect:
5% of span: 4mm$_{p-p}$ 5-15Hz & 2g sine 15-150Hz, vertical, horizontal & inverted, in accordance with ISA-S75.13-1996

Materials

Body: passivated zinc die-casting, epoxy painted

Diaphragms: nitrile

Internal: beryllium copper/ brass

Flapper nozzle and supply valve: stainless steel/nylon

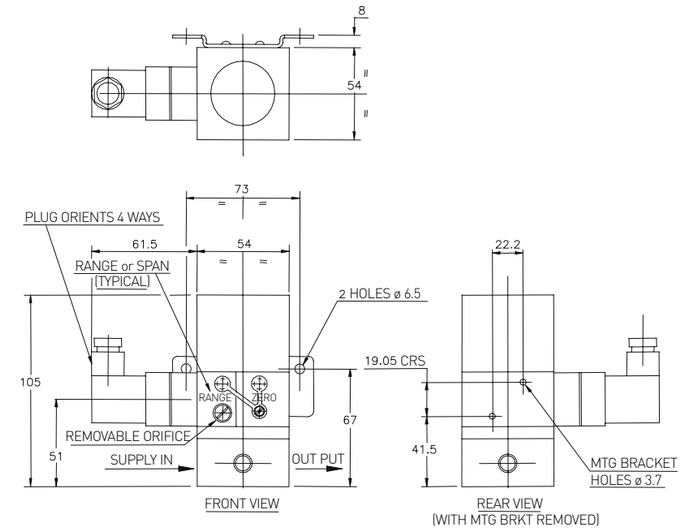
ORDERING INFORMATION & ACCESSORIES

Standard models are 2 wire; 3 wire units require 12-24V supply

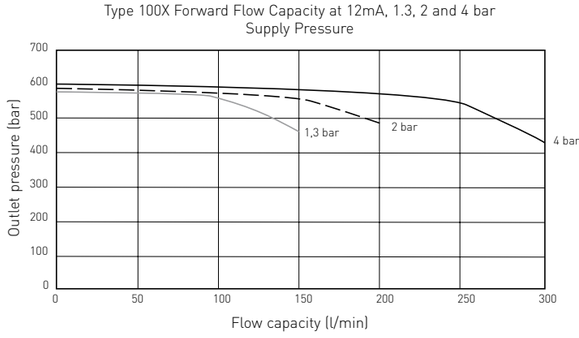
OUTPUT PRESSURE	INPUT SIGNAL	
	4-20mA	1-10VN
0.2-1bar	402100R	-
0.14-8bar (3 wire)	572400R	562400R
3-15psig	400100R	440100R
2-120psig (3 wire)	570400R	560400R

Options available:
- Alternative input signal ranges
- Alternative pressure ranges
- Flying Leads
- Conduit entry with flying leads
- Junction box (M20 / ½" NPT)
- Intrinsically safe certification
- 50mm pipe mounting bracket
- Captured exhaust
- Reverse acting
- Split range
- Weatherproof (IP66)

Pneumatic Connections: ¼" NPT or ¼" BSP Female
Electrical connections: 30mm square connector DIN 43650 (provided)



Characteristic curves



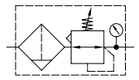
Certification

An intrinsically safe 100X model is certified to ATEX 94/9/EC, ⟨Ex⟩ II 1G EEx ia IIC T4 (Ta= -40°C to +80°C) (EN 50020) is available. (Installations with these models must comply with the information given in BS EN 60079)

Electrical information

Input Signal	4-20mA/1-10V (2 & 3 wire) – *see ordering options*
Failure Mode	Output pressure falls to bleed pressure when electrical supply fails
Connections	30mm square connector DIN 43650
Span/Zero	Adjustable 20% output range – *further options available*
Input Impedance	11kohms for a 0-10V Current required from the voltage source (0-10V) would be 10/11000 = 0.9mA

IFR3 & IFR4



- Model IFR (instrument filter regulator)
- Filter / regulator combination
- All 316 stainless steel
- High flow capability
- Max inlet pressure 20 bar
- Maintains set pressure with increasing flow
- Fully venting
- Reliable and long life, ideal for one time installation

Technical data

Filter with manual drain:
40 µm - stainless steel

Relief port:
1/8" NPT Threaded port with bug screen

Maximum inlet pressure:
20 bar

Outlet pressure range:
0.5 - 6 bar
0.5 - 10 bar
0.5 - 16 bar

Temperature ratings:
Media (min/max -30°C/90°C)
Ambient (min/max -30°C/90°C)

Process connections:
IFR3 -1/4" NPT
IFR3 -1/2" NPT

Media:
Air & gas

Weight:
IFR3 - 1.8 kg
IFR4 - 2.2 kg

ATEX classification:
Exc - complies with EN13463 for non-electrical equipment

Materials

Valve body - stainless steel - 316

Top & bottom covers - stainless steel - 316

Valve trim materials - 316 stainless steel

O-rings & seals - nitrile (NBR)

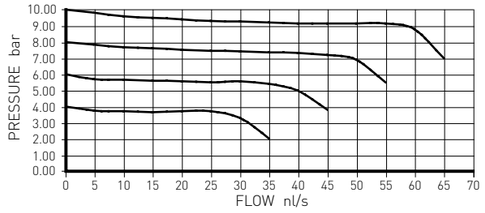
Diaphragm - nitrile (NBR)

Seat & adjustment springs - stainless steel

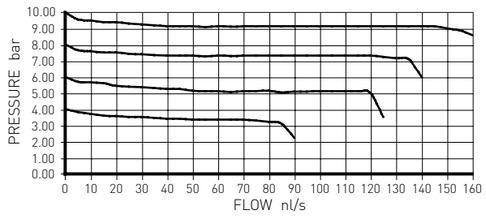
Flow rates (16 bar Inlet)

Pressure drop shown as a % of Outlet Flow

IFR3 1/4" 0-10 bar MAXSEAL FILTER REGULATOR



IFR4 1/2" 0-10 bar MAXSEAL FILTER REGULATOR



Option selector

★/2/★/C/★★/★/★/★/S/★★★

Model	Substitute
IFR3 = 1/4"	Y
IFR4 = 1/2"	R

Inlet pressure	Substitute
0-20 bar	2

Outlet pressure	Substitute
0.5 - 6.0 bar	6
0.5 - 10 bar	A
0.5 - 16.0 bar	B

Type	Substitute
Filter / regulator Combination	C

Process conn.	Substitute
1/4" NPT	A1
1/4" BSPP	E1
1/2" NPT	A3
1/2" BSPP	E3

Filtration	Substitute
40-50 µm	040
20-30 µm	020
5-10 µm	005

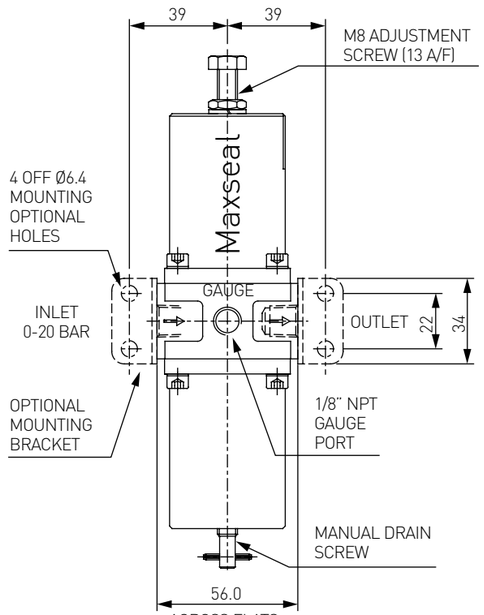
Body/trim materials	Substitute
316 stainless steel / 316 stainless steel	S

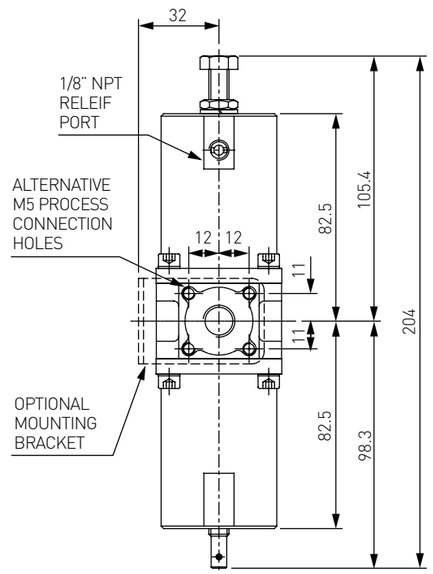
Mounting	Substitute
Mounting bracket	B
NONE	N

Gauge	Substitute
NONE	0
Ø50 316SS dry gauge	1
Ø50 316SS oil-filled gauge	2

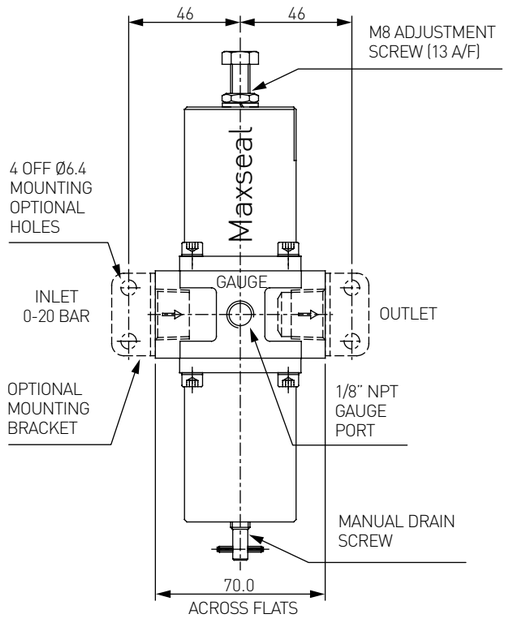
Seat/seal materials	Substitute
Nitrile	H
Viton®	V
Low temp variant	L

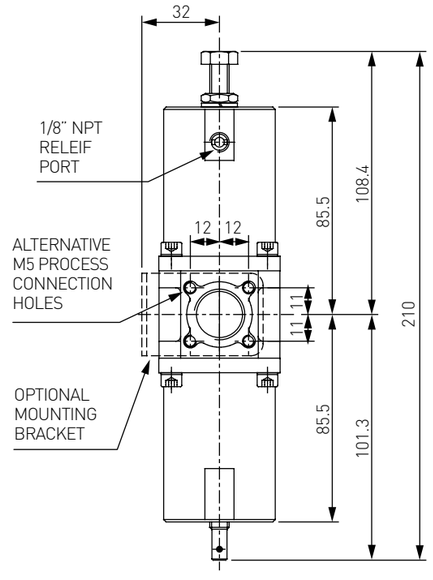
IFR3 - 1/4" Filter regulator combination





IFR4 - 1/2" Filter regulator combination





ICO2S 1/2” 2/2 AUTO

Model ICO2S 1/2” 2/2 AUTO

Pilot assisted solenoid valve

High flow

Max inlet pressure 20 bar (290 psi)

Pilot pressure 3-7 bar

Reliable and long life, ideal for a one time installation

A pilot assisted solenoid operated valve for the control of pneumatic or hydraulic operated equipment

Technical data

Maximum inlet pressure:
20 bar (290 psi)

Pilot pressure:
3-7 bar

Flow rates:
C_V = 4.2 USgpm for 1 psi Δp
K_V = 60.48 l/min for 1 bar Δp

Temperature ratings:
Media (min/max -20°C/90°C)
Ambient (min/max 0°C/60°C)

Valve size:
1/2" balanced poppet valve

Process connections:
1/2" NPT

Conduit connection:
M20 x 1.5 conduit thread

Signal connection:
1/4" NPT

Media:
Gas or air

Pilot media:
Instrument air

Weight:
6 kg

Materials

Solenoid pot - stainless steel - BFC 316

Top cover - stainless steel - BFC 316

Valve body & trim materials - 316 stainless steel

O-Rings seats & seals - high nitrile (NBR)

Coil insulation - class H

Option selector

Y2/★/2/★/A/★★/S/★/1/03/00

Model	Substitute
ICO2S	Y2

Seat / seal materials	Substitute
High nitrile	H
Viton®	V

Operating pressure	Substitute
0-20 barg (290 psi)	2

Port config.	Substitute
1 ENG. to OPEN	1
2 ENG. to CLOSE	1

Operation	Substitute
Automatic	A

Process conn.	Substitute
1/2" NPT	A3
1/2" BSPP	E3

Options	Substitute
None	00

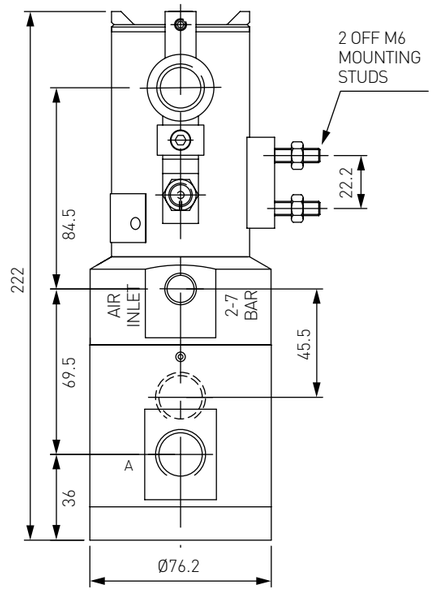
Body / trim materials	Substitute
316SS / 316SS	03

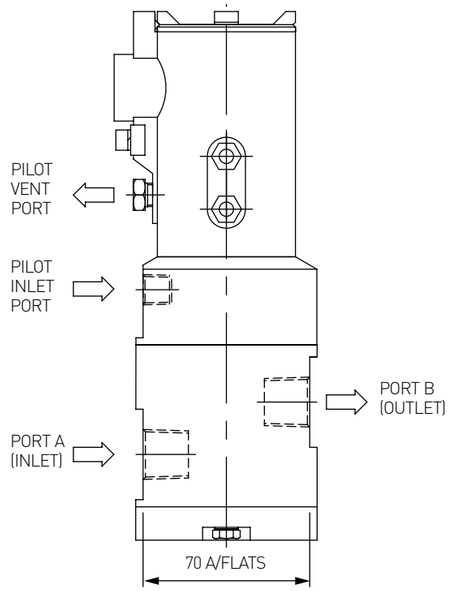
Voltage / signal	Substitute
24V DC / 3-7 barg	1

Conduit / sig. conn.	Substitute
M20 ISO / 1/4" NPT	A
M20 ISO / 1/4" BSPP	B
1/2" NPT / 1/4" NPT	D
1/2" NPT / 1/4" BSPP	E

Protection / coil housing	Substitute
Ex ia IIC / T6	S

Profile and dimensions mm





2/2 ENERGISE TO OPEN

1. Valve is energised & pilot pressure applied Valve 'changes over' flow occurs between ports 'A' & 'B'
2. Valve is de-energised Valve resets No flow occurs between ports 'A' & 'B'

2/2 ENERGISE TO CLOSE

1. Valve is energised & pilot pressure applied Valve 'changes over' No flow occurs between ports 'A' & 'B'
2. Valve is de-energised Valve resets Flow occurs between ports 'A' & 'B'

ICO2S 1/2" 3/2 AUTO

Model ICO2S 1/2" 3/2 UNI

Pilot assisted solenoid valve

High flow

Max inlet pressure 20 bar (290 psi)

Pilot pressure 3-7 bar

Reliable and long life, ideal for a one time installation

A pilot assisted solenoid operated valve for the control of pneumatic or hydraulic operated equipment

Technical data

Maximum inlet pressure:
20 bar (290 psi)

Pilot pressure:
3-7 bar

Flow rates:
C_V = 4.2 USgpm for 1 psi Δp
K_V = 60.48 l/min for 1 bar Δp

Temperature ratings:
Media (min/max -20°C/90°C)
Ambient (min/max 0°C/60°C)

Valve size:
1/2" balanced poppet valve

Process connections:
1/2" NPT

Conduit connection:
M20 x 1.5 conduit thread

Signal connection:
1/4" NPT

Media:
Gas or air

Pilot media:
Instrument air

Weight:
7 kg

Materials

Solenoid pot - stainless steel - BFC 316

Top cover - stainless steel- BFC 316

Valve body & trim materials - 316 stainless steel

O-Rings seats & seals - high nitrile (NBR)

Coil insulation - class H

Option selector

Y2/★/2/3/A/★★/S/★/1/03/00

Model	Substitute
ICO2S	Y2

Seat / seal materials	Substitute
High nitrile	H
Viton®	V

Operating pressure	Substitute
0-20 barg (290 psi)	2

Port config.	Substitute
3/2 UNIVERSAL	3

Operation	Substitute
Automatic	A

Process conn.	Substitute
1/2" NPT	A3
1/2" BSPP	E3

Options	Substitute
None	00

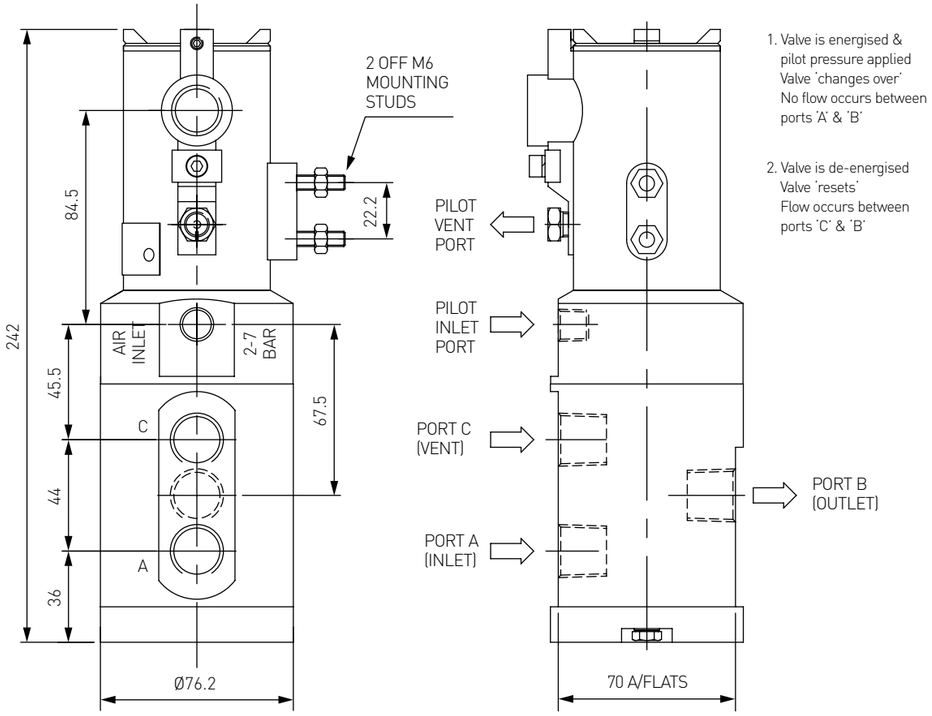
Body / trim materials	Substitute
316SS / 316SS	03

Voltage / signal	Substitute
24V DC / 3-7 barg	1

Conduit / sig. conn.	Substitute
M20 ISO / 1/4" NPT	A
M20 ISO / 1/4" BSPP	B
1/2" NPT / 1/4" NPT	D
1/2" NPT / 1/4" BSPP	E

Protection / coil housing	Substitute
Ex ia IIC / T6	S

Profile and dimensions mm



ICO2S 1/2" 3/2 PBMR

Model: ICO2S 1/2" 3/2 PBMR

Pilot assisted solenoid valve

High flow

Max inlet pressure 20 bar (290 psi)

Pilot pressure 3-7 bar

Reliable and long life, ideal for a one time installation

A pilot assisted solenoid operated valve for the control of pneumatic or hydraulic operated equipment

Technical data

Maximum inlet pressure:
20 bar (290 psi)

Pilot pressure:
3-7 bar

Flow rates:
C_V = 4.2 USgpm for 1 psi Δp
K_V = 60.48 l/min for 1 bar Δp

Temperature ratings:
Media (min/max -20°C/90°C)
Ambient (min/max 0°C/60°C)

Valve size:
1/2" balanced poppet valve

Process connections:
1/2" NPT

Conduit connection:
M20 x 1.5 conduit thread

Signal connection:
1/4" NPT

Media:
Gas or air

Pilot media:
Instrument air

Weight:
8.5 kg

Materials

Solenoid pot - stainless steel - BFC 316

Top cover - stainless steel- BFC 316

Valve body & trim materials - 316 stainless steel

O-Rings seats & seals - high nitrile (NBR)

Coil insulation - class H

Option selector

Y2/★/2/3/P/★★/S/★/1/03/00

Model	Substitute
ICO2S	Y2

Seat / seal materials	Substitute
High nitrile	H
Viton®	V

Operating pressure	Substitute
0-20 barg (290 psi)	2

Port config.	Substitute
3/2 UNIVERSAL	3

Operation	Substitute
PUSH BUTTON MANUAL RESET	P

Process conn.	Substitute
1/2" NPT	A3
1/2" BSPP	E3

Options	Substitute
None	00

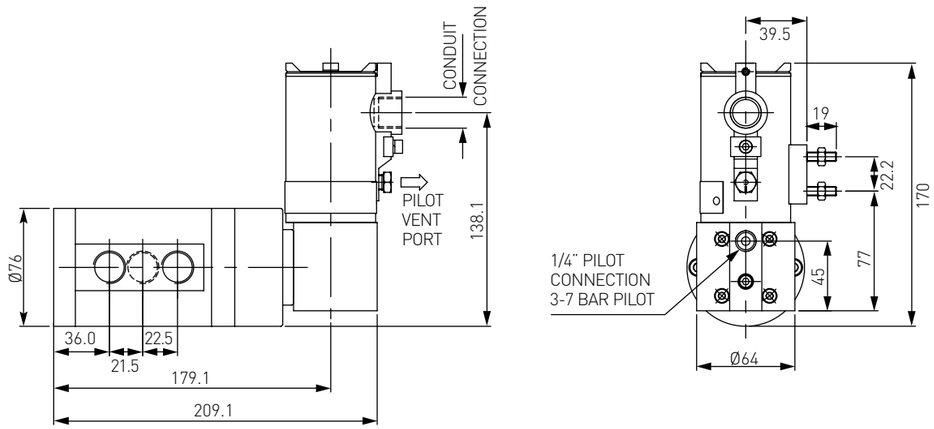
Body / trim materials	Substitute
316SS / 316SS	03

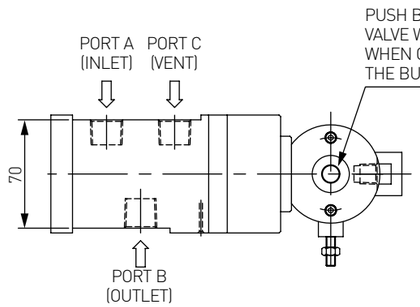
Voltage / signal	Substitute
24V DC / 3-7 barg	1

Conduit / sig. conn.	Substitute
M20 ISO / 1/4" NPT	A
M20 ISO / 1/4" BSPP	B
1/2" NPT / 1/4" NPT	D
1/2" NPT / 1/4" BSPP	E

Protection / coil housing	Substitute
Ex ia IIC / T6	S

Profile and dimensions mm

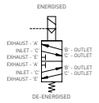




1. Valve is energised & pilot pressure applied
Valve does not move.
Flow occurs between ports 'B' & 'C'
Push-button is pushed upwards
Valve 'changes over'
Flow occurs between ports 'A' & 'B'

2. Valve is de-energised
Valve 'resets'
Flow occurs between ports 'B' & 'C'
Push-button is pushed upwards
Valve does not move
Flow occurs between ports 'B' & 'C'

ICO2S 1/2" 5/2 AUTO



Model ICO2S 1/2" 5/2 UNI

Pilot assisted solenoid valve

High flow

Max inlet pressure 20 bar (290 psi)

Pilot pressure 3-7 bar

Reliable and long life, ideal for a one time installation

A pilot assisted solenoid operated valve for the control of pneumatic or hydraulic operated equipment

Technical data

Maximum inlet pressure:
20 bar (290 psi)

Pilot pressure:
3-7 bar

Flow rates:
C_V = 4.2 USgpm for 1 psi Δp
K_V = 60.48 l/min for 1 bar Δp

Temperature ratings:
Media (min/max -20°C/90°C)
Ambient (min/max 0°C/60°C)

Valve size:
1/2" balanced poppet valve

Process connections:
1/2" NPT

Conduit connection:
M20 x 1.5 conduit thread

Signal connection:
1/4" NPT

Media:
Gas or air

Pilot media:
Instrument air

Weight:
11.5 kg

Materials

Solenoid pot - stainless steel - BFC 316

Top cover - stainless steel - BFC 316

Valve body & trim materials - 316 stainless steel

O-Rings seats & seals - high nitrile (NBR)

Coil insulation - class H

Option selector

Y2/★/2/5/A/★★/S/★/1/03/00

Model	Substitute
ICO2S	Y2

Seat / seal materials	Substitute
High nitrile	H
Viton®	V

Operating pressure	Substitute
0-20 barg (290 psi)	2

Port config.	Substitute
5/2 UNIVERSAL	5

Operation	Substitute
Automatic	A

Process conn.	Substitute
1/2" NPT	A3
1/2" BSPP	E3

Options	Substitute
None	00

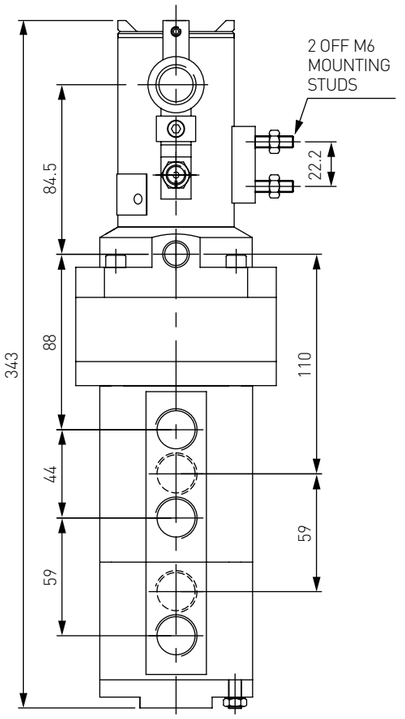
Body / trim materials	Substitute
316SS / 316SS	03

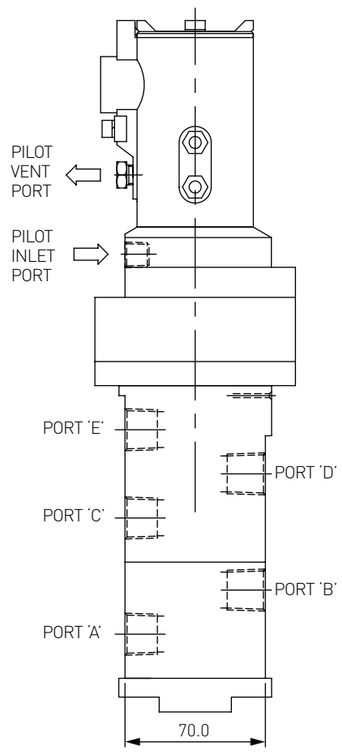
Voltage / signal	Substitute
24V DC / 3-7 barg	1

Conduit / sig. conn.	Substitute
M20 ISO / 1/4" NPT	A
M20 ISO / 1/4" BSPP	B
1/2" NPT / 1/4" NPT	D
1/2" NPT / 1/4" BSPP	E

Protection / coil housing	Substitute
Ex ia IIC / T6	S

Profile and dimensions mm





1. Valve is energised & pilot pressure applied
   Valve 'changes over'
   Flow occurs between ports 'A' & 'B'
   ports 'C' & 'D'

2. Valve is de-energised
   Valve 'resets'
   Flow occurs between ports 'C' & 'B'
   ports 'D' & 'E'

ICO2S 1/4” 2/2 AUTO

Model ICO2S 1/4” 2/2 AUTO

Pilot assisted solenoid valve

High flow

Max inlet pressure 20 bar (290 psi)

Pilot pressure 3-7 bar

Reliable and long life, ideal for a one time installation

A pilot assisted solenoid operated valve for the control of pneumatic or hydraulic operated equipment

Technical data

Maximum inlet pressure:
20 bar (290 psi)

Pilot pressure:
3-7 bar

Flow rates:
C_V = 0.8 USgpm for 1 psi Δp
K_V = 11.52 l/min for 1 bar Δp

Temperature ratings:
Media (min/max -20°C/90°C)
Ambient (min/max 0°C/60°C)

Valve size:
1/4" balanced poppet valve

Process connections:
1/4" NPT

Conduit connection:
M20 x 1.5 conduit thread

Signal connection:
1/4" NPT

Media:
Gas or air

Pilot media:
Instrument air

Weight:
3 kg

Materials

Solenoid pot - stainless steel - BFC 316

Top cover - stainless steel - BFC 316

Valve body & trim materials - 316 stainless steel

O-Rings seats & seals - high nitrile (NBR)

Coil insulation - class H

Option selector

Y2/★/2/★/A/★★/S/★/1/03/00

Model	Substitute
ICO2S	Y2

Seat / seal materials	Substitute
High nitrile	H
Viton®	V

Operating pressure	Substitute
0-20 barg (290 psi)	2

Port config.	Substitute
1 ENG. to OPEN	1
2 ENG. to CLOSE	1

Operation	Substitute
Automatic	A

Process conn.	Substitute
1/4" NPT	A1
1/4" BSPP	E1

Options	Substitute
None	00

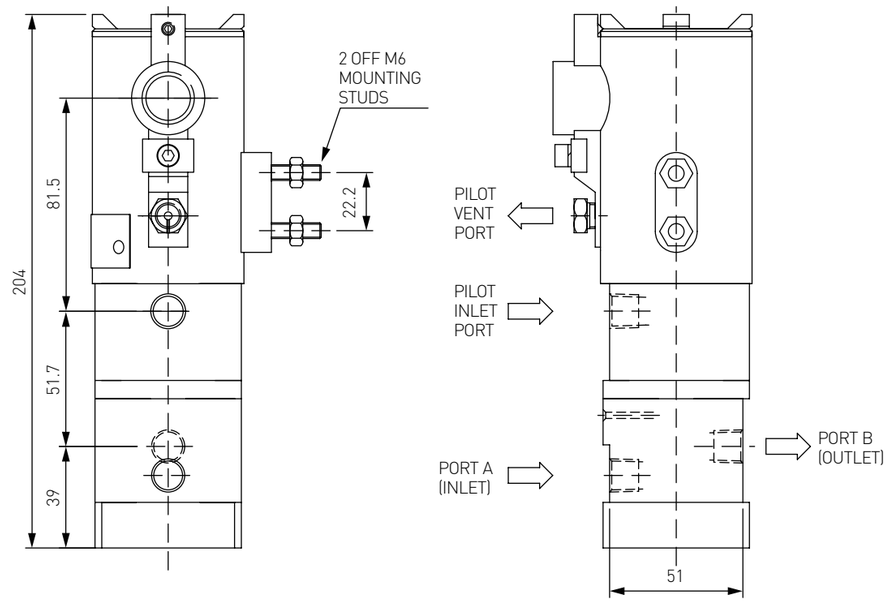
Body / trim materials	Substitute
316SS / 316SS	03

Voltage / signal	Substitute
24V DC / 3-7 barg	1

Conduit / sig. conn.	Substitute
M20 ISO / 1/4" NPT	A
M20 ISO / 1/4" BSPP	B
1/2" NPT / 1/4" NPT	D
1/2" NPT / 1/4" BSPP	E

Protection / coil housing	Substitute
Ex ia IIC / T6	S

Profile and dimensions mm



2/2 ENERGISE TO OPEN

1. Valve is energised & pilot pressure applied Valve 'changes over' flow occurs between ports 'A' & 'B'
2. Valve is de-energised Valve resets No flow occurs between ports 'A' & 'B'

2/2 ENERGISE TO CLOSE

1. Valve is energised & pilot pressure applied Valve 'changes over' No flow occurs between ports 'A' & 'B'
2. Valve is de-energised Valve resets Flow occurs between ports 'A' & 'B'

ICO2S 1/4” 3/2 50B AUTO

Model ICO2S 1/4” 3/2 UNI

Pilot assisted solenoid valve

High flow

Max inlet pressure 50 bar (750 psi)

Pilot pressure 3-7 bar

Reliable and long life, ideal for a one time installation

A pilot assisted solenoid operated valve for the control of pneumatic or hydraulic operated equipment

Technical data

Maximum inlet pressure:
50 bar (725 psi)

Pilot pressure:
3-7 bar

Flow rates:
C_V = 0.6 USgpm for 1 psi Δp
K_V = 8.64 l/min for 1 bar Δp

Temperature ratings:
Media (min/max -20°C/90°C)
Ambient (min/max 0°C/60°C)

Valve size:
1/4” balanced poppet valve

Process connections:
1/4” NPT

Conduit connection:
M20 x 1.5 conduit thread

Signal connection:
1/4” NPT

Media:
Gas or air

Pilot media:
Instrument air

Weight:
3 kg

Materials

Solenoid pot - stainless steel - BFC 316

Top cover - stainless steel - BFC 316

Valve body & trim materials - 316 stainless steel

O-Rings seats & seals - high nitrile (NBR)

Coil insulation - class H

Option selector

Y2/★/3/3/A/★★/S/★/1/03/00

Model	Substitute
ICO2S	Y2

Seat / seal materials	Substitute
High nitrile	H
Viton®	V

Operating pressure	Substitute
0-50 barg (725 psi)	3

Port config.	Substitute
3/2 UNIVERSAL	3

Operation	Substitute
Automatic	A

Process conn.	Substitute
1/4” NPT	A1
1/4” BSPP	E1

Options	Substitute
None	00

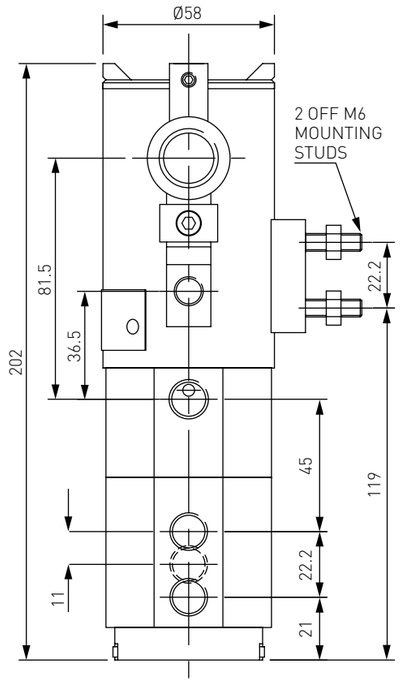
Body / trim materials	Substitute
316SS / 316SS	03

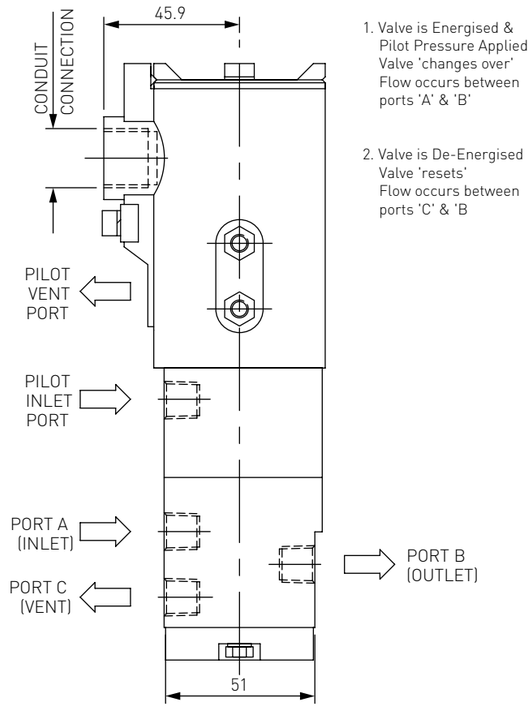
Voltage / signal	Substitute
24V DC / 3-7 barg	1

Conduit / sig. conn.	Substitute
M20 ISO / 1/4” NPT	A
M20 ISO / 1/4” BSPP	B
1/2” NPT / 1/4” NPT	D
1/2” NPT / 1/4” BSPP	E

Protection / coil housing	Substitute
Ex ia IIC / T6	S

Profile and dimensions mm





1. Valve is Energised & Pilot Pressure Applied
   Valve ‘changes over’
   Flow occurs between ports ‘A’ & ‘B’

2. Valve is De-Energised
   Valve ‘resets’
   Flow occurs between ports ‘C’ & ‘B

ICO2S 1/4” 3/2 50B PBMR

Model: ICO2S 1/4” 3/2 PBMR

Pilot assisted solenoid valve

High flow

Max inlet pressure 50 bar (725 psi)

Pilot pressure 3-7 bar

Reliable and long life, ideal for a one time installation

A pilot assisted solenoid operated valve for the control of pneumatic or hydraulic operated equipment

Technical data

Maximum inlet pressure:
50 bar (725 psi)

Pilot pressure:
3-7 bar

Flow rates:
C_V = 0.8 USgpm for 1 psi Δp
K_V = 11.52 l/min for 1 bar Δp

Temperature ratings:
Media (min/max -20°C/90°C)
Ambient (min/max 0°C/60°C)

Valve size:
1/4" balanced poppet valve

Process connections:
1/4" NPT

Conduit connection:
M20 x 1.5 conduit thread

Signal connection:
1/4" NPT

Media:
Gas or air

Pilot media:
Instrument air

Weight:
4.5 kg

Materials

Solenoid pot - stainless steel - BFC 316

Top cover - stainless steel - BFC 316

Valve body & trim materials - 316 stainless steel

O-Rings seats & seals - high nitrile (NBR)

Coil insulation - class H

Option selector

Y2/★/3/3/P/★★/S/★/1/03/00

Model	Substitute
ICO2S	Y2

Seat / seal materials	Substitute
High nitrile	H
Viton®	V

Operating pressure	Substitute
0-50 barg (725 psi)	3

Port config.	Substitute
3/2 UNIVERSAL	3

Operation	Substitute
PUSH BUTTON MANUAL RESET	P

Process conn.	Substitute
1/4" NPT	A1
1/4" BSPP	E1

Options	Substitute
None	00

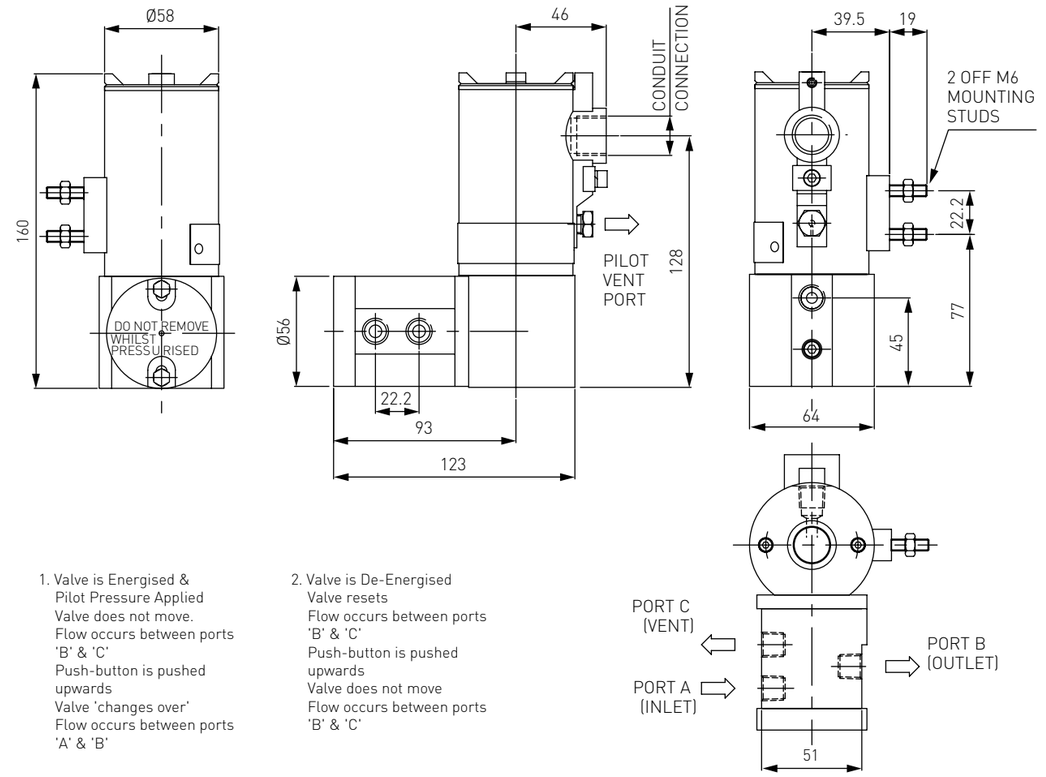
Body / trim materials	Substitute
316SS / 316SS	03

Voltage / signal	Substitute
24V DC / 3-7 barg	1

Conduit / sig. conn.	Substitute
M20 ISO / 1/4" NPT	A
M20 ISO / 1/4" BSPP	B
1/2" NPT / 1/4" NPT	D
1/2" NPT / 1/4" BSPP	E

Protection / coil housing	Substitute
Ex ia IIC / T6	S

Profile and dimensions mm



1. Valve is Energised & Pilot Pressure Applied
   Valve does not move.
   Flow occurs between ports 'B' & 'C'
   Push-button is pushed upwards
   Valve 'changes over'
   Flow occurs between ports 'A' & 'B'

2. Valve is De-Energised
   Valve resets
   Flow occurs between ports 'B' & 'C'
   Push-button is pushed upwards
   Valve does not move
   Flow occurs between ports 'B' & 'C'

ICO2S 1/4” 3/2 207B AUTO

Model ICO2S 1/4” 3/2 UNI

Pilot assisted solenoid valve

High flow

Max inlet pressure 207 bar (3000 psi)

Pilot pressure 3-7 bar

Reliable and long life, ideal for a one time installation

A pilot assisted solenoid operated valve for the control of pneumatic or hydraulic operated equipment

Technical data

Maximum inlet pressure:
207 bar (3000 psi)

Pilot pressure:
3-7 bar

Flow rates:
C_V = 0.28 USgpm for 1 psi Δp
K_V = 4.032 l/min for 1 bar Δp

Temperature ratings:
Media (min/max -20°C/90°C)
Ambient (min/max 0°C/60°C)

Valve size:
1/4” balanced poppet valve

Process connections:
1/4” NPT

Conduit connection:
M20 x 1.5 conduit thread

Signal connection:
1/4” NPT

Media:
Gas or air

Pilot media:
Instrument air

Weight:
3 kg

Materials

Solenoid pot - stainless steel - BFC 316

Top cover - stainless steel - BFC 316

Valve body & trim materials - 316 stainless steel

O-Rings seats & seals - high nitrile (NBR)

Coil insulation - class H

Option selector

Y2/★/6/3/A/★★/S/★/1/03/00

Model	Substitute
ICO2S	Y2

Seat / seal materials	Substitute
Nylon / high nitrile	J
Nylon / viton®	K

Operating pressure	Substitute
0-207 barg (3000 psi)	6

Port config.	Substitute
3/2 UNIVERSAL	3

Operation	Substitute
Automatic	A

Process conn.	Substitute
1/4” NPT	A1
1/4” BSPP	E1

Options	Substitute
None	00

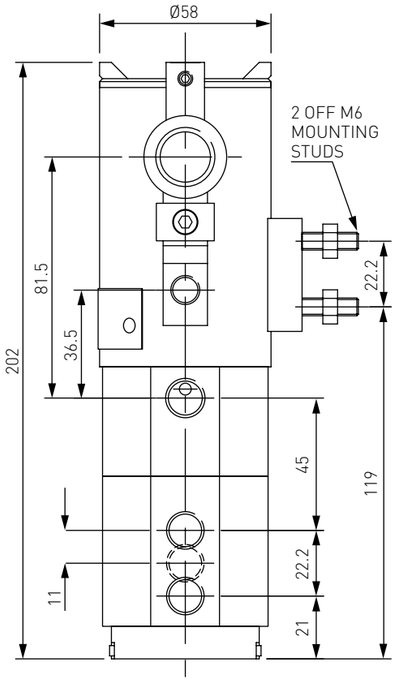
Body / trim materials	Substitute
316SS / 316SS	03

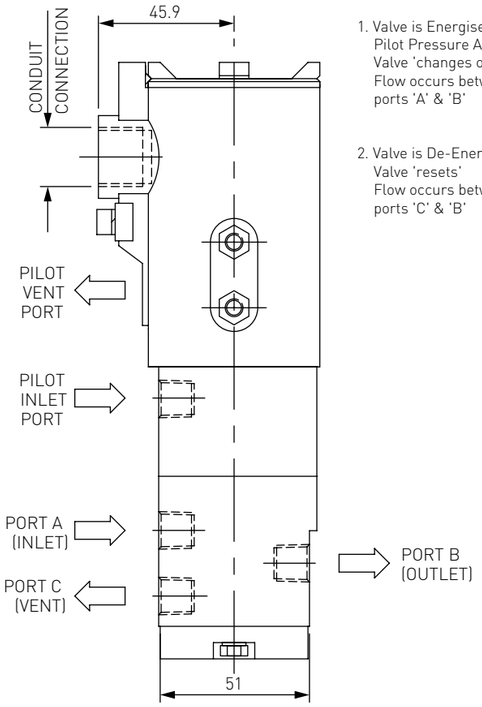
Voltage / signal	Substitute
24V DC / 3-7 barg	1

Conduit / sig. conn.	Substitute
M20 ISO / 1/4” NPT	A
M20 ISO / 1/4” BSPP	B
1/2” NPT / 1/4” NPT	D
1/2” NPT / 1/4” BSPP	E

Protection / coil housing	Substitute
Ex ia IIC / T6	S

Profile and dimensions mm





1. Valve is Energised & Pilot Pressure Applied Valve ‘changes over’ Flow occurs between ports ‘A’ & ‘B’

2. Valve is De-Energised Valve ‘resets’ Flow occurs between ports ‘C’ & ‘B’

ICO2S 1/4” 3/2 A.L.L

Model: ICO2S 1/4” 3/2 A.L.L

Pilot assisted solenoid valve

High flow

Max inlet pressure 20 bar (290 psi)

Pilot pressure 3-7 bar

Reliable and long life, ideal for a one time installation

A pilot assisted solenoid operated valve for the control of pneumatic or hydraulic operated equipment

Technical data

Maximum inlet pressure:
20 bar (290 psi)

Pilot pressure:
3-7 bar

Flow rates:
C_V = 0.8 USgpm for 1 psi Δp
K_V = 11.52 l/min for 1 bar Δp

Temperature ratings:
Media (min/max -20°C/90°C)
Ambient (min/max 0°C/60°C)

Valve size:
1/4" balanced poppet valve

Process connections:
1/4" NPT

Conduit connection:
M20 x 1.5 conduit thread

Signal connection:
1/4" NPT

Media:
Gas or air

Pilot media:
Instrument air

Weight:
4 kg

Materials

Solenoid pot - stainless steel - BFC 316

Top cover - stainless steel - BFC 316

Valve body & trim materials - 316 stainless steel

O-Rings seats & seals - high nitrile (NBR)

Coil insulation - class H

Option selector

Y2/★/2/3/B/★★/S/★/1/03/00

Model	Substitute
ICO2S	Y2

Seat / seal materials	Substitute
High nitrile	H
Viton®	V

Operating pressure	Substitute
0-20 barg (290 psi)	2

Port config.	Substitute
3/2 UNIVERSAL	3

Operation	Substitute
AUTOMATIC	
LATCHING LEVER	B

Process conn.	Substitute
1/4" NPT	A1
1/4" BSPP	E1

Options	Substitute
None	00

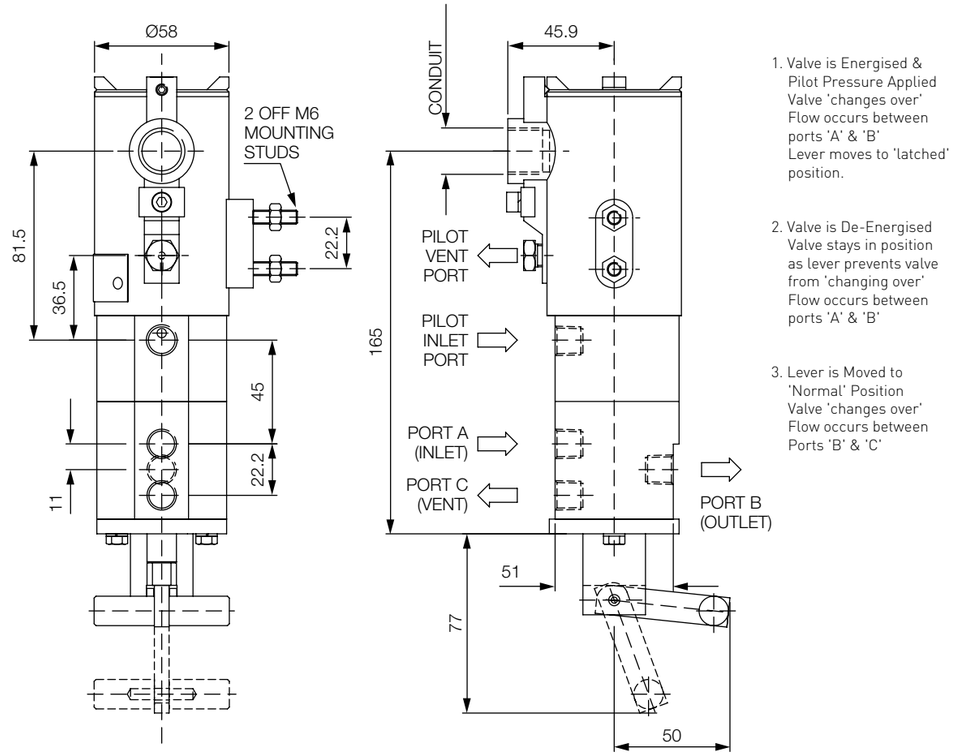
Body / trim materials	Substitute
316SS / 316SS	03

Voltage / signal	Substitute
24V DC / 3-7 barg	1

Conduit / sig. conn.	Substitute
M20 ISO / 1/4" NPT	A
M20 ISO / 1/4" BSPP	B
1/2" NPT / 1/4" NPT	D
1/2" NPT / 1/4" BSPP	E

Protection / coil housing	Substitute
Ex ia IIC / T6	S

Profile and dimensions mm



1. Valve is Energised & Pilot Pressure Applied Valve 'changes over' Flow occurs between ports 'A' & 'B' Lever moves to 'latched' position.

2. Valve is De-Energised Valve stays in position as lever prevents valve from 'changing over' Flow occurs between ports 'A' & 'B'

3. Lever is Moved to 'Normal' Position Valve 'changes over' Flow occurs between Ports 'B' & 'C'

ICO2S 1/4” 3/2 AUTO

Model ICO2S 1/4” 3/2 UNI

Pilot assisted solenoid valve

High flow

Max inlet pressure 20 bar (290 psi)

Pilot pressure 3-7 bar

Reliable and long life, ideal for a one time installation

A pilot assisted solenoid operated valve for the control of pneumatic or hydraulic operated equipment

Technical data

Maximum inlet pressure:
20 bar (290 psi)

Pilot pressure:
3-7 bar

Flow rates:
C_V = 0.8 USgpm for 1 psi Δp
K_V = 11.52 l/min for 1 bar Δp

Temperature ratings:
Media (min/max -20°C/90°C)
Ambient (min/max 0°C/60°C)

Valve size:
1/4” balanced poppet valve

Process connections:
1/4” NPT

Conduit connection:
M20 x 1.5 conduit thread

Signal connection:
1/4” NPT

Media:
Gas or air

Pilot media:
Instrument air

Weight:
3 kg

Materials

Solenoid pot - stainless steel - BFC 316

Top cover - stainless steel - BFC 316

Valve body & trim materials - 316 stainless steel

O-Rings seats & seals - high nitrile (NBR)

Coil insulation - class H

Option selector

Y2/★/2/3/A/★★/S/★/1/03/00

Model	Substitute
ICO2S	Y2

Seat / seal materials	Substitute
High nitrile	H
Viton®	V

Operating pressure	Substitute
0-20 barg (290 psi)	2

Port config.	Substitute
3/2 UNIVERSAL	3

Operation	Substitute
Automatic	A

Process conn.	Substitute
1/4” NPT	A1
1/4” BSPP	E1

Options	Substitute
None	00

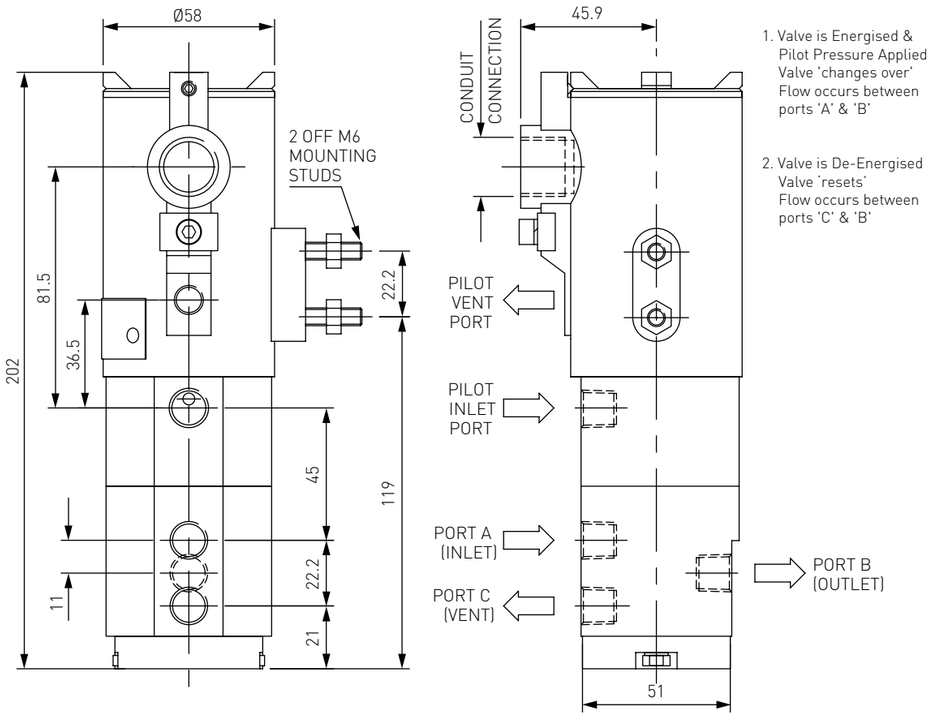
Body / trim materials	Substitute
316SS / 316SS	03

Voltage / signal	Substitute
24V DC / 3-7 barg	1

Conduit / sig. conn.	Substitute
M20 ISO / 1/4” NPT	A
M20 ISO / 1/4” BSPP	B
1/2” NPT / 1/4” NPT	D
1/2” NPT / 1/4” BSPP	E

Protection / coil housing	Substitute
Ex ia IIC / T6	S

Profile and dimensions mm



ICO2S 1/4" 3/2 JSM0

Model: ICO2S 1/4" 3/2 JSM0

Pilot assisted solenoid valve

High flow

Max inlet pressure 20 bar (290 psi)

Pilot pressure 3-7 bar

Reliable and long life, ideal for a one time installation

A pilot assisted solenoid operated valve for the control of pneumatic or hydraulic operated equipment

Technical data

Maximum inlet pressure:
20 bar (290 psi)

Pilot pressure:
3-7 bar

Flow rates:
C_V = 0.8 USgpm for 1 psi Δp
K_V = 11.52 l/min for 1 bar Δp

Temperature ratings:
Media (min/max -20°C/90°C)
Ambient (min/max 0°C/60°C)

Valve size:
1/4" balanced poppet valve

Process connections:
1/4" NPT

Conduit connection:
M20 x 1.5 conduit thread

Signal connection:
1/4" NPT

Media:
Gas or air

Pilot media:
Instrument air

Weight:
4.5 kg

Materials

Solenoid pot - stainless steel - BFC 316

Top cover - stainless steel - BFC 316

Valve body & trim materials - 316 stainless steel

O-Rings seats & seals - high nitrile (NBR)

Coil insulation - class H

Option selector

Y2/★/2/3/S/★★/S/★/1/03/00

Model	Substitute
ICO2S	Y2

Seat / seal materials	Substitute
High nitrile	H
Viton®	V

Operating pressure	Substitute
0-20 barg (290 psi)	2

Port config.	Substitute
3/2 UNIVERSAL	3

Operation	Substitute
JACKSCREW MANUAL OVERRIDE	S

Process conn.	Substitute
1/4" NPT	A1
1/4" BSPP	E1

Options	Substitute
None	00

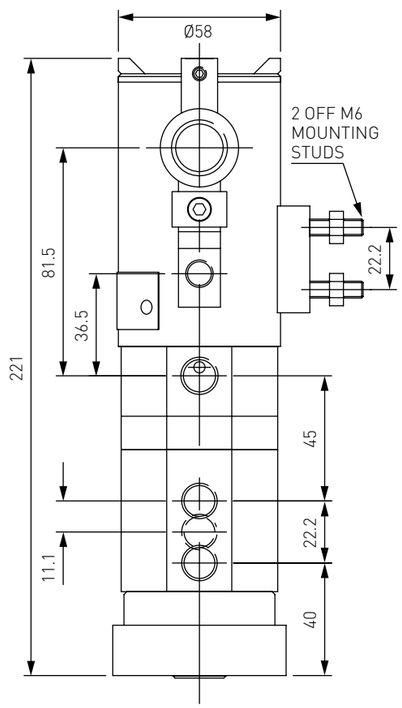
Body / trim materials	Substitute
316SS / 316SS	03

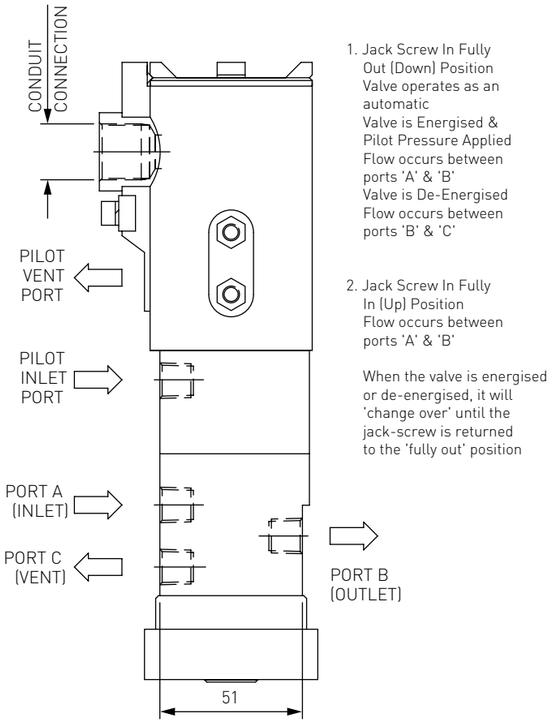
Voltage / signal	Substitute
24V DC / 3-7 barg	1

Conduit / sig. conn.	Substitute
M20 ISO / 1/4" NPT	A
M20 ISO / 1/4" BSPP	B
1/2" NPT / 1/4" NPT	D
1/2" NPT / 1/4" BSPP	E

Protection / coil housing	Substitute
Ex ia IIC / T6	S

Profile and dimensions mm





1. Jack Screw In Fully Out (Down) Position
   Valve operates as an automatic
   Valve is Energised & Pilot Pressure Applied
   Flow occurs between ports 'A' & 'B'
   Valve is De-Energised
   Flow occurs between ports 'B' & 'C'

2. Jack Screw In Fully In (Up) Position
   Flow occurs between ports 'A' & 'B'

   When the valve is energised or de-energised, it will 'change over' until the jack-screw is returned to the 'fully out' position

ICO2S 1/4" 3/2 PBMR

Model: ICO2S 1/4" 3/2 PBMR

Pilot assisted solenoid valve

High flow

Max inlet pressure 20 bar (290 psi)

Pilot pressure 3-7 bar

Reliable and long life, ideal for a one time installation

A pilot assisted solenoid operated valve for the control of pneumatic or hydraulic operated equipment

Technical data

Maximum inlet pressure:
20 bar (290 psi)

Pilot pressure:
3-7 bar

Flow rates:
C_V = 0.8 USgpm for 1 psi Δp
K_V = 11.52 l/min for 1 bar Δp

Temperature ratings:
Media (min/max -20°C/90°C)
Ambient (min/max 0°C/60°C)

Valve size:
1/4" balanced poppet valve

Process connections:
1/4" NPT

Conduit connection:
M20 x 1.5 conduit thread

Signal connection:
1/4" NPT

Media:
Gas or air

Pilot media:
Instrument air

Weight:
4.5 kg

Materials

Solenoid pot - stainless steel - BFC 316

Top cover - stainless steel - BFC 316

Valve body & trim materials - 316 stainless steel

O-Rings seats & seals - high nitrile (NBR)

Coil insulation - class H

Option selector

Y2/★/2/3/P/★★/S/★/1/03/00

Model	Substitute
ICO2S	Y2

Seat / seal materials	Substitute
High nitrile	H
Viton®	V

Operating pressure	Substitute
0-20 barg (290 psi)	2

Port config.	Substitute
3/2 UNIVERSAL	3

Operation	Substitute
PUSH BUTTON MANUAL RESET	P

Process conn.	Substitute
1/4" NPT	A1
1/4" BSPP	E1

Options	Substitute
None	00

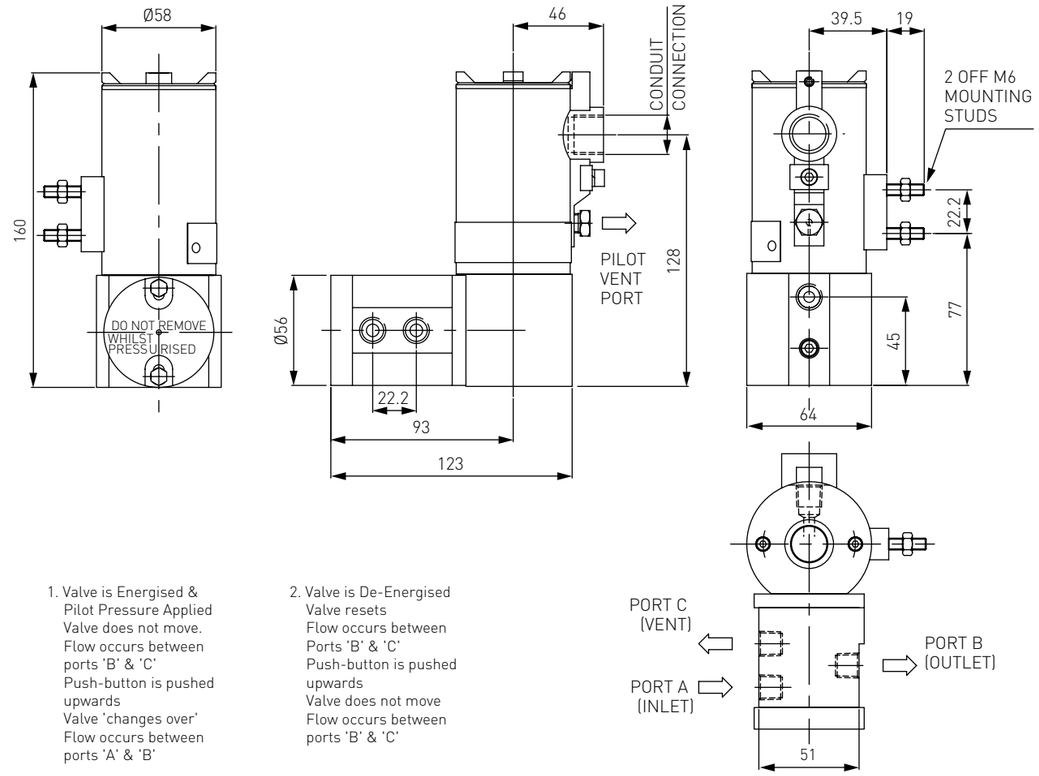
Body / trim materials	Substitute
316SS / 316SS	03

Voltage / signal	Substitute
24V DC / 3-7 barg	1

Conduit / sig. conn.	Substitute
M20 ISO / 1/4" NPT	A
M20 ISO / 1/4" BSPP	B
1/2" NPT / 1/4" NPT	D
1/2" NPT / 1/4" BSPP	E

Protection / coil housing	Substitute
Ex ia IIC / T6	S

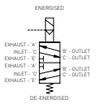
Profile and dimensions mm



1. Valve is Energised & Pilot Pressure Applied
   Valve does not move.
   Flow occurs between ports 'B' & 'C'
   Push-button is pushed upwards
   Valve 'changes over'
   Flow occurs between ports 'A' & 'B'

2. Valve is De-Energised
   Valve resets
   Flow occurs between Ports 'B' & 'C'
   Push-button is pushed upwards
   Valve does not move
   Flow occurs between ports 'B' & 'C'

ICO2S 1/4” 5/2 AUTO



Model ICO2S 1/4” 5/2 UNI

Pilot assisted solenoid valve

High flow

Max inlet pressure 20 bar (290 psi)

Pilot pressure 3-7 bar

Reliable and long life, ideal for a one time installation

A pilot assisted solenoid operated valve for the control of pneumatic or hydraulic operated equipment

Technical data

Maximum inlet pressure:
20 bar (290 psi)

Pilot pressure:
3-7 bar

Flow rates:
C_V = 0.8 USgpm for 1 psi Δp
K_V = 11.52 l/min for 1 bar Δp

Temperature ratings:
Media (min/max -20°C/90°C)
Ambient (min/max 0°C/60°C)

Valve size:
1/4˝ balanced poppet valve

Process connections:
1/4˝ NPT

Conduit connection:
M20 x 1.5 conduit thread

Signal connection:
1/4˝ NPT

Media:
Gas or air

Pilot media:
Instrument air

Weight:
4.8 kg

Materials

Solenoid pot - stainless steel - BFC 316

Top cover - stainless steel - BFC 316

Valve body & trim materials - 316 stainless steel

O-Rings seats & seals - high nitrile (NBR)

Coil insulation - class H

Option selector

Y2/★/2/3/A/★★/S/★/1/03/00

Model	Substitute
ICO2S	Y2

Seat / seal materials	Substitute
High nitrile	H
Viton®	V

Operating pressure	Substitute
0-20 barg (290 psi)	2

Port config.	Substitute
5/2 UNIVERSAL	5

Operation	Substitute
Automatic	A

Process conn.	Substitute
1/4˝ NPT	A1
1/4˝ BSPP	E1

Options	Substitute
None	00

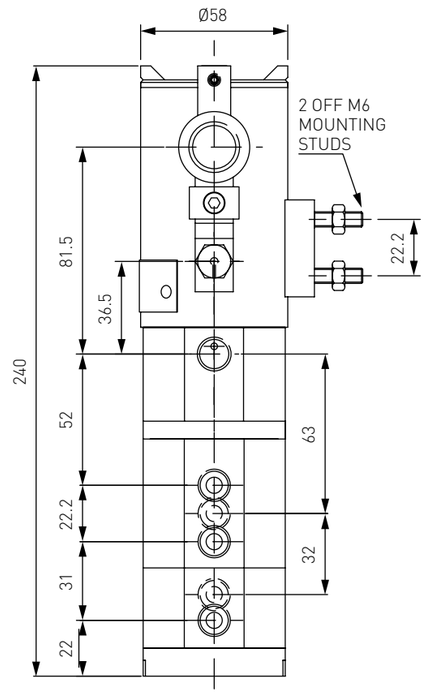
Body / trim materials	Substitute
316SS / 316SS	03

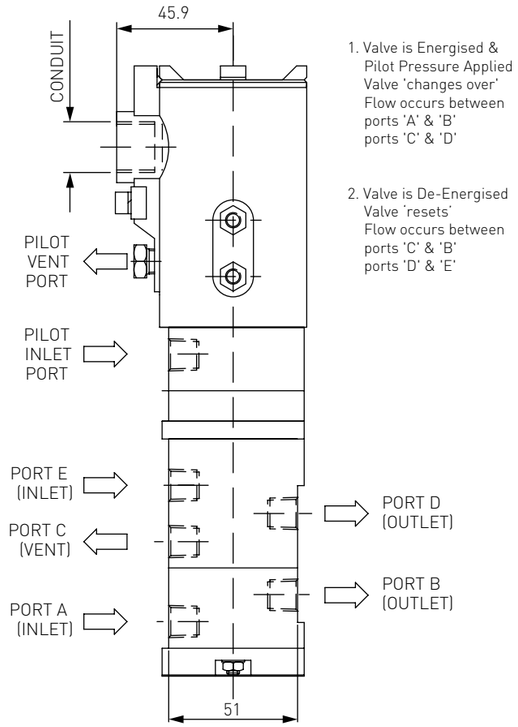
Voltage / signal	Substitute
24V DC / 3-7 barg	1

Conduit / sig. conn.	Substitute
M20 ISO / 1/4˝ NPT	A
M20 ISO / 1/4˝ BSPP	B
1/2˝ NPT / 1/4˝ NPT	D
1/2˝ NPT / 1/4˝ BSPP	E

Protection / coil housing	Substitute
Ex ia IIC / T6	S

Profile and dimensions mm





1. Valve is Energised & Pilot Pressure Applied
   Valve ‘changes over’
   Flow occurs between
   ports ‘A’ & ‘B’
   ports ‘C’ & ‘D’

2. Valve is De-Energised
   Valve ‘resets’
   Flow occurs between
   ports ‘C’ & ‘B’
   ports ‘D’ & ‘E’

ICO3S 1/4” 3/2 AUTO

Model ICO3S 1/4” 3/2 UNI

Direct acting solenoid valve high flow

Max inlet pressure 10 bar (145 psi)

A direct acting solenoid operated valve for the control of pneumatic or hydraulic operated equipment

Reliable and long life, ideal for a one time installation

ATEX, CSA, GOST K & R and IECEX

Technical data

Maximum inlet pressure:
10 bar (145 psi)

Flow rates:
C_V = 0.6 USgpm for 1 psi Δp
K_V = 8.64 l/min for 1 bar Δp

Temperature ratings:
Media (min/max -20°C/90°C)
Ambient (min/max -50°C/60°C)

Valve size:
1/4¨ poppet valve

Process connections:
1/4¨ NPT

Conduit connection:
M20 x 1.5 conduit thread

Signal connection:
1/4¨ NPT

Media:
Liquid & gases

Weight:
2.5 kg

Materials

Solenoid pot - stainless steel - BFC 316

Top cover - stainless steel - BFC 316

Valve body & trim materials - 316 stainless steel

O-rings & seals - nitrile (NBR)

Coil insulation - class H

Option selector

★★/1/3/A/★★/★/★/★/★/S

Model	Substitute
IC03S Ex d	Y0
IC03S Ex mbe	YZ

Operating pressure	Substitute
0-10 barg (145 psi)	1

Port config.	Substitute
3/2 UNIVERSAL	3

Operation	Substitute
Automatic	A

Process conn.	Substitute
1/4¨ NPT	A1
1/4¨ BSPP	E1

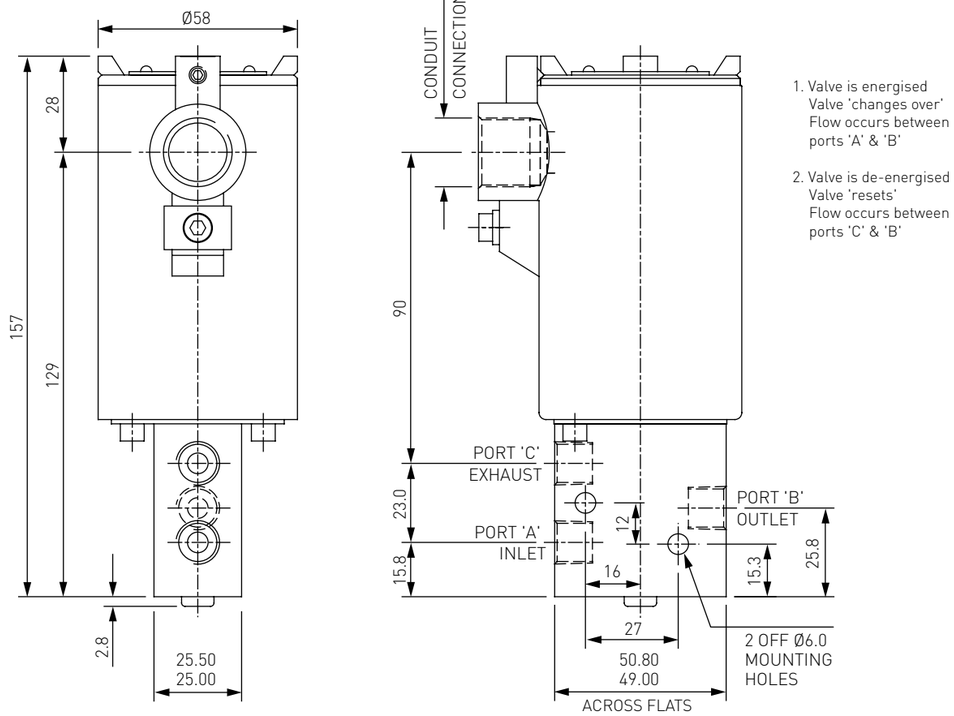
Body / trim materials	Substitute
316 SS / 316 SS	S

Voltage	Substitute
24V DC	B
125V DC	E

Conduit connection	Substitute
M20 x 1.5	1
1/2¨ NPT	2

Seat / seal materials	Substitute
Nitrile	H
Viton®	V

Profile and dimensions mm



ICO3S 1/4” 3/2 PBMO

Model ICO3S 1/4” 3/2 UNI

Direct acting solenoid valve high flow

Max inlet pressure 10 bar (145 psi)

A direct acting solenoid operated valve for the control of pneumatic or hydraulic operated equipment

Reliable and long life, ideal for a one time installation

ATEX, CSA, GOST K & R and IECEX

Technical data

Maximum inlet pressure:
10 bar (145 psi)

Flow rates:
C_V = 0.6 USgpm for 1 psi Δp
K_V = 8.64 l/min for 1 bar Δp

Temperature ratings:
Media (min/max -20°C/90°C)
Ambient (min/max -50°C/60°C)

Valve size:
1/4˝ poppet valve

Process connections:
1/4˝ NPT

Conduit connection:
M20 x 1.5 conduit thread

Signal connection:
1/4˝ NPT

Media:
Liquid & gases

Weight:
2.5 kg

Materials

Solenoid pot - stainless steel - BFC 316

Top cover - stainless steel - BFC 316

Valve body & trim materials - 316 stainless steel

O-rings seats & seals - nitrile (NBR)

Coil insulation - class H

Option selector

★★/1/3/C/★★/★/★/★/★/S

Model	Substitute
ICO3S Ex d	Y0
ICO3S Ex mbe	YZ

Operating pressure	Substitute
0-10 barg (145 psi)	1

Port config.	Substitute
3/2 UNIVERSAL	3

Operation	Substitute
PBMO	C

Process conn.	Substitute
1/4˝ NPT	A1
1/4˝ BSPP	E1

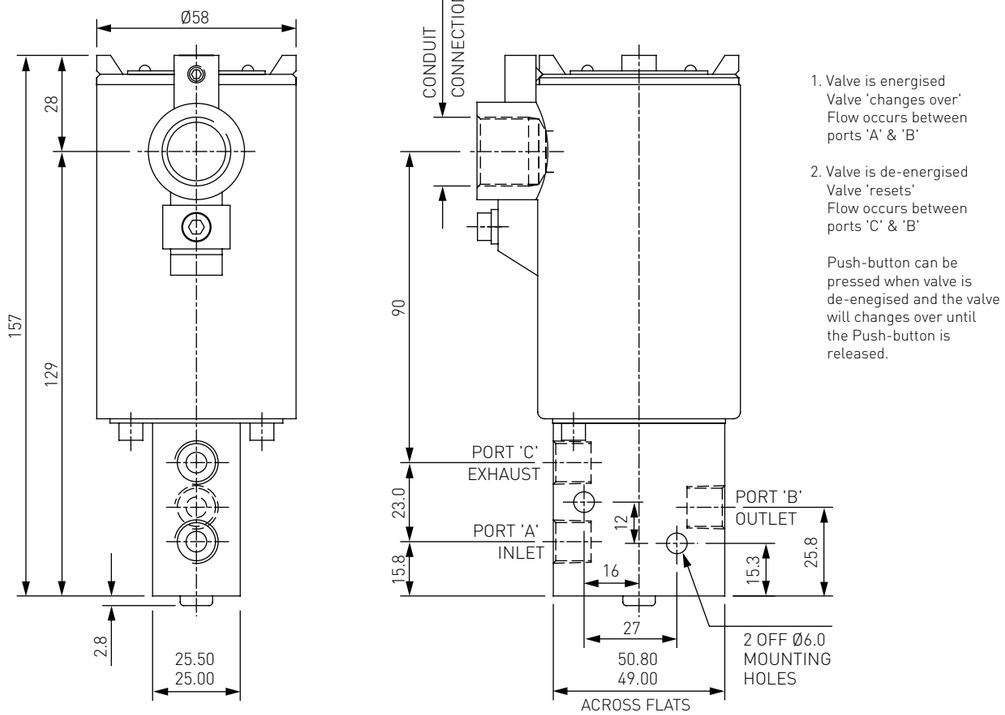
Body / trim materials	Substitute
316 SS / 316 SS	S

Voltage	Substitute
24V DC	B
125V DC	E

Conduit connection	Substitute
M20 x 1.5	1
1/2˝ NPT	2

Seat / seal materials	Substitute
Nitrile	H
Viton®	V

Profile and dimensions mm



1. Valve is energised
   Valve 'changes over'
   Flow occurs between ports 'A' & 'B'

2. Valve is de-energised
   Valve 'resets'
   Flow occurs between ports 'C' & 'B'

   Push-button can be pressed when valve is de-enegised and the valve will changes over until the Push-button is released.

ICO3S 1/4” 3/2 PBMR

Model ICO3S 1/4” 3/2 UNI

Direct acting solenoid valve high flow

Max inlet pressure 10 bar (145 psi)

A direct acting solenoid operated valve for the control of pneumatic or hydraulic operated equipment

Reliable and long life, ideal for a one time installation

ATEX, CSA, GOST K & R and IECEX

Technical data

Maximum inlet pressure:
10 bar (145 psi)

Flow rates:
C_V = 0.6 USgpm for 1 psi Δp
K_V = 8.64 l/min for 1 bar Δp

Temperature ratings:
Media (min/max -20°C/90°C)
Ambient (min/max -50°C/60°C)

Valve size:
1/4¨ poppet valve

Process connections:
1/4¨ NPT

Conduit connection:
M20 x 1.5 conduit thread

Signal connection:
1/4¨ NPT

Media:
Liquid & gases

Weight:
2.5 kg

Materials

Solenoid pot - stainless steel - BFC 316

Top cover - stainless steel - BFC 316

Valve body & trim materials - 316 stainless steel

O-rings seats & seals - nitrile (NBR)

Coil insulation - class H

Option selector

★★/1/3/P/★★/★/★/★/★/S

Model	Substitute
IC03S Ex d	Y0
IC03S Ex mbe	YZ

Operating pressure	Substitute
0-10 barg (145 psi)	1

Port config.	Substitute
3/2 UNIVERSAL	3

Operation	Substitute
PBMR	P

Process conn.	Substitute
1/4¨ NPT	A1
1/4¨ BSPP	E1

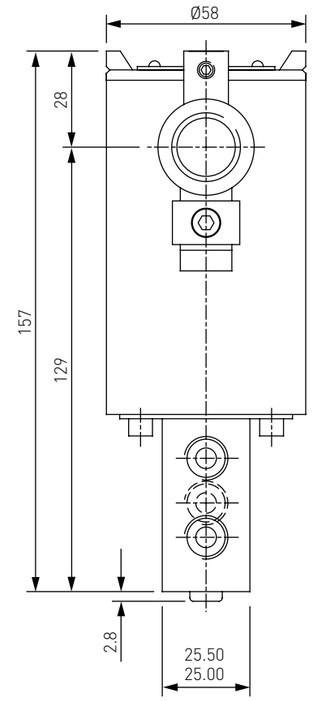
Body / trim materials	Substitute
316 SS / 316 SS	S

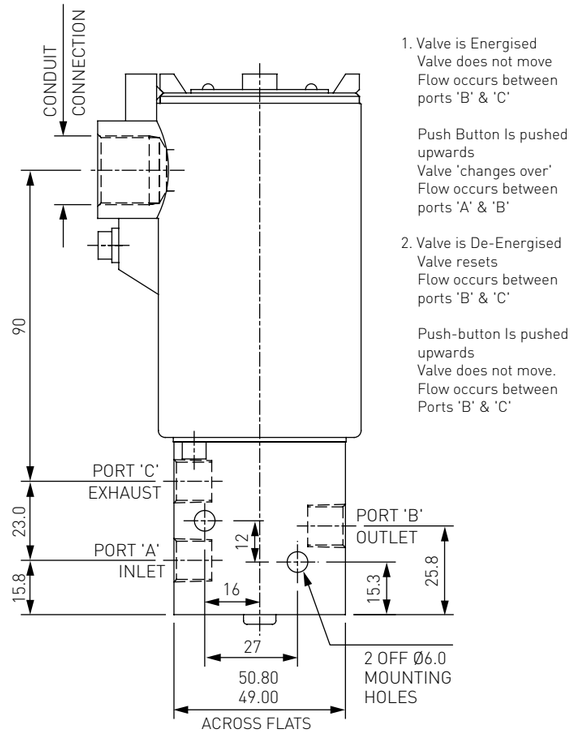
Voltage	Substitute
24V DC	B
125V DC	E

Conduit connection	Substitute
M20 x 1.5	1
1/2¨ NPT	2

Seat / seal materials	Substitute
Nitrile	H
Viton®	V

Profile and dimensions mm





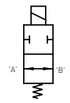
1. Valve is Energised
   Valve does not move
   Flow occurs between ports 'B' & 'C'

   Push Button Is pushed upwards
   Valve 'changes over'
   Flow occurs between ports 'A' & 'B'

2. Valve is De-Energised
   Valve resets
   Flow occurs between ports 'B' & 'C'

   Push-button Is pushed upwards
   Valve does not move.
   Flow occurs between Ports 'B' & 'C'

ICO4S 1/2” 2/2 AUTO



VALVE SYMBOL

Model: ICO4S 1/2” 2/2 EO & EC AUTO

Direct acting solenoid valve

Low pressure, high flow

Max inlet pressure 20 bar (290 psi)

Reliable and long life, ideal for a one time installation

Control of pneumatic or hydraulic operated equipment

Technical data

Maximum inlet pressure:
20 bar (290 psi)

Flow rates:
C_v = 4.2 USgpm for 1 psi Δp
K_v = 46 l/min for 1 bar Δp

Temperature ratings:
Media (min/max -20°C/90°C)
Ambient (min/max 0°C/60°C)

Valve size:
1/2” balanced poppet valve

Process connections:
1/2” NPT

Conduit connection:
M20 x 1.5 conduit thread

Media:
Liquid & gases

Weight:
6.0 kg

Materials

Solenoid pot - stainless steel - BFC 316

Top cover - stainless steel - BFC 316

Valve body & trim materials - 316 stainless steel

O-rings seats & seals -high nitrile (NBR)

Coil insulation - class H

Option selector

Y1/2/★/A/★★/★/★/★/★

Model	Substitute
ICO4S	Y1

Operating pressure	Substitute
0-20 barg (290 psi)	2

Port config.	Substitute
2/2 ENG. TO OPEN	1
2/2 ENG. TO CLOSE	2

Operation	Substitute
Automatic	A

Process conn.	Substitute
1/2” NPT	A3
1/2” BSPP	E3

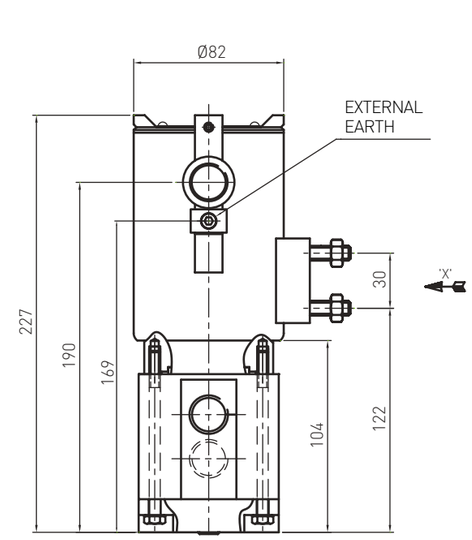
Seat / seal materials	Substitute
High nitrile	H
Viton®	V

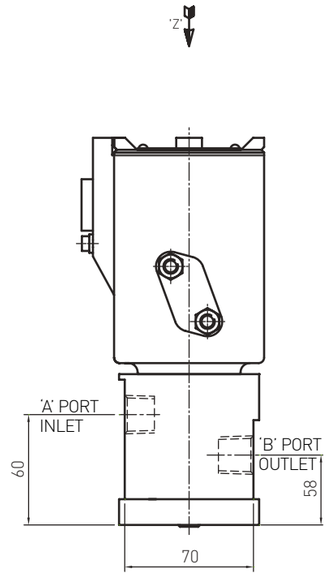
Body / trim materials	Substitute
316 SS / 316 SS	S
Alu Brnz / alu Brnz	M
Titanium / titanium	3

Voltage	Substitute
18 / 33V DC	A
24V DC	B
50V DC	C
110V DC	D
125V DC	E
25V AC	G
110V AC	J
240V AC	M

Conduit connection	Substitute
M20 x 1.5	1
1/2” NPT	2

Profile and dimensions mm





IC04S 1/2" 3/2 A-L-L

VALVE SYMBOL

Model: IC04S 1/2" 3/2 ALL

Direct acting solenoid valve

Low pressure, high flow

Max inlet pressure 20 bar (290 psi)

Reliable and long life, ideal for a one time installation

Control of pneumatic or hydraulic operated equipment

Technical data

Maximum inlet pressure:
20 bar (290 psi)

Flow rates:
C_V = 4.2 USgpm for 1 psi Δp
K_V = 46 l/min for 1 bar Δp

Temperature ratings:
Media (min/max -20°C/90°C)
Ambient (min/max 0°C/60°C)

Valve size:
1/2" balanced poppet valve

Process connections:
1/2" NPT

Conduit connection:
M20 x 1.5 conduit thread

Media:
Liquid & gases

Weight:
7.5 kg

Materials

Solenoid pot - stainless steel - BFC 316

Top cover - stainless steel - BFC 316

Valve body & trim materials - 316 stainless steel

O-rings seats & seals -high nitrile (NBR)

Coil insulation - class H

Option selector

Y1/2/3/B/★★/★/★/★/★

Model	Substitute
IC04S	Y1

Operating pressure	Substitute
0-20 barg (290 psi)	2

Port config.	Substitute
3/2 UNIVERSAL	3

Operation	Substitute
AUTOMATIC LATCHING LEVER	A

Process conn.	Substitute
1/2" NPT	A3
1/2" BSPP	E3

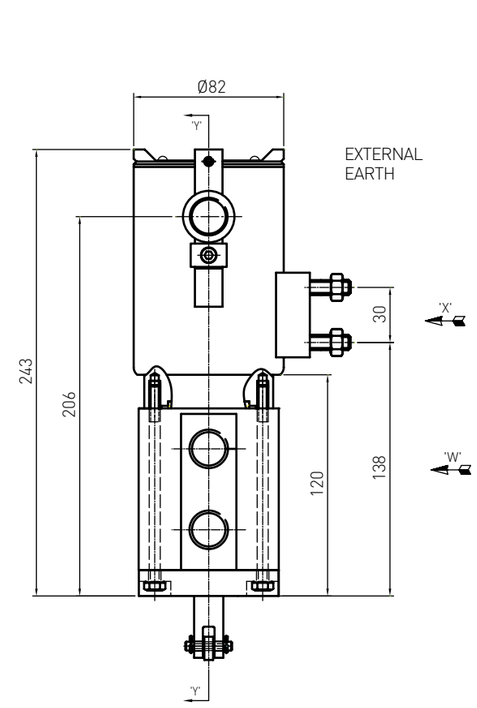
Seat / seal materials	Substitute
High nitrile	H
Viton®	V

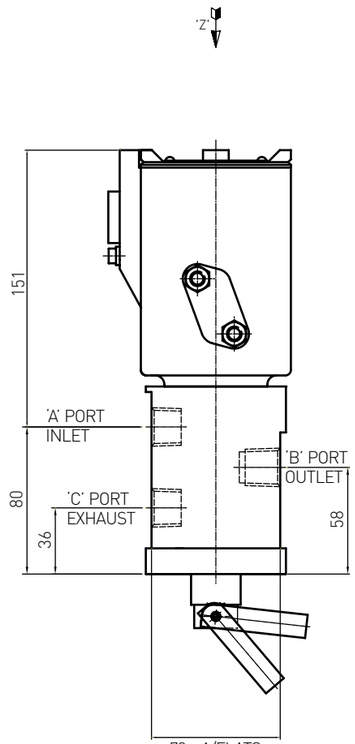
Body / trim materials	Substitute
316 SS / 316 SS	S
Alu Brnz / alu Brnz	M
Titanium / titanium	3

Voltage	Substitute
18 / 33V DC	A
24V DC	B
50V DC	C
110V DC	D
125V DC	E
25V AC	G
110V AC	J
240V AC	M

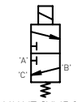
Conduit connection	Substitute
M20 x 1.5	1
1/2" NPT	2

Profile and dimensions mm





ICO4S 1/2" 3/2 AUTO



VALVE SYMBOL

Model: ICO4S 1/2" 3/2 uni

Direct acting solenoid valve

Low pressure, high flow

Max inlet pressure 20 bar (290 psi)

Reliable and long life, ideal for a one time installation

Control of pneumatic or hydraulic operated equipment

Technical data

Maximum inlet pressure:
20 bar (290 psi)

Flow rates:
C_V = 4.2 USgpm for 1 psi Δp
K_V = 46 l/min for 1 bar Δp

Temperature ratings:
Media (min/max -20°C/90°C)
Ambient (min/max 0°C/60°C)

Valve size:
1/2" balanced poppet valve

Process connections:
1/2" NPT

Conduit connection:
M20 x 1.5 conduit thread

Media:
Liquid & gases

Weight:
7.5 kg

Materials

Solenoid pot - stainless steel - BFC 316

Top cover - stainless steel - BFC 316

Valve body & trim materials - 316 stainless steel

O-rings seats & seals -high nitrile (NBR)

Coil insulation - class H

Option selector

Y1/2/3/A /★★/★/★/★/★/★

Model	Substitute
ICO4S	Y1

Operating pressure	Substitute
0-20 barg (290 psi)	2

Port config.	Substitute
3/2 UNIVERSAL	3

Operation	Substitute
Automatic	A

Process conn.	Substitute
1/2" NPT	A3
1/2" BSPP	E3

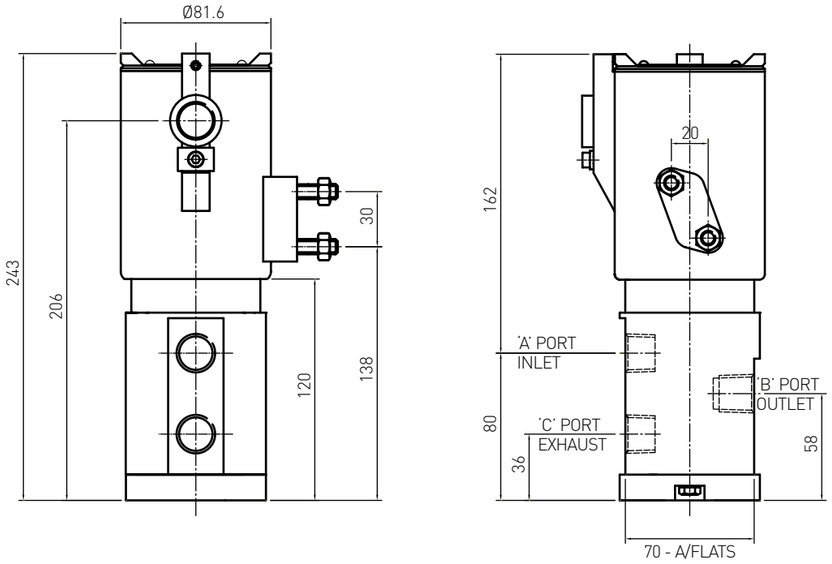
Seat / seal materials	Substitute
High nitrile	H
Viton®	V

Body / trim materials	Substitute
316 SS / 316 SS	S
Alu Brnz / alu Brnz	M
Titanium / titanium	3

Voltage	Substitute
18 / 33V DC	A
24V DC	B
50V DC	C
110V DC	D
125V DC	E
25V AC	G
110V AC	J
240V AC	M

Conduit connection	Substitute
M20 x 1.5	1
1/2" NPT	2

Profile and dimensions mm



ICO4S 1/2" 3/2 JSMO

VALVE SYMBOL

Model: ICO4S 1/2" 3/2 JSMO

Direct acting solenoid valve

Low pressure, high flow

Max inlet pressure 20 bar (290 psi)

Reliable and long life, ideal for a one time installation

Control of pneumatic or hydraulic operated equipment

Technical data

Maximum inlet pressure:
20 bar (290 psi)

Flow rates:
C_V = 4.2 USgpm for 1 psi Δp
K_V = 46 l/min for 1 bar Δp

Temperature ratings:
Media (min/max -20°C/90°C)
Ambient (min/max 0°C/60°C)

Valve size:
1/2" balanced poppet valve

Process connections:
1/2" NPT

Conduit connection:
M20 x 1.5 conduit thread

Media:
Liquid & gases

Weight:
7.5 kg

Materials

Solenoid pot - stainless steel - BFC 316

Top cover - stainless steel - BFC 316

Valve body & trim materials - 316 stainless steel

O-rings seats & seals -high nitrile (NBR)

Coil insulation - class H

Option selector

Y1/2/3/S/★★/★/★/★/★/★

Model	Substitute
ICO4S	Y1

Operating pressure	Substitute
0-20 barg (290 psi)	2

Port config.	Substitute
3/2 UNIVERSAL	3

Operation	Substitute
JACK SCREW MANUAL OVERRIDE	S

Process conn.	Substitute
1/2" NPT	A3
1/2" BSPP	E3

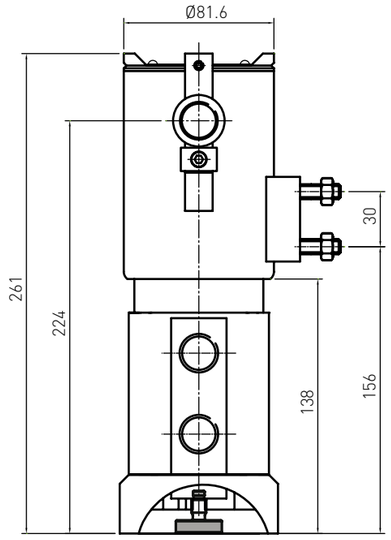
Seat / seal materials	Substitute
High nitrile	H
Viton®	V

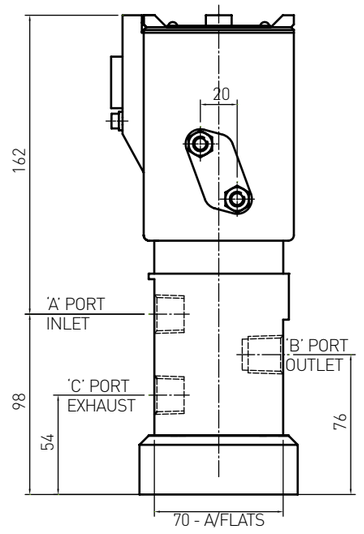
Body / trim materials	Substitute
316 SS / 316 SS	S
Alu Brnz / alu Brnz	M
Titanium / titanium	3

Voltage	Substitute
18 / 33V DC	A
24V DC	B
50V DC	C
110V DC	D
125V DC	E
25V AC	G
110V AC	J
240V AC	M

Conduit connection	Substitute
M20 x 1.5	1
1/2" NPT	2

Profile and dimensions mm





IC04S 1/2" 3/2 PBMR

VALVE SYMBOL

Model: IC04S 1/2" 3/2 PBMR

Direct acting solenoid valve

Low pressure, high flow

Max inlet pressure 20 bar (290 psi)

Reliable and long life, ideal for a one time installation

Control of pneumatic or hydraulic operated equipment

Technical data

Maximum inlet pressure:
20 bar (290 psi)

Flow rates:
C_V = 4.2 USgpm for 1 psi Δp
K_V = 46 l/min for 1 bar Δp

Temperature ratings:
Media (min/max -20°C/90°C)
Ambient (min/max 0°C/60°C)

Valve size:
1/2" balanced poppet valve

Process connections:
1/2" NPT

Conduit connection:
M20 x 1.5 conduit thread

Media:
Liquid & gases

Weight:
7.5 kg

Materials

Solenoid pot - stainless steel - BFC 316

Top cover - stainless steel - BFC 316

Valve body & trim materials - 316 stainless steel

O-rings seats & seals -high nitrile (NBR)

Coil insulation - class H

Option selector

Y1/2/3/P/★★/★/★/★/★/★

Model	Substitute
IC04S	Y1

Operating pressure	Substitute
0-20 barg (290 psi)	2

Port config.	Substitute
3/2 UNIVERSAL	3

Operation	Substitute
PUSH BUTTON MANUAL RESET	P

Process conn.	Substitute
1/2" NPT	A3
1/2" BSPP	E3

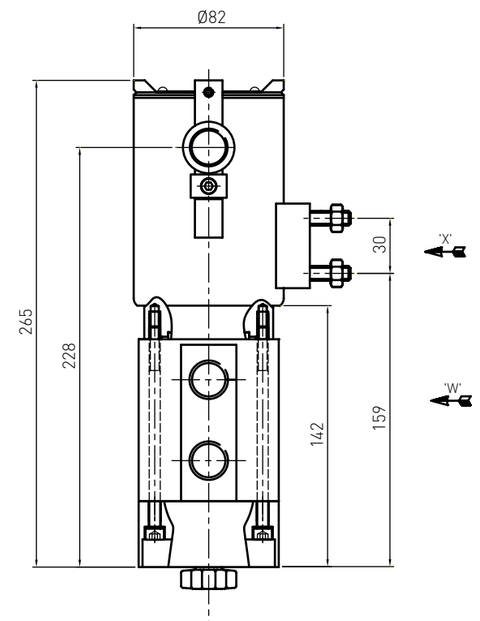
Seat / seal materials	Substitute
High nitrile	H
Viton®	V

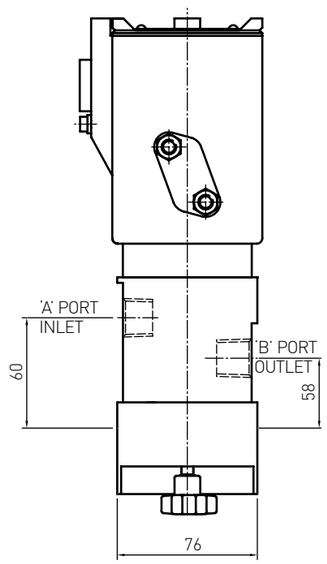
Body / trim materials	Substitute
316 SS / 316 SS	S
Alu Brnz / alu Brnz	M
Titanium / titanium	3

Voltage	Substitute
18 / 33V DC	A
24V DC	B
50V DC	C
110V DC	D
125V DC	E
25V AC	G
110V AC	J
240V AC	M

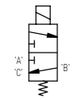
Conduit connection	Substitute
M20 x 1.5	1
1/2" NPT	2

Profile and dimensions mm





ICO4S 1/4” 2/2 AUTO



VALVE SYMBOL

Model: ICO4S 1/4” 2/2 EO & EC

Direct acting solenoid valve

Low pressure, high flow

Max inlet pressure 20 bar (290 psi)

Reliable and long life, ideal for a one time installation

Control of pneumatic or hydraulic operated equipment

Technical data

Maximum inlet pressure:
20 bar (290 psi)

Flow rates:
C_V = 0.8 USgpm for 1 psi Δp
K_V = 11.5 l/min for 1 bar Δp

Temperature ratings:
Media (min/max -20°C/90°C)
Ambient (min/max 0°C/60°C)

Valve size:
1/4” balanced poppet valve

Process connections:
1/4” NPT

Conduit connection:
M20 x 1.5 conduit thread

Media:
Liquid & gases

Weight:
5.0 kg

Materials

Solenoid pot - stainless steel - BFC 316

Top cover - stainless steel - BFC 316

Valve body & trim materials - 316 stainless steel

O-rings seats & seals -high nitrile (NBR)

Coil insulation - class H

Option selector

Y1/2/★/A/★★/★/★/★/★

Model	Substitute
ICO4S	Y1

Operating pressure	Substitute
0-20 barg (290 psi)	2

Port config.	Substitute
2/2 ENG/OPEN	1
2/2 ENG/CLOSE	2

Operation	Substitute
Automatic	A

Process conn.	Substitute
1/4” NPT	A1
1/4” BSPP	E1

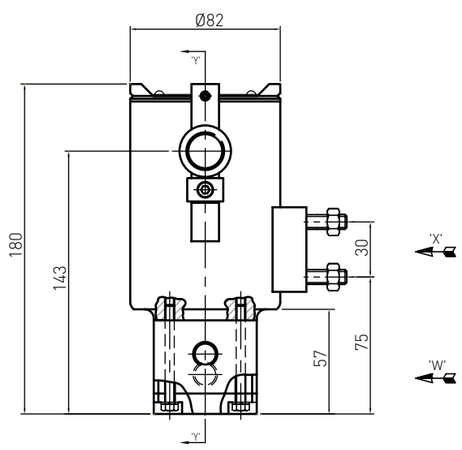
Seat / seal materials	Substitute
High nitrile	H
Viton®	V

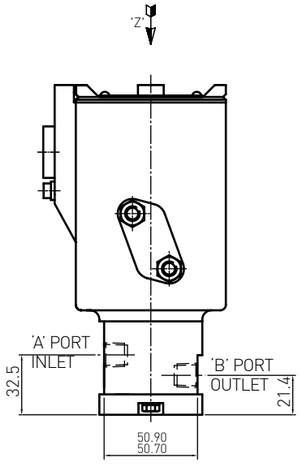
Body / trim materials	Substitute
316 SS / 316 SS	S
Alu Brnz / alu Brnz	M
Titanium / titanium	3

Voltage	Substitute
18 / 33V DC	A
24V DC	B
50V DC	C
25V AC	G
110V AC	J
240V AC	M
115V DC	R

Conduit connection	Substitute
M20 x 1.5	1
1/2” NPT	2

Profile and dimensions mm





ICO4S 1/4” 3/2 50B AUTO

VALVE SYMBOL

Model: ICO4S 1/4” 3/2 UNI

Direct acting solenoid valve

Low pressure, high flow

Max inlet pressure 50 bar (725 psi)

Reliable and long life, ideal for a one time installation

Control of pneumatic or hydraulic operated equipment

Technical data

Maximum inlet pressure:
50 bar (725 psi)

Flow rates:
C_V = 0.6 USgpm for 1 psi Δp
K_V = 8.64 l/min for 1 bar Δp

Temperature ratings:
Media (min/max -20°C/90°C)
Ambient (min/max 0°C/60°C)

Valve size:
1/4” balanced poppet valve

Process connections:
1/4” NPT

Conduit connection:
M20 x 1.5 conduit thread

Media:
Liquid & gases

Weight:
5.5 kg

Materials

Solenoid pot - stainless steel - BFC 316

Top cover - stainless steel - BFC 316

Valve body & trim materials - 316 stainless steel

O-rings seats & seals -high nitrile (NBR)

Coil insulation - class H

Option selector

Y1/3/3/A/★★/★/★/★/★/★

Model	Substitute
IC04S	Y1

Operating pressure	Substitute
0-50 barg (725 psi)	3

Port config.	Substitute
3/2 UNIVERSAL	3

Operation	Substitute
Automatic	A

Process conn.	Substitute
1/4” NPT	A1
1/4” BSPP	E1

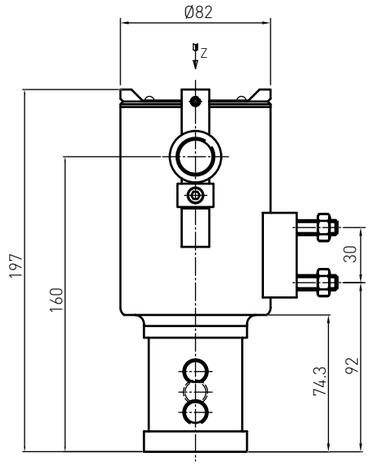
Seat / seal materials	Substitute
High nitrile	H
Viton®	V

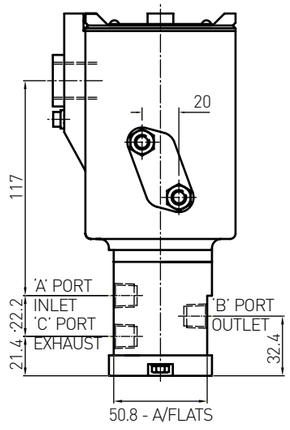
Body / trim materials	Substitute
316 SS / 316 SS	S
Alu Brnz / alu Brnz	M
Titanium / titanium	3

Voltage	Substitute
18 / 33V DC	A
24V DC	B
50V DC	C
25V AC	G
110V AC	J
240V AC	M
115V DC	R

Conduit connection	Substitute
M20 x 1.5	1
1/2” NPT	2

Profile and dimensions mm





ICO4S 1/4" 3/2 207B AUTO

VALVE SYMBOL

Model: ICO4S 1/4" 3/2 UNI

Direct acting solenoid valve

High pressure

Max inlet pressure 207 bar (3000 psi)

Reliable and long life, ideal for a one time installation

Control of pneumatic or hydraulic operated equipment

Technical data

Maximum inlet pressure:
207 bar (3000 psi)

Flow rates:
C_V = 0.28 USgpm for 1 psi Δp
K_V = 4.03 l/min for 1 bar Δp

Temperature ratings:
Media (min/max -20°C/90°C)
Ambient (min/max 0°C/60°C)

Valve size:
1/4" balanced poppet valve

Process connections:
1/4" NPT

Conduit connection:
M20 x 1.5 conduit thread

Media:
Liquid & gases

Weight:
5.5 kg

Materials

Solenoid pot - stainless steel - BFC 316

Top cover - stainless steel - BFC 316

Valve body & trim materials - 316 stainless steel

O-rings seals - high nitrile (NBR)

Seats - nylon 66

Coil insulation - class H

Option selector

Y1/6/3/A/★★/★/★/★/S

Model	Substitute
ICO4S	Y1

Operating pressure	Substitute
0-207 barg (3000 psi)	6

Port config.	Substitute
3/2 UNIVERSAL	3

Operation	Substitute
Automatic	A

Process conn.	Substitute
1/4" NPT	A1
1/4" BSPP	E1

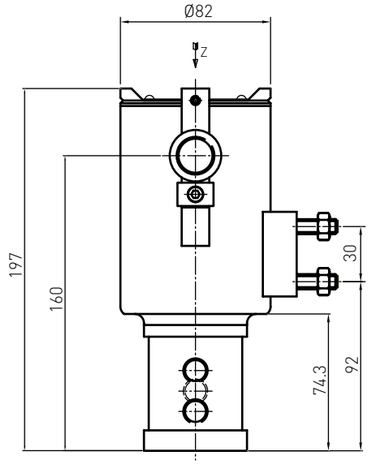
Seat / seal materials	Substitute
Nylon / high nitrile	J
Nylon / viton®	K

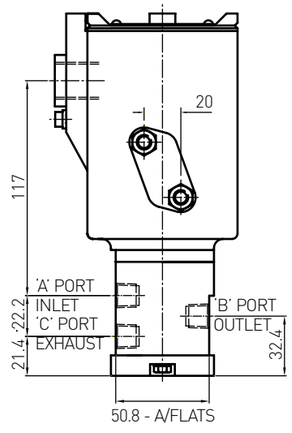
Body / trim materials	Substitute
316 SS / 316 SS	S

Voltage	Substitute
18 / 33V DC	A
24V DC	B
50V DC	C
110V DC	D
125V DC	E
25V AC	G
110V AC	J
240V AC	M

Conduit connection	Substitute
M20 x 1.5	1
1/2" NPT	2

Profile and dimensions mm





ICO4S 1/4" 3/2 207B PBMR

VALVE SYMBOL

Model: ICO4S 1/4" 3/2 UNI

Direct acting solenoid valve

High pressure

Max inlet pressure 207 bar (3000 psi)

Reliable and long life, ideal for a one time installation

Control of pneumatic or hydraulic operated equipment

Technical data

Maximum inlet pressure:
207 bar (3000 psi)

Flow rates:
C_V = 0.28 USgpm for 1 psi Δp
K_V = 4.03 l/min for 1 bar Δp

Temperature ratings:
Media (min/max -20°C/90°C)
Ambient (min/max 0°C/60°C)

Valve size:
1/4" poppet valve

Process connections:
1/4" NPT

Conduit connection:
M20 x 1.5 conduit thread

Media:
Liquid & gases

Weight:
5.5 kg

Materials

Solenoid pot - stainless steel - BFC 316

Top cover - stainless steel - BFC 316

Valve body & trim materials - 316 stainless steel

O-rings seals -high nitrile (NBR)

Seats - nylon 66

Coil insulation - class H

Option selector

Y1/6/3/P/★★/★/★/★/S

Model	Substitute
ICO4S	Y1

Operating pressure	Substitute
0-207 barg (3000 psi)	6

Port config.	Substitute
3/2 UNIVERSAL	3

Operation	Substitute
PUSH BUTTON MANUAL	P

Process conn.	Substitute
1/4" NPT	A1
1/4" BSPP	E1

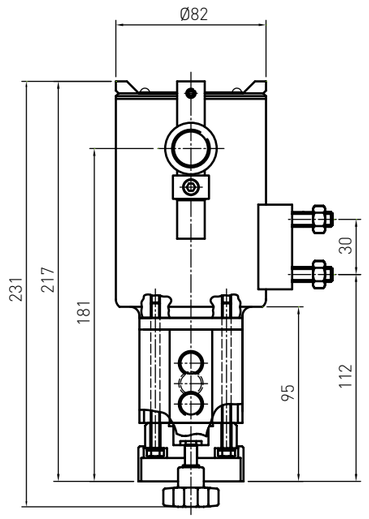
Seat / seal materials	Substitute
Nylon / high nitrile	J
Nylon / viton®	K

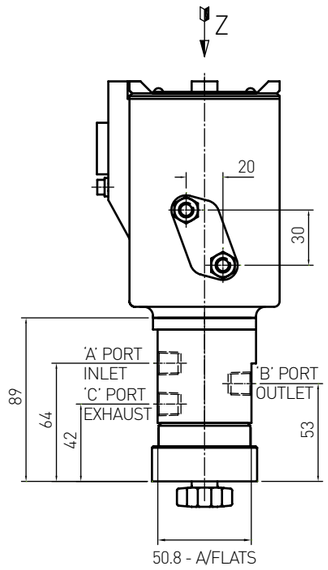
Body / trim materials	Substitute
316 SS / 316 SS	S

Voltage	Substitute
18 / 33V DC	A
24V DC	B
50V DC	C
110V DC	D
125V DC	E
25V AC	G
110V AC	J
240V AC	M

Conduit connection	Substitute
M20 x 1.5	1
1/2" NPT	2

Profile and dimensions mm





ICO4S 1/4” 3/2 414B AUTO

VALVE SYMBOL

Model ICO4S 1/4” 3/2 UNI

Direct acting solenoid valve

High flow

Max inlet pressure 414 bar (6000 psi)

A direct acting solenoid operated valve for the control of pneumatic or hydraulic operated equipment

Reliable and long life, ideal for a one time installation

Technical data

Maximum inlet pressure:
0 - 414 bar - hydraulic/
0 - 300 bar - gas

Flow rates:
C_V = 0.28 USgpm for 1 psi Δp
K_V = 4.03 l/min for 1 bar Δp

Temperature ratings:
Media (min/max -20°C/90°C)
Ambient (min/max -50°C/60°C)

Valve size:
1/4˝ poppet valve

Process connections:
1/4˝ NPT

Conduit connection:
M20 x 1.5 conduit thread

Media:
Liquid & gases

Weight:
5.5 kg

Materials

Solenoid pot - stainless steel - BFC 316

Top cover - stainless steel - BFC 316

Valve body & trim materials - 316 stainless steel

O-rings & seals -high nitrile (NBR)

Seats - nylon 66

Coil insulation - epoxy resin to class H

Option selector

Y1/9/3/A/★★/★/★/★/S

Model	Substitute
IC04S	Y1

Operating pressure	Substitute
0-414 barg (6000 psi)	9

Port config.	Substitute
3/2 UNIVERSAL	3

Operation	Substitute
Automatic	A

Process conn.	Substitute
1/4˝ NPT	A1
1/4˝ BSPP	E1

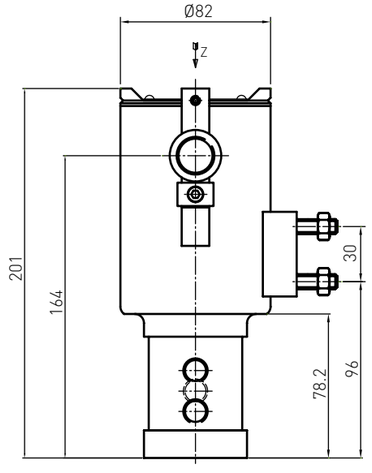
Seat / seal materials	Substitute
Nylon / high nitrile	J
Nylon / viton®	K

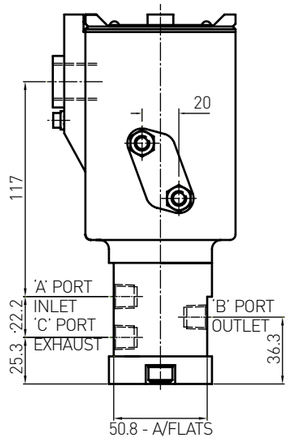
Body / trim materials	Substitute
316 SS / 316 SS	S

Voltage	Substitute
18 / 33V DC	A
24V DC	B
50V DC	C
110V DC	D
125V DC	E
25V AC	G
110V AC	J
240V AC	M

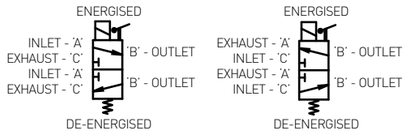
Conduit connection	Substitute
M20 x 1.5	1
1/2˝ NPT	2

Profile and dimensions mm





ICO4S 1/4" 3/2 A-L-L



Model ICO4S 1/4" 3/2 UNI

Direct acting solenoid valve

Low pressure, high flow

Max inlet pressure 20 bar (290 psi)

Reliable and long life, ideal for a one time installation

Control of pneumatic or hydraulic operated equipment

Technical data

Maximum inlet pressure:
20 bar (290 psi)

Flow rates:
C_V = 0.8 USgpm for 1 psi Δp
K_V = 11.5 l/min for 1 bar Δp

Temperature ratings:
Media (min/max -20°C/90°C)
Ambient (min/max 0°C/60°C)

Valve size:
1/4" balanced poppet valve

Process connections:
1/4" NPT

Conduit connection:
M20 x 1.5 conduit thread

Media:
Liquid & gases

Weight:
5.5 kg

Materials

Solenoid pot - stainless steel - BFC 316

Top cover - stainless steel - BFC 316

Valve body & trim materials - 316 stainless steel

O-rings seats & seals -high nitrile (NBR)

Seats - nylon 66

Coil insulation - class H

Option selector

Y1/2/3/B/★★/★/★/★/★/★

Model	Substitute
ICO4S	Y1

Operating pressure	Substitute
0-20 barg (290 psi)	2

Port config.	Substitute
3/2 UNIVERSAL	3

Operation	Substitute
AUTOMATIC LATCHING LEVER	B

Process conn.	Substitute
1/4" NPT	A1
1/4" BSPP	E1

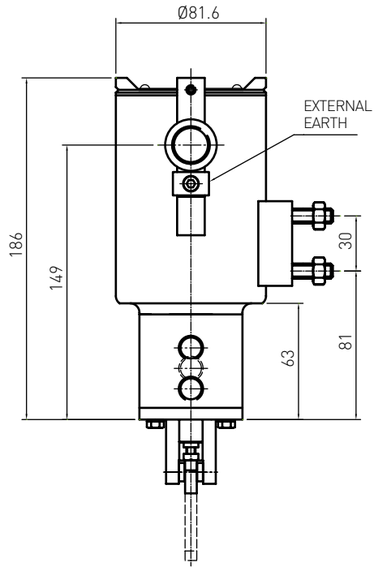
Seat / seal materials	Substitute
High nitrile	H
Viton®	V

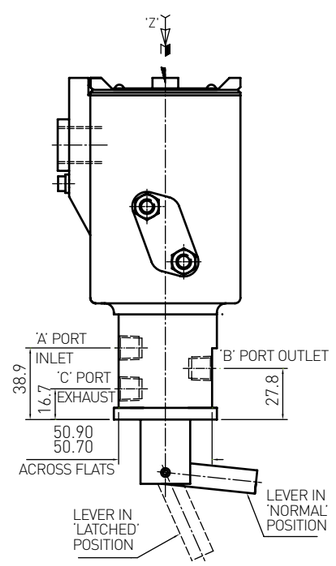
Body / trim materials	Substitute
316 SS / 316 SS	S
Alu Brnz / alu Brnz	M
Titanium / titanium	3

Voltage	Substitute
18 / 33V DC	A
24V DC	B
50V DC	C
25V AC	G
110V AC	J
240V AC	M
115V DC	R

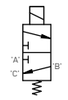
Conduit connection	Substitute
M20 x 1.5	1
1/2" NPT	2

Profile and dimensions mm





ICO4S 1/4" 3/2 AUTO



VALVE SYMBOL

Model: ICO4S 1/4" 3/2 UNI

Direct acting solenoid valve

Low pressure, high flow

Max inlet pressure 20 bar (290 psi)

Reliable and long life, ideal for a one time installation

Control of pneumatic or hydraulic operated equipment

Technical data

Maximum inlet pressure:
20 bar (290 psi)

Flow rates:
C_V = 0.8 USgpm for 1 psi Δp
K_V = 11.5 l/min for 1 bar Δp

Temperature ratings:
Media (min/max -20°C/90°C)
Ambient (min/max 0°C/60°C)

Valve size:
1/4" balanced poppet valve

Process connections:
1/4" NPT

Conduit connection:
M20 x 1.5 conduit thread

Media:
Liquid & gases

Weight:
5.5 kg

Materials

Solenoid pot - stainless steel - BFC 316

Top cover - stainless steel - BFC 316

Valve body & trim materials - 316 stainless steel

O-rings seats & seals -high nitrile (NBR)

Coil insulation - class H

Option selector

Y1/2/3/A/★★/★/★/★/★/★

Model	Substitute
ICO4S	Y1

Operating pressure	Substitute
0-20 barg (290 psi)	2

Port config.	Substitute
3/2 UNIVERSAL	3

Operation	Substitute
Automatic	A

Process conn.	Substitute
1/4" NPT	A1
1/4" BSPP	E1

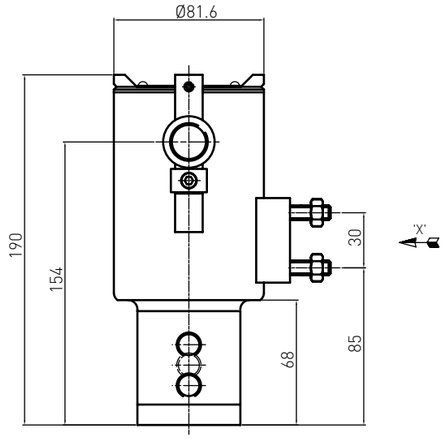
Seat / seal materials	Substitute
High nitrile	H
Viton®	V

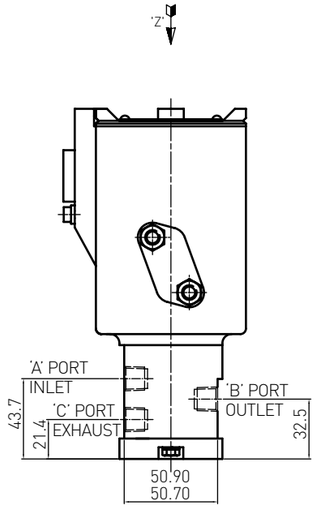
Body / trim materials	Substitute
316 SS / 316 SS	S
Alu Brnz / alu Brnz	M
Titanium / titanium	3

Voltage	Substitute
18 / 33V DC	A
24V DC	B
50V DC	C
25V AC	G
110V AC	J
240V AC	M
115V DC	R

Conduit connection	Substitute
M20 x 1.5	1
1/2" NPT	2

Profile and dimensions mm





ICO4S 1/4" 3/2 JSMO

VALVE SYMBOL

Model: ICO4S 1/4" 3/2 UNI

Direct acting solenoid valve

Low pressure, high flow

Max inlet pressure 20 bar (290 psi)

Reliable and long life, ideal for a one time installation

Control of pneumatic or hydraulic operated equipment

Technical data

Maximum inlet pressure:
20 bar (290 psi)

Flow rates:
C_V = 0.8 USgpm for 1 psi Δp
K_V = 11.5 l/min for 1 bar Δp

Temperature ratings:
Media (min/max -20°C/90°C)
Ambient (min/max 0°C/60°C)

Valve size:
1/4" balanced poppet valve

Process connections:
1/4" NPT

Conduit connection:
M20 x 1.5 conduit thread

Media:
Liquid & gases

Weight:
6.0 kg

Materials

Solenoid pot - stainless steel - BFC 316

Top cover - stainless steel - BFC 316

Valve body & trim materials - 316 stainless steel

O-rings seats & seals -high nitrile (NBR)

Coil insulation - class H

Option selector

Y1/2/3/S/★★/★/★/★/★/★

Model	Substitute
ICO4S	Y1

Operating pressure	Substitute
0-20 barg (290 psi)	2

Port config.	Substitute
3/2 UNIVERSAL	3

Operation	Substitute
JACK SCREW MANUAL OVERRIDE	S

Process conn.	Substitute
1/4" NPT	A1
1/4" BSPP	E1

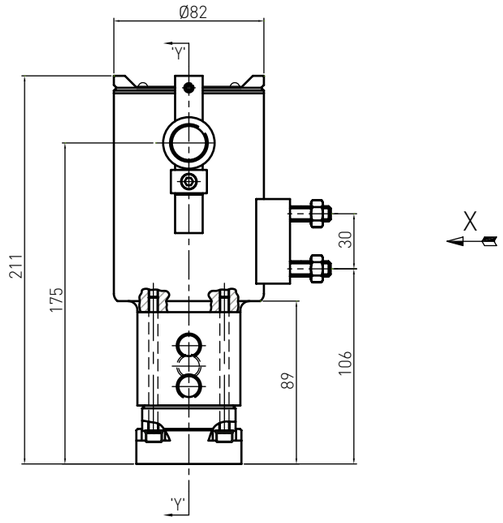
Seat / seal materials	Substitute
High nitrile	H
Viton®	V

Body / trim materials	Substitute
316 SS / 316 SS	S
Alu Brnz / alu Brnz	M
Titanium / titanium	3

Voltage	Substitute
18 / 33V DC	A
24V DC	B
50V DC	C
25V AC	G
110V AC	J
240V AC	M
115V DC	R

Conduit connection	Substitute
M20 x 1.5	1
1/2" NPT	2

Profile and dimensions mm



SCRAP VIEW IN DIRECTION OF ARROW 'W' SHOWING PORT CONFIGURATION

ICO4S 1/4" 3/2 PBMR

VALVE SYMBOL

Model: IC04S 1/4" 3/2 UNI

Direct acting solenoid valve

Low pressure, high flow

Max inlet pressure 20 bar (290 psi)

Reliable and long life, ideal for a one time installation

Control of pneumatic or hydraulic operated equipment

Technical data

Maximum inlet pressure:
20 bar (290 psi)

Flow rates:
C_V = 0.8 USgpm for 1 psi Δp
K_V = 11.5 l/min for 1 bar Δp

Temperature ratings:
Media (min/max -20°C/90°C)
Ambient (min/max 0°C/60°C)

Valve size:
1/4" balanced poppet valve

Process connections:
1/4" NPT

Conduit connection:
M20 x 1.5 conduit thread

Media:
Liquid & gases

Weight:
5.5 kg

Materials

Solenoid pot - stainless steel - BFC 316

Top cover - stainless steel - BFC 316

Valve body & trim materials - 316 stainless steel

O-rings seats & seals -high nitrile (NBR)

Coil insulation - class H

Option selector

Y1/2/3/P/★★/★/★/★/★/★

Model	Substitute
IC04S	Y1

Operating pressure	Substitute
0-20 barg (290 psi)	2

Port config.	Substitute
3/2 UNIVERSAL	3

Operation	Substitute
PUSH BUTTON MANUAL RESET	P

Process conn.	Substitute
1/4" NPT	A1
1/4" BSPP	E1

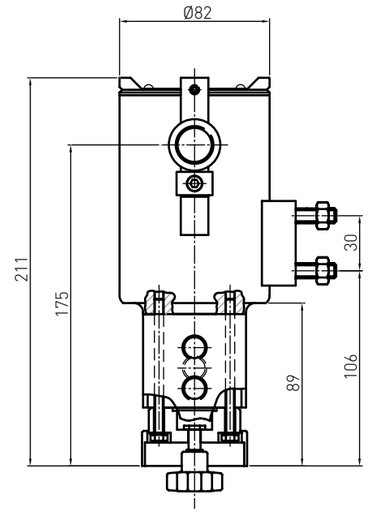
Seat / seal materials	Substitute
High nitrile	H
Viton®	V

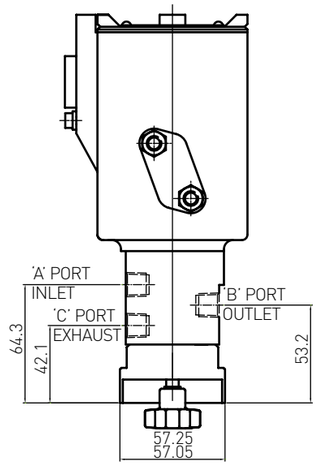
Body / trim materials	Substitute
316 SS / 316 SS	S
Alu Brnz / alu Brnz	M
Titanium / titanium	3

Voltage	Substitute
18 / 33V DC	A
24V DC	B
50V DC	C
25V AC	G
110V AC	J
240V AC	M
115V DC	R

Conduit connection	Substitute
M20 x 1.5	1
1/2" NPT	2

Profile and dimensions mm





ICO4S 1/4" 5/2 AUTO

VALVE SYMBOL

Model: ICO4S 1/4" 5/2 UNI

Direct acting solenoid valve

Low pressure, high flow

Max inlet pressure 20 bar (290 psi)

Reliable and long life, ideal for a one time installation

Control of pneumatic or hydraulic operated equipment

Technical data

Maximum inlet pressure:
20 bar (290 psi)

Flow rates:
C_V = 0.8 USgpm for 1 psi Δp
K_V = 11.5 l/min for 1 bar Δp

Temperature ratings:
Media (min/max -20°C/90°C)
Ambient (min/max 0°C/60°C)

Valve size:
1/4" balanced poppet valve

Process connections:
1/4" NPT

Conduit connection:
M20 x 1.5 conduit thread

Media:
Liquid & gases

Weight:
7.5 kg

Materials

Solenoid pot - stainless steel - BFC 316

Top cover - stainless steel - BFC 316

Valve body & trim materials - 316 stainless steel

O-rings seats & seals -high nitrile (NBR)

Coil insulation - class H

Option selector

Y1/2/5/A/★★/★/★/★/S

Model	Substitute
ICO4S	Y1

Operating pressure	Substitute
0-20 barg (290 psi)	2

Port config.	Substitute
5/2 UNIVERSAL	5

Operation	Substitute
Automatic	A

Process conn.	Substitute
1/4" NPT	A1
1/4" BSPP	E1

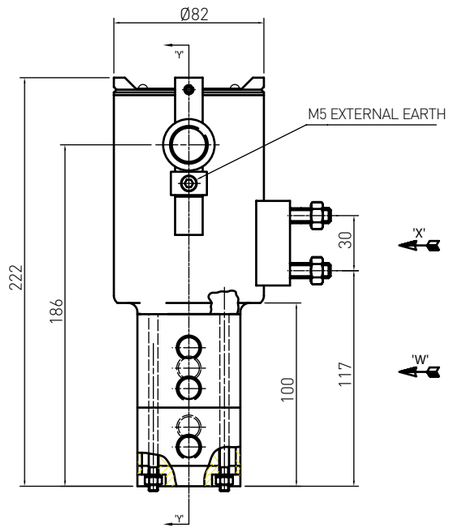
Seat / seal materials	Substitute
High nitrile	H
Viton®	V

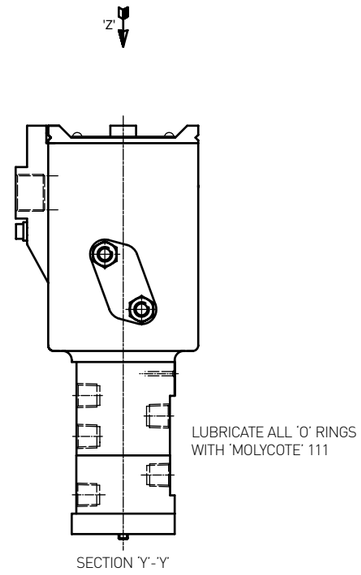
Body / trim materials	Substitute
316 SS / 316 SS	S

Voltage	Substitute
18 / 33V DC	A
24V DC	B
50V DC	C
110V DC	D
125V DC	E
25V AC	G
110V AC	J
240V AC	M

Conduit connection	Substitute
M20 x 1.5	1
1/2" NPT	2

Profile and dimensions mm





ICO4S 1/4" 5/2 PBMR

VALVE SYMBOL

Model: ICO4S 1/4" 5/2 UNI

Direct acting solenoid valve

Low pressure, high flow

Max inlet pressure 20 bar (290 psi)

Reliable and long life, ideal for a one time installation

Control of pneumatic or hydraulic operated equipment

Technical data

Maximum inlet pressure:
20 bar (290 psi)

Flow rates:
C_V = 0.8 USgpm for 1 psi Δp
K_V = 11.5 l/min for 1 bar Δp

Temperature ratings:
Media (min/max -20°C/90°C)
Ambient (min/max 0°C/60°C)

Valve size:
1/4" balanced poppet valve

Process connections:
1/4" NPT

Conduit connection:
M20 x 1.5 conduit thread

Media:
Liquid & gases

Weight:
7.5 kg

Materials

Solenoid pot - stainless steel - BFC 316

Top cover - stainless steel - BFC 316

Valve body & trim materials - 316 stainless steel

O-rings seats & seals -high nitrile (NBR)

Coil insulation - class H

Option selector

Y1/2/5/P/★★/★/★/★/S

Model	Substitute
ICO4S	Y1

Operating pressure	Substitute
0-20 barg (290 psi)	2

Port config.	Substitute
5/2 UNIVERSAL	5

Operation	Substitute
PUSH BUTTON MANUAL RESET	P

Process conn.	Substitute
1/4" NPT	A1
1/4" BSPP	E1

Seat / seal materials	Substitute
High nitrile	H
Viton®	V

Body / trim materials	Substitute
316 SS / 316 SS	S

Voltage	Substitute
18 / 33V DC	A
24V DC	B
50V DC	C
110V DC	D
125V DC	E
25V AC	G
110V AC	J
240V AC	M

Conduit connection	Substitute
M20 x 1.5	1
1/2" NPT	2

Profile and dimensions mm