1 VALVES

IMI HERION VALVES - INTERCHANGEABLE COILS
IMI MAXSEAL VALVES - INTEGRATED SOLENOIDS
IMI BUSCHJOST DIAPHRAGM VALVES
IMI BUSCHJOST PISTON VALVES
IMI BUSCHJOST ANGLE SEAT PILOT VALVES

2 I/P & E/P CONVERTERS

140 SERIES
422 SERIES
422IS SERIES
VP10 RANGE
100X SERIES

3 PRESSURE SWITCHES & SENSORS

18D ATEX & 18D HYDRAULIC RANGE
18D REMAINING HYDRAULIC RANGE PLUS ACCESSORIES
20D ALLFLUID & HYDRAULCI RANGE PLUS ACCESSORIES
33D HYD/ALLFLUID RANGE PLUS ACCESSORIES
18S ALLFLUID RANGE PLUS ACCESSORIES

4 AIR AND GAS PREPARATION

F22, R22 & L22 RANGES PLUS ACCESSORIES
22 SERIES 3 STAGE FILTRATION
B38, B38P & B38 AND R38 INSTRUMENT RANGES PLUS ACCESSORIES
IFR3, 4 FILTER REGULATOR RANGES
B05 FILTER/REG, R05 REG AND W11 FILTER
B72, B74, B64 & B68 RANGES PLUS ACCESSORIES

5 ANCILLARY PRODUCTS

QEV RANGE
0613422/3 EXHAUST GUARD & MB QUIETAIRE SERIES SILENCERS
0014, 0613, T40 & M/S RANGE SILENCERS

6 ADDITIONAL PRODUCTS

INTEGRATED VALVE AND ACTUATOR CONTROL (IVAC)
IMPACT ('RAPPING') CYLINDER
REDUNDANT VALVE MANIFOLD (RVM) SYSTEM
CONTROL PANEL SOLUTIONS

z7910CT en/03/15

IMI Precision Engineering

For further information, scan this QR code or visit
www.imi-precision.com

IMI Precision Engineering

The Process Catalogue

IMI Precision Engineering

Engineering GREAT Solutions

Process Express

Precision. Engineered. Through our people, products and service.

IMI NORGREN
IMI BUSCHJOST
IMI HERION
IMI MAXSEAL

Contents

Setting the standard for safety, reliability and performance

IMI Precision Engineering products are designed to work effectively in aggressive environments and extreme temperatures and meet international standards such as:

- ATEX
- TÜV
- GOST
- INMETRO
- CSA
- KOSHA
- DVGW
- FM AND UL
- NEMA

Our work with leading national and international oil and gas companies and global suppliers in the Energy Sector means that we talk our customers' language, and can bring specialised experience about legislation, standards and specifications.

Plants supplying products to the energy industries apply Quality Management Systems (QS 9000, VDA 6.1, ISO/TS 16949, ISO 9001, OHSAS 18001) as well as Environmental Management Systems to ISO 14001.

IMI Precision Engineering has a wide portfolio of products, specially designed for the demanding conditions and applications that the oil and gas, chemical, nuclear and power sectors require:

- **Aggressive environments**
  A wide range of products rated IP66 and above, in highly resistant materials that offer durability to off-shore salt spray.Intuitive browsing. Easy to use navigation helps you quickly find what you're looking fo
- **EXTREME TEMPERATURES**
  Meeting the harshest temperature needs, down to -60°C and over +200°C.

Creating Engineering GREAT Solutions Worldwide

IMI Precision Engineering has over 150 years of combined experience in providing oil, gas and chemical solutions.

- Proven in safety
- Proven in reliability
- Proven in durability against the harshest weather conditions and environments
- Proven in knowledge

Our market-leading product ranges include: IMI Norgren, IMI Buschjost, IMI Herion & IMI Maxseal.

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- Detailed product information, helping you with your decision-making
- Cross-referencing for auxiliary products, making it easy to source all the products you need on the same visit
- CAD drawings. Downloadable in 15 formats and 2D and 3D models
- Data library. Thousands of data sheets in many languages, ready for you to download
- Real-time pricing and availability
- Quick basket facility to add up to 10 items with one click – ideal if you know the part numbers
- Paste basket options, allowing you to copy large lists of items from your purchasing system, spreadsheet, email or word document

ATEX Solutions

IMI Precision Engineering: Your Reliable Partner for Maximum Explosion Protection

In order to apply a single level for health and safety requirements and to overcome barriers of trade within Europe, national regulations for explosion prevention were harmonised in 1975 with the European Frame Directive 76/117/EEC. The new EC Directive 94/9/EC was established in 1994. This Directive is widely known as “ATEX” – which derives from the original working title “ATmosphère EXplosible”.

Since July 1, 2003 only the ATEX Directive remains binding. This means that all Ex equipment approvals obtained under previous directives are no longer valid – only devices and safety systems that comply with the ATEX Directive may be allowed onto the market. ATEX Directive 94/9/EC expands earlier guidelines by including non-electric components such as pneumatic actuators. These now have to be certified.

In addition to Directive 94/9/EC, which is concerned with the requirements of equipment and protective systems another directive – 1999/92/EC exists. This is concerned with the requirements for the erection, installation and operation of systems.

How can explosions occur?

IExplosive atmospheres (Ex areas) are prerequisite for an explosion and can be found where a mixture of air, flammable gases, vapours or dusts are being produced, transformed or stored in the presence of oxygen.

Typical sources of Ignition

- Hot Surfaces
- Flames and Hot Gases
- Mechanically Generated Sparks
- Electrically Generated Sparks
- Electro-statically Generated Sparks
- Adiabatic Compression
- Electro-Magnetic Radiation
- Ionising Radiation
- Chemical Reactions
- Ultra-sound
- Flashes

How can an explosion be prevented?

Most important is the prevention of the formation of an explosive atmosphere. If this is not possible, potential sources of ignition must be avoided.

Ignition protection categories

For electrical equipment for use with gases, vapours and mists special design methods are described in comprehensive works standards and are assigned to “ignition protection categories”. Several ignition protection categories can be combined in one unit.

The methods of protection with explosive dusts concentrates mainly on the sealing of the housing (IP protection).

Principles and requirements for non-electrical equipment for use in explosive areas are described in the new EN 13463-1. Standards for appropriate types of ignition protection are currently in preparation.

Measures that can be taken to reliably exclude potential sources of ignition, depend upon the equipment category required. In the foreground is usually the consideration of the permissible light metal alloys, electrostatic charge, possible arcing and heat due to friction.

Which certificates are required?

A Declaration of Conformity must be provided by the manufacturer for each product. The Declaration of Conformity explains how the manufacturer fulfils all the relevant safety requirements. The CE mark is subsequently attached to the product.

For electrical equipment in Category 1 and 2, an EC Type Examination Certificate issued by a notified body is required. One of the notified bodies is the PTB (Physikalisch Technische Bundesanstalt). For non electrical equipment an EC Type Examination Certificate is only required for Category 1.

These certificates are also obligatory for non-electrical equipment. However, if the risk analysis of explosion hazards show that no potential sources of ignition exist, the item does not fall under the ATEX directive in which case a Declaration of Conformity and Ex marking is not required. This may apply to products used in purely pneumatic systems, i.e. for valves, service units, sound absorbers.

Figure 1

Figure 2

Figure 3

Figure 1
EC Declaration of Conformity for valve solenoids

Figure 2
EC Type Test certificate for a solenoid valve series

Figure 3
Certificate for the Quality Assurance System

Prevent explosions with IMI Precision Engineering ATEX approved equipment

As a manufacturer of pneumatic equipment, IMI Precision Engineering offers an extensive range of certified devices in Categories 2 and 3 for use in areas with potentially explosive atmospheres containing gases and dusts:

- Solenoid valves, solenoids (Type of protection Ex m, Ex me, Ex md,Ex d, Ex ia, Ex nA)
- Pressure switches (Type of protection Ex de, Ex nAC)
- Valves, cylinders, (Type of protection Ex c)

Marking of solenoid valves in potentially explosive atmospheres

CONDITIONS IN HAZARDOUS AREAS					
FLAMMABLE SUBSTANCES	TEMPORARY BEHAVIOUR OF FLAMMABLE SUBSTANCES IN HAZARDOUS PLACES	SUBDIVISION OF HAZARDOUS PLACES	REQUIRED MARKING FOR INSTALLATION		
			CLASSIFICATION OF HAZARDOUS AREAS	EQUIPMENT CATEGORY	EQUIPMENT PROTECTION LEVEL (EPL)
gases, vapours	is present continuously or for long periods or frequently	zone 0	II	1G	Ga
	is likely to occur in normal operation occasionally	zone 1	II	2G or 1G	Gb or Ga
	is not likely to occur in normal operation but, if it does occur, will persist for a short period only	zone 2	II	3G or 2G or 1G	Gc or Gb or GA
dusts	is present continuously or for long periods or frequently	zone 20	II	1D	Da
	is likely to occur in normal operation occasionally	zone 21	II	2D or 1D	Db or Da
	is not likely to occur in normal operation but, if it does occur, will persist for a short period only	zone 22	II	3D or 2D or 1D	Dc or Db or Da

CE 0044 Ex II 2G Ex d IIB T4 Gb TUV 06 ATEX 1234 U

APPLICATION	PRINCIPLE OF PROTECTION	TYPE OF PROTECTION	MARKING	MAY BE USED IN ZONE	IEC	CENELEC
all applications	–	general requirements	–	–	60079-0	EN 60079-0
control stations, motors, fuses, switchgear, power electronics	a propagation of an explosion inside to the outside is excluded	flameproof enclosure	Ex d	1 or 2	60079-1	EN 60079-1
installation materials, motors, luminaries	avoidance of arcs, sparks and excessive temperature	increased safety	Ex e	1 or 2	60079-7	EN 60079-7
measurement and control, automation technology, sensors, actuators	limitation of energy as well as arcs and temperature	intrinsic safety	Ex ia	0, 1 or 2	60079-11	EN 60079-11
			Ex ib	1 or 2	60079-11	EN 60079-11
switch- and control cupboards, analyse-apparatus, computers	ex-atmosphere keep at a distance from the ignition source	pressurisation	Ex p	1 or 2	60079-2	EN 60079-2
coils of motors or relays, solenoid valves	ex-atmosphere keep at a distance from the ignition	encapsulation	Ex ma Ex mb	1 or 2	60079-18	EN 60079-18
transformers, relays, control stations, magnetic contactors	ex-atmosphere keep at a distance from the ignition source	oil immersion	Ex o	1 or 2	60079-6	EN 60079-6
capacitors, transformers	an propagation of an ignition inside to the outside is excluded	powder filling	Ex q	1 or 2	60079-5	EN 60079-5
only for zone 2	avoidance of arcs	'non sparking'	Ex n	2	60079-15	EN 60079-15

EXPLOSITION GROUP		
MARKING	EXAMPLE	PERMISSIBLE EQUIPMENT GROUP
IIA	propane	IIA or IIB or IIC
IIB	ethylene	IIB or IIC
IIC	hydrogen	IIC

TEMPERATURE CLASS (GASES)			
TEMPERATURE CLASS (GASES)	MAX. SURFACE TEMPERATURE OF THE EQUIPMENT	PERMISSIBLE TEMPERATURE CLASSES OF THE EQUIPMENT	EXAMPLE
T1	450°C	T1 to T6	town gas
T2	300°C	T2 to T6	ethylene
T3	200°C	T3 to T6	gasoline fuels
T4	135°C	T4 to T6	acetaldehyde
T5	100°C	T5 to T6	
T6	85°C	T6	carbon disulfide

CE 0044 Ex II 2G Ex d IIB T4 Gb TUV 06 ATEX 1234 U

NOTIFIED BODY FOR THE EQUIPMENT APPROVAL	SHORT NAME	CODE NUMBER	COUNTRY
TÜV NORD CERT GmbH	TÜV	0044	Germany
INSTITU NATIONAL DE L´ENVIRONNEMENT INDUSTRIEL ET DES RISQUES	INERIS	0080	France
Physikalisch Technische Bundesanstalt	PTB	0102	Germany
TÜV SÜD Product Service GmbH	TPS	0123	Germany
DEKRA EXAM GmbH	BVS	0158	Germany
DEKRA Certification B.V.	DEKRA/KEMA	0344	Netherlands
SIRA CERTIFICATION SERVICE	SIRA	0518	UK
SGS BASEEFA LIMITED	BASEEFA	1180	UK

RESTRICTION FOR USING APPARATUS	
REQUIREMENTS	MARKING
without restriction	–
special condition may be noted	X
Ex-component, which is not intended to be used alone and requires additional certification. CE-Conformity is declared by the manufacturer if the part is fitted into a complete equipment.	U

In dust atmospheres

II 2D Ex tb IIIC T 90°C Db

TYPE OF PROTECTION	MARKING	MAY BE USED IN ZONE	STANDARD
Flameproof enclosures	Ex d	1 or 2	IEC EN 60079-1
Increased safety	Ex e	1 or 2	IEC EN 60079-7
Intrinsic safety	Ex ia	0 or 1 or 2or 20 or 21 or 22	IEC EN 60079-11
	Ex ib	1 or 2 or 21 or 22	
	Ex ic	2 or 22	
Encapsulation	Ex ma	0 or 1 or 2or 20 or 21 or 22	IEC EN 60079-18
	Ex mb	1 or 2 or 21 or 22	
	Ex mc	2 or 22	
„n“ type of protection	Ex n	2 or 22	IEC EN 60079-15
Protection by enclosure	Ex ta	20 or 21 or 22	IEC EN 60079-31
	Ex tb	21 or 22	
	Ex tc	22	

Max. surface temperature of the equipment

EXPLOSION GROUP (DUSTS)			Permissible equipment group
MARKING	Type of Dust	Example	
IIIA	Combustible flyings	Cotton	IIIA or IIIB or IIIC
IIIB	Non-conductive dust	Grain	IIB or IIIC
IIIC	Conductive dust	Aluminium dust	IIIC

International functional safety standard

1. Risk & Risk analysis

Safety can be defined as “freedom from unacceptable risk”. This definition is important because it highlights the fact that all industrial processes involve risk. Absolute safety, where risk is completely eliminated, can never be achieved; risk can only be reduced to an acceptable level. Therefore all risks should be reduced to as low as reasonably practicable.

IEC 61508 provides an alternative to Risk Matrix, called Risk Graph. This method focuses on the evaluation of risk from the point of view of a person being exposed to the incident impact zone. It is consequence driven and four parameters are used to characterize a potential hazardous event: Consequence (C), Frequency of exposure (F), Possibility of escape (P) and Likelihood of event (W). The following chart shows an example of Risk Graph.

IMI Precision Engineering

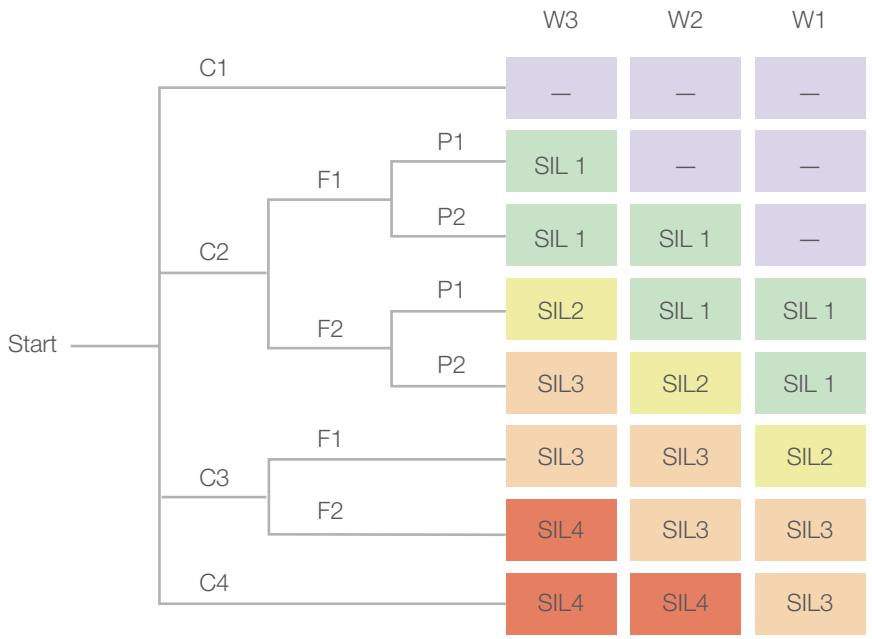
Risk-graph and requirement classes according to: IEC 61 508 / 61 511

C= Extend of damage
C1: slight injury of a person
C2: severe, irreversible injury of one or several persons
C3: death of several persons
C4: catastrophic implication with many death persons

F= Duration of stay
F1: rarely or more often
F2: frequently up to permanent

P= Hazard prevention
P1: possible under certain conditions
P2: rarely possible

W= Probability with which undesirable incidents happen
W1: very low
W2: low
W3: relatively high
— = No safety requirement



2. Safety Integritiy Level (SIL)

A Safety Integrity Level (SIL) is a statistical representation of the Safety Integrated System (SIS) when a process demand occurs. It is used in both ANSI/ISA-S84.01 and IEC 61508 to measure the reliability of Safety Integrated System (SIS). Both ISA and IEC have agreed that there are three levels of safety integrity: SILs 1, 2 and 3. IEC also includes an additional level, SIL 4, that ISA does not. The higher the SIL is, the more reliable the system is.

SIL is therefore a measure for risk reduction. The Risk graph evaluates the risk and determines what level of risk reduction is needed to reach an acceptable risk.

SILs are correlated to the Probability of Failure on Demand (PFD) which is equivalent to the unavailability of a system at the time of a process demand. PFH is another measure for evaluating in how far a device is suitable for use in safety relevant plant parts, if used in High Demand Mode (HDM).This value indicates the probability of failure referred to a time interval.

3. Low Demand Mode & High Demand Mode

Low Demand Mode (LDM) exists where the frequency of operation of the safety-related system is not greater than once a year and not greater than twice the test frequency of the Safety Integrated System (SIS).

In all other cases a High Demand Mode (HDM) with a high switching frequency exists in the sense of IEC61508.

For LDM the allocation of the SIL is carried out on the basis of the determined PFD value of the SIS according to following table.

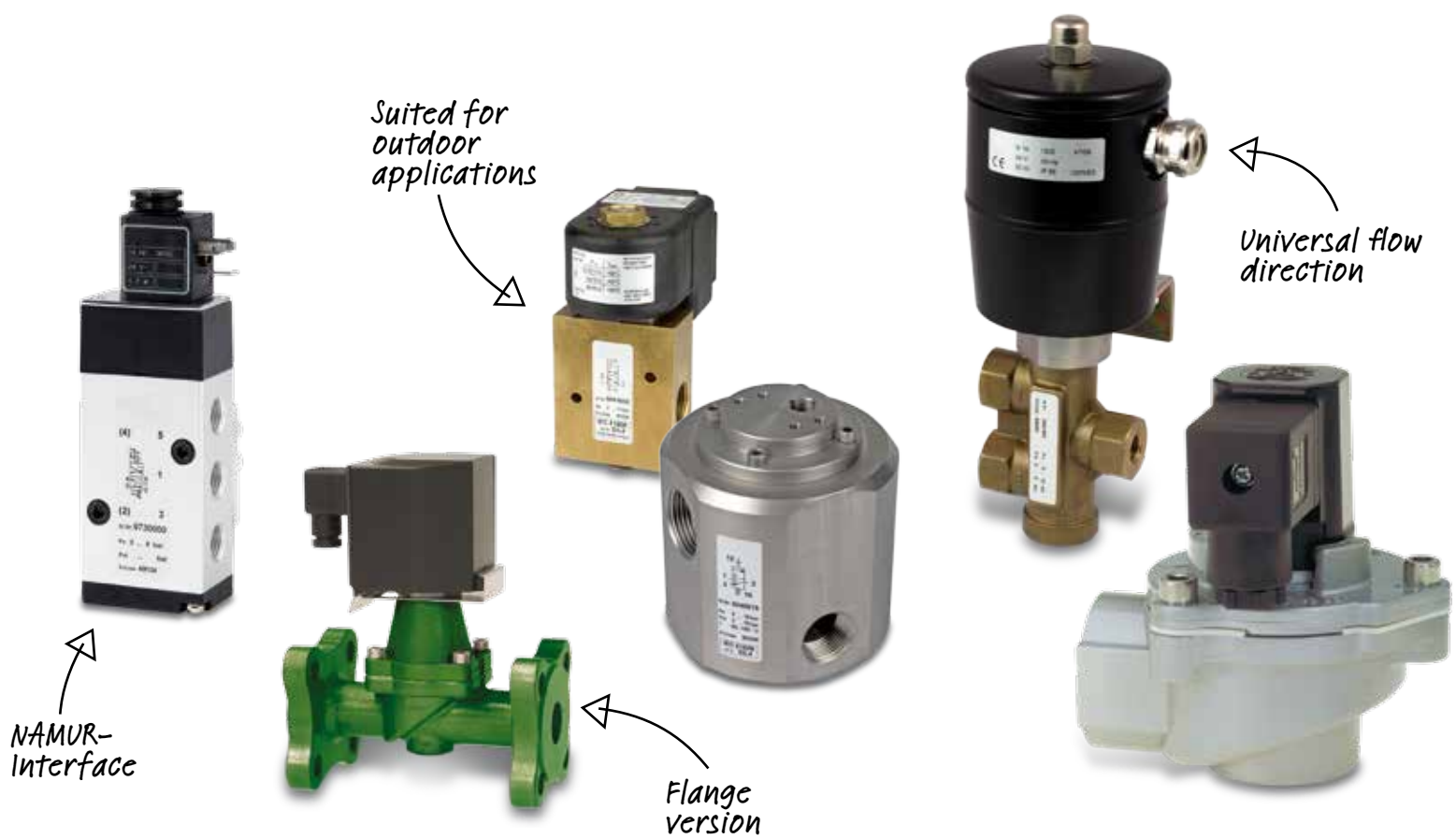
Correlation of SIL and PFD.

SIL (Safety Integrity Level)	High demand mode of operation (Probability of dangerous failure per hour)
4	greater or equal to 10^{-9} to smaller than 10^{-8}
3	greater or equal to 10^{-8} to smaller than 10^{-7}
2	greater or equal to 10^{-7} to smaller than 10^{-6}
1	greater or equal to 10^{-6} to smaller than 10^{-5}

SIL (Safety Integrity Level)	Low demand mode of operation (Average probability of failure to perform its design on demand)
4	greater or equal to 10^{-5} to smaller than 10^{-4}
3	greater or equal to 10^{-4} to smaller than 10^{-3}
2	greater or equal to 10^{-3} to smaller than 10^{-2}
1	greater or equal to 10^{-2} to smaller than 10^{-1}

SIL	IEC 61508	ANSI S84.01	PFD	Availabilty Required	1/pfd
4	YES	NO	10^{-5} to 10^{-4}	>99.99%	100,000 to 10.000
3	YES	YES	10^{-4} to 10^{-3}	99.90% to 99.99%	10,000 to 1,000
2	YES	YES	10^{-3} to 10^{-2}	99.00% to 99.90%	1.000 to 100
1	YES	YES	10^{-2} to 10^{-1}	90.00% to 99.00%	100 to 10

VALVES


Suited for outdoor applications
Universal flow direction
NAMUR-Interface
Flange version

Product Selector

Actuated	Solenoid space tube Ø			2/2	3/2	5/2 Spring return	3/2 » 5/2 with adapter plate	5/2 pulse	5/3 All ports blocked	Anodised Aluminium	Black anodised Aluminium	Hard anodised Aluminium	Brass
Indirect	9 mm		97100 Inline G1/4, 1/4 NPT 2 … 8 bar		✓	✓		✓	✓	✓			
Indirect	13 mm		97105 NAMUR G1/4, 1/4 NPT, G1/2, 1/2 NPT 2.5 … 8 bar				✓	✓			✓		
Indirect	13 mm		97105 Inline G1/4, 1/4 NPT, G1/2, 1/2 NPT 2.5 … 8 bar		✓	✓		✓	✓		✓		
Indirect	9 mm		97300 NAMUR G1/4, 1/4 NPT 2 … 8 bar			✓	✓	✓		✓			
Indirect	13 mm		26360, 80207 NAMUR G1/4 up to 10 bar max.		✓	✓	✓	✓		✓			
Indirect	13 mm		26360, 80207 Inline G1/4 up to 10 bar max.		✓	✓		✓	✓	✓			
Indirect	16 mm		98025 NAMUR & Inline G1/2, 1/2 NPT 2 … 8 bar		✓						✓		
Direct	16 mm		24011 NAMUR & Inline G1/4, 1/4 NPT 0 … 10 bar		✓							✓	✓
Direct	16 mm		24010 NAMUR & Inline G1/4, 1/4 NPT 0 … 10 bar		✓							✓	✓
Direct	16 mm		98015 NAMUR & Inline G1/4, 1/4NPT, G1/2, 1/2 NPT 0 … 10 bar		✓							✓	✓
Direct	30.5; 38.5; 47.5 Depends of solenoids		21000 G1/2 up to 50 bar max.	✓									✓
Direct	30.5; 38.5; 47.5 Depends of solenoids		23200 G1/2, G1 up to 100 bar max.	✓									✓
Direct	30.5; 38.5; 47.5 Depends of solenoids		24000 G1/4, G1/2 up to 100 bar max.		✓								✓
Direct	13 mm		95000 Inline G1/4, 1/4 NPT, G1/2 up to 40 bar max.	✓									✓
Direct	13 mm		96000 Inline G1/4, 1/4 NPT up to 10 bar max.		✓								✓

*1) With 3 m cable; *2) IP66 (with cable gland); *3) IP66 (with connector)
*4) Valves for d.c. only. Please use a 206 V d.c. solenoid for 230 V a.c. applications in combination with rectifier connector 0663303.
*5) Required connectors: Model 0570275 for V d.c.; Model 0663303 for V a.c., 200 V d.c. must be ordered! *6) SIL-Certification accoerding IEC 61508

									IP65				
Cast iron	Stainless steel	NAMUR Flange	Seat valves	Spool valves	M/O- add-on manual override	M/O without manual override	M/O with manual override	SIL-Certification *6)	Solenoid - Model Power consumption 305x	Solenoid - Model Power consumption 02xx	Solenoid - Model Power consumption 07xx/08xx/ 3803/3805	Solenoid - Model Power consumption 303x	Solenoid - Model Power consumption 13xx, 150x, 16xx
				✓			✓		3050 1,8 W			3034 0,7 W 3034 2,0 VA *4)	
	✓	✓		✓	✓			✓			0763 1,9 W 0763 2,1 VA *5)		
	✓			✓	✓			✓			0763 1,9 W 0763 2,1 VA *5)		
		✓		✓			✓		3050 1,8 W			3036 1,6 W 3036 3,5 VA	
		✓		✓			✓			0242 2,7 W 0245 4,2 VA			
				✓			✓			0242 2,7 W 0245 4,2 VA			
	✓	✓	✓		✓			✓			0763 1,9 W 0763 2,1 VA *5)		
	✓	✓	✓		✓			✓			0827 6,8 W 0800 16,9 W 3805 10,6 VA 3803 19,5 VA		
	✓	✓	✓		✓			✓					
	✓	✓	✓		✓			✓			0800 16,9 W 3803 19,5 VA		
			✓										1300 21,4 W; 1500 38,7 W 1301 22,8 VA; 1501 42,1 VA
✓			✓										1300 21,4 W; 1500 38,7 W; 1600 52,3 W 1301 22,8 VA; 1501 42,1 VA; 1601 56,4 VA
			✓										1300 21,4 W; 1500 38,7 W 1301 22,8 VA; 1501 42,1 VA
			✓							0246 8,0 W 0200 12,1 W 3206 9,2 VA 3204 11,3 VA	0700 16,9 W 0800 16,9 W 3703 19,5 VA 3803 19,5 VA		
			✓							0246 8,0 W 3206 9,2 VA			

Zone 1, 2, 21, 22						Zone 1, 2, 21	
II2G/II2D	II2G/II2D		II2GD	II2GD	IIG/IID	II2G	NEMA
Solenoid - Model **Power consumption** **144x, 157x**	**Solenoid - Model** **Power consumption** **42xx**	**Solenoid - Model** **Power consumption** **46xx**	**Solenoid - Model** **Power consumption** **48xx**	**Solenoid - Model** **Power consumption** **20xx**	**Solenoid - Model** **Power consumption** **205x**	**Solenoid - Model** **Power consumption** **3039**	**Solenoid - Model** **Power consumption** **382x**
						3039 37 mA II2G Ex ia IIC T4/T6 Ga	
	4200 0,8 W; 4201 1,3 VA Ex e mb IIC T5/T6 Gb II2D Ex tb IIIC T130°C Db *2)	4600/4602 0,8 W; 4601/4603 1,3 VA II2G Ex d mb IIC T5/T6 Gb; II2G Ex e mb IIC T5/T6 Gb; II2D Ex tb IIIC T130°C Db	4802 0,8 W; 4803 1,3 VA II2G Ex mb d IIC T4/T6 Gb; II2G Ex mb e II T4/T6 Gb	2050 ... 2053 II2G Ex ia IIC T6/T4 Gb, II2D Ex iaD 21 T80°C/100°C Db	2050 ... 2053 II2G Ex ia IIC T6/T4 Gb, II2D Ex iaD 21 T80°C/100°C Db		
	4200 0,8 W; 4201 1,3 VA II2G Ex e mb IIC T5/T6 Gb II2D Ex tb IIIC T130°C Db *2)	4600/4602 0,8 W; 4601/4603 1,3 VA II2G Ex d mb IIC T5/T6 Gb; II2G Ex e mb IIC T5/T6 Gb; II2D Ex tb IIIC T130°C Db *2)	4802 0,8 W; 4803 1,3 VA II2G Ex mb d IIC T4/T6 Gb; II2G Ex mb e II T4/T6 Gb *2)	2050 ... 2053 II2G Ex ia IIC T6/T4, II2D Ex iaD 21 T80°C/100°C Db	2050 ... 2053 II2G Ex ia IIC T6/T4, II2D Ex iaD 21 T80°C/100°C Db		
	4210 3,9 W; 4211 5,3 VA II2G Ex e mb IIC T4/T6 Gb II2D Ex tb IIIC T130°C Db *2)	4610/4612 3,9 W; 4611/4613 5,3 VA II2G Ex d mb IIC T4/T6 Gb; II2G Ex e mb IIC T4/T6 Gb; II2D Ex tb IIIC T130°C Db *2)					
	4210 3,9 W; 4211 5,3 VA II2G Ex e mb IIC T4/T6 Gb II2D Ex tb IIIC T130°C Db *2)	4610/4612 3,9 W; 4611/4613 5,3 VA II2G Ex d mb IIC T4/T6 Gb; II2G Ex e mb IIC T4/T6 Gb; II2D Ex tb IIIC T130°C Db *2)					
	4200 0,8 W; 4201 1,3 VA II2G Ex e mb IIC T5/T6 Gb II2D Ex tb IIIC T130°C Db *2	4600/4602 0,8 W; 4601/4603 1,3 VA II2G Ex d mb IIC T5/T6 Gb; II2G Ex e mb IIC T5/T6 Gb; II2D Ex tb IIIC T130°C Db *2)					
	4260 3,9 W/4270 8,9 W 4261 5,3 VA/4271 10,0 VA II2G Ex e mb IIC T4/T6 Gb II2D Ex tb IIIC T130°C Db *3)	4660/4662 3,9 W; 4670/4672 8,9 W 4661/4663 5,3 VA; 4671/4673 10,0 VA II2G Ex d mb IIC T4/T6 Gb; II2G Ex e mb IIC T4/T6 Gb; II2D Ex tb IIIC T130°C Db *3)	4802 0,8 W; 4803 1,3 VA II2G Ex mb d IIC T4/T6 Gb; II2G Ex mb e II T4/T6 Gb *2)				3824 8,9 W; 3826 13,6 W 3825 9,5 VA; 3827 15,7 VA XP/DIP, Div. 1 & 2; Cl. I, Gr. A-D Cl. II/III, Gr. E-G; T3 (160°C) *4) NEMA 4, 4X,; 6, 6P, 7, 9
				2003 II2G Ex ia IIC T6/T5; II2D Ex tD A21 IP66 T95°C *2)			
	4270 8,9 W; 4271 10,0 VA II2G Ex e mb IIC T4/T6 Gb II2D Ex tb IIIC T130°C Db *3)	4670/4672 8,9 W; 4671/4673 10,0 VA II2G Ex d mb IIC T4/T6 Gb; II2G Ex e mb IIC T4/T6 Gb; II2D Ex tb IIIC T130°C Db *3)	4802 0,8 W; 4803 1,3 VA II2G Ex mb d IIC T4/T6 Gb; II2G Ex mb e II T4/T6 Gb *2)				
1440 21,4 W; 1570 38,7 W 1441 22,8 VA; 1571 42,1 VA 1440 & 1441; II2G Ex e mb IIC T4 Gb II3D Ex tb IIIC T120°C Db **1570 & 1571**; II2G Ex e mb IIC T4 Gb							
1440 21,4 W; 1570 38,7 W; 1441 22,8 VA; 1571 42,1 VA; 1440 & 1441; II2G Ex e mb IIC T4 Gb II3D Ex tb IIIC T120°C Db **1570 & 1571**; II2G Ex e mb IIC T4 Gb							
1440 21,4 W; 1570 38,7 W 1441 22,8 VA; 1571 42,1 VA 1440 & 1441; II2G Ex e mb IIC T4 Gb							
1570 & 1571; II2G Ex e mb IIC T4 Gb II3D Ex tb IIIC T120°C Db	4210 3,9 W/4220 8,9 W 4230 11,4 W/4280 11,4 W 4211 5,3 VA/4221 10,0 VA 4231 15,2 VA/4281 15,2 VA II2G Ex e mb IIC T4/T6 Gb II2D Ex tb IIIC T130°C Db *2)	4610/4612 3,9 W; 4620/4622 8,9 W 4630/4632 11,4 W; 4680/4682 11,4 W 4611/4613 5,3 VA; 4621/4623 10,0 VA 4631/4633 15,2 VA; 4681/4683 15,2 VA II2G Ex d mb IIC T4/T6 Gb; II2G Ex e mb IIC T4/T6 Gb; II2G Ex d mb IIC T4/T5 Gb; II2G Ex e mb IIC T4/T5 Gb; II2D Ex tb IIIC T130°C Db *2)					
	4210 3,9 W; 4211 5,3 VA II2G Ex e mb IIC T4/T6 Gb II2D Ex tb IIIC T130°C Db *2)	4610/4612 3,9 W; 4611/4613 5,3 VA II2G Ex d mb IIC T4/T6 Gb; II2G Ex e mb IIC T4/T6 Gb; II2D Ex tb IIIC T130°C Db *2)					

Product Selector

Function			2/2	Aluminium	Brass	Cast iron	Stainless steel
Indirect actuated		82400 Differential pressure G1/4 … G2 up to 16 bar	✓		✓		
		82730 Differential pressure G1/4 … G1 up to 16 bar	✓				✓
		82470 Differential pressure G1/4 … G1 up to 10 bar	✓		✓		
Direct actuated		82540 with forced lifting G1/4 … G1 up to 10 bar	✓		✓		
		82590 with forced lifting G1/4 … G1 up to 10 bar	✓				✓
Indirect actuated		82960 High flow G3/4 … G3, 3/4 NPT … 2 1/2 NPT 0.4 … 8 bar	✓	✓			
Pneumatically actuated		82900 High flow G3/4 … G1, 3/4 NPT … 1 NPT 0.4 … 8 bar	✓	✓			
Direct actuated		85500 with forced lifting flange version 0 ... 25 bar	✓			✓	
		85540 with forced lifting flange version 0 … 25 bar	✓				✓
		85780 with forced lifting flange version 0 … 25 bar	✓				✓
Pneumatically actuated		84500 ASPV G1/2 … G2 up to 25 bar	✓		✓		
		84520 ASPV G1/2 … G2 up to 25 bar	✓				✓

				IP65			
M/O- add-on manual override	M/O- without manual override	M/O- with manual override	Certification	8171	840x / 940x	91xx	950x
						9101 8,0 W 9151 18,0 W 9101 15,0 VA 9151 45,0 VA	
						9101 8,0 W 9151 18,0 W 9101 15,0 VA 9151 45,0 VA	
						9101 8,0 W 9101 15,0 VA	
					9401 38,0 W 9404 42,0 VA	9151 18,0 W 9154 20,0 VA	
					9401 38,0 W 9404 42,0 VA	9151 18,0 W 9154 20,0 VA	
				8171 12,0 W 8171 23,0 VA			
					9401 38,0 W 8401 40,0 W 9404 42,0 VA 8404 45,0 VA		
					9401 38,0 W 8401 40,0 W 9404 42,0 VA 8404 45,0 VA		
			✓		8401 40,0 W 8404 45,0 VA		9501 80,0 W 9504 89,0 VA

Zone 1, 2, 21, 22							
II2G		II2GD				II2G/II2D	NEMA
9186	9191	8186	84xx	8920	9136	46xx	382x
9186 14,0 W 9186 16,0 VA Ex em II T4 T140°C	9191 18,0 W 9191 20,0 VA Ex em II T3 T140°C				9136 8,0 W 9136 9,0 VA Ex m II T4 T130°C	4670 9,0 W Ex d mb IIC T4/T5 Gb T130°C/T95°C Db 4680 10,0 W; Ex d mb IIC T4/T5 Gb T130°C/T95°C Db	3826 13,0 W FM File No. 2Z2A6.AE 3827 15,0 VA FM File No. 2Z2A6.AE
9186 14,0 W 9186 16,0 VA Ex em II T4 T140°C	9191 18,0 W 9191 20,0 VA Ex em II T3 T140°C				9136 8,0 W 9136 9,0 VA Ex m II T4 T130°C	4670 9,0 W Ex d mb IIC T4/T5 Gb T130°C/T95°C Db 4680 10,0 W; Ex d mb IIC T4/T5 Gb T130°C/T95°C Db	3826 13,0 W FM File No. 2Z2A6.AE 3827 15,0 VA FM File No. 2Z2A6.AE
	9191 18,0 W 9191 20,0 VA Ex em II T3 T140°C						
	9191 18,0 W 9191 20,0 VA Ex em II T3 T140°C						
		8186 9,0 W 8186 10,0 VA Ex em II T4 T140°C					
			8436 32,0 W; 8436 36,0 VA Ex em II T4 T140°C 8441 40,0 W; 8441 45,0 VA Ex me II T3 T140°C	8920 29,0 W 8920 33,0 VA Ex d II C T4/T5 T130°C/T95°C			
			8436 32,0 W; 8436 36,0 VA Ex em II T4 T140°C 8441 40,0 W; 8441 45,0 VA Ex me II T3 T140°C	8920 29,0 W 8920 33,0 VA Ex d II C T4/T5 T130°C/T95°C			
			8436 32,0 W; 8436 36,0 VA Ex em II T4 T140°C 8441 40,0 W; 8441 45,0 VA Ex me II T3 T140°C	8920 29,0 W 8920 33,0 VA Ex d II C T4/T5 T130°C/T95°C			

Fast Find **Guide**

HERION VALVES - REMOVABLE SOLENOIDS

INLINE & NAMUR -SOLENOID OPERATED VALVES, INDIRECT ACTUATED

97100 Inline
3/2, 5/2, 5/3
1/4”

2 … 8 bar
ALU
Page 20

97105 Inline
3/2, 5/2, 5/3
1/4”, 1/2”

2,5 … 8 bar
ANO, SS
Page 21

97105 NAMUR
3/2, 5/2, 5/3
1/4”, 1/2”

2,5 … 8 bar
ANO, SS
Page 22

97300 NAMUR
3/2, 5/2
1/4”

2 … 8 bar
ALU
Page 25

26360 & 80207 Inline
3/2, 5/2
1/4”, 1/2”

1 … 10 bar
ALU
Page 26

26360 & 80207 NAMUR
3/2, 5/2
1/4”

1 … 10 bar
ALU
Page 27

98025 NAMUR & Inline
3/2
1/2”

2 … 8 bar
ANO
Page 29

INLINE & NAMUR - SOLENOID OPERATED VALVES, DIRECT ACTUATED

24011 NAMUR & Inline
3/2
1/4”

0 … 10 bar
ANO, BR, SS
Page 31

24010 NAMUR & Inline
3/2 (Ex ia)
1/4”

0 … 10 bar
ANO, BR, SS
Page 35

98015 NAMUR & Inline
3/2
1/4”, 1/2”

0 … 10 bar
ANO, BR, SS
Page 36

21000
2/2
1/2"

0 ... 50 bar
BR
Page 38

23200
2/2
G 1/2”,
G 1"

0 ... 10 bar
BR, CAI
Page 39

24000
3/2
1/4”, 1/2”

0 … 100 bar
BR
Page 40

95000
2/2
1/4”, 1/2”

0 ... 40 bar
BR
Page 42

96000
3/2
1/4"

0 ... 10 bar
BR
Page 43

INLINE - PNEUMATICALLY ACTUATED VALVES

BOOSTERS

80400
3/2
1/2” … 1 1/2”

0 … 10 bar
SS
Page 59

ALU Aluminium | ANO Anodised Aluminium | BR Brass | SS Stainless Steel | CAS Cast iron | CAI Casting stainless steel

Fast Find **Guide**

MAXSEAL VAL VE - INTEGRATED SOLENOIDS - ATEX ZONE 1

ICO3S - DIRECT ACTUATED

Y01 Inline
3/2, 5/2
1/4", 1/2"

0 ... 12 bar
SS
Page 49

ICO4S - DIRECT ACTUATED

Y1 Inline
3/2, 5/2
1/4", 1/2"

0 ... 20 bar
SS
Page 50

MAXSEAL VAL VE - INTEGRATED SOLENOIDS - ATEX ZONE 0

ICO3S EX IA - DIRECT ACTUATED

YX1 Inline
3/2, 5/2
1/4"

0 ... 12 bar
SS
Page 48

BUSCHJOST DIAPHRAGM VALVE

82400
82730
2/2
1/4 ... 2"

0,1 ... 16 bar
BR, SS
Page 51

82470
2/2
1/4 ... 1"

0,1 ... 10 bar
BR
Page 52

82540
82590
2/2
1/4 ... 1"

0 ... 10/16 bar
BR, SS
Page 53

82960, 82970
2/2
3/4" ... 3"

0,4 ... 8 bar
ALU
Page 54

82900
2/2
3/4 ... 1"

0,4 ... 8 bar
ALU
Page 55

BUSCHJOST PISTON SAET VALVE

85500
2/2
Flansch-version

0 ... 25 bar
CAS, BR
Page 56

85540
2/2
Flansch-version

0 ... 25 bar
SS
Page 56

85780
2/2
Flansch-version

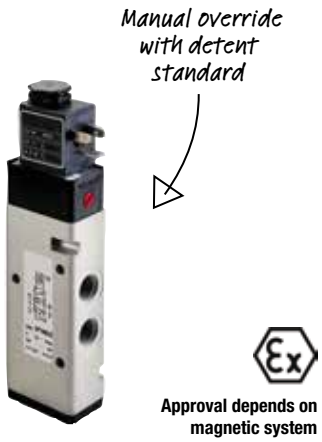
0 ... 25 bar
SS
Page 57

BUSCHJOST PNEUMATICALLY ACTUATED VALVE

84500
84520
2/2
1/2 ... 2"

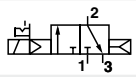
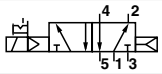
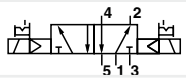
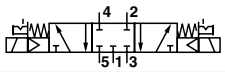
0 ... 10/16 bar
BR, SS
Page 58

ALU Aluminium | ANO Anodised Aluminium | BR Brass | SS Stainless Steel | CAS Cast iron | CAI Casting stainless steel



Approval depends on magnetic system

Technical data

Symbol	Model *1)	Port size	Function	Actuation/Return	Operating pressure (bar)	Flow (l/min)
	9713032	G 1/4	3/2	Solenoid/air spring	2 ... 8	750
	9713042	1/4 NPT	3/2	Solenoid/air spring	2 ... 8	750
	9710032	G 1/4	5/2	Solenoid/air spring	2 ... 8	750
	9710042	1/4 NPT	5/2	Solenoid/air spring	2 ... 8	750
	9711032	G 1/4	5/2	Solenoid/Solenoid	2 ... 8	750
	9711042	1/4 NPT	5/2	Solenoid/Solenoid	2 ... 8	750
	9712032	G 1/4	5/3 APB	Solenoid/Solenoid, APB	2 ... 8	500
	9712042	1/4 NPT	5/3 APB	Solenoid/Solenoid, APB	2 ... 8	500

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

Technical features

Medium:
Filtered, non-lubricated or dry compressed air

Operating pressure:
2 ... 8 bar (29 ... 116 psi)

Fluid/Ambient temperature:
Valve: -15 ... +60°C (-5 ... 140°F)
Depending on solenoid system.

Air supply must be dry enough to avoid ice formation at temperatures below +2°C (+35°F).

Materials:
Housing: Aluminium 3.0615 anodized
Pilot flange: Plastic (PBT)
Seals: NBR

Solenoid operators

	Model	Power consumption 24 V DC (W)	Power consumption 230 V AC (VA)	Rated current 24 V DC (mA)	Rated current 230 V AC (mA)	Ex-Protection	Protection Class (ATEX- Category) IP-Protection According to EN60529	Temperature Ambient/ Medium (°C)
	3050	1,8	-	70	-	-	IP 65 (Connector DIN EN 175301-803, Form B) *6)	-15 ... +50
	3034	0,7	2,0 *2)	29	4	-	IP 65 (Connector DIN EN 175301-803, Form A) *6)	-15 ... +50
	3062	2,7	-	115	-	II2G II2D	Ex mb IIC T5 Gb Ex mb tb T95°C Db IP 65 (with 3 m cable)	-20 ... +50
	3063	-	2,1	-	9	II2G II2D	Ex mb IIC T5 Gb Ex mb tb T95°C Db IP 65 (with 3 m cable)	-20 ... +50

Standardvoltages 24 V d.c., 230 V a.c., other voltages on request.
*2) Valves can be operated with DC only. For 230V AC application please use 206V DC coil together with recifier plug 0663303
*6) Connector is not scope of delivery, see table »Accessories«

For intrinsically safe circuits, Protection class Ex ia IIC T6/T4 (cat. II 2G)

	Model *1)	Nominal resistance RN Coil (Ω)	Required switching min. Current min (mA)	Rated currentIon RW 50 Coil (Ω)	Required switching at terminal RW 50 (V)	Temperature Ambient/ Medium (°C)
	3039 *6)	275	37	345	13,8	T6 -40 ... +50 T4 -40 ... +85

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.
*6) Connector not supplied, required connector: model 0570275

Accessories

Connector DIN EN 175301-803	Silencer *1) (plastic)	Silencer (stainless steel) *1)	Exhaust guard *2)
			
0570275 Form A	M/S2 (G1/4)	0014613 (G 1/4)	0613422 (1/4")
0663303 Form A (with rectifier)	C/S2 (1/4NPT)	0613678 (1/4 NPT)	
0680003 Form B			

Approvals

Model	Approvals ATEX	FM
306x	PTB 03 ATEX 2015 X	—
3039	PTB 03 ATEX 2134	CSA-LR 51090-4

*1) For indoors use only
*2) For outdoors use ~ 0,2 (bar)

The solenoid valves are used in ATEX- zones, resulting from Protection Class Atex-category of solenoids(see table of solenoids).

Approval depends on magnetic system

Technical features

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

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

Fluid/Ambient temperature:
-40 ... +65°C (SNBR)(-40...+149°F)
-25 ... +80°C (HNBR)(-13...+176°F)
Depending on solenoid system.

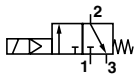
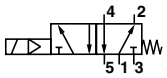
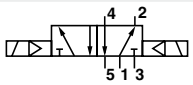
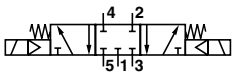
Air supply must be dry enough to avoid ice formation at temperatures below +2°C (+35°F).

For outdoor installations must be protected all connections against the penetration of moisture and a solenoid with IP66 protection must be used!

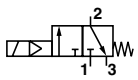
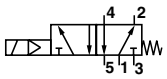
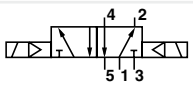
Materials:
Body: Aluminium 3.0615 with surface treatment for rough environmantal conditions. (Stainless steel DIN 50018: Condensate test with alternating temperatures in sulphuric atmosphere, DIN 50021/ASTM B117-73:
Salt spray test with different sodium chloride solutions, tested in ammonia atmosphere).
Stainless steel 1.4404 (316 L)
Seals: SNBR (special NBR) or HNBR

Technical data

Housing: Aluminium anodized: SNBR -40...+65C *3)

Symbol	Model *1)	Port size	Function	Actuation/Return	Operating pressure (bar)	Flow (l/min)	Test certificate IEC 61508 *2)
	9713535	G 1/4	3/2	Solenoid/Spring	2,5 ... 8	1300	x
	9713545	1/4 NPT	3/2	Solenoid/Spring	2,5 ... 8	1300	x
	9713555	G 1/2	3/2	Solenoid/Spring	2,5 ... 8	2600	
	9713565	1/2 NPT	3/2	Solenoid/Spring	2,5 ... 8	2600	
	9710535	G 1/4	5/2	Solenoid/Spring	2,5 ... 8	1300	x
	9710545	1/4 NPT	5/2	Solenoid/Spring	2,5 ... 8	1300	x
	9710555	G 1/2	5/2	Solenoid/Spring	2,5 ... 8	2600	
	9710565	1/2 NPT	5/2	Solenoid/Spring	2,5 ... 8	2600	
	9711535	G 1/4	5/2	Solenoid/Solenoid	2,5 ... 8	1300	
	9711545	1/4 NPT	5/2	Solenoid/Solenoid	2,5 ... 8	1300	
	9712535	G 1/4	5/3	Solenoid/Solenoid, APB	2,5 ... 8	950	
	9712545	1/4 NPT	5/3	Solenoid/Solenoid, APB	2,5 ... 8	950	

Housing: Stainless steel: SNBR -40...+65C *3)

Symbol	Model *1)	Port size	Function	Actuation/Return	Operating pressure (bar)	Flow (l/min)	Test certificate IEC 61508 *2)
	9713735	G 1/4	3/2	Solenoid/Spring	2,5 ... 8	1300	x
	9713745	1/4 NPT	3/2	Solenoid/Spring	2,5 ... 8	1300	x
	9713755	G 1/2	3/2	Solenoid/Spring	2,5 ... 8	2600	
	9713765	1/2 NPT	3/2	Solenoid/Spring	2,5 ... 8	2600	
	9710735	G 1/4	5/2	Solenoid/Spring	2,5 ... 8	1300	x
	9710745	1/4 NPT	5/2	Solenoid/Spring	2,5 ... 8	1300	x
	9710755	G 1/2	5/2	Solenoid/Spring	2,5 ... 8	2600	
	9710765	1/2 NPT	5/2	Solenoid/Spring	2,5 ... 8	2600	
	9711735	G 1/4	5/2	Solenoid/Solenoid	2,5 ... 8	1300	
	9711745	1/4 NPT	5/2	Solenoid/Solenoid	2,5 ... 8	1300	

*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)

The solenoid valves are used in ATEX-zones, resulting from Protection Class Atex-category of solenoids (see table of solenoids).

TÜV
DIN EN 61508
IEC 61508

Approval depends on magnetic system

Technical features

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

Operating pressure:
2,5 ... 8 (36 ... 116 psi)
with internal air supply
0 ... 8 bar (0 ... 116 psi)
with external air supply
(G1/2, 1/2 NPT or low power pilot system only)

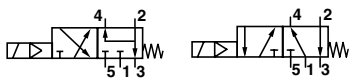
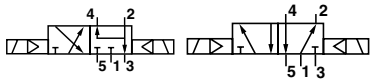
Fluid/Ambient temperature:
Valve:
-40 ... +65°C (SNBR) (-40...+149°F)
-25 ... +80°C (HNBR) (-13...+176°F)
Depending on solenoid system.

Air supply must be dry enough to avoid ice formation at temperatures below +2°C (+35°F).

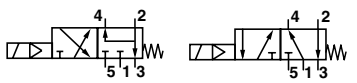
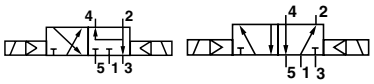
For outdoor installations must be protected all connections against the penetration of moisture and a solenoid with IP66 protection must be used!

Materials:
Body: Aluminium 3.0615 with surface treatment for rough environmantal conditions. Approved according to DIN 50018: Condensate test with alternating temperatures in sulphuric atmosphere, DIN 50021/ASTM B117-73: Salt spray test with different sodium chloride solutions, tested in ammonia atmosphere). Stainless steel 1.4404 (316 L)
Seals: SNBR (special NBR) or HNBR

Housing: Aluminium anodized, Pilot flange: SNBR -40...+65C *3)

Symbol	Model *1)	Port size 1, 3, (5)	2, 4	Actuation/Return	Operating pressure (bar)	Flow *4) (l/min)	Test certificate IEC 61508 *2)
	9710505	G 1/4	Flange	Solenoid/Spring	2,5 ... 8	1300	x
	9710515	1/4 NPT	Flange	Solenoid/Spring	2,5 ... 8	1300	x
	9710595	G 1/2	Flange	Solenoid/Spring	2,5 ... 8	2600	
	9710596	1/2 NPT	Flange	Solenoid/Spring	2,5 ... 8	2600	
	9711505	G 1/4	Flange	Solenoid/Solenoid	2,5 ... 8	1300	
	9711515	1/4 NPT	Flange	Solenoid/Solenoid	2,5 ... 8	1300	

Housing: Stainless steel, Pilot flange: SNBR -40...+65C *3)

Symbol	Model *1)	Port size 1, 3, (5)	2, 4	Actuation/Return	Operating pressure (bar)	Flow *4) (l/min)	Test certificate IEC 61508 *2)
	9710705	G 1/4	Flange	Solenoid/Spring	2,5 ... 8	1300	x
	9710715	1/4 NPT	Flange	Solenoid/Spring	2,5 ... 8	1300	x
	9711705	G 1/4	Flange	Solenoid/Solenoid	2,5 ... 8	1300	
	9711715	1/4 NPT	Flange	Solenoid/Solenoid	2,5 ... 8	1300	

1/4 NPT Flange Solenoid/spring Aluminium 2,5… 8 1300 0,45 4 9710219 G 1/4 Flange Solenoid/solenoid Aluminium 2,5…

*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)

*4) Flow characteristics conforms to ISO6358 [6 » 5 bar]
Note for *4): Connecting pipe / Fitting: In order to ensure and a pressure collapse avoid the flow, the supply air cross section shouldwith 1/4: ≥ 8 mm; with 1/2: ≥≥ 10 mm. With smaller cross section the inlet (A1) should more largely, however at least equally large line at the port (A2; A1).

The solenoid valves are used in ATEXzones, resulting from Protection Class Atex-category of solenoids (see table of solenoids).

Solenoid operators

	Model	Power consumption 24 V DC (W)	Power consumption 230 V AC (VA)	Rated current 24 V DC (m A)	Rated current 230 V AC (m A)	Ex-Protection	Protection Class (ATEX-Category) Nominal resistance (according to EN60529)	Temperature Ambient/ Medium (°C)	Electrical connection
	0763	1,9	2,1 *5)	78	11	-	IP00 without Connector IP65 (with Connector)	-25 ... +60	DIN EN 175 301-803 Form A *5) *6)
	4200	0,8	-	38	-	II2G II2D	Ex e mb IIC T5/T6 Gb Ex tb IIIC T130°C Db IP 66 (with cable gland)	-40 ... +80 T5 -40 ... +70 T6 -40 ... +80	M20 X 1,5 *6)
	4201	-	1,3	-	6	II2G II2D	Ex e mb IIC T5/T6 Gb Ex tb IIIC T130°C Db IP 66 (with cable gland)	-40 ... +80 T5 -40 ... +70 T6 -40 ... +80	M20 X 1,5 *6)
	4600	0,8	-	33	-	II2G II2D	Ex d mb IIC T5/T6 Gb Ex e mb IIC T5/T6 Gb Ex tb IIIC T130°C Db IP 66 (with cable gland)	-40 ... +80 T5 -40 ... +70 T6 -40 ... +80	1/2 NPT *6)
	4602	0,8	-	33	-	II2G II2D	Ex d mb IIC T5/T6 Gb Ex e mb IIC T5/T6 Gb Ex tb IIIC T130°C Db IP 66 (with cable gland)	-40 ... +80 T5 -40 ... +70 T6 -40 ... +80	M20 X 1,5 *6)
	4601	-	1,3	-	6	II2G II2D	Ex d mb IIC T5/T6 Gb Ex e mb IIC T5/T6 Gb Ex tb IIIC T130°C Db IP 66 (with cable gland)	-40 ... +80 T5 -40 ... +70 T6 -40 ... +80	1/2 NPT *6)
	4603	-	1,3	-	6	II2G II2D	Ex d mb IIC T5/T6 Gb Ex e mb IIC T5/T6 Gb Ex tb IIIC T130°C Db IP 66 (with cable gland)	-40 ... +80 T5 -40 ... +70 T6 -40 ... +80	M20 X 1,5 *6)
Stainless Steel 	4802	0,8	–	33	–	II2G	Ex mb d IIC T4/T6 Gb Ex mb e II T4/T6 Gb IP 66 (with cable gland)	-40 ... +50 T4 -40 ... +40 T6	M20 X 1,5 *6)
	4803		1,3	–	6	II2G	Ex mb d IIC T4/T6 Gb Ex mb e II T4/T6 Gb IP 66 (with cable gland)	-40 ... +50 T4 -40 ... +40 T6	M20 X 1,5 *6)

Standard voltages (±10%) 24 V d.c., 230 V a.c., other voltages on request. Design according to VDE 0580, EN 50014/50028. 100% duty cycle.
*5) Required connector: model 0570275 for V DC; model 0663303 for V AC, to be ordered Solenoid Voltage 200V DC!
*6) Connector cable gland not supplied, see table »Accessories«

Attention: The protection class for coil series 46xx and 48xx is determined by the choice of cable gland.

Example: if an ATEX-certified cable gland is used that has Ex d type of protection, the solenoid will have the protection class Ex d mb; if a cable gland with Ex e type of proteciton is used, the solenoid will have protection class Ex e mb.

Approvals

Model	Approvals ATEX	IECEx
42xx	KEMA 98 ATEX 4452 X	IECEx KEM 09.0068X
46xx	PTB 02 ATEX 2085 X	IECEx PTB 11.0094X
48xx	PTB 06 ATEX 2054 X	IECEx PTB 07.0039X

Solenoid actuators for intrinsically-safe circuits

	Model	Nominal-resistance RN coil (Ω)	Min. required switching current (mA)	Resistance RW 60 Coil (Ω)	Required voltage- at terminal Rw 60 (V)	Protection Class *1) (ATEX-Categorie) IP-Protection*1) (class according to EN60529)	Temperature Ambient/Medium (°C)
	2050	200	33	240	8	II2G Ex ia IIC T6 Gb II2G Ex ia IIC T4 Gb II2D Ex iaD 21 T80°C Db II2D Ex iaD 21 T100°C Db IP 66 (with cable gland)	-40 ... +60 -40 ... +80 -40 ... +60 -40 ... +80
	2051	391	24	460	11	II2G Ex ia IIC T6 Gb II2G Ex ia IIC T4 Gb II2D Ex iaD 21 T80°C Db II2D Ex iaD 21 T100°C Db IP 66 (with cable gland)	-40 ... +60 -40 ... +80 -40 ... +60 -40 ... +80
	2052	736	17	880	15	II2G Ex ia IIC T6 Gb II2G Ex ia IIC T4 Gb II2D Ex iaD 21 T80°C Db II2D Ex iaD 21 T100°C Db IP 66 (with cable gland)	-40 ... +60 -40 ... +80 -40 ... +60 -40 ... +80
	2053	1220	13	1460	19	II2G Ex ia IIC T6 Gb II2G Ex ia IIC T4 Gb II2D Ex iaD 21 T80°C Db II2D Ex iaD 21 T100°C Db IP 66 (with cable gland)	-40 ... +60 -40 ... +80 -40 ... +60 -40 ... +80

IP-Protection class *1) (to EN 60529) T
*1) Ex protection classes and temperature values are valid for all solenoid.

When selecting an intrinsically safe power supply, the permissible maximum values according to the Certificate of Conformity should be taken into account.

Ui = 45 V Ii = 500 mA according to Tab. A. 208x PTB 06 ATEX 2001U — — N/en 7.1.540

Accessories

Cable gland Protection Ex e, Ex d (ATEX), Nickel plated brass/ stainless steel	Model	Thread	Cable Ø	Material	Protection class (ATEX)
	0588819	M 20x1,5	5,0...8,0 mm	Nickel plated brass	II2GD Ex e
	0588851	M 20x1,5	10...14 mm	Nickel plated brass	II2GD Ex d
	0588925	1/2-14-NPT	7,5...11,9 mm	Nickel plated brass	II2GD Ex d
	0589385	M 20x1,5	9,0...13 mm	Model Approvals 1.4571 (316 Ti)	II2GD Ex e
	0589395	M 20x1,5	7,0...12 mm	Model Approvals 1.4571 (316 Ti)	II2GD Ex d
	0589387	M 20x1,5	10...14 mm	Model Approvals 1.4571 (316 Ti)	II2GD Ex d

Connector

0570275
0663303 (with rectifier)

Adaptor complete (Adaptor, inlet filter and seal ring)	Silencer (plastic) *1)	Silencer (stainless steel) *1)	Exhaust guard *2)	Inlet filter	Add-on manual override	Add-on manual override (for start-up only)
						
0613487	M/S2 (G1/4)	0014613 (G 1/4)	0613422 (1/4")	0681173 (1/4")	0553886 (without detent)	0613379 (without detent)
	C/S2 (1/4 NPT)	0613678 (1/4 NPT)	0613423 (1/2")		0553887 (with detent)	
	M/S4 (G1/2)	0014813 (G 1/2)				
	C/S4 (1/2 NPT)	0613679 (1/2 NPT)				

*1) For indoors use only
*2) For outdoors use ~ 0,2 (bar)

Approvals

Model	Approvals ATEX	IECEx	FM
205x	PTB 07 ATEX 2019 X	IECEx PTB 07.0017	—

Approval depends on magnetic system

Technical features

Medium:
Filtered, lubricated or non-lubricated and dry compressed air

Operating pressure:
2 ... 8 bar (29 ... 116 psi)
(below -10°C >must be > 2,5 bar (36psi))

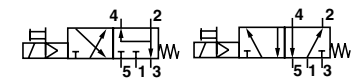
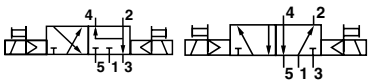
Fluid/Ambient temperature:
-15 ... +50°C (-5 ... +122°F)
Depending on solenoid system.
Air supply must be dry enough to avoid ice formation at temperatures below +2°C (+35°F).

Materials:
Housing: Aluminium anodized
Pilot flange: Pilot flange: Plastic (PBT)
Flange plate: Aluminium
Seals: NBR

The solenoid valves are used in ATEX- zones, resulting from Protection Class Atex-category of solenoids (see table of solenoids).

Technical data

3/2, 5/2 & 5/3 spool valves electromagnetic actuated, indirectly controlled, standard model

Symbol	Model *1)	Port size 1, 3, 5	2, 4	Actuation/Return	Operating pressure (bar) *2)	Flow (l/min)
	9730000	G 1/4	Flange	Solenoid/Spring	2 ... 8	1230
	9730010	1/4 NPT	Flange	Solenoid/Spring	2 ... 8	1230
	9731000	G 1/4	Flange	Solenoid/Solenoid	2 ... 8	1250
	9731010	1/4 NPT	Flange	Solenoid/Solenoid	2 ... 8	1250

*1) When ordering please indicate solenoid, voltage and current type (frequency).
*2) Below -10°C must be > 2,5 bar

Solenoid operators

	Model	Power consumption 24 V DC (W)	Power consumption 230 V AC (VA)	Ex-Protection	Protection Class (ATEX- Category) IP-Protection According to EN60529	Temperature Ambient/Medium (°C)
	3050	1,8	4,3	-	IP 65 (with Connector) DIN EN 175301-803 Form B *6)	-15 ... +50
	3036	1,6	3,5	-	IP 65 (with Connector) DIN EN 175301-803 Form A *6)	-15 ... +50
	3062	2,7	-	II2G II2D	Ex mb IIC T5 Gb Ex mb tb T95°C Db IP 65 (with 3 m cable)	-20 ... +50
	3063	-	2,1	II2G II2D	Ex mb IIC T5 Gb Ex mb tb T95°C Db IP 65 (with 3 m cable)	-20 ... +50

Ex e mb IIC T4 Gb Ex tb IIIC T120°C Db I IP 65 (with cable gland) Standard voltages (±10%) 24 V d.c., 230 V a.c., other voltages on request.
*6) Connector is not scope of delivery, see table »Accessories«

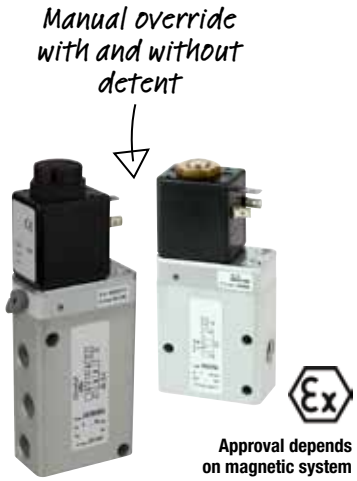
Approval

Model	Approval ATEX
306x	PTB 03 ATEX 2015

Accessories

Connector DIN EN 175301-803	Silencer *1) (plastic)	Exhaust guard *2)
		
0570275, Form A	C/S2 1/4 NPT	0613422 (1/4")
0680003, Form B	M/S2 G 1/4	

*1) For indoors use only
*2) For outdoors use ~ 0,2 (bar)



Approval depends on magnetic system

Technical features

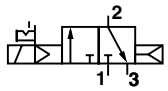
Medium:
Filtered, lubricated or non-lubricated Air
Operating pressure:
1 ... 10 bar (14 ...145 psi); G 1/4
1,5 ... 10 bar (21 ...145 psi); G 1/2
2 ... 10 bar (29 ...145 psi); G 1/2
Fluid/Ambient temperature:
-10 ... +60°C (+14 ... +140°F)
-20°C (-4°F) on request
Depending on solenoid system.
Air supply must be dry enough to avoid ice formation at temperatures below +2°C (+35°F).

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

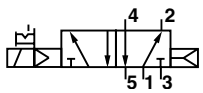
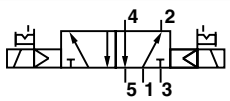
The solenoid valves are used in ATEX-zones, resulting from Protection Class Atex-category of solenoids (see table of solenoids).

Technical data

3/2-Way

Symbol	Model *1)	Port size	Operating pressure (bar)	Flow (l/min)	Manual override with detent
	8020765	G 1/4	1 ... 10	1200	with
	8020865	G 1/2	1,5 ... 10	3000	with

5/2-Way

Symbol	Model *1)	Port size	Operating pressure (bar)	Flow (l/min)	Manual override with detent
	2636065	G 1/4	1 ... 10	1200	with
	2637065	G 1/2	2 ... 10	3000	with
	2636265	G 1/4	1 ... 10	1200	with
	2637265	G 1/2	2 ... 10	3000	with

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

Manual override with and without detent

Approval depends on magnetic system

Technical features

Medium:
Filtered, lubricated or non-lubricated Air
Operating pressure:
1 ... 10 bar (14 ... 145 psi)
Fluid/Ambient temperature:
-10 ... +60°C (+14 ... +140°F)
Depending on solenoid system.

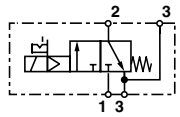
Air supply must be dry enough to avoid ice formation at temperatures below +2°C (+35°F).

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

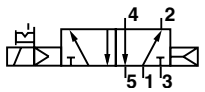
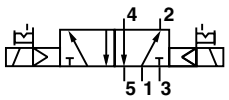
The solenoid valves are used in ATEX-zones, resulting from Protection Class Atex-category of solenoids (see table of solenoids).

Technical data

3/2-Way

Symbol	Model *1)	Port size 1, 3, 5	2, 4	Operating pressure (bar)	Flow (l/min)	Manual override with detent
	8020747	G 1/4	Flange	1 ... 10	1200	with

5/2-Way

Symbol	Model *1)	Port size 1, 3, 5	2, 4	Operating pressure (bar)	Flow (l/min)	Manual override with detent
	2636047	G 1/4	Flange	1 ... 10	1200	with
	2636247	G 1/4	Flange	1 ... 10	1200	with

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

Solenoid operators

	Model	Power consumption 24 V DC (W)	Power consumption 230 V AC (VA)	Rated current 24 V DC (m A)	Rated current 230 V AC (m A)	Ex-Protection	Protection Class (ATEX- Category) IP-Protection According to EN60529	Temperature Ambient/ Medium (°C)	Electrical connection
	0242	2,7	-	113	-	-	IP 65 (with Connector)	-25 ... +60 Fluid: max. 80	Connector DIN EN 175301-803 Form A *6)
	0245	-	4,2	-	-	-	IP 65 (with Connector)	-25 ... +60 Fluid: max. 80	Connector DIN EN 175301-803 Form A *6)
	4210	3,9	-	162	-	II2G II2D	Ex e mb IIC T4/T6 Gb Ex tb IIIC T130°C Db IP 66 (with cable gland)	-40 ... +80 T4 -40 ... +55 T6 -40 ... +80	M20 x 1,5 *6)
	4211	-	5,3	-	23	II2G II2D	Ex e mb IIC T4/T6 Gb Ex tb IIIC T130°C Db IP 66 (with cable gland)	-40 ... +80 T4 -40 ... +55 T6 -40 ... +80	M20 x 1,5 *6)
	4610	3,9	-	162	-	II2G II2D	Ex d mb IIC T4/T6 Gb Ex e mb IIC T4/T6 Gb Ex tb IIIC T130°C Db IP 66 (with cable gland)	-40 ... +80 T4 -40 ... +55 T6 -40 ... +80	1/2-14 NPT *6)
	4611	-	5,3	-	23	II2G II2D	Ex d mb IIC T4/T6 Gb Ex e mb IIC T4/T6 Gb Ex tb IIIC T130°C Db IP 66 (with cable gland)	-40 ... +80 T4 -40 ... +55 T6 -40 ... +80	1/2-14 NPT *6)
	4612	3,9	-	162	-	II2G II2D	Ex d mb IIC T4/T6 Gb Ex e mb IIC T4/T6 Gb Ex tb IIIC T130°C Db IP 66 (with cable gland)	-40 ... +80 T4 -40 ... +55 T6 -40 ... +80	M20 x 1,5 *6)
	4613	-	5,3	-	23	II2G II2D	Ex d mb IIC T4/T6 Gb Ex e mb IIC T4/T6 Gb Ex tb IIIC T130°C Db IP 66 (with cable gland)	-40 ... +80 T4 -40 ... +55 T6 -40 ... +80	M20 x 1,5 *6)

Standard voltages (±10%) 24 V d.c., 230 V a.c., other voltages on request. Design according to VDE 0580, EN 50014/50028.
100% duty cycle.

*6) Connector cable gland not supplied see table, "Accessories"

Attention: The protection class for coil series 46xx or 48xx is determined by the choice of cable gland.
Example: if an ATEX-certified cable gland is used that has Ex d type of protection, the solenoid will have the protection class Ex d mb; if a cable gland with Ex e type of proteciton is used, the solenoid will have protection class Ex e mb.

Approvals

Model	Approvals ATEX	IECEx FM
42xx	KEMA 98 ATEX 4452 X	IECEx KEM 09.0068X
46xx	PTB 02 ATEX 2085 X	IECEx PTB 11.0094X

Accessories

Cable gland Ex-Protection, Ex d (ATEX), Nickel, plated brass	Model	Thread	Cable Ø	Material	Protection class (ATEX)
	0588819	M 20x1,5	5,0...8,0 mm	Nickel plated brass	II2GD Ex e
	0588851	M 20x1,5	10...14 mm	Nickel plated brass	II2GD Ex d
	0588925	1/2-14-NPT	7,5...11,9 mm	Nickel plated brass	II2GD Ex d

Connector, Form A	Silencer *1) (plastic)	Silencer (stainless steel) *1)	Exhaust guard *2)
			
0570275	M/S2 (G1/4)	0014613 (G 1/4)	0613422 (1/4")
	M/S4 (G1/2)	0613678 (1/4 NPT)	0613423 (1/2")

*1) For indoors use only
*2) For outdoors use ~ 0,2 (bar)

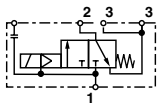
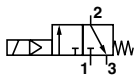
Suited for outdoor use under critical environment conditions

TÜV
DIN EN 61508
IEC 61508

Approval depends on magnetic system

Technical data

3/2-Way, indirectly controlled

Symbol	Model *1)	Port size 1, 3	2 (3)	Flow (l/min) *2) 1 » 2	2 » 3	Flow (l/min) *3) 1 » 2	2 » 3	Material	Test certificate IEC 61508
	9802505	G 1/4, G1/2	NAMUR G1/4	1250	1500	2500	3100	Aluminium	x
	9802515	1/4 NPT, 1/2 NPT	NAMUR 1/4 NPT	1250	1500	2500	3100	Aluminium	x
	9802555	G 1/2	G 1/2	1300	1200	2700	2600	Aluminium	x
	9802565	1/2 NPT	1/2 NPT	1300	1200	2700	2600	Aluminium	x

Flow conducted according to ISO 6358 and ISO 8778, 20°C In order to ensure full flow and proper function make sure that sufficient pressure supply with feed pipe diameters according to the port size is available.

*1) Ordering information see below
*2) Inlet pressure 6 bar, outlet pressure 5 bar
*3) Inlet pressure 8 bar, outlet pressure 0 bar

Technical features

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

Operating pressure:
2 ... 8 bar (29 ... 116 psi)
0 ... 8 bar (0 ... 116 psi)
with external air supply
2 ... 8 bar (29 ... 116 psi)

Fluid/Ambient temperature:
-40 ... +60°C (-40 ... +140°F)
(Special-NBR)
-25 ... +60°C (-13 ... +140°F)
(SIL-Version)
Depending on solenoid system.

Air supply must be dry enough to avoid ice formation at temperatures below +2°C (+35°F).

Materials:
Housing: Aluminium 3.0615
Seal: NBR (special-NBR)
Inner parts: stainless steel

Solenoid operators

	Model	Power consumption 24 V DC (W)	230 V AC (VA)	Rated current 24 V DC (m A)	230 V AC (m A)	Ex-Protection	Protection Class (ATEX- Category) IP-Protection According to EN60529	Temperature Ambient/ Medium (°C)	Electrical connection
	0763	1,9	2,1 *5)	78	11	-	IP00 without Connector IP65 (with Connector)	-25 ... +60	DIN EN 175 301-803 Form A *5) *6)
	4200	0,8	-	38	-	II2G II2D	Ex e mb IIC T5/T6 Gb Ex tb IIIC T130°C Db IP 66 (with cable gland)	-40 ... +80 T5 -40 ... +70 T6 -40 ... +80	M20 X 1,5 *6)
	4201	-	1,3	-	6	II2G II2D	Ex e mb IIC T5/T6 Gb Ex tb IIIC T130°C Db IP 66 (with cable gland)	-40 ... +80 T5 -40 ... +70 T6 -40 ... +80	M20 X 1,5 *6)
	4600	0,8	—	33	—	II2G II2D	Ex d mb IIC T5/T6 Gb Ex e mb IIC T5/T6 Gb Ex tb IIIC T130°C Db IP 66 (with cable gland)	-40 ... +80 T5 -40 ... +70 T6 -40 ... +80	1/2 NPT *6)
	4601	—	1,3	—	6	II2G II2D	Ex d mb IIC T5/T6 Gb Ex e mb IIC T5/T6 Gb Ex tb IIIC T130°C Db IP 66 (with cable gland)	-40 ... +80 T5 -40 ... +70 T6 -40 ... +80	1/2 NPT *6)

Standard voltages (±10%) 24 V d.c., 230 V a.c., other voltages on request. Design according to VDE 0580, EN 50014/50028. 100% duty cycle.
*5) Required connector: model 0570275 for V DC; model 0663303 for V AC, to be ordered Solenoid Voltage 200V DC!
*6) Connector cable gland not supplied, see table »Accessories«

Attention: The protection class for coil series 46xx and 48xx is determined by the choice of cable gland.
Example: if an ATEX-certified cable gland is used that has Ex d type of protection, the solenoid will have the protection class Ex d mb; if a cable gland with Ex e type of proteciton is used, the solenoid will have protection class Ex e mb.

The solenoid valves are used in ATEX zones, resulting from Protection Class Atex-category of solenoids (see table of solenoids).

Approvals

Model	Approvals ATEX	IECEx
42xx	KEMA 98 ATEX 4452 X	IECEx KEM 09.0068X
46xx	PTB 02 ATEX 2085 X	IECEx PTB 11.0094X

Accessories

Cable gland Protection Ex e, Ex d (ATEX), Nickel plated brass/ stainless steel	Model	Thread	Cable Ø	Material	Protection class (ATEX)
	0588819	M 20x1,5	5,0...8,0 mm	Nickel plated brass	II2GD Ex e
	0588851	M 20x1,5	10...14 mm	Nickel plated brass	II2GD Ex d
	0588925	1/2-14-NPT	7,5...11,9 mm	Nickel plated brass	II2GD Ex d
	0589385	M 20x1,5	9,0...13 mm	Model Approvals 1.4571 (316 Ti)	II2GD Ex e
	0589395	M 20x1,5	7,0...12 mm	Model Approvals 1.4404 (316 L)	II2GD Ex d
	0589387	M 20x1,5	10...14 mm	Model Approvals 1.4404 (316 L)	II2GD Ex d

Connector

0570275
0663303 (with rectifier)

Inlet filter	Silencer *1) (plastic)	Exhaust guard *2)	Add-on manual override	Add-on manual override (for start-up only)
				
0613487	M/S2 (G1/4)	0613422 (1/4")	0553886 (without detent)	0613379 (without detent)
	C/S2 (1/4 NPT)	0613423 (1/2")	0553887 (with detent)	
	M/S4 (G1/2)			
	C/S4 (1/2 NPT)			

*1) For indoors use only
*2) For outdoors use ~ 0,2 (bar)

Suited for outdoor use under critical environment conditions

TÜV
DIN EN 61508
IIEC 61508

Approval depends on magnetic system

Technical features

Medium:
Compressed, air filtered, non-lubricated and dry. Other gase and liquid fluids on request

Operating pressure:
0 ... 10 bar (0 ... 145 psi)

Flow:
340l/min

Fluid/Ambient temperature:
Fluid:
-25°C ... +80°C
(-13 ...+176°F) (NBR)
-10°C ... +120°C
(+14 ...-248°F) (FPM)
Water:
... +95°C (+ 203°F)
-40°C ... +60°C (-40 ... +140°F) (VMQ)
Depending on solenoid system.

Air supply must be dry enough to avoid ice formation at temperatures below +2°C (+35°F).

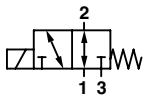
For outdoor installation please protect all connections against the penetration of moisture!

Materials:
Housing: stainless steel 1.4404 (316L), brass 2.0402 (Ms 58),
hard anodized aluminium 3.0615
Seal: FPM, NBR, VMQ (silicon)
Inner parts: stainless steel, brass

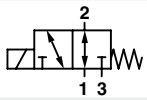
The solenoid valves are used in ATEX- zones, resulting from Protection Class Atex-category of solenoids (see table of solenoids).

Technical data

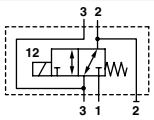
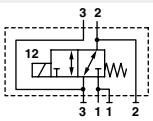
Housing: Brass with Thread

Symbol	Model *1)	Solenoid-group	Port size	Operating pressure* (bar)	Materials: Seat-seal	Manual override-Solenoid operators	Test certificate IEC 61 508 *2)	97/23EG *7)
	2401103	A + B	G 1/4	0 ... 10	NBR	without	X	—
	2401149	A + B	G 1/4	0 ... 10	NBR	without	X	X
	2401138	A + B	1/4 NPT	0 ... 10	NBR	without	X	X

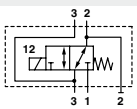
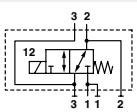
Housing: Stainless steel (1.4404) for aggressive environment

Symbol	Model *1)	Solenoid-group	Port size	Operating pressure* (bar)	Materials: Seat-seal	Manual override-Solenoid operators	Test certificate IEC 61 508 *2)	97/23EG *7)
	2401127	A	G 1/4	0 ... 10	FPM	without	—	—
	2401147	A	1/4 NPT	0 ... 10	FPM	without	—	—

Housing: aluminium hard anodized, flanged with NAMUR Interface

Symbol	Model *1)	Solenoid-group	Port size	Operating pressure* (bar)	Materials: Seat-seal	Manual override-Solenoid operators *6)	Variants	Weight (kg)	Test certificate IEC 61 508 *2)	97/23EG *7)
	2401191	A + B	G 1/4	0 ... 10	NBR	ohne	—	0,55	X	X
	1025254	A + B	1/4 NPT	0 ... 10	NBR	ohne	—	0,55	X	X
	2401109	A + B	G 1/4	0 ... 10	NBR	ohne	P in Flange interface *4)	0,55	X	X

Housing: stainless steel (1.4404) for aggressive environment, flanged with NAMUR Interface

Symbol	Model *1)	Solenoid-group	Port size	Operating pressure* (bar)	Materials: Seat-seal	Manual override-Solenoid operators *6)	Variants	Weight (kg)	Test certificate IEC 61 508 *2)	97/23EG *7)
	2401196	A + B	G 1/4	0 ... 10	NBR	without	—	1,00	X	—
	1025212	A + B	G 1/4	0 ... 10	NBR	without	P in Flange-interface *4)	1,00	X	X
	1025328	A + B	1/4 NPT	0 ... 10	NBR	without	P in Flange-interface *4)	1,00	X	X

* Viscosity for gaseous or liquid fluids up to 40 mm2/s.
1) When ordering, please indicate solenoid, voltage and current (frequency). Viscosity for gaseous or liquid fluids up to 40 mm2/s. 0695241
*4) Acc. to VDI/VDE 3845 port P in flange for attachment of positioners or to interlinking plate (see data sheet N/en 5.8.300)
*6) Add-on manual override, see accessories
*7) EG Type examination according to directive 97/23/EC

- Particulary for valves with TUV approval and attachment in plants based on safety standards 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.

Solenoid operator, solenoids group A

	Model	Power consumption 24 V DC (W)	Power consumption 230 V AC (VA)	Rated current 24 V DC (m A)	Rated current 230 V AC (m A)	Ex-Protection	Protection Class (ATEX- Category) IP-Protection According to EN60529	Temperature Ambient/ Medium (°C)	Electrical connection
	0800	16,9	—	703	—	—	IP 65 (with Connector)	-25 ... +60 Fluid: max. +80	Connector DIN EN 175301-803 Form A *6)
	3803	—	19,5	—	75	—	IP 65 (with Connector)	-25 ... +60 Fluid: max. +80	Connector DIN EN 175301-803 Form A *6)
	4270	8,9	—	369	—	II2G II2D	Ex e mb IIC T4/T5 Gb Ex tb IIIC T130°C Db IP 66 (with cable gland)	-40 ... +65 T4 -40 ... +55 T5 -40 ... +65	M20 x 1,5 *6)
	4271	—	10,0	—	43	II2G II2D	Ex e mb IIC T4/T5 Gb Ex tb IIIC T130°C Db IP 66 (with cable gland)	-40 ... +65 T4 -40 ... +55 T5 -40 ... +65	M20 x 1,5 *6)
	4670	8,9	—	369	—	II2G II2D	Ex d mb IIC T4/T6 Gb Ex e mb IIC T4/T6 Gb Ex tb IIIC T130°C Db IP 66 (with cable gland)	-40 ... +70 T4 -40 ... +40 T6 -40 ... +70	1/2 - 14 NPT *6)
	4671	—	10,0	—	43	II2G II2D	Ex d mb IIC T4/T6 Gb Ex e mb IIC T4/T6 Gb Ex tb IIIC T130°C Db IP 66 (with cable gland)	-40 ... +70 T4 -40 ... +40 T6 -40 ... +70	1/2 - 14 NPT *6)
	4672	8,9	—	369	—	II2G II2D	Ex d mb IIC T4/T6 Gb Ex e mb IIC T4/T6 Gb Ex tb IIIC T130°C Db IP 66 (with cable gland)	-40 ... +70 T4 -40 ... +40 T6 -40 ... +70	M20 x 1,5 *6)
	4673	—	10,0	—	43	II2G II2D	Ex d mb IIC T4/T6 Gb Ex e mb IIC T4/T6 Gb Ex tb IIIC T130°C Db IP 66 (with cable gland)	-40 ... +70 T4 -40 ... +40 T6 -40 ... +70	M20 x 1,5 *6)
Stainless steel 	4872	8,9	—	369	—	II2G	Ex mb d IIC T4/T6 Ex mb e II T4/T6 IP 66 (with cable gland)	-40 ... +50 T4 -40 ... +40 T6	M20x1,5 *6)
	4873	—	10	—	43	II2G	Ex mb d IIC T4/T6 Ex mb e II T4/T6 IP 66 (with cable gland)	-40 ... +50 T4 -40 ... +40 T6	M20x1,5 *6)
	3826	13,6	—	567	—	—	XP/DIP, Div. 1 & 2 Cl. I, Gr. A-D Cl. II/III, Gr. E-G T3 (160°C) *4) NEMA 4, 4X, 6, 6P, 7, 9	-20 ... +60	Flying leads 450 mm
	3827	—	15,7	—	68	—	XP/DIP, Div. 1 & 2 Cl. I, Gr. A-D Cl. II/III, Gr. E-G T3 (160°C) *4) NEMA 4, 4X, 6, 6P, 7, 9)	-20 ... +60	Flying leads 450 mm

Standard voltages (±10%) 24 V d.c., 230 V a.c., other voltages on request. Design according to VDE 0580, EN 50014/50028. 100% duty cycle.
*6) Connector cable gland not supplied, see table »Accessories«

Attention: The protection class for coil series 46xx or 48xx is determined by the choice of cable gland.

Example: if an ATEX-certified cable gland is used that has Ex d type of protection, the solenoid will have the protection class Ex d mb; if a cable gland with Ex e type of proteciton is used, the solenoid will have protection class Ex e mb.

Approvals

Model	Approvals ATEX	IECEx	FM
382x	—	—	CSA-LR 57643-6
42xx	KEMA 98 ATEX 4452 X	IECEx KEM 09.0068X	—
46xx	PTB 02 ATEX 2085 X	IECEx PTB 11.0094X	—
48xx	PTB 06 ATEX 2054 X	IECEx PTB 07.0039X	—

Solenoid operator, solenoids group B

	Model	Power consumption 24 V DC (W)	Power consumption 230 V AC (VA)	Rated current 24 V DC (m A)	Rated current 230 V AC (m A)	Ex-Protection	Protection Class (ATEX- Category) IP-Protection According to EN60529	Temperature Ambient/ Medium (°C)	Electrical connection
	0827	6,8	—	284	—	—	IP65 (with Connector)	-25...+60	Connector DIN EN 175301-803 Form A *6)
	3805	—	10,6	—	46	—	IP65 (with Connector)	-25...+60	Connector DIN EN 175301-803 Form A *6)
	4260	3,9	—	162	—	II2G II2D	Ex e mb IIC T4/T6 Gb Ex tb IIIC T130°C Db IP66 (with Connector)	-40...+80 T4 -40...+55 T6 -40...+80	M20 x 1,5 *6)
	4261	—	5,3	—	23	II2G II2D	Ex e mb IIC T4/T6 Gb Ex tb IIIC T130°C Db IP66 (with Connector)	-40...+80 T4 -40...+55 T6 -40...+80	M20x1,5 *6)
	4660	3,9	—	162	—	II2G II2D	Ex d mb IIC T4/T6 Gb Ex e mb IIC T4/T6 Gb Ex tb IIIC T130°C Db IP66 (with Connector)	-40...+80 T4 -40...+55 T6 -40...+80	1/2 NPT *6)
	4661	—	5,3	—	23	II2G II2D	Ex d mb IIC T4/T6 Gb Ex e mb IIC T4/T6 Gb Ex tb IIIC T130°C Db IP66 (with Connector)	-40...+80 T4 -40...+55 T6 -40...+80	1/2 NPT *6)
	4662	3,9	—	162	—	II2G II2D	Ex d mb IIC T4/T6 Gb Ex e mb IIC T4/T6 Gb Ex tb IIIC T130°C Db IP66 (with Connector)	-40...+80 T4 -40...+55 T6 -40...+80	M20x1,5 *6)
	4663	—	5,3	—	23	II2G II2D	Ex d mb IIC T4/T6 Gb Ex e mb IIC T4/T6 Gb Ex tb IIIC T130°C Db IP66 (with Connector)	-40...+80 T4 -40...+55 T6 -40...+80	M20x1,5 *6)
	3824	8,9	—	369	v	—	XP/DIP, Div. 1 & 2 Cl. I, Gr. A-D Cl. II / III, Gr. E-G T3 (160°C) NEMA 4, 4X, 6, 6P, 7, 9	-20 ... +60	Flying leads 450 mm
	3825	—	9,5	—	41	—	XP/DIP, Div. 1 & 2 Cl. I, Gr. A-D Cl. II / III, Gr. E-G T3 (160°C) NEMA 4, 4X, 6, 6P, 7, 9	-20 ... +60	Flying leads 450 mm

Standard voltages (±10%) 24 V d.c., 230 V a.c., other voltages on request. Design according to VDE 0580, EN 50014/50028. 100% duty cycle.
*6) Connector cable gland not supplied, see table »Accessories«

Attention: The protection class for coil series 46xx or 48xx is determined by the choice of cable gland.

Example: if an ATEX-certified cable gland is used that has Ex d type of protection, the solenoid will have the protection class Ex d mb; if a cable gland with Ex e type of proteciton is used, the solenoid will have protection class Ex e mb.

Approvals

Model	Approvals ATEX	IECEx	FM
382x	—	—	CSA-LR 57643-6
42xx	KEMA 98 ATEX 4452 X	IECEx KEM 09.0068X	—
46xx	PTB 02 ATEX 2085 X	IECEx PTB 11.0094X	—

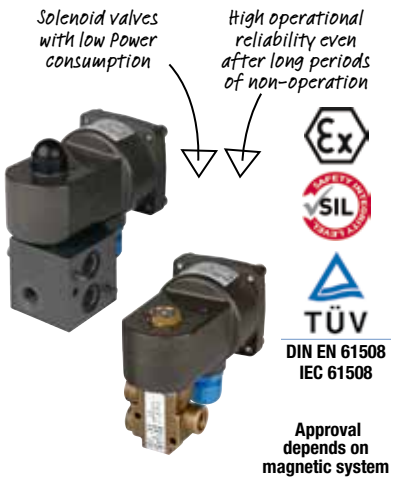
Accessories

Cable gland Protection Ex e, Ex d (ATEX), Nickel plated brass/ stainless steel	Model	Thread	Cable Ø	Material	Protection class (ATEX)
	0588819	M 20x1,5	5,0...8,0 mm	Nickel plated brass	II2GD Ex e
	0588851	M 20x1,5	10...14 mm	Nickel plated brass	II2GD Ex d
	0588925	1/2-14-NPT	7,5...11,9 mm	Nickel plated brass	II2GD Ex d
	0589385	M 20x1,5	9,0...13 mm	Model Approvals 1.4571 (316 Ti)	II2GD Ex e
	0589395	M 20x1,5	7,0...12 mm	Model Approvals 1.4404 (316 L)	II2GD Ex d
	0589387	M 20x1,5	10...14 mm	Model Approvals 1.4404 (316 L)	II2GD Ex d

Connector	Silencer *1) (plastic)	Solenoid operators and Accessories *1)	Exhaust guard *2)	Silencer	Add-on manual override *3) without Detent	with Detent
						
0570275	C/S2 1/4 NPT	0014613 (G 1/4)	0613422 (1/4")	0681173 (1/4")	0600205	0601765
	M/S2 G 1/4	0613678 (1/4 NPT)				

*1) For indoors use only
*2) For outdoors, use ~ 0,2 (bar)

*3) Add on for NAMUR valves always possible, Inline on request



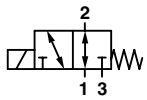
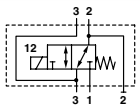
Technical features

Medium:
Compressed air, filtered, non-lubricated and dry.
Other fluids on request.
Operating pressure:
0 ... 10 bar (0 ... 145 psi)
Flow:
340 l/min
Fluid/Ambient temperature:
-25 ... +60°C (-13 ... +140°F)
Depending on solenoid system.
Air supply must be dry enough to avoid ice formation at temperatures below +2°C (+35°F).

For outdoor installation please protect all connections against the penetration of moisture!
Materials:
Housing: brass 2.0402 (Ms 58), stainless steel 1.4404 (316L), hard anodized aluminium 3.0615
Seal: Stainless steel, Brass
Solenoid housing: Aluminium 3.0615, hard anodised
Seals: NBR

The solenoid valves are used in ATEX- zones, resulting from Protection Class Atex-category of solenoids (see table of solenoids).

Technical data

Symbol	Model	Port size	Operating pressure (bar) *1)	Materials: Seat	Housing
	2401088.2003*5)	G 1/4	0 ... 10	NBR	Brass
	2401087.2003	1/4 NPT	0 ... 10	NBR	Brass
	2401086.2003	G 1/4	0 ... 10	NBR	Model Approvals
	2401012.2003	1/4 NPT	0 ... 10	NBR	Model Approvals
	2401070.2003*3)	G 1/4	0 ... 10	NBR	Model Approvals
	2401091.2003*4)	G 1/4 NAMUR	0 ... 10	NBR	Aluminium
	2401090.2003*4)	1/4 NPT NAMUR	0 ... 10	NBR	Aluminium
	2401017.2003*4)	G 1/4 NAMUR	0 ... 10	NBR	Aluminium

*1) With gaseous and liquid fluids up to mm²/s
*3) Valve with non-locking manual override
*4) Retrofit valve, can be equipped with non-locking manual override
*5) Valve with proximity switch
Note: At an ambient temperature of -20°C, higher air consumption may be experienced for short periods.

Solenoid parameters for use in intrinsically safe circuits

Symbol	Model	Switch-on voltage	Allowed Current max. Approvals	Holding current min. Approvals	Holding-voltage (V)	Pick-up Delay-typical *3) (s)	Protection Class (ATEX- Category) IP-Protection According to EN60529	Temperature Ambient/ Medium (°C)	Weight (kg)
	2003	22 ... 28	110	40	ca. 5	0,3 ... 5	II2G Ex ia IIC T6 II2G Ex ia IIC T5 II2D Ex tD A21 IP66 T95°C IP 66 (with cable-gland)	-40 ... +55 -40 ... +70 -40 ... +70	0,85

*3) Depending on intrinsical current supply

Approvals

Model	Approvals ATEX	IECEx	FM
2003	PTB 04 ATEX 2010	IECEx PTB 05.0020	—

Solenoid parameters for use in non harardous locations

Symbol	Model	Switch-on voltage	Allowed Current max. Approvals	Holding current min. Approvals	Power-consumption (W)	Pick-up Delay-typical (s)	Nominal resistance (according to EN60529)	Temperature Ambient/ Medium (°C)	IEC 61508 *2) Weight (kg)
	2003	22 ... 26,4	75	40	1,8 bei 24 V	0,3 ... 2 s	IP 66 (with cable-gland) *6)	-40 ... +80	0,85

Standard voltages (±10%), Design according to VDE 0580, EN 50014/50028.
Duty cycle 100% ED
Typical switching delay: 0.3 ... 2 s, depending on intrinsical current supply
*6) Cable gland is included

Accessories

Silencer (plastic) *1)	Silencer (stainless steel) *1)	Exhaust guard *2)	Silencer *1)
			
M/S2 (G1/4)	0014613 (G 1/4)	0613422 (1/4")	0681173 (1/4")
C/S2 (1/4 NPT)	0613678 (1/4 NPT)		

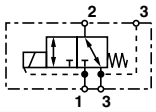
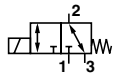
*1) For indoors use only
*2) For outdoors use ~ 0,2 (bar)

Suited for outdoor use under critical environment conditions

DIN EN 61508
IEC 61508

Approval depends on magnetic system

Technical data

Symbol	Model *1)	Port size 1, 3	2 (3)	Flow (l/min) *2) 1 » 2	2 » 3	Flow (l/min) *3) 1 » 2	2 » 3	Operating pressure (bar)	Material	Manual override- Solenoid operators *2)	Test certificate IEC 61 508 *3)
	9801505	G 1/4, G1/2	NAMUR, G1/4	1100	1300	2900	3400	0 ... 10	Aluminium	without	x
	9801515	1/4 NPT, 1/2 NPT	NAMUR, 1/4 NPT	1100	1300	2900	3400	0 ... 10	Aluminium	without	-
	9801735	G 1/4	G 1/4	1100	1200	2900	3200	0 ... 10	Model	without	-
	9801745	1/4 NPT	1/4 NPT	1100	1200	2900	3200	0 ... 10	Model	without	-
	9801755	G 1/2	G 1/2	1200	1300	3100	3400	0 ... 10	Model	without	x
	9801765	1/2 NPT	1/2-NPT	1200	1300	3100	3400	0 ... 10	Model	without	-
	9801655	G 1/2	G 1/2	1200	1300	3100	3400	0 ... 10	Brass	without	x
	9801665	1/2 NPT	1/2-NPT	1200	1300	3100	3400	0 ... 10	Brass	without	-

*1) When ordering please indicate solenoid, voltage and current type (frequency).
Flow measured in accordance with ISO 6358 and ISO 8778, 20 ° C

*2) Inlet pressure 6 bar, outlet pressure 5 bar
*3) Inlet pressure 10 bar, Outlet pressure 0 Bar

Technical features

Medium:
Filtered, non-lubricated and dried compressed Air
Operating pressure:
0 ... 10 bar (0 ... 145 psi)
Flow:
see Tabelle
Fluid/Ambient temperature:
-40 ... +60°C (-40 ... +140°F) (SNBR)
-25 ... +60°C (-13 ... +140°F) (SIL version)
Depending on solenoid system.
Air supply must be dry enough to avoid ice formation at temperatures below +2°C (+35°F).

For outdoor installation please protect all connections against the penetration of moisture!
Materials:
Housing: stainless steel 1.4404 (316L), brass 2.0401,
aluminium anodized 3.0615
Seal: SNBR (Special NBR)
Inner parts: stainless steel

Solenoid operators

	Model	Power consumption 24 V DC (W)	230 V AC (VA)	Rated current 24 V DC (m A)	230 V AC (m A)	Ex-Protection	Protection Class (ATEX- Category) IP-Protection According to EN60529	Ambient Temperature Medium (°C)	Electrical connection
	0800	16,9	-	703	-	-	IP 65 (with Connector)	-25 ... +60 Fluid: max. 80	Connector DIN EN 175301-803 Form A *6)
	3803	-	17,3	-	75	-	IP 65 (with Connector)	-25 ... +60 Fluid: max. 80	Connector DIN EN 175301-803 Form A *6)
	4270	8,9	-	369	-	II2G II2D	Ex e mb IIC T4/T5 Gb Ex tb IIIC T 130°C Db IP 66 (with cable gland)	-40 ... +65 T4 -40 ... +55 T5 -40 ... +65	M20 x 1,5 *6)
	4271	-	10,0	-	43	II2G II2D	Ex e mb IIC T4/T5 Gb Ex tb IIIC T 130°C Db IP 66 (with cable gland)	-40 ... +65 T4 -40 ... +55 T5 -40 ... +65	M20 x 1,5 *6)
	4670	8,9	—	369	—	II2G II2D	Ex d mb IIC T4/T6 Gb Ex e mb IIC T4/T6 Gb Ex tb IIIC T130°C Db IP 66 (with cable gland)	-40 ... +70 T4 -40 ... +40 T6 -40 ... +70	1/2 - 14 NPT *6)
	4671	—	10,0	—	43	II2G II2D	Ex d mb IIC T4/T6 Gb Ex e mb IIC T4/T6 Gb Ex tb IIIC T130°C Db IP 66 (with cable gland)	-40 ... +70 T4 -40 ... +40 T6 -40 ... +70	1/2 - 14 NPT *6)
	4672	8,9	—	369	—	II2G II2D	Ex d mb IIC T4/T6 Gb Ex e mb IIC T4/T6 Gb Ex tb IIIC T130°C Db IP 66 (with cable gland)	-40 ... +70 T4 -40 ... +40 T6 -40 ... +70	M20 x 1,5 *6)
	4673	—	10,0	—	43	II2G II2D	Ex d mb IIC T4/T6 Gb Ex e mb IIC T4/T6 Gb Ex tb IIIC T130°C Db IP 66 (with cable gland)	-40 ... +70 T4 -40 ... +40 T6 -40 ... +70	M20 x 1,5 *6)
Stainless steel 	4872	8,9	–	369	–	II2G II2D	Ex mb d IIC T4/T6 Ex mb e II T4/T6 IP 66 (with cable gland)	-40 ... +50 T4 -40 ... +40 T6	M20x1,5 *6)
	4873	–	10,0	–	43	II2G II2D	Ex mb d IIC T4/T6 Ex mb e II T4/T6 IP 66 (with cable gland)	-40 ... +50 T4 -40 ... +40 T6	M20x1,5 *6)

Standard voltages (±10%) 24 V d.c., 230 V a.c., other voltages on request.
Design according to VDE 0580, EN 50014/50028. Duty cycle 100% ED
*6) Connectors/Cable gland is not included, see accessories

Attention: The protection class for coil series 46xx or 48xx is determined by the choice of cable gland.
Example: if an ATEX-certified cable gland is used that has Ex d type of protection, the solenoid will have the protection class Ex d mb; if a cable gland with Ex e type of proteciton is used, the solenoid will have protection class Ex e mb.

Approvals

Model	Approvals ATEX	IECEx
42xx	KEMA 98 ATEX 4452 X	IECEx KEM 09.0068X
46xx	PTB 02 ATEX 2085 X	IECEx PTB 11.0094X

Accessories

Cable gland Protection Ex e, Ex d (ATEX), Nickel plated brass/ stainless steel	Model	Thread	Cable Ø	Material	Protection class (ATEX)
	0588819	M 20x1,5	5,0...8,0 mm	Nickel plated brass	II2GD Ex e
	0588851	M 20x1,5	10...14 mm	Nickel plated brass	II2GD Ex d
	0588925	1/2-14-NPT	7,5...11,9 mm	Nickel plated brass	II2GD Ex d, Ex e
	0589385	M 20x1,5	9,0...13 mm	Stainless steel 1.4571	II2GD Ex e
	0589395	M 20x1,5	7,0...12 mm	Stainless steel 1.4404	II2GD Ex d
	0589387	M 20x1,5	10...14 mm	Stainless steel 1.4404	II2GD Ex d

Connector	Silencer *1) (plastic)	Silencer (stainless steel) *1)	Exhaust guard *2)	Add-on manual override *3) without Detent	with Detent
					
0570275	C/S2 (1/4 NPT)	0014613 (G 1/4)	0613422 (1/4")	0600205	0601765
	M/S2 (G 1/4)	0613678 (1/4 NPT)	0613423 (1/2")		
	C/S4 (1/2 NPT)	0014813 (G 1/2)			
	M/S4 (G 1/2)	0613679 (1/2 NPT)			

*1) For indoors use only
*2) For outdoors use ~ 0,2 (bar)
*3) Manual override:
Solenoid not energized with button actuation valve is connected and reset by spring. (For testing only prior to commissioning)
Manual reset Solenoid energized. Cl. I, Gr. A-D Cl. II/III, Gr. E-G T3 (160°C) NEMA 4, 4X, 6, 6P , 7, 9

Approval depends on magnetic system

Technical features

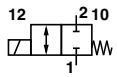
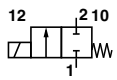
Medium:
For neutral, gaseous and liquid fluids
Operating pressure:
0 ... 15 bar (0 ... 217 psi)
0 ... 50 bar (0 ... 725 psi)
Fluid temperature:
-25 ... +80°C NBR
Ambient temperature:
-25 ... +80°C (-13 ... +176°F)
-25 ... +60°C (-13 ... +140°F)
Depending on solenoid system.
Air supply must be dry enough to avoid ice formation at temperatures below +2°C (+35°F).

Materials:
Housing: Brass
Seat seal: NBR
Inner parts: Brass,Stainless steel
1.4104 (430 F)

The solenoid valves are used in ATEX-zones, resulting from Protection Class Atex-category of solenoids (see table of solenoids).

Technical data

Valves in protection class IP65 and Ex em

Symbol	Model *1)	Solenoids group	Port size	Orifice	Operating pressure (bar)	Flow (l/min)
	2102250	30,5 A	G 1/2	12	0 ... 15	1100
	2101850	38,5 A	G 1/2	12	0 ... 50	1100

*1) When ordering, please indicate solenoid, voltage and current (frequency). Valve function: APB = All Ports Blocked Approval depends on magnetic system.

Approval depends on magnetic system

Technical features

Medium:
Neutral gases and liquids, aggressive gases and liquids (with contaminated fluids upstream installation of a dirt trap- is recommended)

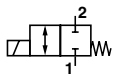
Operating pressure:
0 ... 6 bar (0 ... 87 psi)
0 ... 10 bar (0 ... 145 psi)

Fluid/Ambient temperature:
Depending on solenoid system
-25 ... +80°C (-13 ... +176°F), Brass
-10 ... +80°C (14 ... +176°F), Grey cast iron
Air supply must be dry enough to avoid ice formation at temperatures below +2°C (+35°F).

Materials:
Housing: brass 2.0401 (Ms 58) or Grey cast iron
Seat seal:NBR or FPM
Inner parts: Brass 2.0401 (Ms 58), Stainless steel 1.4104 (430 F)
Stainless steel 1.4104 (430 F)

The solenoid valves are used in ATEX-zones, resulting from Protection Class Atex-category of solenoids (see table of solenoids).

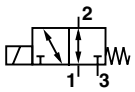
Technical data

Symbol	Model *1)	Port size	Solenoid-group	Orifice (mm)	Operating pressure (bar)	Flow (l/min)	Material Housing	Seat seal
	2323120	G 1/2	30,5A	12	0 ... 10	1525	Brass	NBR
	2322520	G 1	38,5A	25	0 ... 6	9925	Grey cast iron	NBR
	2323620	G 1	47,5A	25	0 ... 10	9925	Grey cast iron	NBR

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

Approval depends on magnetic system

Technical data

Symbol	Model *1)	Port size	Solenoids group	Orifice (mm)	Operating pressure (bar)	Flow (l/min)	Material Housing	Seat seal
	2401550	G 1/4	30,5A	8	0 ... 15	750	Brass	NBR
	2402550	G 1/2	30,5A	12	0 ...12	1380	Brass	NBR
	2402750	G 1/2	38,5A	12	0 ...25	1380	Brass	NBR
	2406750	G 1/2	38,5A	12	0 ...40	1380	Brass	NBR
	2407965	G 1/2	38,5A	12	0 ...100	1380	Brass	Stainless steel *2)

*1) When ordering please indicate solenoid, voltage and current type (frequency).
*2) Suitable for liquids only

Technical features

Medium:
For neutral, gaseous and liquid fluids
Operating pressure:
0 ... 12 bar (0 ... 174 psi)
0 ... 15 bar (0 ... 217 psi)
0 ... 25 bar (0 ... 362 psi)
0 ... 40 bar (0 ... 580 psi)
0 ... 100 bar (0 ... 1450 psi)
Ambient temperature:
-25...+60 °C (-13 ... 140°F)
-40...+40 °C (-40 ... 104°F)
Fluid temperature:
-25 ... +80°C (-13...+176°F) NBR
-40 ... +80°C (-40 ... +176°F) TPE
Depending on solenoid system and Seal.

Air supply must be dry enough to avoid ice formation at temperatures below +2°C (+35°F).

For outdoor installation please protect all connections against the penetration of moisture!
Materials:
Housing Seat seal see Fluid temperature
Inner part: Brass, Steel

The solenoid valves are used in ATEX-zones, resulting from Protection Class Atex-category of solenoids (see table of solenoids).

Solenoid operators
Solenoids group 30,5A

	Model	Power consumption 24 V DC (W)	Power consumption 230 V AC (VA)	Rated current 24 V DC (mA)	Rated current 230 V AC (mA)	Ex-Protection	Protection Class (ATEX- Category) IP-Protection According to EN60529	Ambient Temperature/ Medium (°C)	Electrical connection
	1300	21,4	—	891	—	—	IP65 (with cable gland)	-25...+60	M20x1,5
	1301	—	22,8	—	99	—	IP65 (with cable gland)	-25...+60	M20x1,5
	1440	21,4	—	891	—	II2G II3D	Ex e mb IIC T4 Gb Ex e mb IIC T5 Gb Ex tb IIIC T120°C Db IP 65 (with cable gland)	-20...+80 T4 -40...+60 T5 -40...+80	M20x1,5
	1441	—	22,8	—	99	II2G II3D	Ex e mb IIC T4 Gb Ex e mb IIC T5 Gb Ex tb IIIC T120°C Db IP 65 (with cable gland)	-20...+80 T4 -40...+60 T5 -40...+80	M20x1,5

Solenoids group 38,5A

	Model	Power consumption 24 V DC (W)	Power consumption 230 V AC (VA)	Rated current 24 V DC (mA)	Rated current 230 V AC (mA)	Ex-Protection	Protection Class (ATEX- Category) IP-Protection According to EN60529	Ambient Temperature/ Medium (°C)	Electrical connection
	1500	38,7	—	1614	—	—	IP 65 (with cable gland)	-25...+60 Fluid max. +80	M20x1,5
	1501	—	42,1	—	169	—	IP 65 (with cable gland)	-25...+60 Fluid max. +80	M20x1,5
	1570	38,7	—	1614	—	II2G	Ex e mb IIC T4 Gb IP 65 (with cable gland)	-20...+40	M20x1,5 *6)
	1571	—	42,1	—	169	II2G	Ex e mb IIC T4 Gb IP 65 (with cable gland)	-20...+40	M20x1,5 *6)

Solenoids group 47,5A (only for Serie 23200)

	Model	Power consumption 24 V DC (W)	Power consumption 230 V AC (VA)	Rated current 24 V DC (m A)	Rated current 230 V AC (m A)	Ex-Protection	Nominal resistance (according to EN60529)	Ambient Temperature/ Medium (°C)	Electrical connection
	1600	52,3	—	2181	—	—	IP 65 (with cable gland)	-40...+40 Fluid max. +80	M20x1,5 *6)
	1601	—	56,4	—	245	—	IP 65 (with cable gland)	-40...+40 Fluid max. +80	M20x1,5 *6)

Standardvoltages 230 V d.c., 230 V a.c., other voltages on request.
Design according to VDE 0580, EN50014/50028. Duty cycle 100% ED

*6) Cable gland is not scope of delivery, see table »Accessories«
IP 66 version on request

Approvals

Model	Approvals ATEX	IECEx
143x, 144x	KEMA 03 ATEX 1016 X	IECEx DEK 11.0066X
15xx, 157x	DEKRA BVS 08 ATEX E 117	—

Accessories

Cable gland IP 65 Protection Ms Nickel plated brass	Model	Port size	Cable Ø
	0589241	M 20x1,5	6,5...9,5 mm
	0589242	M 20x1,5	9,0...13 mm

Cable gland Ex-Protection Ms Nickel plated brass	Model	Protection	Cable Ø
	0588819	II2GD Ex e	5...8 mm
	0588851	II2GD Ex d	10...14 mm
	0588925	II2GD Ex d	7,5...11,9 mm

Approval depends on magnetic system

Technical features

Medium:
For neutral gaseous and liquid fluids (with contaminated fluids, upstream installation of a dirt trap is recommended.)

Operating pressure:
0 ... 1 bar (0 ... 14 psi)
0 ... 5 bar (0 ... 72 psi)
0 ... 10 bar (0 ... 145 psi)
0 ... 12 bar (0 ... 174 psi)
0 ... 20 bar (0 ... 290 psi)
0 ... 35 bar (0 ... 507 psi)
0 ... 40 bar (0 ... 580 psi)

Fluid/ Ambient temperature:
-25 ... +80°C (-13...+176°F) NBR
Depending on solenoid system and Seal.

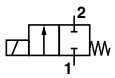
Air supply must be dry enough to avoid ice formation at temperatures below +2°C (+35°F).

Materials:
Housing:: Brass 2.0401 (Ms 58)Seals: NBR
Inner parts: Steel 1.4104 (430 F), Brass 2.0401 (Ms 58)

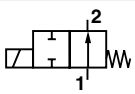
The solenoid valves are used in ATEX-zones, resulting from Protection Class Atex-category of solenoids (see table of solenoids).

Technical data

Switching function: Normally closed

Symbol	Model *1)	Port size	Orifice (mm)	Operating pressure (bar)	Material Seat seal	Flow (l/min)	Solenoid-group *2)
	9500100	G1/4	1,5	0 ... 40	NBR	70	13B
	9500200	G1/4	2	0 ... 35	NBR	120	13B
	9503200	1/4 NPT	2	0 ... 35	NBR	120	13B
	9500300	G1/4	3	0 ... 10	NBR	200	13C
	9503300	1/4 NPT	3	0 ... 10	NBR	200	13C
	9500400	G1/4	4	0 ... 12	NBR	350	13D
	9503400	1/4 NPT	4	0 ... 12	NBR	350	13D
	9501600	G1/4	6	0 ... 5	NBR	550	16D
	9504600	1/4 NPT	6	0 ... 5	NBR	550	16D
	9501700	G1/2	12	0 ... 1	NBR	1700	16D

Switching function: Normally open

Symbol	Model *1)	Port size	Orifice (mm)	Operating pressure (bar)	Material Seat seal	Flow (l/min)	Solenoid-group *2)
	9502210	G1/4	2	0 ... 20	NBR	100	13B
	9502310	G1/4	3	0 ... 10	NBR	160	13B

*1) When ordering please indicate solenoid, voltage and current type (frequency).
*2) Technical data and ordering information see following pages.

For a.c. solenoid systems with integrated rectifier (40 ... 60 Hz)

Technical features

Medium:
For neutral gaseous and liquid fluids (with contaminated fluids, upstream installation of a dirt trap is recommended.)

Operating pressure:
0 ... 9 bar (0 ... 130 psi)
0 ... 10 bar (0 ... 145 psi)

Fluid/Ambient temperature:
-25 ... +80°C (-13...+176°F) NBR
Depending on solenoid system and Seal.

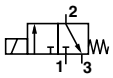
Air supply must be dry enough to avoid ice formation at temperatures below +2°C (+35°F).

Materials:
Housing: Brass 2.0401 (Ms 58)
Seals: NBR
Inner parts:
Steel 1.4104 (430 F)
Brass 2.0401 (Ms 58)

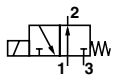
The solenoid valves are used in ATEX-zones, resulting from Protection Class Atex-category of solenoids (see table of solenoids).

Technical data

Switching function: Normally closed

Symbol	Model *1)	Port size	Orifice (mm)	Operating pressure (bar)	Materials: Seat	Flow (l/min)	Solenoids group *2)
	9600210	G 1/4	2	0 ... 10	NBR	120	13B
	9603210	1/4 NPT	2	0 ... 10	NBR	120	13B

Switching function: Normally open

Symbol	Model *1)	Port size	Orifice (mm)	Operating pressure (bar)	Materials: Seat	Flow (l/min)	Solenoids group *2)
	9602210	G 1/4	2	0 ... 9	NBR	100	13B
	9605210	1/4 NPT	2	0 ... 9	NBR	100	13B

*1) When ordering please indicate solenoid, voltage and current type (frequency).
*2) Technical data and ordering information see following pages.

Solenoids group 13B, Standard voltages

	Model	Power consumption 24 V DC (W)	Power consumption 230 V AC (VA)	Rated current 24 V DC (m A)	Rated current 230 V AC (m A)	Ex-Protection	Protection Class (ATEX- Category) IP-Protection According to EN60529	Temperature Ambient/Medium (°C)	Electrical connection
	0246	8,0	—	331	—	—	IP 65 (with Connector)	-25 ... +60 Fluid: max. +80	Connector DIN EN 175301-803, Form A *6)
	3206	—	9,2	—	40	—	IP 65 (with Connector)	-25 ... +60 Fluid: max. +80	Connector DIN EN 175301-803, Form A *6)
	4210	3,9	—	162	—	II2G II2D	Ex e mb IIC T4/T6 Gb Ex tb IIIC T130°C Db IP 66 (with cable gland)	-40 ... +80 T4 -40 ... +55 T6 -40 ... +80	M20 x 1,5 *6)
	4211	—	5,3	—	23	II2G II2D	Ex e mb IIC T4/T6 Gb Ex tb IIIC T130°C Db IP 66 (with cable gland)	-40 ... +80 T4 -40 ... +55 T6 -40 ... +80	M20 x 1,5 *6)
	4610	3,9	—	162	—	II2G II2D	Ex d mb IIC T4/T6 Gb Ex e mb IIC T4/T6 Gb Ex tb IIIC T130°C Db IP 66 (with cable gland)	-40 ... +80 T4 -40 ... +55 T6 -40 ... +80	1/2-14 NPT *6)
	4611	—	5,3	—	23	II2G II2D	Ex d mb IIC T4/T6 Gb Ex e mb IIC T4/T6 Gb Ex tb IIIC T130°C Db IP 66 (with cable gland)	-40 ... +80 T4 -40 ... +55 T6 -40 ... +80	1/2-14 NPT *6)
	4612	3,9	—	162	—	II2G II2D	Ex d mb IIC T4/T6 Gb Ex e mb IIC T4/T6 Gb Ex tb IIIC T130°C Db IP 66 (with cable gland)	-40 ... +80 T4 -40 ... +55 T6 -40 ... +80	M20 x 1,5 *6)
	4613	—	5,3	—	23	II2G II2D	Ex d mb IIC T4/T6 Gb Ex e mb IIC T4/T6 Gb Ex tb IIIC T130°C Db IP 66 (with cable gland)	-40 ... +80 T4 -40 ... +55 T6 -40 ... +80	M20 x 1,5 *6)

Standard voltages (±10%) 24 V d.c., 230 V a.c., other voltages on request. Design according to VDE 0580, EN 50014/50028. Duty cycle 100% ED
* 6) Connectors/Cable gland is not included, see accessories

Attention: The protection class for coil series 46xx or 48xx is determined by the choice of cable gland.
Example: if an ATEX-certified cable gland is used that has Ex d type of protection, the solenoid will have the protection class Ex d mb; if a cable gland with Ex e type of proteciton is used, the solenoid will have protection class Ex e mb.

Approvals

Model	Approvals ATEX	IECEx	FM
42xx	KEMA 98 ATEX 4452 X	IECEx KEM 09.0068X	—
46xx	PTB 02 ATEX 2085 X	IECEx PTB 11.0094X	—

Solenoids group 13C, Standard voltages

	Model	Power consumption 24 V DC (W)	Power consumption 230 V AC (VA)	Rated current 24 V DC (m A)	Rated current 230 V AC (m A)	Ex-Protection	Protection Class (ATEX- Category) IP-Protection According to EN60529	Temperature Ambient/Medium (°C)	Electrical connection
	0200	12,1	—	504	—	—	IP 65 (with Connector)	-25 ... +60 Fluid: max. +80	Connector DIN EN 175301-803, Form A *6)
	3204	—	11,3	—	49	—	IP 65 (with Connector)	-25 ... +60 Fluid: max. +80	Connector DIN EN 175301-803, Form A *6)
	4220	8,9	—	369	—	II2G II2D	Ex e mb IIC T4/T5 Gb Ex tb IIIC T130°C Db IP 66 (with cable gland)	-40 ... +65 T4 -40 ... +55 T5 -40 ... +65	M20 x 1,5 *6)
	4221	—	10,0	—	43	II2G II2D	Ex e mb IIC T4/T5 Gb Ex tb IIIC T130°C Db IP 66 (with cable gland)	-40 ... +65 T4 -40 ... +55 T5 -40 ... +65	M20 x 1,5 *6)
	4620	8,9	—	369	—	II2G II2D	Ex d mb IIC T4/T6 Gb Ex e mb IIC T4/T6 Gb Ex tb IIIC T130°C Db IP 66 (with cable gland)	-40 ... +70 T4 -40 ... +40 T6 -40 ... +70	1/2-14 NPT *6)
	4621	—	10,0	—	43	II2G II2D	Ex d mb IIC T4/T6 Gb Ex e mb IIC T4/T6 Gb Ex tb IIIC T130°C Db IP 66 (with cable gland)	-40 ... +70 T4 -40 ... +40 T6 -40 ... +70	1/2-14 NPT *6)
	4622	8,9	—	369	—	II2G II2D	Ex d mb IIC T4/T6 Gb Ex e mb IIC T4/T6 Gb Ex tb IIIC T130°C Db IP 66 (with cable gland)	-40 ... +70 T4 -40 ... +40 T6 -40 ... +70	M20 x 1,5 *6)
	4623	—	10,0	—	43	II2G II2D	Ex d mb IIC T4/T6 Gb Ex e mb IIC T4/T6 Gb Ex tb IIIC T130°C Db IP 66 (with cable gland)	-40 ... +70 T4 -40 ... +40 T6 -40 ... +70	M20 x 1,5 *6)

Standard voltages (±10%) 24 V d.c., 230 V a.c., other voltages on request. Design according to VDE 0580, EN 50014/50028. Duty cycle 100% ED
* 6) Connectors/Cable gland is not included, see accessories

Attention: The protection class for coil series 46xx or 48xx is determined by the choice of cable gland.
Example: if an ATEX-certified cable gland is used that has Ex d type of protection, the solenoid will have the protection class Ex d mb; if a cable gland with Ex e type of proteciton is used, the solenoid will have protection class Ex e mb.

Approvals

Model	Approvals ATEX	IECEx	FM
42xx	KEMA 98 ATEX 4452 X	IECEx KEM 09.0068X	—
46xx	PTB 02 ATEX 2085 X	IECEx PTB 11.0094X	—

Solenoids group 13D, Standard Voltage

	Model	Power consumption 24 V DC (W)	Power consumption 230 V AC (VA)	Rated current 24 V DC (m A)	Rated current 230 V AC (m A)	Ex-Protection	Protection Class (ATEX- Category) IP-Protection According to EN60529	Temperature Ambient/Medium (°C)	Electrical connection
	0700	16,9	—	703	—	—	IP 65 (with Connector)	-25 ... +60 Fluid: max. +80	Connector DIN EN 175301-803, Form A *6)
	3703	—	19,5	—	75	—	IP 65 (with Connector)	-25 ... +60 Fluid: max. +80	Connector DIN EN 175301-803, Form A *6)
	4230	11,4	—	475	—	II2G II2D	Ex e mb IIC T4/T5 Gb Ex tb IIIC T130°C Db IP 66 (with cable gland)	-40 ... +50 T4 -40 ... +40 T5 -40 ... +50	M20 x 1,5 *6)
	4231	—	15,2	—	66	II2G II2D	Ex e mb IIC T4/T5 Gb Ex tb IIIC T130°C Db IP 66 (with cable gland)	-40 ... +50 T4 -40 ... +40 T5 -40 ... +50	M20 x 1,5 *6)
	4630	11,4	—	475	—	II2G II2D	Ex d mb IIC T4/T5 Gb Ex e mb IIC T4/T5 Gb Ex tb IIIC T130°C Db IP 66 (with cable gland)	-40 ... +50 T4 -40 ... +40 T5 -40 ... +50	1/2 x 14 NPT *6)
	4631	—	15,2	—	66	II2G II2D	Ex d mb IIC T4/T5 Gb Ex e mb IIC T4/T5 Gb Ex tb IIIC T130°C Db IP 66 (with cable gland)	-40 ... +50 T4 -40 ... +40 T5 -40 ... +50	1/2 x 14 NPT *6)
	4632	11,4	—	475	—	II2G II2D	Ex d mb IIC T4/T5 Gb Ex e mb IIC T4/T5 Gb Ex tb IIIC T130°C Db IP 66 (with cable gland)	-40 ... +50 T4 -40 ... +40 T5 -40 ... +50	1/2 x 14 NPT *6)
	4633	—	15,2	—	66	II2G II2D	Ex d mb IIC T4/T5 Gb Ex e mb IIC T4/T5 Gb Ex tb IIIC T130°C Db IP 66 (with cable gland)	-40 ... +50 T4 -40 ... +40 T5 -40 ... +50	M20 x 1,5 *6)

Standard voltages (±10%) 24 V d.c., 230 V a.c., other voltages on request. Design according to VDE 0580, EN 50014/50028. Duty cycle 100% ED
* 6) Connectors/Cable gland is not included, see accessories

Attention: The protection class for coil series 46xx or 48xx is determined by the choice of cable gland.
Example: if an ATEX-certified cable gland is used that has Ex d type of protection, the solenoid will have the protection class Ex d mb; if a cable gland with Ex e type of proteciton is used, the solenoid will have protection class Ex e mb.

Approvals

Model	Approvals ATEX	IECEx
42xx	KEMA 98 ATEX 4452 X	IECEx KEM 09.0068X
46xx	PTB 02 ATEX 2085 X	IECEx PTB 11.0094X

Solenoids group 16D, Standard Voltage

	Model	Power consumption 24 V DC (W)	Power consumption 230 V AC (VA)	Rated current 24 V DC (m A)	Rated current 230 V AC (m A)	Ex-Protection	Protection Class (ATEX- Category) IP-Protection According to EN60529	Temperature Ambient/Medium (°C)	Electrical connection
	0800	16,9	—	703	—	—	IP 65 (with Connector)	-25 ... +60 Fluid: max. +80	Connector DIN EN 175301-803 Form A *6)
	3803	—	19,5	—	75	—	IP 65 (with Connector)	-25 ... +60 Fluid: max. +80	Connector DIN EN 175301-803 Form A *6)
	4280	11,4	—	475	—	II2G II2D	Ex e mb IIC T4/T5 Gb Ex tb IIIC T130°C Db IP 66 (with cable gland)	-40 ... +50 T4 -40 ... +40 T5 -40 ... +50	M20 x 1,5 *6)
	4281	—	15,2	—	66	II2G II2D	Ex e mb IIC T4/T5 Gb Ex tb IIIC T130°C Db IP 66 (with cable gland)	-40 ... +50 T4 -40 ... +40 T5 -40 ... +50	M20 x 1,5 *6)
	4680	11,4	—	475	—	II2G II2D	Ex d mb IIC T4/T5 Gb Ex e mb IIC T4/T5 Gb Ex tb IIIC T130°C Db IP 66 (with cable gland)	-40 ... +50 T4 -40 ... +40 T5 -40 ... +50	1/2 x 14 NPT *6)
	4681	—	15,2	—	66	II2G II2D	Ex d mb IIC T4/T5 Gb Ex e mb IIC T4/T5 Gb Ex tb IIIC T130°C Db IP 66 (with cable gland)	-40 ... +50 T4 -40 ... +40 T5 -40 ... +50	1/2 x 14 NPT *6)
	4682	11,4	—	475	—	II2G II2D	Ex d mb IIC T4/T5 Gb Ex e mb IIC T4/T5 Gb Ex tb IIIC T130°C Db IP 66 (with cable gland)	-40 ... +50 T4 -40 ... +40 T5 -40 ... +50	M20 x 1,5 *6)
	4683	—	15,2	—	66	II2G II2D	Ex d mb IIC T4/T5 Gb Ex e mb IIC T4/T5 Gb Ex tb IIIC T130°C Db IP 66 (with cable gland)	-40 ... +50 T4 -40 ... +40 T5 -40 ... +50	M20 x 1,5 *6)

Standard voltages (±10%) 24 V d.c., 230 V a.c., other voltages on request. Design according to VDE 0580, EN 50014/50028. Duty cycle 100% ED
* 6) Connectors/Cable gland is not included, see accessories

Attention: The protection class for coil series 46xx or 48xx is determined by the choice of cable gland.
Example: if an ATEX-certified cable gland is used that has Ex d type of protection, the solenoid will have the protection class Ex d mb; if a cable gland with Ex e type of proteciton is used, the solenoid will have protection class Ex e mb.

Approvals

Model	Approvals ATEX	IECEx
42xx	KEMA 98 ATEX 4452 X	IECEx KEM 09.0068X
46xx	PTB 02 ATEX 2085 X	IECEx PTB 11.0094X

Accessories

Cable gland Protection Ex e, Ex d (ATEX)	Model	Thread	Cable Ø	Material	Protection class (ATEX)
	0588819	M 20x1,5	5,0...8,0 mm	Nickel plated brass	II2GD Ex e
	0588851	M 20x1,5	10...14 mm	Nickel plated brass	II2GD Ex d
	0588925	1/2-14-NPT	7,5...11,9 mm	Nickel plated brass	II2GD Ex d

Connector	
	0570275

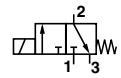
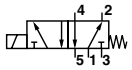
Reliable and long life, ideal for a one time installation

Technical features

Medium:
Hydraulic and pneumatic – customer to specify and confirm compatibility
Operating pressure:
0 ... 12 bar (0 ... 174 psi)
Fluid temperature:
-55 ... +69°C (-67 ... 156°F)
Air supply must be dry enough to avoid ice formation at temperatures below +2°C (+35°F)

Materials:
Valve body, trim, coil housing and top cover:
stainless steel 1.4404 (316 L)
O-rings seats & seals: high NBR

Technical data - standard models

Symbol	Model	Port size	Function	Operating pressure (bar)	Manual override/ reset	Conduit connection	ATEX	Temperature range Media (°C)	Ambient (°C)
	YX13AA1H1BS	1/4 NPT	3/2 NC	0 ... 12	Without	M20 x 1,5	Ex II 2 GD, Ex ia IIC	-55 … +69°C	-55 … +69°C
	YX15AA1H1BS	1/4 NPT	5/2	0 ... 12	Without	M20 x 1,5	Ex II 2 GD, Ex ia IIC	-55 … +69°C	-55 … +69°C

Technical data – solenoid operators

Nominal voltages	24 V d.c. via an energy limiting barrier
Pull-in voltage	≥ 87,5% of nominal
Response times	Pull-in 3 ... 4 seconds, drop out < 60 ms
Drop-out voltage	10 ... 20% of nominal
Coil rating	293 ohms
Power consumption	0,43 watts typical
Voltage protection	Surge suppression diodes fitted as standard
Coil encapsulation	Class H
Leak performance	Bubble tight at 50°C < 30 cc/m at -55°C
Coil duty cycle	100%

Technical features

Medium:
Hydraulic and pneumatic – customer to specify and confirm compatibility

Operating pressure:
0 ... 12 bar (0 ... 174 psi)

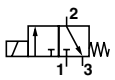
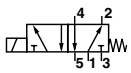
Fluid temperature:
-55 ... +90°C (-67 ... +194°F)

Ambient temperature:
See table.

Air supply must be dry enough to avoid ice formation at temperatures below +2°C (+35°F)

Materials:
Valve body, trim, coil housing and top cover:
stainless steel 1.4404 (316 L)
O-rings seats & seals: NBR
Other seal materials available on request

Technical data – standard models with conduit connection M20 x 1,5

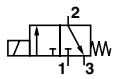
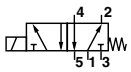
Symbol	Model	Port size	Function	Operating pressure (bar)	Manual override/ reset	ATEX certification	Power consumption at 24 Vdc (W)	Ambient temperature
	Y013AA1H1BS	1/4 NPT	3/2 UNI	0 ... 12	Without	Ex II 2 GD, Exd IIC	3	T6 (-55 … +50°C), T4 (+90°C max)
	Y013AA3H1BS	1/2 NPT	3/2 UNI	0 ... 12	Without	Ex II 2 GD, Exd IIC	7,8	T6 (-55 … +50°C), T4 (+90°C max)
	Y015AA1H1BS	1/4 NPT	5/2 UNI	0 ... 12	Without	Ex II 2 GD, Exd IIC	7,8	T6 (-55 … +50°C), T4 (+90°C max)
	Y015AA3H1BS	1/2 NPT	5/2 UNI	0 ... 12	Without	Ex II 2 GD, Exd IIC	7,8	T6 (-55 … +50°C), T4 (+90°C max)

Technical features

Medium:
Hydraulic and pneumatic – customer to specify and confirm compatibility
Operating pressure:
0 ... 20 bar (0 ... 290 psi)
Fluid temperature:
-20 ... +90°C (-4 ... +194°F)
Options to -60°C (-76°F)
Cavailable on request
Ambient temperature:
See table.
Air supply must be dry enough to avoid ice formation at temperatures below +2°C (+35°F)

Materials:
Valve body, trim, coil housing and top cover:
stainless steel 1.4404 (316 L)
O-rings seats & seals: high NBR

Technical data – standard models with conduit connection M20 x 1,5

Symbol	Model	Port size	Function	Operating pressure (bar)	Material Seat seal	Manual override/ reset	ATEX certification	Power consumption 24 V d.c. (W)	Ambient temperature
	Y123AA1H1BS	1/4 NPT	3/2 UNI	0 ... 20	NBR	Without	Exd IIC T6	4,5	T6 (-60 … +48°C), T4 (-60 ... +90°C)
	Y123AA3H1BS	1/2 NPT	3/2 UNI	0 ... 20	NBR	Without	Exd IIC T6	9,6	T6 (-60 … +48°C), T4 (-60 ... +90°C)
	Y125AA3H1BS	1/4 NPT	5/2 UNI	0 ... 20	NBR	Without	Exd IIC T6	9,6	T6 (-60 … +48°C), T4 (-60 ... +90°C)

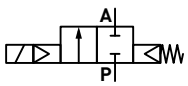
Solenoid interchangeable without tools (Click-on®)

Technical features

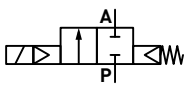
Medium:
Neutral gases and liquids (82400)
Slightly aggressive gases and liquids (82730)
Flow direction:
Fixed
Operating pressure:
0,1 … 16 bar (1,4 ... 232 psi)
for Details, See table
Temperature:
Fluid
–10°C … +90°C (14 ... +194°F) max.
Ambient
–10°C … +50°C (14 ... +122°F) max.
Air supply must be dry enough to avoid ice formation at temperatures below +2°C (+35°F)
Materials:
Body: Brass (82400) or Stainless steel (82730)
Seat Seal: NBR
Internal parts: Stainless steel, PVDF,
For contaminated fluids installations of an upstream filter is recommended.

Models

Brass – For neutral, gases and liquids

Symbol	Model	Orifice (mm)	Port size	Kv-value (m^3/h)	Operating pressure (bar)
	8240000.9101.02400	8	G1/4	1,9	0,1…16
	8240100.9101.02400	10	G3/8	3	0,1…16
	8240200.9101.02400	12	G1/2	3,8	0,1…16
	8240300.9101.02400	20	G3/4	6	0,1…16
	8240400.9101.02400	25	G1	9,5	0,1…16
	8240500.9101.02400	32	G1 1/4	23	0,1…10
	8240500.9151.02400	32	G1 1/4	23	0,1…16
	8240600.9101.02400	40	G1 1/2	25	0,1…10
	8240600.9151.02400	40	G1 1/2	25	0,1…16
	8240700.9101.02400	50	G2	41	0,1…10
	8240700.9151.02400	50	G2	41	0,1…16

Stainless steel – For aggressive gases and liquids

Symbol	Model	Orifice (mm)	Port size	Kv-value (m^3/h)	Operating pressure (bar)
	8273000.9101.02400	8	G1/4	1,9	0,1…16
	8273200.9101.02400	12	G1/2	3,8	0,1…16
	8273300.9101.02400	20	G3/4	6	0,1…16
	8273400.9101.02400	25	G1	9,5	0,1…16

Solenoid operators

Code Voltage	Code Frequency	Voltage	Frequency	Power consumption Inrush-power	Power consumption Holding-power
Voltage and Frequency Solenoid 9101 *1)					
024	00	24 V DC	-	8 W	8 W
024	50	24 V AC	50 Hz	15 VA	12 VA
110	50	110 V AC	50 Hz	15 VA	12 VA
120	60	120 V AC	60 Hz	15 VA	12 VA
230	50	230 V AC	50 Hz	15 VA	12 VA
Voltage and Frequency Solenoid 9151 *1)					
024	00	24 V DC	-	18 W	18 W
024	50	24 V AC	50 Hz	45 VA	35 VA
110	50	110 V AC	50 Hz	45 VA	35 VA
120	60	120 V AC	60 Hz	45 VA	35 VA
230	50	230 V AC	50 Hz	45 VA	35 VA

*1) c US Voltage

Other functions and operating voltages available on request

Electrical details for all solenoid systems

Design	DIN VDE 0580
Voltage range	±10%
Duty cycle	100% ED
Protection	EN 60529 IP65
Connector	Form A to DIN EN 175301-803 (included)

According to DIN VDE 0580 at a solenoid temperature of +20°C.
At elevated temperatures, the power of the solenoid coil could be reduced by up to 30%.

Additional solenoid systems

ATEX Category	Protection	Solenoid	Standard voltage
II2GD	EEx m II T4 T 130°C with 3 m Connection cable	9136	24 V DC, 110 V AC, 230 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.

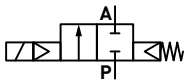
Solenoid interchangeable without tools (Click-on®)

Technical features

Medium:
Neutral gases and liquids
Flow direction:
Fixed
Operating pressure:
0,1 … 10 bar (1,4 ... 145 psi)
for Details, See table
Temperatur:
Fluid
0°C … +150°C (32 ... +302°F) max.
Ambient
–10°C … +60°C (14 ... +140°F) max.
Air supply must be dry enough to avoid ice formation at temperatures below +2°C (+35°F).
Materials:
Body: Brass
Seat seal: HNBR
Internal Parts: Stainless steel, Brass
For contaminated fluids installations of an upstream filter is recommended.

Models

Brass – For neutral gases and liquids

Symbol	Model	Orifice (mm)	Port size	Kv-value (m^3/h)	Operating pressure (bar)
	8247000.9100.00000	8	G1/4	1,7	0,1…10
	8247100.9100.00000	10	G3/8	2,7	0,1…10
	8247200.9100.00000	12	G1/2	3,4	0,1…10
	8247300.9100.00000	20	G3/4	5,5	0,1…10
	8247400.9100.00000	25	G1	8,5	0,1…10

Solenoid operators

Voltage and Frequency Solenoid 9101 *1)					
Code Voltage	Code Frequency	Voltage	Frequency	Power consumption Inrush-power	Holding-power
024	00	24 V DC	-	8 W	8 W
024	50	24 V AC *2)	50 Hz	15 VA	12 VA
110	50	110 V AC *2)	50 Hz	15 VA	12 VA
120	60	120 V AC *2)	60 Hz	15 VA	12 VA
230	50	230 V AC *2)	50 Hz	15 VA	12 VA

*1) c US Voltage
*2) A.c. only with rectifier plug

Other functions and operating voltages available on request

Electrical details for all solenoid systems

Design	DIN VDE 0580
Voltage range	±10%
Duty cycle	100% ED
Protection	EN 60529 IP65
Connector	Form A to DIN EN 175301-803 (included)

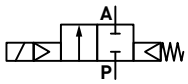
According to DIN VDE 0580 at a solenoid temperature of +20°C.
At elevated temperatures, the power of the solenoid coil could be reduced by up to 30%.

Solenoid interchangeable without tools (Click-on®)

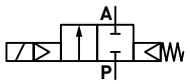
Technical features

Medium:
Neutral gases and liquids (82540)
Slightly aggressive, gases and liquids (82590)
Flow direction:
Fixed
Operating pressure:
0 … 10 bar (0 ... 145 psi)
Temperatur:
Fluid
–10°C … +90°C (14 ... +194°F) max.
Ambient
–10°C … +50°C (14 ... +122°F) max.
Air supply must be dry enough to avoid ice formation at temperatures below +2°C (+35°F).
Materials:
Body: Brass (82540) Stainless steel (82590)
Seat Seal: NBR-K
Internal Parts: Stainless steel, PVDF, Brass
For contaminated fluids installations of an upstream filter is recommended.

Models - Brass

Symbol	Model	Orifice (mm)	Port size	Kv-value (m³/h)	Operating pressure (bar)
	8254000.9150.00000	8	G1/4	1,9	0…10
	8254100.9150.00000	10	G3/8	3	0…10
	8254200.9150.00000	12	G1/2	3,4	0…10
	8254300.9150.00000	20	G3/4	5,8	0…10
	8254400.9150.00000	25	G1	8	0…10

Models - Stainless steel

Symbol	Model	Orifice (mm)	Port size	Kv-value (m³/h)	Operating pressure (bar)
	8259000.9150.00000	8	G1/4	1,9	0…10
	8259100.9150.00000	10	G3/8	3	0…10
	8259200.9150.00000	12	G1/2	3,4	0…10
	8259300.9150.00000	20	G3/4	5,8	0…10
	8259400.9150.00000	25	G1	8	0…10

Solenoid operators

Code Voltage	Code Frequency	Voltage	Frequency	Power consumption Inrush-power	Power consumption Holding-power
Voltage and Frequency Solenoid 9151/9154 *1)					
024	00	24 V DC	-	18 W	18 W
024	50	24 V AC	50 Hz	20 VA	20 VA
110	50	110 V AC	50 Hz	20 VA	20 VA
120	60	120 V AC	60 Hz	20 VA	20 VA
230	50	230 V AC	50 Hz	20 VA	20 VA
Voltage and Frequency Solenoid 9301/9304 *1)					
024	00	24 V DC	-	18 W	18 W
024	50	24 V AC	50 Hz	20 VA	20 VA
110	50	110 V AC	50 Hz	20 VA	20 VA
120	60	120 V AC	60 Hz	20 VA	20 VA
230	50	230 V AC	50 Hz	20 VA	20 VA
Voltage and Frequency Solenoid 9401/9404 *1)					
024	00	24 V DC	-	38 W	38 W
024	49	24 V AC	40 ... 60 Hz	42 VA	42 VA
110	49	110 V AC	40 ... 60 Hz	42 VA	42 VA
120	49	120 V AC	40 ... 60 Hz	42 VA	42 VA
230	49	230 V AC	40 ... 60 Hz	42 VA	42 VA

*1) C US Voltage

Other functions and operating voltages available on request

Electrical details for all solenoid systems

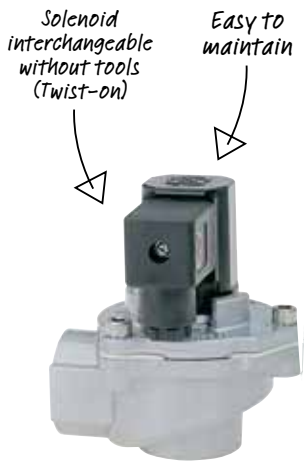
Design	DIN VDE 0580
Voltage range	±10%
Duty cycle	100% ED
Protection	EN 60529 IP65
Connector	Form A to DIN EN 175301-803 (included)

According to DIN VDE 0580 at a solenoid temperature of +20°C.
At elevated temperatures, the power of the solenoid coil could be reduced by up to 30%.

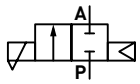
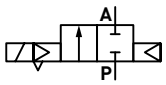
Additional solenoid systems

ATEX Category	Protection	Solenoid	Standard voltage
II2GD	EEx me II T3 T 140°C	9356	24 V DC, 110 V AC, 230 V AC
II3GD	EEx nA II T4 T 135°C	9326	24 V DC, 110 V AC, 230 V AC
II3GD	EEx nA II T4 T 135°C	8426	24 V DC, 110 V AC, 230 V AC
II2GD	EEx me II T3 T 140°C	8441	24 V DC, 110 V AC, 230 V AC
II3GD	EEx nA II T4 T 135°C	9176	24 V DC, 110 V AC, 230 V AC
II2GD	EEx me II T3 T 140°C	9191	24 V DC, 110 V AC, 230 V AC
II3GD	EEx nA II T4 T 135°C	9426	24 V DC, 110 V AC, 230 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.



Technical features - Standard models

Symbol	Model	Port size	Orifice (mm)	Valve length (mm)	Kv-value *1) (m^3/h)	Operating pressure (bar)
	8296300.8171.xxxxx	G3/4	20	95	18	0,4 ... 8
	8297300.8171.xxxxx	3/4 NPT	20	95	18	0,4 ... 8
	8296400.8171.xxxxx	G1	25	95	22	0,4 ... 8
	8297400.8171.xxxxx	1 NPT	25	95	22	0,4 ... 8
	8296600.8171.xxxxx	G1 1/2	40	135	59	0,4 ... 8
	8297600.8171.xxxxx	1 1/2 NPT	40	135	59	0,4 ... 8
	8296700.8171.xxxxx	G2	50	169	80	0,4 ... 8
	8297700.8171.xxxxx	2 NPT	50	169	80	0,4 ... 8
	8296800.8171.xxxxx	G2 1/2	65	169	93	0,4 ... 8
	8297800.8171.xxxxx	2 1/2 NPT	65	169	93	0,4 ... 8
	8296900.8171.xxxxx	G3	80	239,5	172	0,4 ... 7

xxxxx Please insert voltage and frequency codes
*1) Cv-value (US) ≈ kv value x 1,2

Technical features

Medium:
Compressed air
Flow direction:
Fixed
Operating pressure:
0,4 ... 7/8 bar (5,8 ... 101/116 psi)
Fluid temperature:
-40...+85°C (-40 ... +185°F)
Ambient temperature:
–20 ... +85°C (-4 ... +185°F)

Air supply must be dry enough to avoid ice formation at temperatures below +2°C (+35°F).

Materials:
Body: Aluminium
Seat Seal: TPE
Internal Parts: TPU

Solenoid operators

Voltage and Frequency Solenoid 8171 *1)					
Code Voltage	Code Frequency	Voltage	Frequency	Power consumption Inrush-power	Holding-power
024	00	24 V DC	-	12 W	12 W
024	50	24 V AC	50 Hz	23 VA	16 VA
110	50	110 V AC	50 Hz	23 VA	16 VA
120	60	120 V AC	60 Hz	23 VA	16 VA
230	50	230 V AC	50 Hz	23 VA	16 VA

*1) c US Voltage

Electrical details for all solenoid systems

Design	DIN VDE 0580
Voltage range	±10%
Duty cycle	100% ED
Protection	EN 60529 IP65
Connector	Form A to DIN EN 175301-803 (included)

According to DIN VDE 0580 at a solenoid temperature of +20°C.
At elevated temperatures, the power of the solenoid coil could be reduced by up to 30%.

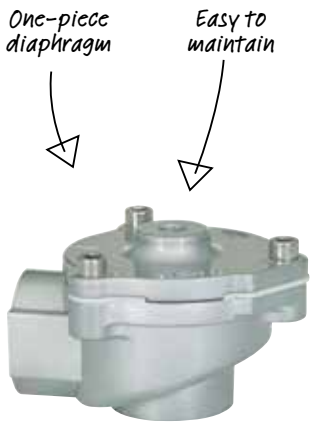
Additional solenoid systems

ATEX Category	Protection	Solenoid	Standard voltage
II3GD	EEx nA II T4 T 135°C	8176	24 V DC, 110 V AC, 230 V AC
II2GD	EEx me II T4 T 140°C	8186	24 V DC, 110 V AC, 230 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.

Additional solenoid systems

Option	Solenoid	Standard voltage
Solenoid version for low temperature = 40°C	9151	24 V DC, 110 V AC, 230 V AC
Pulse Solenoid	8821	24 V DC, 110 V AC, 230 V AC
Solenoid version for low temperature = 40°C	8001	24 V DC, 110 V AC, 230 V AC

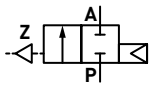


Technical features

Medium:
Compressed air
Operating pressure:
0,4 ... 7/8 bar (5,8 ... 101/116 psi)
Fluid/Ambient temperature:
-40 ... +85°C (-40...+185°F)
Air supply must be dry enough to avoid ice formation at temperatures below +2°C (+35°F).

Materials:
Body: Aluminium
Seat Seal: TPE

Technical features - Standard models

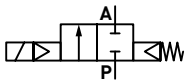
Symbol	Model	Port size	Orifice (mm)	Valve length (mm)	Kv-value *1) (m^3/h)	Operating pressure (bar)
	8290300.0000.00000	G3/4	20	95	18	0,4 ... 8
	8291300.0000.00000	3/4 NPT	20	95	18	0,4 ... 8
	8290400.0000.00000	G1	25	95	22	0,4 ... 8
	8291400.0000.00000	1 NPT	25	95	22	0,4 ... 8

*1) Cv-value (US) ≈ kv value x 1,2

Technical features

Medium:
Neutral gases and liquids (85500)
Slightly aggressive, gases and liquids (85540)
Flow direction:
Fixed
Operating pressure:
0 … 25 bar (0 ... 362 psi)
Fluid temperature:
–20 ... +90°C (-4 ... 194°F)
Ambient temperature:
–20 ... +50°C (-4 ... 122°F)
Air supply must be dry enough to avoid ice formation at temperatures below +2°C (+35°F).
Materials:
Body: Cast steel (85500),
Stainless steel (85540)
Seat seal: NBR,
Internal parts: Stainless steel, PTFE/coal

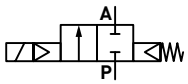
Technical features - Standard models

Symbol	Model Solenoid in V DC	Model Solenoid in V AC	Orifice (mm)	Flow Kv value *1) (m^3/h)	Operating pressure *2) (bar)
	8550200.9401.xxxxx	8550200.9404.xxxxx	15	4,4	0 ... 25
	8550300.9401.xxxxx	8550300.9404.xxxxx	20	7	0 ... 25
	8550400.9401.xxxxx	8550400.9404.xxxxx	25	10,5	0 ... 25
	8550500.8401.xxxxx	8550500.8404.xxxxx	32	25	0 ... 25
	8550600.8401.xxxxx	8550600.8404.xxxxx	40	27	0 ... 25
	8550700.8401.xxxxx	8550700.8404.xxxxx	50	43	0 ... 25

xxxxx Please insert voltage and frequency codes

*1) Cv-value (US) ≈ kv value x 1,2
*2) For gases and liquid fluids up tobis 60 mm^2/s (cSt)

Technical features - Standard models

Symbol	Model Solenoid in V DC	Model Solenoid in V AC	Orifice (mm)	Flow Kv value *1) (m^3/h)	Operating pressure *2) (bar)
	8554200.9401.xxxxx	8554200.9404.xxxxx	15	4,4	0 ... 25
	8554300.9401.xxxxx	8554300.9404.xxxxx	20	7	0 ... 25
	8554400.9401.xxxxx	8554400.9404.xxxxx	25	10,5	0 ... 25
	8554500.8401.xxxxx	8554500.8404.xxxxx	32	25	0 ... 25
	8554600.8401.xxxxx	8554600.8404.xxxxx	40	27	0 ... 25
	8554700.8401.xxxxx	8554700.8404.xxxxx	50	43	0 ... 25

xxxxx Please insert voltage and frequency codes

*1) Cv-value (US) ≈ kv value x 1,2
*2) For gases and liquid fluids up tobis 60 mm^2/s (cSt)

Solenoid operators

Code Voltage	Code Frequency	Voltage	Frequency	Power consumption Inrush-power	Power consumption Holding-power
Voltage and Frequency Solenoid 9401/9404 *1)					
024	00	24 V DC	-	38 W	38 W
024	49	24 V AC	40 … 60 Hz	42 VA	42 VA
110	49	110 V AC	40 … 60 Hz	42 VA	42 VA
120	49	120 V AC	40 … 60 Hz	42 VA	42 VA
230	49	230 V AC	40 … 60 Hz	42 VA	42 VA
Voltage and Frequency Solenoid 8401/8404					
024	00	24 V DC	-	40 W	40 W
024	49	24 V AC	40 … 60 Hz	45 VA	45 VA
110	49	110 V AC	40 … 60 Hz	45 VA	45 VA
120	49	120 V AC	40 … 60 Hz	45 VA	45 VA
230	49	230 V AC	40 … 60 Hz	45 VA	45 VA

*1) C US Voltage (With the expection of solenoid 94XX up to 41 V a.c.)

Other functions and operating voltages available on request

Electrical details for all solenoid systems

Design	DIN VDE 0580
Voltage range	±10%
Duty cycle	100% ED
Protection	EN 60529 IP65
Connector	Form A to DIN EN 175301-803 (included)

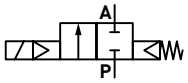
According to DIN VDE 0580 at a solenoid temperature of +20°C.
At elevated temperatures, the power of the solenoid coil could be reduced by up to 30%.

Additional solenoid systems

ATEX Category	Protection	Solenoid	Standard voltage
II2GD	EEx me II T3 T 140°C	8441	24 V DC, 110 V AC, 230 V AC
II3GD	Ex nA II T4 T 135°C *3)	9426	24 V DC, 110 V AC, 230 V AC
II3GD	Ex nA II T4 T 135°C *3)	8426	24 V DC, 110 V AC, 230 V AC
II2GD	Ex d II C T4 und T5 T 130°C resp. T 95°C	8920	24 V DC, 110 V AC, 230 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.
*2) Up to max. +200°C ßuid temperature with solenoid for higher temperature
*3) Only d.c., for a.c. solenoids with design inspection certificate acc. to category 2, e.g. xxxxxxx.8436

Technical features - Standard models

Symbol	Model Solenoid in V DC	Model Solenoid in V AC	Orifice (mm)	Flow Kv value *1) (m^3/h)	Operating pressure *2) (bar)
	8578200.8401.xxxxx	8578200.8404.xxxxx	15	3,7	0 ... 25
	8578300.8401.xxxxx	8578300.8404.xxxxx	20	5,6	0 ... 25
	8578400.8401.xxxxx	8578400.8404.xxxxx	25	7,8	0 ... 25
	8578500.8401.xxxxx	8578500.8404.xxxxx	32	18	0 ... 25
	8578600.8401.xxxxx	8578600.8404.xxxxx	40	24,4	0 ... 25
	8578700.8401.xxxxx	8578700.8404.xxxxx	50	31,8	0 ... 25
	8578800.9501.xxxxx	8578800.9504.xxxxx	65	67	0 ... 25
	8578900.9501.xxxxx	8578900.9504.xxxxx	80	94	0 ... 25
	8579000.9501.xxxxx	8579000.9504.xxxxx	100	144	0 ... 25

xxxxx Please insert voltage and frequency codes
*1) Cv-value (US) ≈ kv value x 1,2
*2) For gases and liquid fluids up tobis 60 mm²/s (cSt)

Technical features

Suitable for use in single-channel safety-related systems in accordance with DIN EN 61508 / 61511 up to and including SIL 2 and up to and including SIL 3 in multi-channel systems.

Flow direction:
Fixed
Medium:
Gases and liquids (air, water, gases according to DVGW data sheet G 260 with seat seal FPM, oils and other fluids on request)
Operating pressure:
0 … 25 bar (0 ... 362 psi)
Fluid temperature:
–10 ... +60°C (14 ... 140°F)
Ambient temperature:
–10 ... +50°C(14 ... 122°F)
Air supply must be dry enough to avoid ice formation at temperatures below +2°C (+35°F).

Materials:
Body: up to DN 50: Stainless steel (1.4408)
from DN 65: Stainless steel (1.4581)
Seat seal: NBR
Internal parts: Stainless steel, PTFE/ Carbon

Solenoid operators

Code Voltage	Code Frequency	Voltage	Frequency	Power consumption Inrush-power	Power consumption Holding-power
Voltage and Frequency Solenoid 8401/8404					
024	00	24 V DC	-	40 W	40 W
024	49	24 V AC *1)	40 ... 60 Hz	45 VA	45 VA
110	49	110 V AC *1)	40 ... 60 Hz	45 VA	45 VA
120	49	120 V AC *1)	40 ... 60 Hz	45 VA	45 VA
230	49	230 V AC *1)	40 ... 60 Hz	45 VA	45 VA
Voltage and Frequency Solenoid 9501/9504					
024	00	24 V DC	-	80 W	80 W
024	49	24 V AC *1)	40 ... 60 Hz	89 VA	89 VA
110	49	110 V AC *1)	40 ... 60 Hz	89 VA	89 VA
120	49	120 V AC *1)	40 ... 60 Hz	89 VA	89 VA
230	49	230 V AC *1)	40 ... 60 Hz	89 VA	89 VA

*1) A.c. only with rectifier plug

Other functions and operating voltages available on request

Electrical details for all solenoid systems

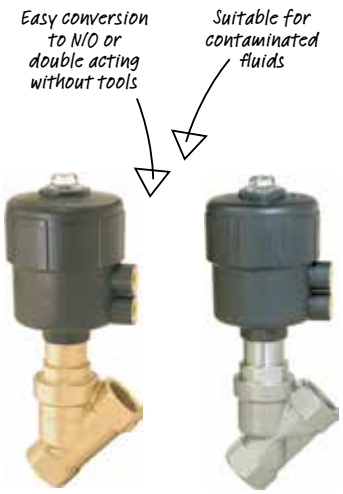
Design	DIN VDE 0580
Voltage range	±10%
Duty cycle	100% ED
Protection	EN 60529 IP65
Connector	Form A to DIN EN 175301-803 (included)

According to DIN VDE 0580 at a solenoid temperature of +20°C.
At elevated temperatures, the power of the solenoid coil could be reduced by up to 30%.

Additional solenoid systems

ATEX Category	Protection	Solenoid	Standard voltage
II2GD	EEx me II T3 T 140°C	8441	24 V DC, 110 V AC, 230 V AC
II2GD	Ex de IIC T4/T5 Ex tD A21 IP65 T 130°C resp. T 95°C	8900	24 V DC, 110 V AC, 230 V AC
II2GD	Ex d IIC T4/T5 Ex tD A21 IP65 T 130°C resp. T 95°C	8920	24 V DC, 110 V AC, 230 V AC
II3GD	Ex nA II T4 Ex tD A22 IP65 T 135°C	8426	24 V DC, 110 V AC, 230 V AC
II2GD	Ex e mb II T3/T4 Ex tD A21 IP65 T 140°C	9540	24 V DC, 110 V AC, 230 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.

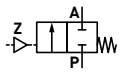


Technical features

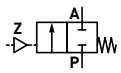
Medium:
Neutral, gaseous and liquid fluids (84500)
Agressives gaseous and liquid fluids (84520)
Flow direction:
Fixed
Operating pressure:
0 … 16 bar (0 ... 232 psi)
See table
Temperature:
Fluid
–10°C … +180°C (14 ... 356°F) max.
Ambient
–10°C … +60°C(14 ... 140°F) max.
Air supply must be dry enough to avoid ice formation at temperatures below +2°C (+35°F).
Materials:
Body: Brass (84500)
Stainless steel (84520)
Seat seal: PTFE
Internal parts: Brass, Stainless steel

Models

Brass – For neutral, gases and liquids

Symbol	Model	Orifice (mm)	Port size	Kv value (m^3/h)	Operating pressure (bar)
	8450200.0000.00000	15	G1/2	4,8	0…16
	8450300.0000.00000	20	G3/4	10	0…10
	8450400.0000.00000	25	G1	14	0…10
	8450500.0000.00000	32	G1 1/4	23	0…7
	8450600.0000.00000	40	G1 1/2	30	0…4,5
	8450700.0000.00000	50	G2	37	0…3

Stainless Steel – For Agressives gaseous and liquid fluids

Symbol	Model	Orifice (mm)	Port size	Kv value (m^3/h)	Operating pressure (bar)
	8452200.0000.00000	15	G1/2	4,8	0…16
	8452300.0000.00000	20	G3/4	10	0…10
	8452400.0000.00000	25	G1	14	0…10
	8452500.0000.00000	32	G1/4	23,0	0…7
	8452600.0000.00000	40	G1/2	30,0	0…4,5
	8452700.0000.00000	50	G2	37,0	0…3

Suitable for installation in extreme low temperature, outdoor and off shore applications

DIN EN 61508
IEC 61508

Technical features

Medium:
Filtered, non-lubricated compressed air, instrument air, nitrogen or other nonflammable, neutral dry fluids

Operating pressure:
0 ... 10 bar (0 ... 145 psi)

Pilot pressure:
2 ... 10 bar (29 ... 145 psi)
(≥ operating pressure)

Fluid/Ambient temperature:
-60 ... 80°C (-76 ... 176°F)

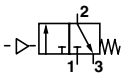
Air supply must be dry enough to avoid ice formation at temperatures below +2°C (+35°F).

For outdoor installation please protect all connections against the penetration of moisture!

Please contact IMI Precision Engineering for operational conditions below -55°C.

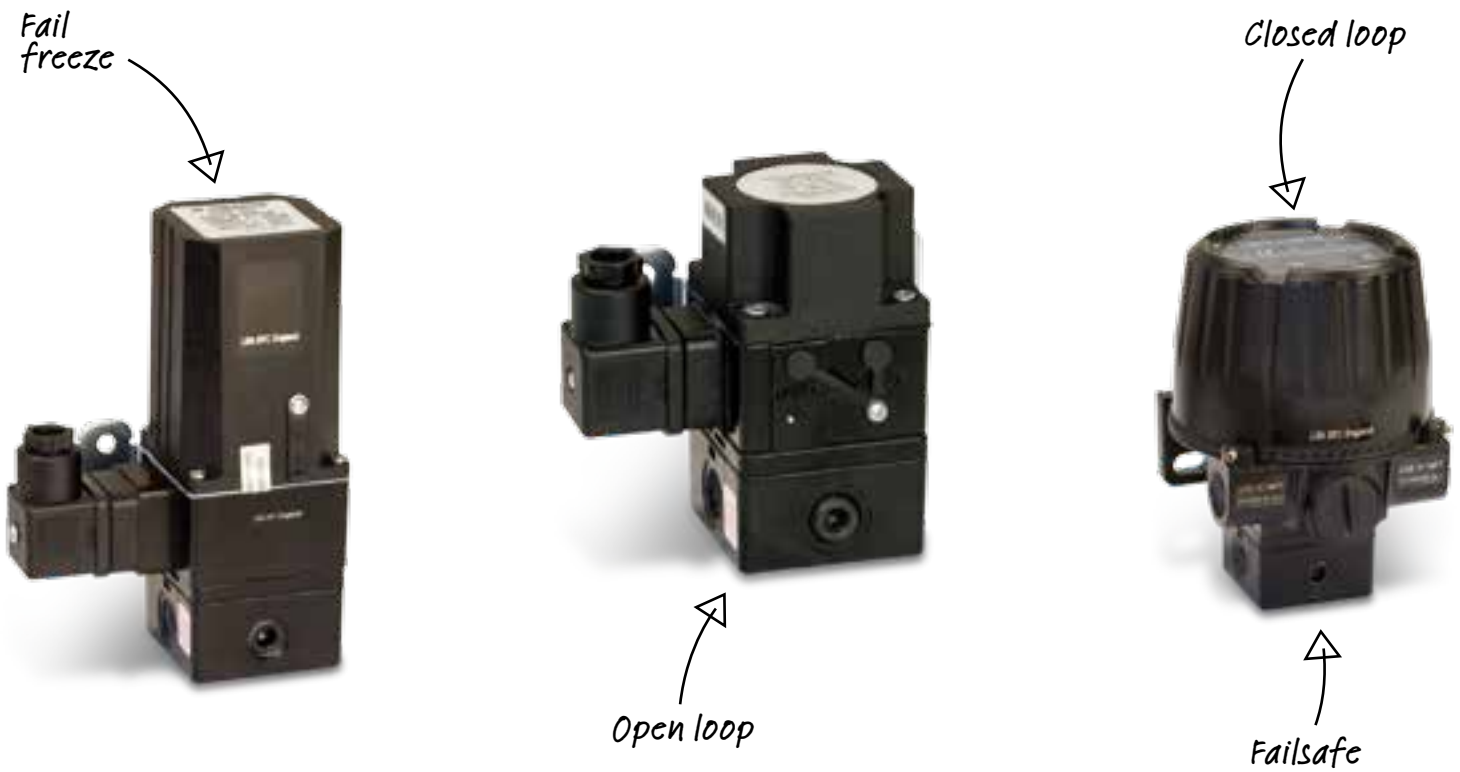
Material:
Housing, flange and inner parts: stainless steel 1.4404 (316 L) *
Dynamic seals: PUR
Static seals: PUR and NBR
* Cracking-resistant for use in H2S-contaminated environments (DIN EN ISO 15156-3:2005).

Technical data

Symbol	Model	Port size 1	2	3	Nominal diameter (mm)	Flow *1) 1 » 2 (l/min)	2 » 3 (l/min)	Flow *2) 1 » 2 (l/min)	2 » 3 (l/min)
	8040005	1/2 NPT	1/2 NPT	3/4 NPT	15	6700	7600	17200	19800
	8040015	3/4 NPT	3/4 NPT	1 NPT	20	11500	14000	29000	35000
	8040025	1 NPT	1 NPT	1 1/4 NPT	25	13900	14700	32300	39600
	8040035	1 1/2 NPT	1 1/2 NPT	1 1/2 NPT	30	24700	30500	56800	72600
	8040055	G1/2	G1/2	G3/4	15	6700	7600	17200	19800
	8040065	G3/4	G3/4	G1	20	11500	14000	29000	35000
	8040075	G1	G1	G1 1/4	25	13900	14700	32300	39600
	8040085	G1 1/2	G1 1/2	G1 1/2	30	24700	30500	56800	72600

Flow conducted according to ISO 6358
In order to ensure full flow and proper function make sure that sufficient pressure supply with feed pipe diameters according to the port size is available.
*1) Inlet pressure 6 bar, outlet pressure 5 bar
*2) Inlet pressure 10 bar, outlet pressure 0 bar

I/P & E/P CONVERTERS



Fast Find **Guide**

140 Series
Closed loop
I/P Failsafe

0.2 … 1 bar
ALU, ZI
Page 63

422 Series
Closed loop
I/P Fail Freeze

0.2 … 1 bar
ZI
Page 64

422 IS Series
Closed loop
I/P Fail Freeze

0.2 ...1 bar
Zi
Page 65

VP10
Open loop
I/P

0.2 … 8 bar
ZI
Page 66

100X Series
Open loop
I/P

0 … 1 bar
ZI
Page 67

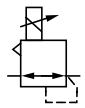
ALU Aluminium ZI Zinc Die-casting

Technical features

Medium:
Oil free, dry air, min filtered to 50 µm; internal in-built air filter
Output pressure:
0,2 ... 1 bar (3 ... 15 psi)
Supply pressure:
1,2 ... 10,3 bar (18 ... 150 psi)
Response time:
< 1 second (from 0 ... 90% or 90 ... 10% of output pressure into a 0,5 litre load)
Temperature sensitivity:
Typically < 0,06% span/°C between -40 ... +85°C (-40 ... +185°F)
Supply sensitivity:
< 0,1% of span for full supply pressure range
Operating temperature:
-40 ... +85°C (-40 ... +185°F)
Air supply must be dry enough to avoid ice formation at temperatures below +2°C (+35°F)

I.P. Rating:
IP66, NEMA Type 4X
Materials:
Body: aluminium and zinc diecasting
Diaphragms: NBR
Black epoxy powder coating standard

Technical data - standard models

Symbol	Model Multi certified units only – IS/Type N/Exd	Certification	Port size	Output pressure	Conduit Entry
	EX14001BJ4LE2	Cenelec only	G 1/4	0,2 ... 1 bar	M 20 x 1,5
	EX14001BK4EE1	ATEX: Ex ia, Exd, Exn FM/CSA:I.S., N.I.	1/4 NPT	0,2 ... 1 bar	1/2 NPT

Options available: Output pressure monitoring gauge

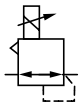
Electrical parameters

Input Signal	4 ... 20 mA (two wire) Terminal voltage < 6,5 V at 20 mA
Failure Mode	Pressure falls to below 15 mbar (0,2 psi) in < 2 sec when input signal fails
Overload Protection	100 mA max overload current
Connections	1/2" NPT or M20; internal terminal block with capacity up to 2,5 mm^2 conductor

Technical features

Medium:
Oil free, dry air, filtered to 5 µm
Output pressure:
See table
Supply pressure:
at least 0,7 bar (10 psi) above maximum required output pressure maximum 3 bar gauge
Flow capacity:
Up to 300NL/min
Response time:
< 8 sec (typically < 3 sec) from 10% ...90% of output pressure into a 0,5 litre volume
< 8 sec (typically < 3 sec) from 90% ...10% of output pressure into a 0,5 litre volume
Temperature sensitivity:
Typically < 0,034 % span/°C between -10°C and +60°C (+14 and +140°F)
Supply sensitivity:
< 0,1% of span for full supply pressure range
Operating temperature:
-20 ... +70°C (-4 ... +158°F)
Air supply must be dry enough to avoid ice formation at temperatures below +2°C (+35°F)
I.P. Rating:
IP65
Materials:
Body: zinc diecasting passivated and epoxy painted
Cover: Glass renforced PA
Diaphragms: NBR

Technical data - standard models

Symbol	Model	Port	Output pressure
	AC2100	1/4 NPT	0,2-1 bar
	AC0100	1/4 NPT	3-15 psi
	AC0138X	1/4 NPT	0,2 - 1,0 Kg/cm^2

For other port sizes or options please contact your sales representative.

Electrical parameters

Input Signal	4-20 mA (two wire). Terminal voltage typically 7,5 V at 20 mA
Failure Mode	Output pressure held at previous value when input signal fails; drift rate 0.02 % in 30 seconds
Overload protection	100 mA max. overload current. Unit unaffected by short duration reverse current
Connections	30mm square connector provided (DIN 43650, form A) mountable in 4 directions
Span/Zero	Independently adjustable up to 20% output range

ATEX
I.S. I/P
Converter

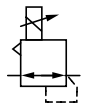
Technical features

Medium:
Oil free, dry air, filtered to 5 µm
Output pressure:
0,2 ... 1 bar
Supply pressure:
at least 0,7 bar above maximum required output pressure maximum 4 bar gauge
Flow capacity:
Up to 250 Nl/min
I.P. Rating:
IP65 with piped exhaust
EMC Compatibility:
Compliant and CE marked in accordance with the EC Directive 2004/108/EC tested to
BS EN 61000-6-2:2005
BS EN 61000-6-4:2007+ A11:2011
Ambient/Media temperature:
-10 ... +70°C

Air supply must be dry enough to avoid ice formation at temperatures below +2°C.

Materials
Body: zinc diecasting passivated nd epoxy painted
Cover: Glass reinforced PA
Diaphragms: NBR

Technical data

Symbol	Model	Port size	Output pressure
	AC301PJ1	G1/4	3 ... 15 psi
	AC301PK1	1/4 NPT	3 ... 15 psi
	AC301BJ1	G1/4	0,2 ... 1 bar
	AC301BK1	1/4 NPT	0,2 ... 1 bar

Electrical parameters

Input Signal	4 ... 20 mA (two wire). Terminal voltage typically < 11 V at 20 mA
Failure Mode	Output pressure held at previous value when input signal fails; drift rate ≤ 0,2% of span in 5 minutes
Overload protection	30 mA max. overload current. Unit unaffected by reverse current
Connections	30mm square connector provided (DIN 43650, form A) mountable in 4 directions
Span/Zero	Independently adjustable up to 15 % output range

Certification

Certification Agency	ATEX Intrinsically safe	IECEx Intrinsically safe
Sira	CE Ex II	
	Sira 03ATEX2007X	IECEx SIR 11.0095X
	Ex ia IIC T4 Ga (Ta = -40 ... +80°C)	Ex ia IIC T4 Ga (Ta = -40 ... +80°C)
	Ui = 28 V d.c. Ii = 110 mA Pi = 0,8 W Ci = 5 nF Li = 0,24 mH	Ui = 28 V d.c. Ii = 110 mA Pi = 0,8 W Ci = 5 nF Li = 0,24 mH
	1G	

Reliable, rugged, open loop control

Technical features

Medium:
Oil free, dry air, filtered to 5 µm
Output pressure:
0,2 ... 1 bar (2,9 ... 14,5 psi)
0,2 ... 6 bar (2,9 ... 87 psi)
0,2 ... 8 bar (2,9 ... 116 psi)
Supply pressure:
At least 0,7 bar (10 psi) above maximum required output pressure.
Up to 2 bar(29 psi) instruments: max 5 bar (72,5 psi).
Up to 8 bar (116 psi) instruments: max 10 bar (145 psi).
Response Time:
< 0,35 seconds for 10 .... 90% or 90 ...10% of output pressure into a 10cc load (1 bar (14,5psi) range instruments)
Temperature sensitivity:
< 0,1% of span/°C between -40 ... +85°C (-40 ... +185°F)
Supply sensitivity:
< 0,075% span output change per % supply pressure change
Operating temperature:
-40 ... +85°C (-40 ... +185°F)
Air supply must be dry enough to avoid ice formation at temperatures below +2°C(+35°F)
I.P. Rating:
IP65 in normal operation
Materials:
Body: Passivated zinc die-casting, epoxy painted
Cover: Glass reinforced PA
Diaphragms: NBR

Technical data - standard models

Symbol	Model	Port size	Flow (l/min)	Control signal	Output pressure (bar)
	VP1001BJ400A00	G 1/4	300	4… 20 mA	0,2… 1
	VP1006BJ401A00	G 1/4	300	4… 20 mA	0,2… 6
	VP1008BJ401A00	G 1/4	300	4… 20 mA	0,2… 8

Electrical parameters

Input Signal	1 ... 4 bar: 2 wire 4 ... 20 mA 6 ... 8 bar: 3 wire 4 ... 20 mA +12 ... 24 V
Failure Mode	Output pressure falls to zero signal state when electrical supply fails
Connections	30 mm square connector provided (DIN 43650, form A) mountable in four orientations

Technical features

Medium:
Oil free, dry air, filtered to 5 µm
Output pressure:
0,2 ... 1 bar (2,9 ... 14,5 psi)
3 ... 15 psi
Supply pressure:
At least 0,7 bar (10 psi) above maximum required output pressure.
max 5 bar (72,5 psi)
Flow capacity:
> 300Nl/min forward & relief flow
Air consumption:
up to 1 bar (15 psi): 2,8 Nl/min
Response Time:
< 0,35 seconds for 10 .... 90% or 90 ...10% of output pressure into a 10cc load (1 bar (14,5psi) range instruments)
Temperature sensitivity:
< 0,1% of span/°C between
-40 ... +85°C (-40 ... +185°F)
Supply sensitivity:
< 0,075% span output change per % supply pressure change
Operating temperature:
-40 ... +85°C (-40 ... +185°F)
Air supply must be dry enough to avoid ice formation at temperatures below +2°C (+35°F).
I.P. Rating:
IP65 in normal operation
Materials:
Body: Passivated zinc die-casting, epoxy painted
Cover: Glass reinforced PA
Diaphragms: NBR

Technical data - standard models

Symbol	Model	Port	Output pressure	Input Signal	ATEX intrinsically safe
	400100R	1/4 NPT	3 ... 15 psi	4 ... 20 mA	
	402100R	1/4 NPT	0,2 ... 1 bar	4 ... 20 mA	
	490100R	1/4 NPT	3 ... 15 psi	4 ... 20 mA	x
	492100R	1/4 NPT	0,2 ... 1 bar	4 ... 20 mA	x

For other port sizes or options please contact your sales representatives

Electrical parameters

Input Signal	1 ... 4 bar: 2 wire 4 ... 20 mA
Failure Mode	Output pressure falls to zero signal state when electrical supply fails
Connections	30 mm square connector provided (DIN 43650, form A) mountable in four orientations

Certification

Certification	Typ 100X Intrinsically Safe
SIRA (CENELEC ATEX approved) to EN60079	Sira 02ATEX2002X Ex ia IIC T4 Ga (Ta = -40° to +80 °C) Ui = 28 V, Ii = 59 mA, Pi = 0.633 W Ci = 0 Li = 10 mH CE Ex II 1G

PRESSURE SWITCHES & SENSORS

Off line Programming

Gold plated contacts

ATEX

Stainless steel housing

Fast Find **Guide**

ELECTRO-MECHANICAL PRESSURE SWITCHES

18D ATEX
G1/4 or Flange

-1 … 30 bar
ALU
Page 71

18D Hydraulic ATEX
G1/4 or Flange

5 … 420 bar
ALU St
Page 73

20D Allfluid ATEX
G1/2

-1 … 63 bar
ALU
Page 74

20D Hydraulic ATEX
G1/4

5 … 400 bar
ALU
Page 75

ELECTRONIC PRESSURE SWITCH

33D Hydraulic/ Allfluid
G1/4 or Flange

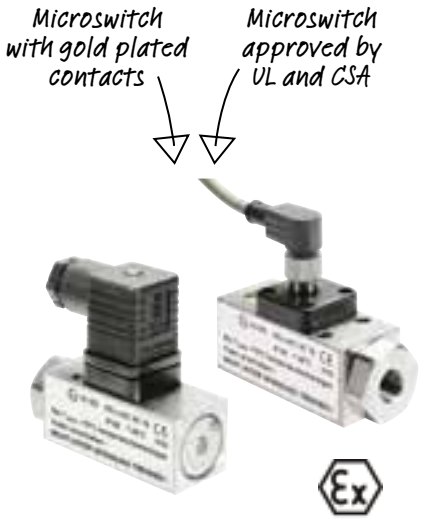
0 … 630 bar
ALU SS
Page 76

ELECTRONIC PRESSURE SENSOR

18S Allfluid
G1/4

0 … 800 bar
SS
Page 78

ALU Aluminium SS Stainless Steel St Steel



Technical features

For Ex applications conforming to Zone 2 (gases):
II3G Ex nAC IIC T6 X and
Zone 22 category (dusts):
II3D Ex tD A22 IP65 (e.g. IP67)
T80°C X.

Medium:
For neutral, non-inflammable gases and fluids
Operation:
Diaphragm
Operating pressure:
-1 ... 30 bar (-14 ... 435 psi)
Degree of protection:
IP65 for DIN EN 175301-803 (DIN 43650) form A
IP67 for M12 x 1
Electrical connection:
DIN EN 175301-803 (DIN 43650) form A or M12 x 1 IEC 947-5-2
Fluid/Ambient temperature:
0 ... +80°C (0 ... +176°F) (FPM)
Air supply must be dry enough to avoid ice formation at temperatures below +2°C (+35°F)

Materials:
Housing: Aluminium
Sealing: FPM/brass
O-ring: NBR

18D

Electrical connection acc. to DIN EN 175301-803, form A - connector included in the scope of supply.
The Ex approval refers to the pressure switch in combination with the supplied plug.

Symbol	Model	Pressure range *1) (bar)	Switching pressure difference Lower range (bar)	Switching pressure difference Upper range (bar)	Max. Over pressure *2) (bar)	Switching cycles (1/min)	Materials Pressure sensor housing	Sealing	Port size
	0880180	-1 ... 0	0,15	0,18	80	100	Aluminium	FPM/BR/NBR	G1/4
	0880280	0,2 ... 2	0,20	0,35	80	100	Aluminium	FPM/BR/NBR	G1/4
	0880380	0,5 ... 8	0,35	0,85	80	100	Aluminium	FPM/BR/NBR	G1/4
	0880480	1 ... 16	0,40	1,20	80	100	Aluminium	FPM/BR/NBR	G1/4
	0880680	1 ... 30	1	5	80	100	Aluminium	FPM/BR/NBR	G1/4
	0881180	-1 ... 0	0,15	0,18	80	100	Aluminium	FPM/BR/NBR	Flange
	0881280	0,2 ... 2	0,20	0,35	80	100	Aluminium	FPM/BR/NBR	Flange
	0881380	0,5 ... 8	0,35	0,85	80	100	Aluminium	FPM/BR/NBR	Flange
	0881480	1 ... 16	0,40	1,20	80	100	Aluminium	FPM/BR/NBR	Flange
	0881680	1 ... 30	1	5	80	100	Aluminium	FPM/BR/NBR	Flange

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

*2) Max. values.
BR = brass

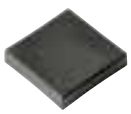
18D

Electrical connection M12x1 acc. to IEC 947-5-2 - connector are not included in delivery, max. allowable voltage 30 V.
The pressure switch will loose the Ex approval when using other connectors than those listed in the data sheet.

Symbol	Model	Pressure range *1) (bar)	Switching pressure difference Lower range (bar)	Upper range (bar)	Max. Over pressure *2) (bar)	Switching cycles (1/min)	Materials Pressure sensor housing	Sealing	Port size
	0880181	-1 ... 0	0,15	0,18	80	100	Aluminium	FPM/BR/NBR	G1/4
	0880281	0,2 ... 2	0,20	0,35	80	100	Aluminium	FPM/BR/NBR	G1/4
	0880381	0,5 ... 8	0,35	0,85	80	100	Aluminium	FPM/BR/NBR	G1/4
	0880481	1 ... 16	0,40	1,20	80	100	Aluminium	FPM/BR/NBR	G1/4
	0880681	1 ... 30	1	5	80	100	Aluminium	FPM/BR/NBR	G1/4
	0881181	-1 ... 0	0,15	0,18	80	100	Aluminium	FPM/BR/NBR	Flange
	0881281	0,2 ... 2	0,20	0,35	80	100	Aluminium	FPM/BR/NBR	Flange
	0881381	0,5 ... 8	0,35	0,85	80	100	Aluminium	FPM/BR/NBR	Flange
	0881481	1 ... 16	0,40	1,20	80	100	Aluminium	FPM/BR/NBR	Flange
	0881681	1 ... 30	1	5	80	100	Aluminium	FPM/BR/NBR	Flange

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

Accessories for use with all 18D series switches

Pressure port reducing nipple	Surge damper	Cover (via adjustment screw)	Connector	Connector M 12 x 1 90°		Connector M 12 x 1 straight	
							
0574767 (brass)	0574773 (brass)	0554737	0570110	0523058 (2 m cable, 4-core)	0523056 (90° without cable)	0523057 (2 m cable, 4-core)	0523055 (without cable)
0550083 (Stainless steel)	0553258 (Stainless steel)			0523053 (5 m cable, 4-core)		0523052 (5 m cable, 4-core)	

Technical features

For Ex applications conforming to Zone 2 (gases): II3G Ex nAC IIC T6 X and Zone 22 category (dusts): II3D Ex tD A22 IP65 (e.g. IP67) T80°C X.

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

Operation:
Softseal piston

Degree of protection:
IP65 for DIN EN 175301-803 (DIN 43650) form A
IP67 for M12 x 1

Electrical connection:
DIN EN 175301-803 (DIN 43650) form A or M12 x 1 IEC 947-5-2

Fluid/Ambient temperature:
0 ... +80°C (0 ... +176°F)

Air supply must be dry enough to avoid ice formation at temperatures below +2°C (+35°F)

Materials:
Housing: Aluminium/Steel
Sealing: PTFE/NBR

For accessories - please see page 72

18D

Electrical connection acc. to DIN EN 175301-803, form A - connector included in the scope of supply. The Ex approval refers to the pressure switc h in combination with the supplied plug.

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

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

18D

Electrical connection M12 x 1 acc. IEC 947-5-2 - connector are not included in delivery, max. allowable voltage 30 V max.The pressure switch will loose the Ex approval when using other connectors than those listed in the data sheet.

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

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

20D Allfluid ATEX
Electro-mechanical pressure switch
-1 ... 63 bar, G1/2

IMI HERION

Technical features

For Ex zones 1 and 2 (gases)
category II2G type of protection
Ex db eb IIC T6
For Ex zones 21 and 22 (dusts)
category II2D type of protection
Ex tb IIIC T80°C IP65

Medium:
For neutral, non-inflammable gases and fluids
Operation:
Softseal piston
Stainless steel bellow
Degree of protection:
IP65 (DIN 40050)
Fluid/Ambient temperature:
-10 ... +75°C (+14 ... 167°F)
Air supply must be dry enough to avoid ice formation at temperatures below +2°C (+35°F)

Materials:
Housing: Aluminium diecast
Sensor: Brass or
Stainless steel (1.4404)
Sealing: Stainless steel-bellows

20D Allfluid ATEX - fixed switching pressure difference

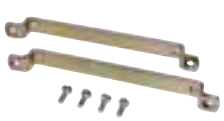
Symbol	Model	Operating pressure *1) (bar)	Over pressure *2) (bar)	Switching pressure difference (typical) Lower range (bar)	Upper range (bar)	Pressure sensor material	Port size	Sensor
	1840115	-1 ... 0	10	0,20	0,23	1.4404	G1/2	B
	1840215	-1 ... 1	10	0,20	0,25	1.4404	G1/2	B
	1840415	-1 ... 2,5	10	0,22	0,26	1.4404	G1/2	B
	1841115	0,05 ... 1	10	0,16	0,18	1.4404	G1/2	B
	1841215	0 ... 1,6	10	0,16	0,20	1.4404	G1/2	B
	1841415	0,5 ... 4	20	0,50	0,55	1.4404	G1/2	B
	1841515	0,5 ... 6	20	0,60	0,70	1.4404	G1/2	B
	1841615	0,5 ... 10	20	0,70	0,90	1.4404	G1/2	B
	1841715	1 ... 16	50	1,00	1,40	1.4404	G1/2	F
	1841815	1 ... 25	50	1,30	1,80	1.4404	G1/2	F
	1841915	5 ... 63	150	2,00	5,00	1.4404	G1/2	H

20D Allfluid ATEX - adjustable switching pressure difference

Symbol	Model	Operating pressure *1) (bar)	Over pressure *2) (bar)	Switching pressure difference (typical) Lower range (bar)	Upper range minimal (bar)	maximal (bar)	Pressure sensor material	Port size	Sensor
	1850115	-1 ... 0	10	0,19	0,25	0,80	1.4404	G1/2	B
	1850215	-1 ... 1	10	0,20	0,30	1,00	1.4404	G1/2	B
	1850415	-1 ... 2,5	10	0,20	0,28	2,50	1.4404	G1/2	B
	1851115	0,05 ... 1	10	0,16	0,18	0,80	1.4404	G1/2	B
	1851215	0 ... 1,6	10	0,10	0,16	1,00	1.4404	G1/2	B
	1851315	0,1 ... 2,5	10	0,18	0,22	2,00	1.4404	G1/2	B
	1851415	0,5 ... 4	20	0,50	0,60	2,50	1.4404	G1/2	B
	1851515	0,5 ... 6	20	0,60	0,70	5,00	1.4404	G1/2	B
	1851615	0,5 ... 10	20	0,70	0,90	8,00	1.4404	G1/2	B
	1851715	1 ... 16	50	1,60	1,90	12,00	1.4404	G1/2	F
	1851815	1 ... 25	50	1,60	2,20	20,00	1.4404	G1/2	F
	1851915	5 ... 63	150	2,00	5,00	20,00	1.4404	G1/2	H

*1) 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.

Accessories

Brackets	Surge damper	Pressure port reducing nipple
		
0574772 (Steel)	0553258 (G1/4, Stainless steel 14505, AISI 303/304 S)	0553831 (G1/2 & 1/2 NPT, Stainless steel 14505, AISI 303/304 S)
0553908 (Stainless steel)	0574773 (G1/4, Brass/Steel)	0550083 (G1/4A ... G1/2A, Stainless steel 14505, AISI 303/304 S)
		0574765 (G1/4 ... 1/4 NPT, Brass)

Microswitch with gold plated contacts

Technical features

For Ex zones 1 and 2 (gases) category II2G type of protection Ex db eb IIC T6
For Ex zones 21 and 22 (dusts) category II2D type of protection Ex tb IIIC T80°C IP65

Medium:
For neutral, self lubricating fluids, hydraulic oil, lube oil, light fuel oil
Operation:
Piston
Degree of protection:
IP65 (DIN 40050)
Fluid/Ambient temperature:
-10 ... +75°C (+14 ... 167°F)
Air supply must be dry enough to avoid ice formation at temperatures below +2°C (+35°F)
Materials:
Housing: Aluminium diecast, anodised
Sensor: Stainless steel (1.4404)
Sealing: Steel piston (NBR or FPM)

20D Hydraulic ATEX - fixed switching pressure difference

Symbol	Model	Switching pressure range *1) (bar)	Max. Over pressure *2) (bar)	Switching pressure difference (typical) Lower range (bar)	Upper range (bar)	Fluid contact parts	Sensor	Port size
	1846505	5 ... 160	300	5,00	9,00	Brass, steel, NBR	Piston	G1/4
	1846705	10 ... 400	550	7,00	18,00	Brass, steel, FPM	Piston	G1/4

20D Hydraulic ATEX - adjustable switching pressure difference

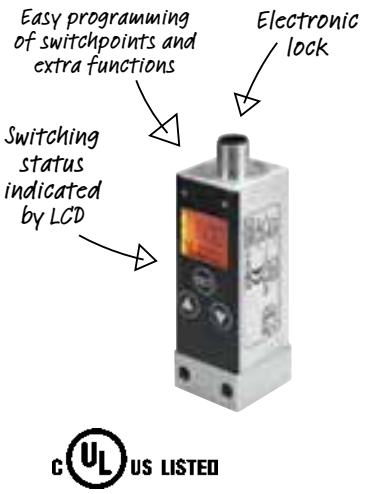
Symbol	Model	Switching pressure range *1) (bar)	Max. Over pressure *2) (bar)	Switching pressure difference (typical) Lower range (bar)	Upper range minimal (bar)	maximal (bar)	Fluid contact parts	Sensor	Port size
	1856505	5 ... 160	300	8,00	22,00	120,00	Brass, steel, FPM	Piston	G1/4
	1856705	10 ... 400	550	15,00	40,00	300,00	Brass, steel, FPM	Piston	G1/4

*1) 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.

Accessories

Brackets	Surge damper	Pressure port reducing nipple
		
0574772 (Steel)	0553258 (G1/4, Stainless steel 14505, AISI 303/304 S)	0553831 (G1/2 & 1/2 NPT, Stainless steel 14505, AISI 303/304 S)
0553908 (Stainless steel)	0574773 (G1/4, Brass/Steel)	0550083 (G1/4A ... G1/2A, Stainless steel 14505, AISI 303/304 S)
		0574765 (G1/4 ... 1/4 NPT, Brass)

33D Hydraulic / Allfluid
Electronic pressure switch
0 ... 630 bar G1/4 or Flange



Technical features

Medium:
For neutral and aggressive, gaseous and liquid fluids
Fluid/Ambient temperature:
-10 ... +80°C/-10 ... + 60°C
(+14 ... +176°F/+14 ... +140°F)
Air supply must be dry enough to avoid ice formation at temperatures below +2°C (+35°F)
Temperature sensitivity:
Zero point < ± 0,4% of final value pro 10° Kelvin - typ.
Range < ± 0,2% of final value pro 10° Kelvin - typ.
Display:
LCD 4 digits, illuminated, pressure unit programmable bar, psi, mpa (customer specific pressure unit available on request)
Materials:
Sensor (fluid-affected parts):
Stainless steel 1.4571
(0 ... 250 bar) (0 ... 3625 psi),
Stainless steel 1.4542
(400 ... 630 bar) (5800 ...9137 psi)

Electrical parameters

Power supply:
UB = 10 to 32 V DC
15 to 32 V DC (analogue) polarity safe
Output signal:
Digital: UB minus 1.5 V
Analogue: 4 to 20 mA
Contact rating:
Imax = 500 mA (short-circuit proof)

Output signal 1 x PNP

Symbol	Model	Switching pressure range (bar)	Over pressure* (bar)	Fluid connection	Output signal	Display step size (bar)
	0863112 **	0 ... 10	40	G1/4	1 x PNP	0,050
	0863116	0 ... 10	40	Flange	1 x PNP	0,050
	0863312 **	0 ... 40	100	G1/4	1 x PNP	0,200
	0863316	0 ... 40	100	Flange	1 x PNP	0,200
	0863412 **	0 ... 100	200	G1/4	1 x PNP	0,500
	0863416	0 ... 100	200	Flange	1 x PNP	0,500
	0863512	0 ... 160	300	G1/4	1 x PNP	0,500
	0863516	0 ... 160	300	Flange	1 x PNP	0,500
	0863612 **	0 ... 250	500	G1/4	1 x PNP	1,000
	0863616	0 ... 250	500	Flange	1 x PNP	1,000
	0863712 **	0 ... 400	750	G1/4	1 x PNP	2,000
	0863812	0 ... 630	1000	G1/4	1 x PNP	2,000

* 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.

** Standard models.

Output signal 2 x PNP

Symbol	Model	Switching pressure range (bar)	Over pressure* (bar)	Fluid connection	Output signal	Display step size (bar)
	0863122 **	0 ... 10	40	G1/4	2 x PNP	0,050
	0863126	0 ... 10	40	Flange	2 x PNP	0,050
	0863322	0 ... 40	100	G1/4	2 x PNP	0,200
	0863422 **	0 ... 100	200	G1/4	2 x PNP	0,500
	0863426	0 ... 100	200	Flange	2 x PNP	0,500
	0863522	0 ... 160	300	G1/4	2 x PNP	0,500
	0863526	0 ... 160	300	Flange	2 x PNP	0,500
	0863622 **	0 ... 250	500	G1/4	2 x PNP	1,000
	0863722 **	0 ... 400	750	G1/4	2 x PNP	2,000
	0863822	0 ... 630	1000	G1/4	2 x PNP	2,000

* 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.

** Standard models.

Output signal 1 x PNP/1 x analogue 4 ... 20 mA

Symbol	Model	Switching pressure range (bar)	Over pressure* (bar)	Fluid connection	Output signal	Display step size (bar)
	0863142 **	0 ... 10	40	G1/4	1 x PNP / 4 ... 20 mA	0,050
	0863342	0 ... 40	100	G1/4	1 x PNP / 4 ... 20 mA	0,200
	0863442 **	0 ... 100	200	G1/4	1 x PNP / 4 ... 20 mA	0,500
	0863542	0 ... 160	300	G1/4	1 x PNP / 4 ... 20 mA	0,500
	0863642 **	0 ... 250	500	G1/4	1 x PNP / 4 ... 20 mA	1,000
	0863742	0 ... 400	750	G1/4	1 x PNP / 4 ... 20 mA	2,000
	0863842	0 ... 630	1000	G1/4	1 x PNP / 4 ... 20 mA	2,000

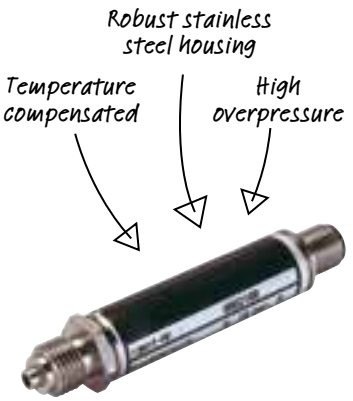
* Short-term pressure peaks are not allowed to exceed this limit value during operation. Operative utilization of the limit value is not permitted. The limit value corresponds to the maximum testing pressure.

** Standard models.

Accessories

Pressure port reducing nipple	Surge damper	Connector M 12 x 1 90°		Connector M 12 x 1 straight	
					
0574767 (brass)	0574773 (brass)	0523058 (2 m cable, 4-core)	0523056 (90° without cable)	0523057 (2 m cable, 4-core)	0523055 (without cable)
0550083 (Stainless steel)	0553258 (Stainless steel)	0523053 (5 m cable, 4-core)		0523052 (5 m cable, 4-core)	
		0250081 (5 m cable length, 5-core, on PE-requirement*)			

* Cable with screening



18S Allfluid with M12 x 1 - Electrical connection

Symbol	Model	Measuring range (relative pressure) bar	Over pressure	Fluid connection	Output signal
P/I	0862170	0 ... 10	40	G1/4	4 ... 20 mA
	0862370	0 ... 25	50	G1/4	4 ... 20 mA
	0862470	0 ... 100	200	G1/4	4 ... 20 mA
	0862670	0 ... 250	500	G1/4	4 ... 20 mA
	0862770	0 ... 400	750	G1/4	4 ... 20 mA
	0862970	0 ... 800	1000	G1/4	4 ... 20 mA
P/U	0862180	0 ... 10	40	G1/4	0 ... 10 Volt
	0862380	0 ... 25	50	G1/4	0 ... 10 Volt
	0862480	0 ... 100	200	G1/4	0 ... 10 Volt
	0862680	0 ... 250	500	G1/4	0 ... 10 Volt
	0862780	0 ... 400	750	G1/4	0 ... 10 Volt
	0862980	0 ... 800	1000	G1/4	0 ... 10 Volt

Plug not included. Alternative sensor ranges available on request.

Technical features

Medium:
For neutral and aggressive gases or fluids
Temperature:
Fluid:
-20 ... +85°C or -40 ... +125°C*
(-4 ... +185°F or 40 ... +257°F)*
Ambient:
-20 ... +85°C or -40 ... +110°C*
(-4 ... +185°F or (-40 ... +230°F)*
*on request
Air supply must be dry enough to avoid ice formation at temperatures below +2°C (+35°F)
Degree of protection:
IP65 (DIN 40050) with mounted plug
Supply voltage:
12 ... 30 V d.c. (current output)
15 ... 30 V d.c. (voltage output)
Output signal:
4 to 20 mA (2-wire technology)
0 to 10 V (3-wire technology)
Frequency output on request
Electrical connection:
M12 x 1/cable on request
Temperature sensitivity:
Zero point < ± 0,4% of final value pro 10° Kelvin - typ.
Range < ± 0,2% of final value pro 10° Kelvin - typ.
Materials:
Housing: Stainless steel 1.4571/1.4542
Sensor: Stainless steel membrane 1.4542

Accessories

Connector M 12 x 1 90°		Connector M 12 x 1 straight	
			
0523058 (2 m cable, 4-core)	0523056 (90° without cable)	0523057 (2 m cable, 4-core)	0523055 (without cable)
0523053 (5 m cable, 4-core)		0523052 (5 m cable, 4-core)	
0799845 (2 m cable length, 5-core, on PE-requirement*)			
0250081 (5 m cable length, 5-core, on PE-requirement*)			

* Cable with screening

AIR PREPARATION

Suitable for marine and offshore applications

Lloyds register type approved

High efficiency water removal

Miniature high corrosion resistant design

Fast Find **Guide**

STAINLESS STEEL - AIR PREPARATION

F22
Filter
1/2”

0 ... 17 bar
SS
Page 81

R22
Regulator
1/2”

0,4 ... 10 bar
SS
Page 81

L22
Lubricator
1/2”

0 ... 17 bar
SS
Page 81

22 Series
Three Stage Filtration
1/2”

0 .... 17 bar
SS
Page 82

B38
Filter Regulator
1/2”

0,3 ... 9 bar
SS
Page 83

B38P
Filter Regulator
1/4” & 3/8

0,5 ... 10 bar
SS
Page 83

R38
Instrument Regulator
1/4”

0,04 ... 10 bar
SS
Page 84

B38
Instrument Filter Regulator
1/4”

0,25 ... 10 bar
SS
Page 84

IFR3, IFR4
Filter Regulator
1/4” & 1/2”

0,5 ... 15 bar
SS
Page 85

R05
Regulator
1/4”

0,3 ... 8,6 bar
SS
Page 86

B05
Filter Regulator
1/4”

0,3 ... 8,6 bar
SS
Page 86

STAINLESS STEEL - HIGH PRESSURE FILTRATION

W11, W12, W13
Filter - mesh element
3/8” ... 1 1/2”

0 ...750 bar
SS
Page 87

ZINC OR ALUMINIUM ALLOY - GENERAL PURPOSE AIR PREPARATION

B72G, B74G
Excelon Filter Regulator 1/4” & 1/2

0,3 ... 10 bar
ALU, ZI
Page 88

B68G
Olympian Filter Regulator 1”

0,4 ... 8 bar
ALU
Page 89

ALU Aluminium SS Stainless Steel ZI Zinc Die-casting

Lloyds Register Type Approved

Materials meet NACE recommendations

Technical features

Medium:
Compressed air only
Maximum inlet pressure:
17 bar (246 psi) (F22, L22)
20 bar (290 psi) (R22)
Filter element:
25 µm (F22)
Gauge ports:
1/4 PTF (R22)
Pressure range:
R22: 0,4...10 bar (5,8 ... 150 psi)
Note: Outlet pressure can be adjusted in excess of and also less than those listed
Start point:
(L22): 1,7 dm^3/s at 6,3 bar
Ambient/Media temperature:
–20°C … +80°C (-4°F ... +176°F)
Air supply must be dry enough to avoid ice formation at temperatures below +2°C (+35°F)
Materials:
Body & bowl:
stainless steel (F22, L22)
Filter element:
PE- or sintered stainless steel (F22)
Adjusting screw:
stainless steel (R22)
Elastomers:
Synthetic rubber

Models / Accessories / Service Kit

F22 SERIES

AUTO DRAIN Model	MANUAL DRAIN Model	Port size	Flow* (dm^3/s)	Wall mounting bracket	Auto drain	Manual drain
						
F22-400-A7DA	F22-400-M7DA	1/2 PTF	57	18-001-962	F22-KITA25	F22-KITM25

* Typical flow with 10 bar inlet pressure and 0,5 bar droop from a set pressure of 6,3bar

Models / Accessories / Service Kit

R22 SERIES

Model	Port size	Flow* (dm^3/s)	Wall mounting bracket	Neck mounting bracket	Gauge**	Service kit
						
R22-401-RNMA	1/2 PTF	50	18-001-962	18-001-959	18-013-909	R22-KITR

* Typical flow with 10 bar inlet pressure and 1 bar droop from a set pressure of 6,3 bar
** Stainless Steel Items not strictly to NACE MR-01-75

Models / Accessories / Service Kit

L22 SERIES

Model	Port size	Flow* (dm^3/s)	Wall mounting bracket	Service kit
				
L22-400-0P8A	1/2 PTF	48	18-001-962	L22-KIT

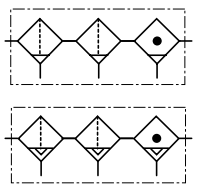
* Typical flow with 10 bar inlet pressure and 0,5 bar droop from a set pressure of 6,3 bar

Technical features

Medium:
Compressed air, Hydrocarbon gas*
Air quality:
Within ISO 8573-1, Class 1 (particulates) and Class 2 (oil content)
Operating pressure:
17 bar (246 psi) max
Filter elements:
1st stage: 25 µm
2nd stage: 5 µm
3rd stage: 0.01 µm
Maximum remaining oil content in outlet air:
0,01 ppm at 20°C with an inlet concentration of 12 ppm.
Ambient/Media temperature:
-20°C ... +80°C (-4°F ... +176°F)
Air supply must be dry enough to avoid ice formation at temperatures below +2°C (+35°F)

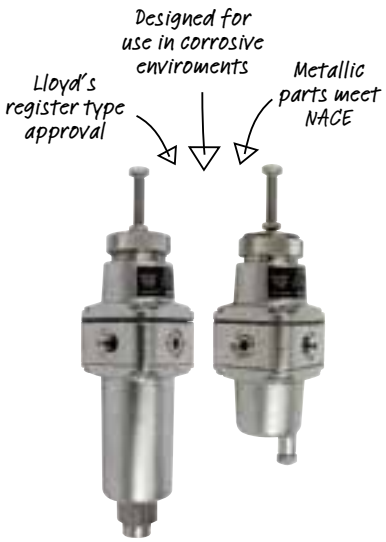
Materials:
Body & bowl: 316 stainless steel
Filter element: 316 sintered stainless steel, Acetal, synthetic fiber, EPDM, polyester
Bowl sight glass: Pyrex
Elastomers: NBR
Manual drain: 316 Stainless steel, NBR
Automatic drain: 316 Stainless steel, Nylon, Acetal, NBR
Service life indicator
Lens: Transparent nylon
Internal parts: Acetal
Spring: 18-8 Stainless steel

Technical data, standard model

Symbol	Model	Port size	Flow *1) (dm^3/s)	Drain	Service life indicator	Weight (kg)
	24-022-003	1/2 PTF	35,4	Manual	Visual	6,05
	24-022-004	1/2 PTF	35,4	Automatic	Visual	6,29

*1) Maximum flow with at 6,3 bar inlet pressure to maintain stated oil removal performance

*Confirm compatibility with materials of construction. Use in gas applications must be in a well vented or outdoor area. Products are designed with an allowable leakage and should only be used within the specifications printed on the data sheet or the product label for pressure, temperature, etc. It is the responsibility of the user to apply the product in a safe environment free from potential fire or explosive materials or components. IMI Precision Engineering will not be responsible for any injury or damage caused by the use of the product in an unsafe application.



Technical features

Medium:
Compressed air only
Maximum inlet pressure:
17 bar (246 psi) (autodrain)
31 bar (449 psi) (manual drain)
Flow:
50 dm^3/s
Typical flow with 12 bar inlet pressure, 8 bar set pressure and 1 bar droop from set
Gauge ports:
1/4" PTF
Relief port:
1/8" PTF
Ambient/Media temperature:
–40°C … +80°C (-40°F ... +176°F)
Air supply must be dry enough to avoid ice formation at temperatures below +2°C (+35°F)
Particle removal:
5 µm or 25 µm filter element
Materials:
Body, bowl, bonnet, and adjusting screw: Stainless steel
Filter element: PE (B38), Stainless steel (B38P)
Elastomers: NBR (B38), FPM (B38P)

Models

Accessories

B38 SERIES - GENERAL PORPUSE

Model	Port size	Outlet Pressure range	Flow* (dm^3/s)	Drain	Element	Neck mounting bracket & nut	Gauge**
							
B38-444-M1LA	1/2 PTF	0,3 … 9 bar	50	Manual	5 µm	18-001-973	18-013-909
B38-444-M2LA	1/2 PTF	0,3 … 9 bar	50	Manual	25 µm	18-001-973	18-013-909
B38-444-A1LA	1/2 PTF	0,3 … 9 bar	50	Automatic	5 µm	18-001-973	18-013-909
B38-444-A2LA	1/2 PTF	0,3 … 9 bar	50	Automatic	25 µm	18-001-973	18-013-909

* Typical flow with 12 bar inlet pressure and 1 bar droop from set pressure of 8 bar
** Stainless Steel Items not strictly to NACE MR-01-75
Units supplied complete with panel mounting ring

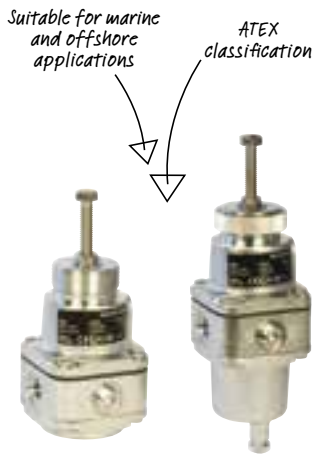
Models

Accessories

B38P - HIGH FLOW

Model	Port size	Outlet Pressure range	Flow* (dm^3/s)	Drain	Element	Neck mounting bracket & nut	Gauge**
							
B38P-254-BIMA	1/4 PTF	0,5 … 10 bar	40	Manual	5 µm	18-001-973	18-013-909
B38P-354-BIMA	3/8 PTF	0,5 … 10 bar	40	Manual	5 µm	18-001-973	18-013-909
B38P-254-AIMA	1/4 PTF	0,5 … 10 bar	40	Automatic	5 µm	18-001-973	18-013-909
B38P-354-AIMA	3/8 PTF	0,5 … 10 bar	40	Automatic	5 µm	18-001-973	18-013-909

* Typical flow with 12 bar inlet pressure and 1 bar droop from set pressure of 8 bar
** Stainless Steel Items not strictly to NACE MR-01-75



Technical features

Medium:
Compressed air only
Maximum inlet pressure:
17 bar (246 psi)
(B38 automatic drain)
31 bar (449 psi)
(R38 & B38 manual drain)
Gauge ports:
1/4" PTF
Pressure range:
See table
Note: Outlet pressure can be adjusted in excess of and also less than those listed
Ambient/Media temperature:
-40°C ... +80°C (-40°F ... +176°F)
Air supply must be dry enough to avoid ice formation at temperatures below +2°C (+35°F).
Materials:
Body, bowl, bonnet and adjusting screw: Stainless steel
Filter element: PE (B38 only)
Elastomers: Synthetic rubber

Models — Accessories

R38 SERIES PRECISION PRESSURE REGULATOR

Model	Port size	Pressure range	Flow* (dm^3/s)	Neck mounting bracket & nut	Gauge**
					
R38-240-RNCA	1/4 PTF	0,04 … 2 bar	8	18-001-973	18-013-913
R38-240-RNFA	1/4 PTF	0,07 … 4 bar	8	18-001-973	18-013-913
R38-240-RNMA	1/4 PTF	0,50 … 10 bar	8	18-001-973	18-013-909

* Typical flow with 7 bar inlet pressure and 0,05 bar droop from set pressure of 1 bar
** Stainless Steel Items not strictly to NACE MR-01-75

Models — Accessories

B38 SERIES PRECISION FILTER/REGULATOR

Model	Port size	Pressure range	Flow* (dm^3/s)	Drain	Filter-element	Neck mounting bracket & nut	Gauge**
							
B38-244-B1KA	1/4 PTF	0,25 … 7 bar	8	Manual	5 µm	18-001-973	18-013-909
B38-244-B2KA	1/4 PTF	0,25 … 7 bar	8	Manual	25 µm	18-001-973	18-013-909
B38-244-A1KA	1/4 PTF	0,25 … 7 bar	8	Automatic	5 µm	18-001-973	18-013-909
B38-244-A2KA	1/4 PTF	0,25 … 7 bar	8	Automatic	25 µm	18-001-973	18-013-909
B38-244-B1MA	1/4 PTF	0,4 … 10 bar	8	Manual	5 µm	18-001-973	18-013-909
B38-244-B2MA	1/4 PTF	0,4 … 10 bar	8	Manual	25 µm	18-001-973	18-013-909
B38-244-A1MA	1/4 PTF	0,4 … 10 bar	8	Automatic	5 µm	18-001-973	18-013-909
B38-244-A2MA	1/4 PTF	0,4 … 10 bar	8	Automatic	25 µm	18-001-973	18-013-909

* Typical flow with 7 bar inlet pressure and 0,05 bar droop from set pressure of 1 bar
** Stainless Steel Items not strictly to NACE MR-01-75

Suitable for marine and offshore applications

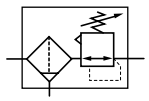
ATEX

Technical features

Medium:
Compressed air
Maximum inlet pressure:
20 bar (290 psi)
Outlet pressure range:
Standard:
0,5 ... 10 bar (7 ... 145 psi)
Ambient/Media temperature:
Standard:
-30°C ... +90°C (-22°F ... +194°F)
Optional:
-55°C ... +90°C (-67°F ... +194°F)
Air supply must be dry enough to avoid ice formation at temperatures below +2°C (+35°F).

Materials:
Valve body: 316 stainless steel
Seat and spring: stainless steel
O-rings, seals and diaphragm: NBR

Models - No Gauge

Symbol	Model	Port size	Outlet pressure *1) (bar)	Element (µm)	Flow *2) (dm³/s)	Drain	Gauge
	YR2ACA1H0BS040	1/4 NPT	0,5 ... 10	40	65	Manual	None
	YR2ACA3H0BS040	1/2 NPT	0,5 ... 10	40	160	Manual	None

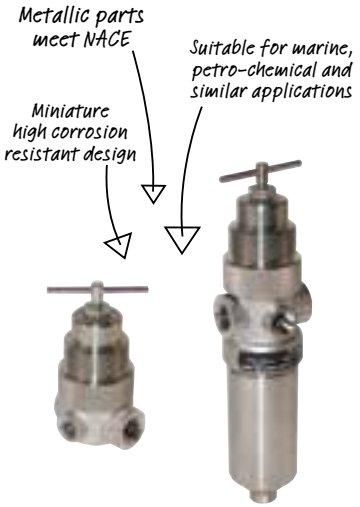
*1) Outlet pressure can be adjusted to pressures in excess of, and less than, those specified.
Do not use these units to control pressures outside of the specified ranges.

*2) Typical flow with 10 bar inlet pressure, 6,3 bar set pressure and a 1 bar drop from set.

Models - inc. gauge

Model	Port size	Flow *2) (dm³/s)	Drain Type	Element Size	Gauge Type
					
YR2ACA1H1BS005	1/4 NPT	65	Manual	5 µm	Dry
YR2ACA1H1BS040	1/4 NPT	65	Manual	40 µm	Dry
YR2ACA1H2BS005	1/4 NPT	65	Manual	5 µm	Glycerine filled
YR2ACA1H2BS040	1/4 NPT	65	Manual	40 µm	Glycerine filled
YR2ACA3H1BS005	1/2 NPT	160	Manual	5 µm	Dry
YR2ACA3H1BS040	1/2 NPT	160	Manual	40 µm	Dry
YR2ACA3H2BS005	1/2 NPT	160	Manual	5 µm	Glycerine filled
YR2ACA3H2BS040	1/2 NPT	160	Manual	40 µm	Glycerine filled
YR2AAA1H1BS005	1/4 NPT	65	Automatic	5 µm	Dry
YR2AAA1H1BS040	1/4 NPT	65	Automatic	40 µm	Dry
YR2AAA1H2BS005	1/4 NPT	65	Automatic	5 µm	Glycerine filled
YR2AAA1H2BS040	1/4 NPT	65	Automatic	40 µm	Glycerine filled
YR2AAA3H1BS005	1/2 NPT	160	Automatic	5 µm	Dry
YR2AAA3H1BS040	1/2 NPT	160	Automatic	40 µm	Dry
YR2AAA3H2BS005	1/2 NPT	160	Automatic	5 µm	Glycerine filled
YR2AAA3H2BS040	1/2 NPT	160	Automatic	40 µm	Glycerine filled

*2) Typical flow with 10 bar inlet pressure, 6,3 bar set pressure and a 1 bar drop from set.



Technical features

Medium:
Compressed air only
Maximum inlet pressure:
17 bar (246 psi)
Filter element:
5 µm
Gauge ports:
1/8” PTF
Pressure range:
0,3 ... 8,6 bar (4,4 ... 123 psi)
Ambient/Media temperature:
-34°C ... +66°C (-29°F ... +176°F)
Air supply must be dry enough to avoid ice formation at temperatures below +2°C (+35°F).

Materials:
Body and valve: Stainless steel 316
Bowl : Stainless steel 316 (B05 only)
Bonnet: Stainless steel 316
Valve seat: Acetal
Spring: Stainless steel 302
Drain: Stainless steel 316 (B05 only)
Filter element: Sintered PE (B05 only)
Elastomers: FPM
Automatic drain: NBR (B05 only)

Models

Accessories

B05 SERIES

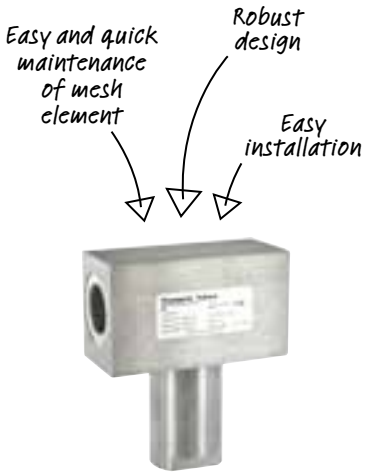
Model	Port size	Flow* (dm^3/s)	Gauge**	Mounting nut (Acetal)
				
B05-238-M1LA	1/4 PTF	5	18-013-844	2962-89

Manual Drain

R05 SERIES

Model	Port size	Flow* (dm^3/s)	Gauge**	Mounting nut (Acetal)
				
R05-232-RNLA	1/4 PTF	3	18-013-844	2962-89

* Typical flow with 10 bar inlet pressure and 1 bar droop from set pressure of 6,3 bar
** Stainless Steel Items not strictly to NACE MR-01-75



Technical data, standard models

Symbol	Model	Port size	Normal size (mm)	Weight (kg)
	W11A9E2N25	G 3/8	10	1,0
	W12A9E6N25	G 1	16	3,6
	W13A9E8N25	G 1 1/2	24	6,4

Technical features

Medium:
Liquids and gases
Maximum inlet pressure:
W11: 750 bar (10875 psi)
W12: 420 bar (6094 psi)
W13: 310 bar (4496 psi)
Filtration:
25 µm standard
Ambient/Media temperature:
-10 ... +100°C (+14 ... +212°F)
standard
-40 ... +150°C (-40 ... +302°F)
on request

Air supply must be dry enough to avoid ice formation at temperatures below +2°C (+35°F).

Materials
Body: stainless steel bs en 10088 1.4401
Filter: stainless steel mesh
O-Rings: NBR

Technical features

Medium:
Compressed air only
Maximum inlet pressure:
10 bar (246 psi)
Pressure range:
0,3 ... 10 bar (5 ... 150 psi)
Filter element:
40 µm
Gauge ports:
Rc1/8 (B72 & B74 with ISO G thread)
1/8 PTF (B72 with PTF thread)
1/4 PTF (B74 with PTF thread)
Ambient/Media temperature:
–34°C … +65°C (-29°F ... +149°F) (B72)
–34°C … +80°C (-29°F ... +176°F) (B74)
Air supply must be dry enough to avoid ice formation at temperatures below +2°C (+35°F).
Material:
Body: Zinc die-casting (B72)
Bonnet: Acetal (B72)
Body & bonnet:
Aluminium die-casting (B74)
Valve: Brass/PE
Metal bowl: zinc die-casting (B72)
Metal bowl: Aluminium die-casting (B74)
Liquid level indicator lens (Metal bowl):
Transparent PA (Pyrex optional)
Element: Sintered polypropylene
Elastomers: CR and NBR

Models — Accessories

B72G SERIES AUTO DRAIN Model	MANUAL DRAIN Model	Port size	Flow* (dm^3/s)	Wall mounting bracket	Neck mounting bracket	Gauge 0…10 bar	Tamper resistant kit
							
B72G-2GK-AE3-RMN	B72G-2GK-QD3-RMN	G1/4	38	4224-50	74316-50	18-013-989	4255-51
B72G-2AK-AE3-RMN	B72G-2AK-QD3-RMN	1/4 PTF	38	4224-50	74316-50	18-013-212	4255-51

Models — Accessories

B74G SERIES AUTO DRAIN Model	MANUAL DRAIN Model	Port size	Flow* (dm^3/s)	Wall mounting bracket	Neck mounting bracket	Gauge 0…10 bar	Tamper resistant kit
							
B74G-4GK-AD3-RMN	B74G-4GK-QD3-RMN	G1/2	100	4324-50	4368-51	18-013-013	4355-51
B74G-4AK-AD3-RMN	B74G-4AK-QD3-RMN	1/2 PTF	100	4324-50	4368-51	18-013-209	4355-51

Technical features

Medium:
Compressed air only
Maximum inlet pressure:
17 bar (246 psi)
Filterelement:
40 µm
Gauge ports:
ISO G ports have Rc1/8 gauge port
PTF ports have 1/8 PTF gauge ports
Ambient/Media temperature:
–20°C … +80°C (-4°F ... +176°F)

Air supply must be dry enough to avoid ice formation at temperatures below +2°C (+35°F).

Pressure range:
0,4...8 bar (6...120 Psi)

Note: Outlet pressure can be adjusted in excess of and also less than those listed

Materials:
Body, bonnet, bowl & yoke:
Aluminium die-casting
Adjusting knob: Acetal resin
Elastomers: Synthetic rubber
Filter element: Sintered plastic

Models

Accessories

B68G SERIES Auto drain Model	Manual drain Model	Port size	Flow* (dm^3/s)	Wall mounting bracket	Gauge 0…10 bar	Tamper resistant kit
						
B68G-8GK-AR3-RLN	B68G-8GK-MR3-RLN	G1	240	18-001-979	18-013-013	4355-51
B68G-8AK-AR3-RLN	B68G-8AK-MR3-RLN	1" PTF	240	18-013-204	18-013-013	4355-51

* Typical flow with 10 bar inlet pressure and 1 bar droop from set pressure of 6,3 bar
For replacement filter/regulator (without yoke) substitute "N" at the 5th and 6th digits eg. B68G-NNK-AR3-RLN

ANCILLARY PRODUCTS

Fast Find **Guide**

QUICK EXHAUST VALVES

QEV
1/4" ... 1"

0,5 ... 12 bar
SS
Page 93

EXHAUST FILTERS

0613422, 0613423
1/4" & 1/2"

0 ... 10 bar
POM
Page 94

SILENCERS

MB Series
1/8" ... 1"

-1 ... 20 bar
AL
Page 95

0014, 0613 Series
1/4", 1/2"

0 ... 25 bar
SS
Page 96

T40
M5 ... 1"

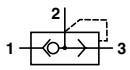
0 ... 10 bar
BR
Page 97

M/S
M5 ... 1"

-1 ... 10 bar
PE
Page 98

AL Aluminium BR Brass SS Stainless Steel PE Polyethylene POM Plastic Polymer

Technical data, standard models

Symbol	Model	Port size	Flow factor	
			Cv *1)	Kv *2)
	QEV13AA1H00S	1/4 NPT	1,6/2,1	23,2/30,5
	QEV13AA3H00S	1/2 NPT	6,4/5,5	92,8/79,8
	QEV13AA5H00S	3/4 NPT	10,4/10,8	149
	QEV13AA6H00S	1 NPT	10,4/15,4	149

*1) Measured in USgpm for 1 psi Δp
*2) Measured in l/min for 1 bar (15 psi) Δp

Technical features

Medium:
Compressed air and other neutral gases
Operating pressure:
0,5 ... 12 bar (7 ... 174 psi)
Leak Performance:
Bubble tight
Fluid/Ambient temperature:
-50 ... +80°C (-58 ... +176°F)
Air supply must be dry enough to avoid ice formation at temperatures below +2°C (+35°F).

Materials:
Valve body & trim:
316L stainless steel
O-Rings seats & seals:
NBR

Technical features

Medium:
Lubricated or non-lubricated compressed air, inert gases

Operation:
The non-return function protects the spring chamber of pneumatic actuators in particular against aggressive ambient air

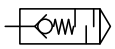
Operating pressure:
10 bar max. (145 psi)

Operating temperature:
-55 ... +80°C (-67 ... +176°F)

Air supply must be dry enough to avoid ice formation at temperatures below +2°C (+35°F).

Materials:
Housing: POM
‘O’-rings: VMQ

Models

Symbol	Model	Thread	Suitable for
	0613422	1/4”	G1/4, 1/4 NPT
	0613423	1/2”	G1/2, 1/2 NPT

Technical features

Medium:
Compressed air, filtered, lubricated and non-lubricated, inert gases

Operating pressure:
–1 … 20 bar (-14 ... 290 psi)

Ambient temperature:
–20 … +80°C (–4 … +176°F

Air supply must be dry enough to avoid ice formation at temperatures below +2°C (+35°F).

Materials:
Aluminium body and shell,
brass mesh element

Models

Symbol	Male Thread	
	Model BSPT	**Port Size**
	MB001B	R1/8
	MB002B	R1/4
	MB003B	R3/8
	MB004B	R1/2
	MB006B	R3/4
	MB008B	R1

	Male Thread	
	Model PTF	**Port Size**
	MB001A	1/8 PTF
	MB002A	1/4 PTF
	MB003A	3/8 PTF
	MB004A	1/2 PTF
	MB006A	3/4 PTF
	MB008A	1 PTF

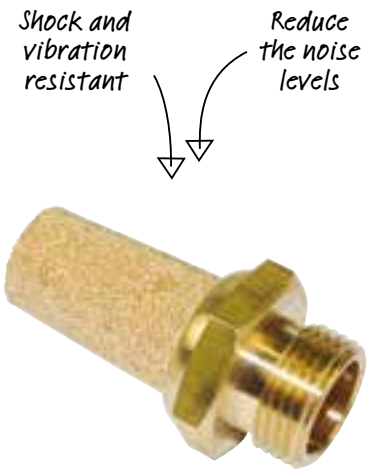
Technical data

Symbol	Model	Port size	Flow kv l/min	Continuous sound pressure level *1) 0,7 bar	6 bar
	0014613	G1/4	12	63	78
	0613678	1/4 NPT	12	63	78
	0014813	G1/2	45	58	76
	0613679	1/2 NPT	45	58	76

*1) Measured in dBA/1 meter in front and side from unit.

Technical features

Medium:
Compressed air, filtered and non-lubricated
Operating pressure:
25 bar max. (362 psi)
Fluid/Ambient temperature:
-25 ... +100°C (-13 ... +212°F)
Air supply must be dry enough to avoid ice formation at temperatures below +2°C (+35°F).
Materials:
Filter element: stainless steel
Body: stainless steel



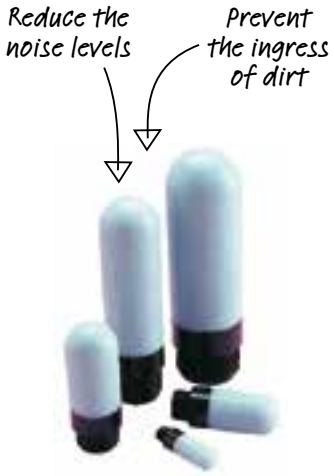
Technical data, Standard models

Symbol	Model with ISO G-threads BSPP	Model with ISO R-threads BSPT	Port size	Flow factor Cv	Kv *1)	Continuous sound pressure level *2) 0,7 bar	6 bar
	T40M0500	–	M5	0,2	0,21	56	70
	T40C1800	T40B1800	G1/8	0,54	0,53	66	75
	T40C2800	T40B2800	G1/4	1,6	1,34	68	78
	T40C3800	T40B3800	G3/8	3,5	2,98	75	84
	T40C4800	T40B4800	G1/2	5,1	4,47	75	88
	T40C6800	T40B6800	G3/4	9	7,88	87	96
	T40C8800	T40B8800	G1	11,6	10,22	93	100

*1) Measured in m^3/h
*2) SPL in dBA at 1 m from unit

Technical features

Medium:
Compressed air, filtered, lubricated or non lubricated, inert gases
Operating pressure:
10 bar (145 psi) maximum
Operating temperature:
-40 ... +80°C (-40 ... +176°F)
Air supply must be dry enough to avoid ice formation at temperatures below +2°C (+35°F)
Materials:
Element: sintered bronze
Body: brass



Technical features

Medium:
Compressed air, filtered 50 µm, lubricated and non lubricated/vacuum, inert gases

Operating pressure:
-1 ... +10 bar maximum
(-14 ... 145 psi) (vacuum service)

Fluid/Ambient temperature:
-20 ... +80°C (-4 ... +176°F)

Air supply must be dry enough to avoid ice formation at temperatures below +2°C (+35°F)

Materials:
Body: UHMW polyethylene
porous plastic
Connector base: polyethylene

Technical data, standard models

Symbol	Model	Port size	Mean flow factor C *1	Cv	Kv *2	Sound pressure level *3)
	M/S0	M5	1,27	0,31	0,27	83
	M/S1	G1/8	4,1	1	0,87	84
	M/S2	G1/4	7,5	1,84	1,6	84
	M/S3	G3/8	16,2	4	3,45	81
	M/S4	G1/2	21,8	5,3	4,64	82
	M/S6	G3/4	32,8	8	7	98
	M/S8	G1	49,8	12,2	10,6	94

*1) Measured in dm^3/ (s.bar)
*2) Measured in m^3/h
*3) Measured in dBA/6bar/1 meter from unit

ADDITIONAL PRODUCTS

ACTUATORS

INTEGRATED VALVE AND ACTUATOR CONTROL (IVAC)

> Complete actuator and valve package in one unit

> Simplified specification and design, ordering, installation and maintenance

> 1 Air and 1 electrical connection

> Cleanline corrosion resistant body

> Number of solenoid options including ATEX certification

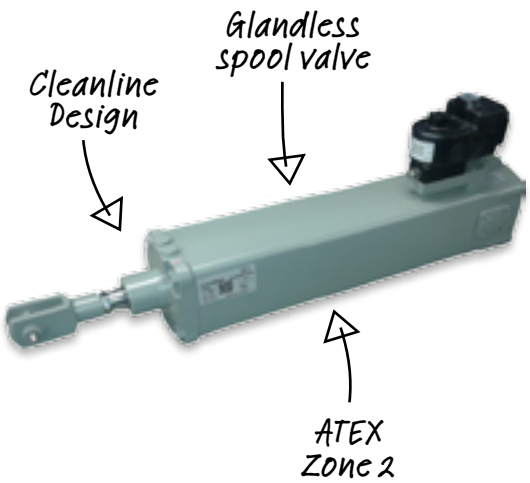
IMPACT ('RAPPING') CYLINDER

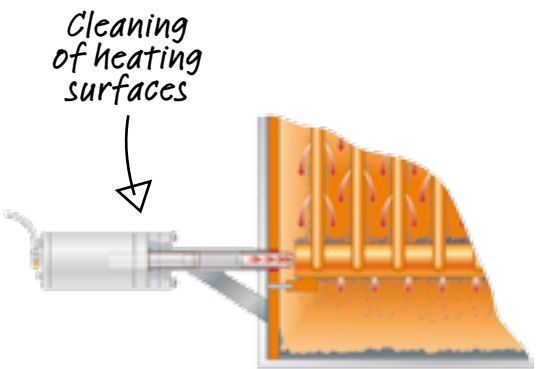
> Used in waste incineration plants for efficient cleaning

> Adjustable impact level reduces wear, lowering maintenance costs

> Range of accessories includind mountings and force compensators

> Full control package available in standard or customised designs





ADDITIONAL PRODUCTS

CONTROL SYSTEMS

REDUNDANT VALVE MANIFOLD (RVM) SYSTEM

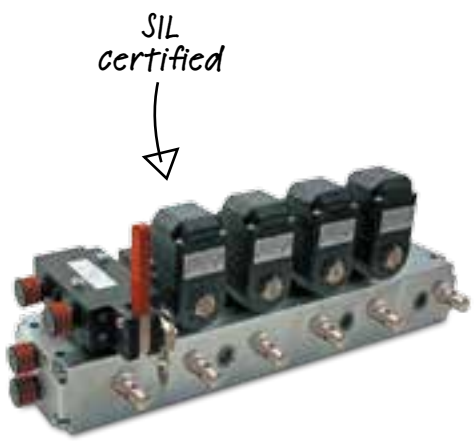
RVM is a totally integrated solution which ensures the quality and integrity of all components. The whole unit is SIL approved, so there is no compromise on safety. It's easy to install, repair and replace and incorporates other important features - including:

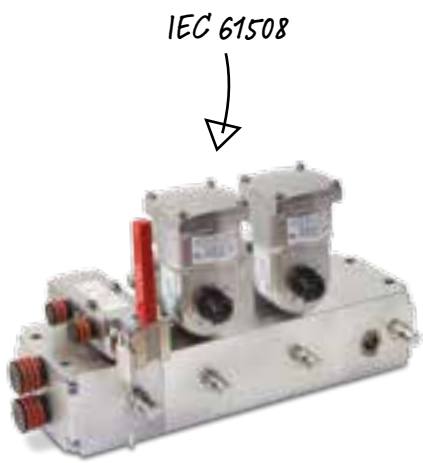
> Electrical or manual bypass, for online servicing and minimal downtime
> Visual or electric valve and output status indicators, for rapid diagnosis and repair
> Compact and modular design options
> Available in aluminium or stainess steel
> Temperature range of between -60°C to +90°C
> 1oo2, 2oo2 and 2oo3 functionality

CONTROL PANEL SOLUTIONS

Custom designed solutions for all kinds of applications - simple to complex.

> Complete solutions, ready to install
> Designed using 2D+3D CAD software
> Can be pneumatic, electro-pneumatic, and also include ancillary products
> Assembled and texted prior to delivery





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SOLENOID INDEX