

Valve Technology and Systems
IMI NORGREN BUSCHJOST GMBH + CO. KG



Valves have been our mission for over 60 years

Buschjost offers the user a comprehensive range of valves for process liquids and gases.

This catalogue takes the effort out of specifying and choosing solenoid and pneumatically actuated valves.

The standard range is enhanced with customised valves developed, designed and manufactured for virtually all sectors.

The company has a policy of emphasising continuity and reliability. Its workforce is therefore committed to achieving uncompromising quality in partnership with all existing and prospective customers.

Buschjost has anticipated future development by concentrating all of its consultation, development and production capacities in Bad Oeynhausen as direct service channels.

Extensive in-house component production and a cutting-edge, flexible service organisation guarantee ongoing innovation and dependability for tomorrow's changing markets.

Buschjost, from 1967 to 1997 part of the German Herion Group has become a member of the British IMI Norgren Group in 1997. The group has a global manpower of more than 6,000 people with an annual turnover of approximately £1.5bn. This demonstrates financial strength and stability that guarantee the customer reliability and continuity.

Group synergies are allowing the company to enormously expand its domestic and particularly its wider operations. Our multinational and exporting partners have come to rely on the high availability of Buschjost products in over 75 countries ensured by the international Norgren marketing companies.



Capacity focused on the future. Buschjost.

TECHNICAL INFORMATION

QUALITY MANAGEMENT

Buschjost introduced a Quality Management System to DIN ISO EN 9001 back in 1994.

Quality management

All general management concerned with defining quality policy, objectives and responsibilities within the framework of the QM system, and their subsequent implementation with tools such as:

- Quality planning
- Quality control
- Quality assurance
- Quality management exposition
- Quality improvement

Requirements

- Full interdepartmental involvement
- Coverage of all activities
- Formulation of quality policy
- Setting of quality objectives
- Implementation of quality objectives

Basis of QM system

The Quality Management System is based on documentation describing all departmental QM activities and processes on three levels:

- Quality Management Manual
- Procedural directives
- Work instructions

These directions cover suitable implementation of the defined processes, inspection and testing.

Special testing

Buschjost has been inspected by the TÜV and approved as a manufacturer of products for plant subject to monitoring in accordance with the German Pressure Vessel Regulations (TRB 801 No 45 and TRD 110).

These products have to be supplied with a 3.1. B Approval Test Certificate. Traceability to the starting material has to be ensured for all of their pressurised components.

**Solenoid Valves
without
Differential Pressure**

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with
Differential Pressure**

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and Associated
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TECHNICAL INFORMATION

VALVE SELECTION CRITERIA

The following factors are important in making the right commercial and technical choice:

- **Valve actuation**
 - solenoid
 - pressure
 - motorised
- **Switching function**
 - normally closed
 - normally open
- **Connection size**
 - flow rate
 - kv (flow coefficient) value
- **Type of connection**
 - threaded
 - flanged
 - weld ends
- **Working pressure**
 - upstream of valve
 - downstream of valve
 - differential pressure
 - vacuum
- **Process fluid**

neutral	aggressive
gas	liquid
filtered	contaminated
- **Fluid temperature**
 - range from - to + °C
- **Ambient temperature**
 - range from - to + °C
 - ambient atmosphere
- **Solenoid power supply**
 - voltage
 - frequency
- **Protection classification**
 - IP
 - EX
- **Control fluid supply**
 - control fluid
 - control pressure
 - temperature of control fluid from - to + °C
 - ambient temperature from - to + °C
- **Accessories and options**
- **Safety requirements**
 - TÜV approval/test certificates
 - type examination

Technical Information

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Sales and Advice Centres

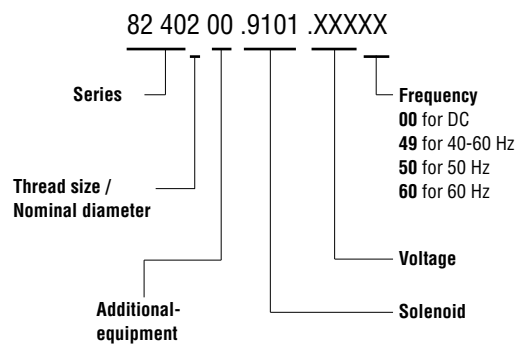
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TECHNICAL INFORMATION

KEY TO VALVE CATALOGUE NUMBERS

Standard valves



- 00** Standard
- 01** Normally open
- 02** Manual override
- 03** Viton (FPM) seals
- 04** Damped operation
- 06** Teflon (PTFE) seals
- 07** Fabric diaphragm
- 14** EPDM seals, for hot water
- 18** Degreased version;
Viton (FPM) seals
- 23** Position indicator with two solenoid switches

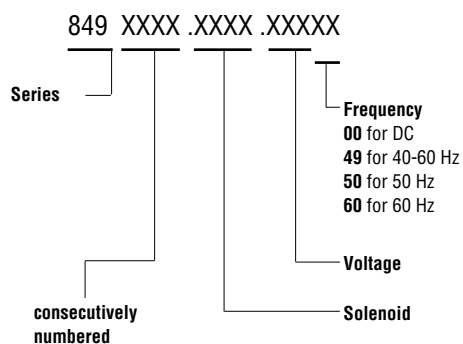
01 ... 49 = Additional equipment, applicable for all series, but not available in every series.

50 ... 99 = Additional equipment, only applicable for one series.

further versions on request

Key to valve catalogue numbers

Special valves



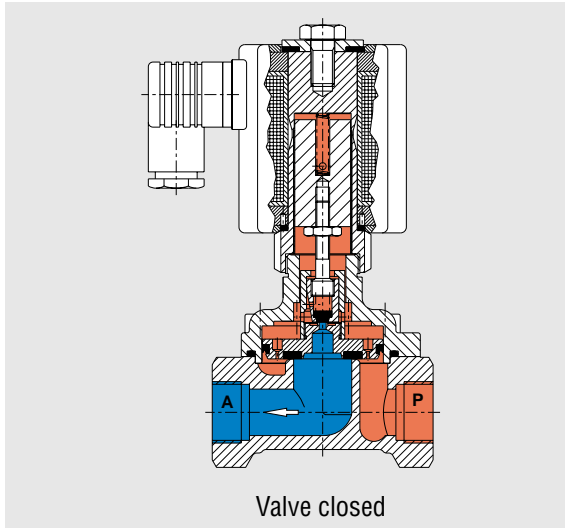
Solenoid Valves without Differential Pressure

Solenoid Valves without Differential Pressure

Material	Connection	Pressure	Temperature	Series	Page
Brass	G ¼ - G ⅜	0 - 7	+90°C	82060	9
Brass	G ¼ - G 2	0 - 16	+90°C	82340	13
Brass	G ¼ - G 1	0 - 16	+90°C	82350	17
Brass	G ¼ - G 1	0 - 10	+150°C	82360	21
Brass	G ¼ - G 1	0 - 8	+60°C	82370	25
Brass	G ¼ - G ½	0 - 10	+90°C	82530	29
Brass	G ¼ - G 1	0 - 10	+90°C	82540	33
Brass	G ½ - G 2	0 - 25	+90°C	85000	37
Brass	G ½ - G 2	0 - 16	+200°C	85020	41
Brass	G ¼ - G ½	0 - 40	+80°C	95000	45
Brass	G ¼	0 - 14	+80°C	96000	49
Cast steel	ND 65 - ND 100	0 - 25	+90°C	84200	53
Cast steel	ND 15 - ND 50	0 - 25	+90°C	85200	53
Stainless steel	G ¼ - G ½	0 - 10	+90°C	82560	57
Stainless steel	ND 65 - ND 100	0 - 16	+110°C	84140	61
Stainless steel	ND 15 - ND 50	0 - 16	+110°C	85140	61
Stainless steel	G ⅜ - G 1	0 - 25	+90°C	85040	65
PVDF	G ¼ - G ⅜	0 - 7	+110°C	82080	69

TECHNICAL INFORMATION SOLENOID VALVES WITHOUT DIFFERENTIAL PRESSURE

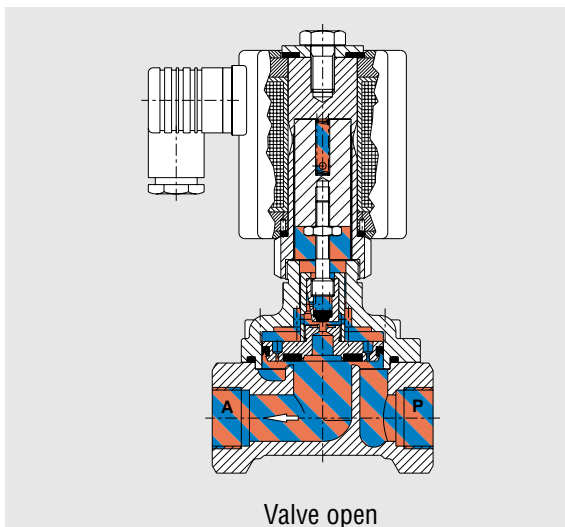
(direct acting or indirect acting with forced lifting)



The force produced by the solenoid plunger, which is mechanically coupled to the main closure device, opens this type of valve. The sequence starts with the solenoid opening the pilot seat. This relieves the pressure on the main closure device, bringing it into balance so the solenoid force can lift it into the open position.

When the pilot seat is closed, bleed orifices allow a force to build up on the closure device that pushes it down into the closed position on the valve seat.

These valves are preferred for use where the differential pressure is very low or zero.



2/2-way valves G 1/4 - G 3/8

direct acting solenoid valves
threaded connection

DESCRIPTION (STANDARD VALVE)

Type	seat valve
Switching function	normally closed
Operating pressure	see table of characteristic data
Differential pressure	not required
Process fluid	neutral liquids and gases
Fluid temperature	-10 to maximum of +90°C
Ambient temperature	-10 to maximum of +50°C
Viscosity	up to 80 mm²/s
Flow direction	determined
Mounting position	optional, preferably with solenoid upright

MATERIALS

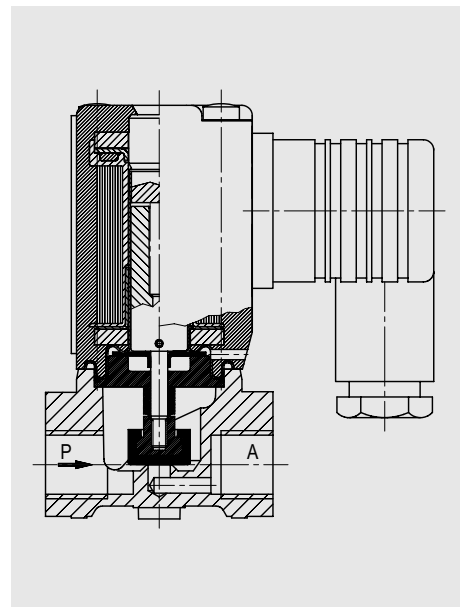
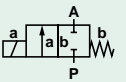
Body	brass
Internal parts	brass, PTFE-bellows
Seals	NBR
Valve seat	brass

FEATURES

- Suitable for vacuum
- For demanding industrial applications
- Solenoid hermetically sealed from fluid
- Compact
- For high contaminated fluids



82060



CHARACTERISTIC DATA

Connection G	ND mm	k _v -Value m³/h	Operating Pressure			Weight kg	Part Number	
			min.	bar	max.		DC	AC
1/4	3.0	0.28	0		7	0.3	8206000.8050	8206000.8051
3/8	3.0	0.28	0		7	0.3	8206100.8050	8206100.8051
1/4	4.5	0.42	0		6	0.3	8206060.8050	8206060.8051
3/8	4.5	0.42	0		6	0.3	8206160.8050	8206160.8051

ELECTRICAL DATA

Standard voltage	DC	AC
	24V	24V 50Hz 42V 50Hz 110V 50Hz 230V 50Hz
Power consumption	DC	AC
Solenoid 8050	12W	-
Solenoid 8051	-	13VA
Duty cycle	100%	
Voltage range	±10%	
Protection	without power lead socket IP00 with power lead socket IP65	
Electrical design	arrangement and testing to DIN VDE 0580	

NOTES:

The power consumption is measured according to VDE 0580 at a coil temperature of +20°C. Physical factors reduce the value by up to about 30% when the DC solenoid coil has reached normal operating temperature.

Power lead socket type A

Socket can be turned to 4 positions 90° apart

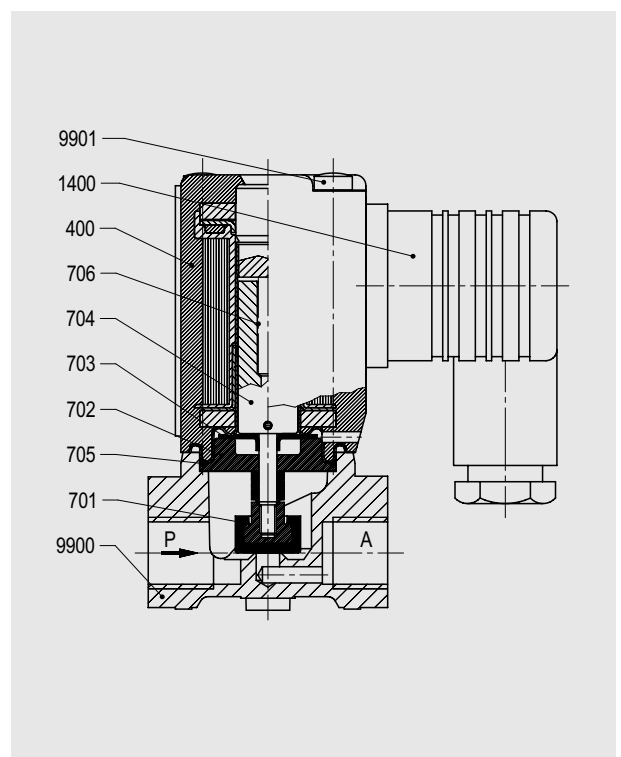
Solenoid can be turned to 4 positions 90° apart

SECTIONAL DRAWING

Parts list and identification

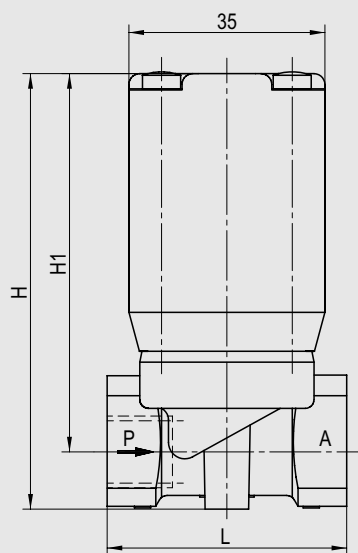
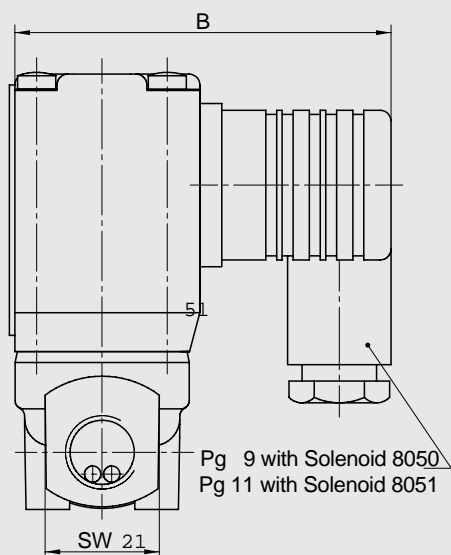
400	Solenoid
*701	Gasket
*702	Bellows
*703	Diaphragm
*704	Plunger
*705	O-ring
*706	Pressure spring
1400	Socket
9900	Valve body
9901	Oval head cap screw

* These individual parts form a complete wearing unit.



DIMENSIONAL DRAWINGS

82060



Connection	L	B	H	H1
G	mm	mm	mm	mm
1/4	44	70	80	69.5
3/8	44	70	80	69.5

TECHNICAL INFORMATION

OPERATING VOLTAGE

We differ basically between DC and AC solenoids. As alternating voltage is more frequently available, it would seem obvious to give preference to the AC solenoids.

However, from a certain size the latter have definite disadvantages in comparison to the DC solenoids in terms of lifetime and magnetic force, and so the DC solenoids with intermediate rectifiers are preferred.

This voltage rectifier is integrated in the socket or with in the solenoid.

The main advantage of the DC solenoid is its constant current consumption, which leads to smooth switching and a coil that can cope with mechanical obstructions.

Design measures such as a tapered pole piece and core can tailor the magnetic force characteristic to the requirements.

Overvoltages on breaking (inductive peaks) can be avoided by connecting a varistor, diode or RC-network in parallel.

The current consumption of AC solenoids depends on the position of the core (air gap between core and pole piece). If the core is prevented from reaching its limit, the coil is overheated and can be burnt out.

The voltage tolerances permitted are $\pm 10\%$. If AC solenoids designed for 50 Hz have to be used with 60 Hz, this entails a reduction in performance. In such cases the manufacturer should be consulted beforehand.

DC coils supplied via rectifiers can be operated between 40 and 60 Hz.

2/2-way valves G 1/4 - G 2

solenoid actuated, with forced lifting
threaded connection

DESCRIPTION (STANDARD VALVE)

Type	diaphragm valve
Switching function	normally closed
Operating pressure	see table of characteristic data
Differential pressure	not required
Process fluid	neutral liquids and gases
Fluid temperature	-10 to maximum of +90°C
Ambient temperature	-10 to maximum of +50°C
Viscosity	up to 25 mm²/s
Flow direction	determined
Mounting position	optional, preferably with solenoid upright

MATERIALS

Body	brass
Cover	brass
Internal parts	stainless steel, brass
Seals	NBR
Valve seat	brass

FEATURES

- Flow rate optional
- For robust industrial applications
- Suitable for vacuum
- Practical accessories and options
- For systems with low or discontinuous pressure
- NPT thread optional

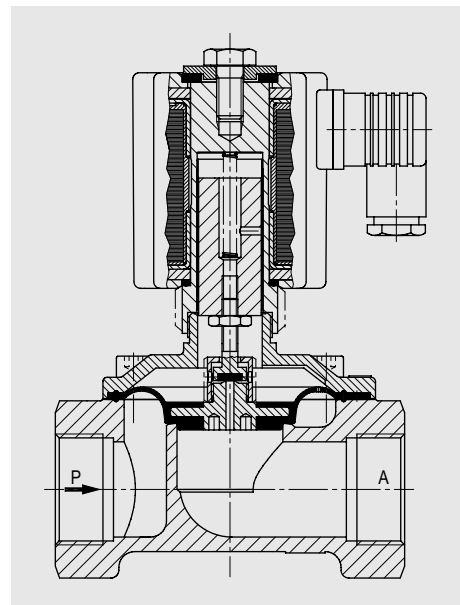
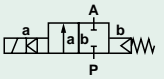
CHARACTERISTIC DATA

Connection G	ND mm	k _v -Value m³/h	Operating Pressure			Weight kg	Part Number	
			min.	bar	max.		DC	AC
1/4	8	2.0	0		16	1.3	8234000.8301	8234000.8304
3/8	10	3.4	0		16	1.2	8234100.8301	8234100.8304
1/2	12	3.6	0		16	1.2	8234200.8301	8234200.8304
3/4	20	10.0	0		16	1.9	8234300.8301	8234300.8304
1	25	12.5	0		16	1.8	8234400.8301	8234400.8304
1 1/4	32	27.0	0		16	4.7	8234500.8401	8234500.8404
1 1/2	40	30.0	0		16	4.6	8234600.8401	8234600.8404
2	50	43.0	0	10		5.5	8234700.8401	8234700.8404

NPT- connection available: change (e.g.) 8234000 in 8244000



82340



ELECTRICAL DATA

Standard voltages	DC	AC
	24 V	24V 40-60Hz 42V 40-60Hz 110V 40-60Hz 230V 40-60Hz
Power consumption	DC	AC
Solenoid 8301	22W	-
Solenoid 8304	-	25VA
Solenoid 8401	40W	-
Solenoid 8404	-	45VA
Duty cycle	100%	
Voltage range	±10%	
Protection	without power lead socket IP00 with power lead socket IP65	
Electrical design	arrangement and testing to DIN VDE 0580	

NOTE:

Only use AC in conjunction with a rectifier. This is incorporated in the power lead of solenoids 8304 and 8404.

The power consumption is measured according to VDE 0580 at a coil temperature of +20°C. Physical factors reduce the value by up to about 30% when the DC solenoid coil has reached normal operating temperature.

Power lead socket type A

Socket can be turned to 4 positions 90° apart
Solenoid can be turned in any direction

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

Valves must be suitably protected against contaminated fluids.

OPTIONAL FEATURES

xxxxx 01.xxxx normally open
G ¾ to G 2 solenoid 8401/8404

xxxxx 03.xxxx seals FPM T_{max.} +110°C,
P_{max.} 10 bar

xxxxx 14.xxxx seals EPDM T_{max.} +110°C,
P_{max.} 10 bar

xxxxx xx.8341 G ¼ to G 1 solenoid in protection
class EEx me II T3

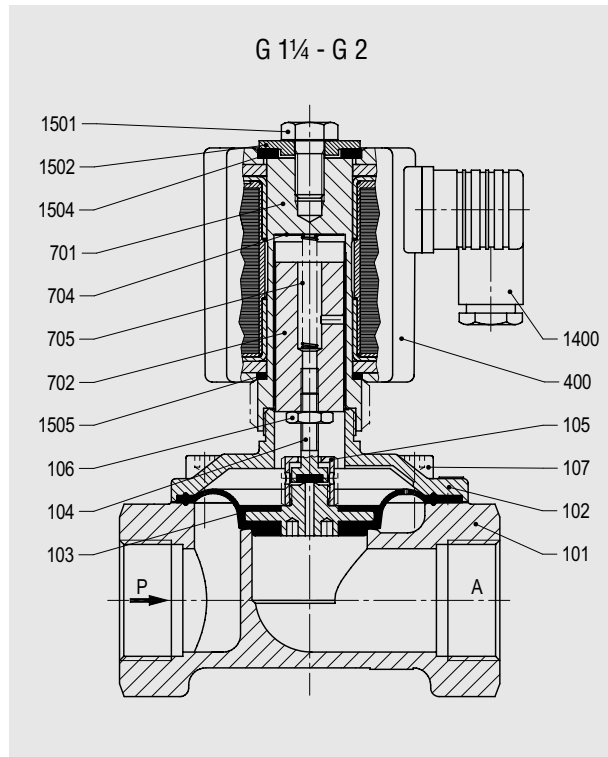
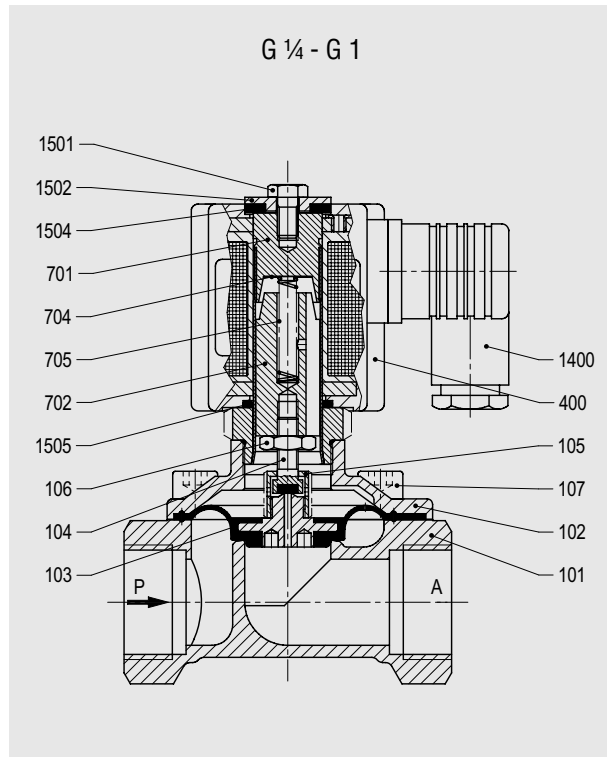
xxxxx xx.8441 G 1¼ to G 2 solenoid in protection
class EEx me II T3

xxxxx xx.8900 solenoid in protection class
EEx de II C T4 and T5

xxxxx xx.8920 solenoid in protection class
EEx d II C T4 and T5

SECTIONAL DRAWINGS

Parts list and identification



82340

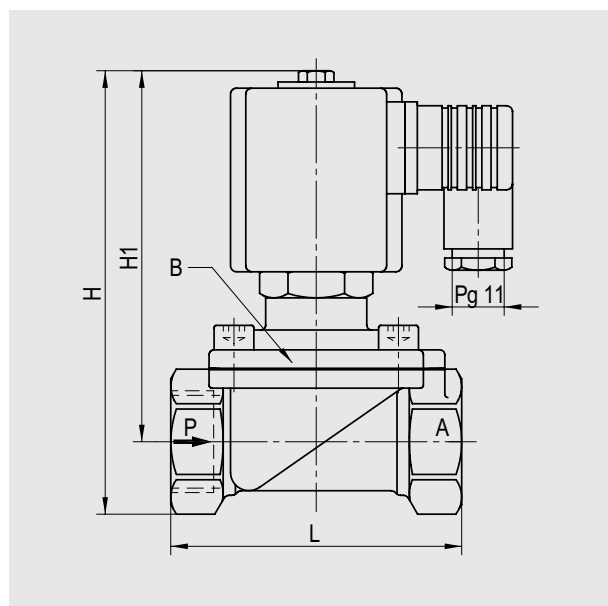
- 101 Valve body
- 102 Body cover
- *103 Diaphragm
- *104 Valve spindle
- *105 Screw piece
- 106 Hexagon nut
- 107 Oval head cap screw up to G 1/2
Hexagon socket screw for G 3/4
- 400 Solenoid
- 701 Plunger tube

- 702 Plunger
 - 704 Anti magnetic spacer
 - *705 Pressure spring
 - *712 O-ring
 - 1400 Socket
 - 1501 Hexagon screw
 - 1502 Round
 - 1504 Gasket
 - 1505 O-ring
- * These individual parts form a complete wearing unit.

DIMENSIONAL DRAWING

B = max. depth

Connection	L	B	H	H1
G	mm	mm	mm	mm
1/4	67	65	125	110
3/8	67	65	125	110
1/2	67	65	125	110
3/4	95	70	150	125
1	95	70	150	125
1 1/4	132	96	205	170
1 1/2	132	96	205	170
2	160	112	220	180



TECHNICAL INFORMATION

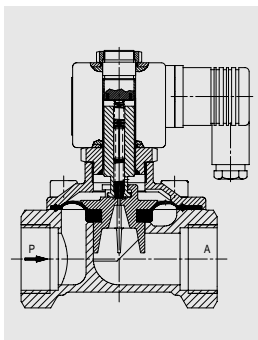
ZERO DELTA P VALVES

(diaphragm valves without differential pressure)

The Zero series is designed for reliable service in the vacuum and low-pressure range, where any differential pressure available is insufficient to allow the use of servo assisted solenoid valves.

It also caters for higher pressure ranges up to 16 bar. The pressure or vacuum level and presence of a differential are therefore no longer important considerations.

All these advantages add up to a universal design.



In the 0 to 16 bar pressure range the Zero series is available with G1/4 to G2 connections.

See pages 13, 17 and 29 for further information.

We will gladly provide you with any further information required.

2/2-way valves G 1/4 - G 1

solenoid actuated, with forced lifting
threaded connection

DESCRIPTION (STANDARD VALVE)

Type	diaphragm valve
Switching function	normally closed
Operating pressure	see table of characteristic data
Differential pressure	not required
Process fluid	neutral liquids and gases
Fluid temperature	-10 to maximum of +90°C
Ambient temperature	-10 to maximum of +50°C
Viscosity	up to 25 mm²/s
Flow direction	determined
Mounting position	optional, preferably with solenoid upright

MATERIALS

Body	brass
Cover	brass
Internal parts	stainless steel, brass, PVDF
Seals	NBR
Valve seat	brass

FEATURES

- Flow rate optional
- For robust industrial applications
- Damped operation
- Suitable for vacuum
- Practical accessories and options
- For systems with low or discontinuous pressure
- NPT thread optional

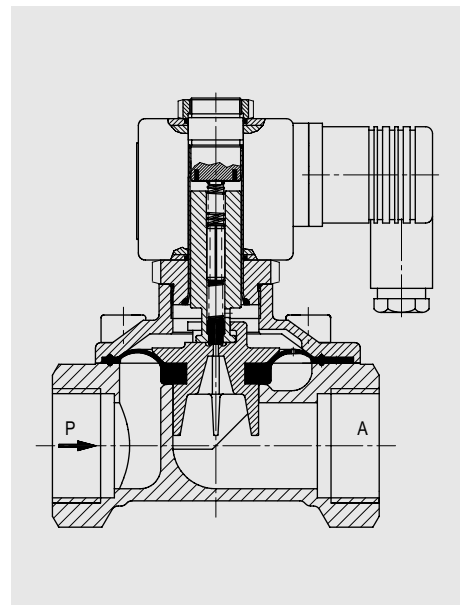
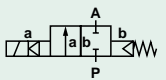
CHARACTERISTIC DATA

Connection G	ND mm	k _v -Value m³/h	Operating Pressure				Weight kg	Part Number
			min. bar	max. bar	DC	AC		
1/4	8	1.9	0		8	16	1.00	8235000.9301
3/8	10	2.6	0		8	16	0.90	8235100.9301
1/2	12	3.2	0		8	16	0.90	8235200.9301
3/4	20	7.0	0		8	16	1.55	8235300.9301
1	25	8.0	0		8	16	1.45	8235400.9301

NPT- connection available: change (e.g.) 8235000 in 8265000



82350



ELECTRICAL DATA

Standard voltages	DC 24 V	AC 24V 40-60Hz 42V 40-60Hz 110V 40-60Hz 230V 40-60Hz
Power consumption Solenoid 9301	DC 18W -	AC inrush 106VA holding 35VA
Duty cycle	100%	
Voltage range	±10%	
Protection	without power lead socket IP00 with power lead socket IP65	
Electrical design	arrangement and testing to DIN VDE 0580	

NOTE:

The power consumption is measured according to VDE 0580 at a coil temperature of +20°C. Physical factors reduce the value by up to about 30% when the DC solenoid coil has reached normal operating temperature.

Power lead socket type A

Socket can be turned to 4 positions 90° apart

Solenoid can be turned in any direction

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

Valves must be suitably protected against contaminated fluids.

OPTIONAL FEATURES

xxxxx 03.xxxx seals FPM T_{max.} +110°C,

xxxxx 14.xxxx seals EPDM T_{max.} +110°C,

xxxxx 33.xxxx free of discolouring components

xxxxx 35.xxxx degreased and without oil,
for oxygen, seals FPM

xxxxx 50.xxxx P_{max.} 16 bar at DC

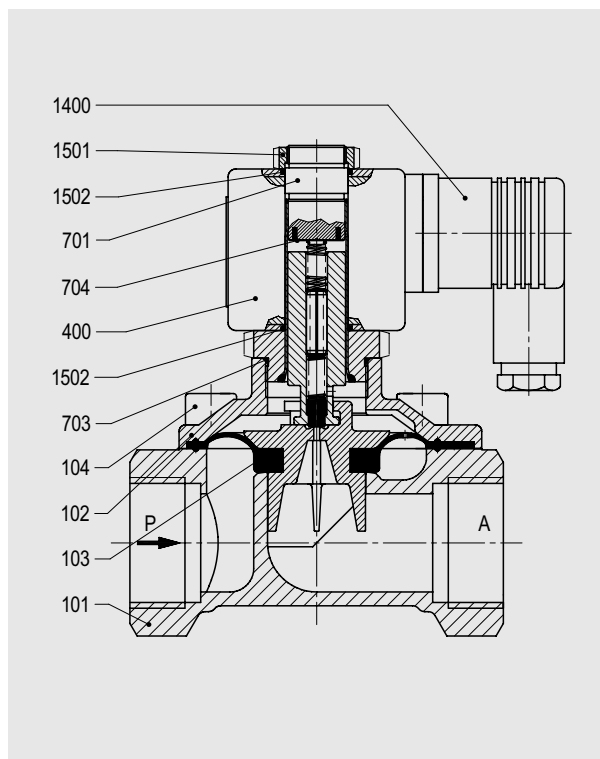
xxxxx xx.9356 solenoid in protection class
EEx me II T3, P_{max.} 8 bar

SECTIONAL DRAWING

Parts list and identification

- 101 Valve body
- 102 Valve cover
- *103 Diaphragm, complete
- 104 Oval head cap screw up to G ½
Hexagon socket screw for G ¾
- 400 Solenoid
- 701 Plunger tube
- *703 O-ring
- 1400 Socket
- 1501 Hexagon nut
- 1502 O-ring

* These individual parts form a complete wearing unit.

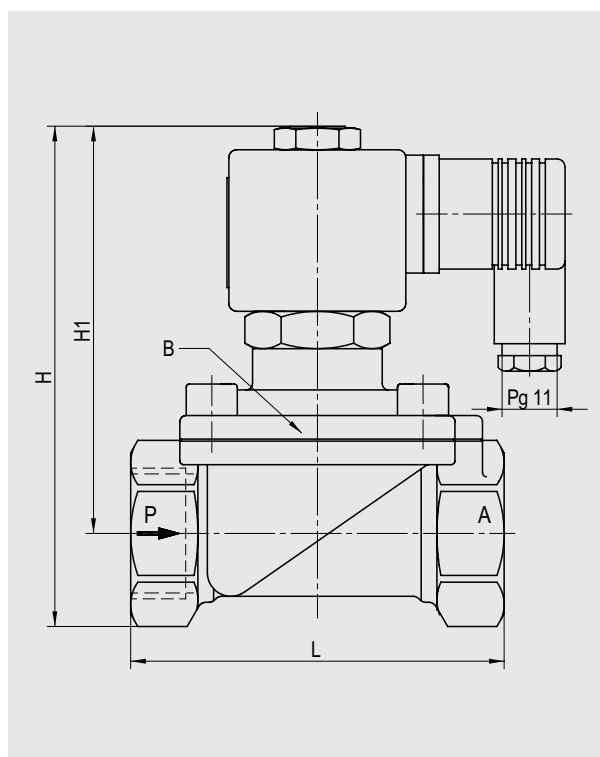


82350

DIMENSIONAL DRAWING

B = max. depth

Connection G	L mm	B mm	H mm	H1 mm
¼	67	54	105	90
⅜	67	54	105	90
½	67	54	105	90
¾	95	70	130	105
1	95	70	130	105



TECHNICAL INFORMATION

CALCULATING FLOW RATES

with Kv (flow coefficient)

Valve models must be carefully selected and accurately sized to suit the system application. Once the switching function and the nominal pressure have been chosen, together with the permissible pressure drop across the valve the medium type, density, viscosity, temperature and flow rate govern the connection size.

The flow coefficient tabulated for each valve allows calculation of service parameters such as flow rate or pressure drop for steady-state flow.

Kv is the flow rate in m³/h of water at a temperature between 5 and 30°C, with a pressure drop of 1 bar across the valve. Its value has been determined for the different models to VDI/ VDE 2173 guidelines and tabulated in the catalogues characteristic data.

Example:

Calculation of the flow rate through
82 404.00.9101 valve
Water at 20°C, Kv = 9.5, Δp = 3 bar

$$Q = K_v \times \sqrt{\Delta p}$$
$$Q = 16.45 \text{ m}^3/\text{h}$$

Calculation of the pressure drop across
82 404.00.9101 valve
Water at 20°C, Q = 12 m³/h, Kv = 9.5

$$\Delta p = \left(\frac{Q}{K_v} \right)^2$$

$$\Delta p = 1.6 \text{ bar}$$

2/2-way valves G 1/4 - G 1

solenoid actuated, with forced lifting
threaded connection

DESCRIPTION (STANDARD VALVE)

Type	diaphragm valve
Switching function	normally closed
Operating pressure	0 to 10 bar
Differential pressure	not required
Process fluid	for hot water and steam
Fluid temperature	-10 to maximum of +150°C
Ambient temperature	-10 to maximum of +60°C
Viscosity	up to 25 mm²/s
Flow direction	determined
Mounting position	optional, preferably with solenoid upright

MATERIALS

Body	brass
Cover	brass
Internal parts	stainless steel, brass, PVDF
Seals	HNBR
Valve seat	brass

FEATURES

- Flow rate optional
- For robust industrial applications
- Damped operation
- For hot water and steam
- NPT thread optional

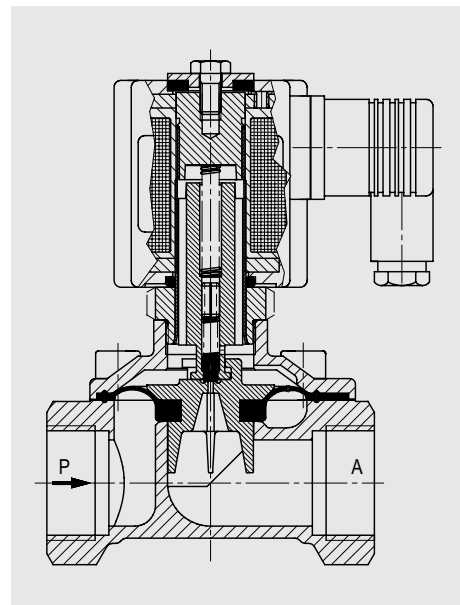
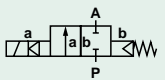
CHARACTERISTIC DATA

Connection G	ND mm	k _v -Value m³/h	Operating Pressure			Part Number	
			min.	bar	max.	DC	AC
1/4	8	1.9	0		10	8236000.8302	8236000.8306
3/8	10	2.6	0		10	8236100.8302	8236100.8306
1/2	12	3.2	0		10	8236200.8302	8236200.8306
3/4	20	7.0	0		10	8236300.8302	8236300.8306
1	25	8.0	0		10	8236400.8302	8236400.8306

NPT- connection available: change (e.g.) 8236000 in 8246000



82360



ELECTRICAL DATA

Standard voltage	DC 24 V	AC 24V 40-60Hz 42V 40-60Hz 110V 40-60Hz 230V 40-60Hz
Power consumption	DC	AC
Solenoid 8302	14W	-
Solenoid 8306	-	16VA
Duty cycle	100%	
Voltage range	±10%	
Protection	without power lead socket IP 00 with power lead socket IP 65	
Electrical design	arrangement and testing to DIN VDE 0580	

NOTE:

Only use AC in conjunction with a rectifier. This is incorporated in the power lead of solenoids 8306.

The power consumption is measured according to VDE 0580 at a coil temperature of +20°C. Physical factors reduce the value by up to about 30% when the DC solenoid coil has reached normal operating temperature.

Power lead socket type A

Socket can be turned to 4 positions 90° apart

Solenoid can be turned in any direction

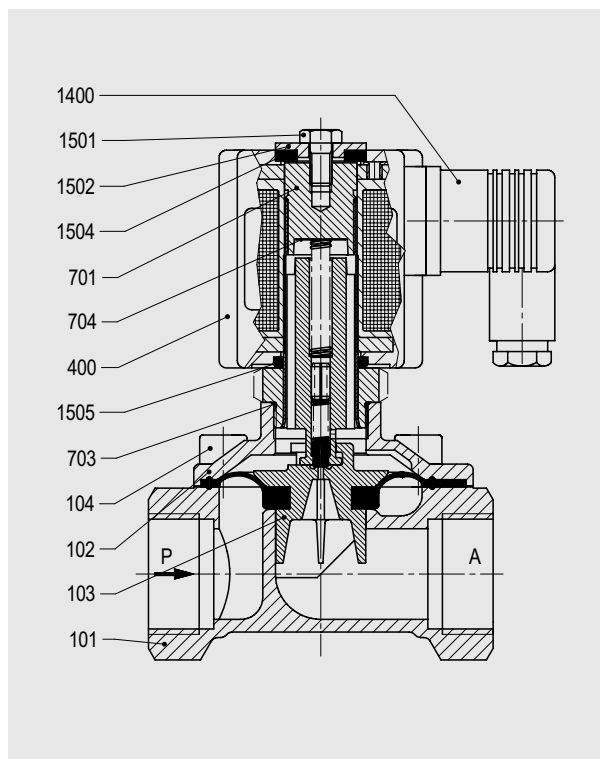
Valves must be suitably protected against contaminated fluids.

SECTIONAL DRAWING

Parts list and identification

- 101 Valve body
- 102 Body cover
- *103 Diaphragm
- 104 Oval head cap screw up to G ½
Socket head cap screw from G ¾
- 400 Solenoid
- 701 Core tube
- *703 O-ring
- 704 Round plate
- 1400 Socket
- 1501 Hexagon screw
- 1502 Round plate
- 1504 Gasket
- 1505 O-ring

* These individual parts form a complete wearing unit.

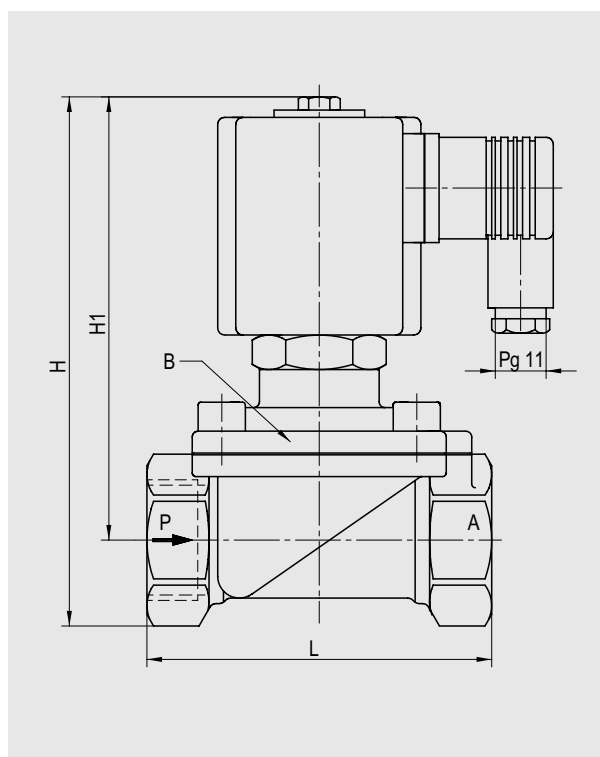


82360

DIMENSIONAL DRAWING

B = max. depth

Connection	L	B	H	H1
G	mm	mm	mm	mm
¼	67	65	125	110
⅜	67	65	125	110
½	67	65	125	110
¾	95	70	150	125
1	95	70	150	125



TECHNICAL INFORMATION

INSTALLATION & MAINTENANCE

Clean pipework beforehand. Dirty conditions lead to malfunctions, so fit strainer upstream of valve inlet if necessary. The valve will no longer open or close if bleed orifices are blocked or the plunger jammed by dirt.

Avoid distorting the body of the valve in misaligned pipework, or by using inappropriate tools or sealing material. Do not use solenoid as a lever.

The valve will only close tightly in the direction of flow. Flow in the opposite direction to the arrow may irreparably damage components.

The preferred mounting position is with the solenoid upright, as this considerably reduces the risk of wear and contamination. If the fluid temperature exceeds +150°C or the valve function is normally open, the mounting position is restricted as detailed in the separate publications.

Maintenance

It is advisable to carry out preventive maintenance at intervals depending on the service conditions, and whenever there is a noticeable deterioration in the speed of switching.

Deposits on guide surfaces, dirt in the valve system, perished or worn seals may lead to malfunctions. To maintain protection, include the solenoid seals in the maintenance.

Maintenance may only be carried out with the pipework depressurised and the solenoid disconnected from the power supply.

Brochures with sectional diagram, key to parts and fitting instructions for kits of parts subject to wear are available on request.

Solenoid surface temperatures may get as high as +120°C during continuous duty!

Leak or strength tests may be carried out with the valve open or closed. The maximum test pressure = 1.5 x maximum working pressure. The valve must not be switched during these tests.

2/2-way valves G 1/4 - G 1

solenoid actuated, with forced lifting
threaded connection

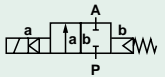


DESCRIPTION (STANDARD VALVE)

Type	diaphragm valve
Switching function	normally closed
Operating pressure	0 to 8 bar
Differential pressure	not required
Process fluid	neutral gaseous and liquid fuels
Fluid temperature	-5 to maximum of +60°C
Ambient temperature	-10 to maximum of +50°C
Viscosity	up to 25 mm²/s
Flow direction	determined
Mounting position	optional, preferably with solenoid upright



82370

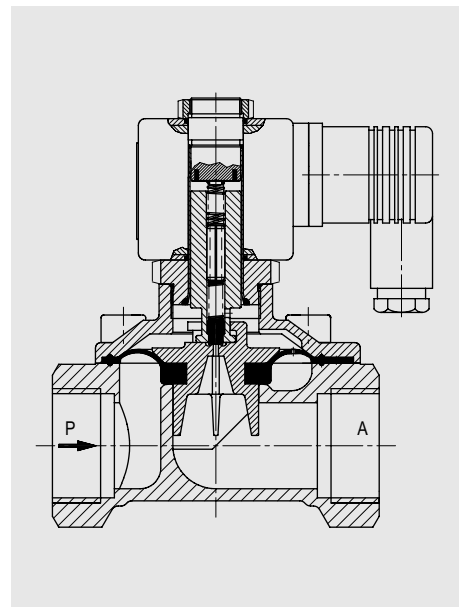


MATERIALS

Body	brass
Cover	brass
Internal parts	stainless steel, brass, PVDF
Seals	FPM
Valve seat	brass

FEATURES

- EC type examination certificate
Product ID No: CE-0085 AU0323
Valve class B, Valve group 2
- Qualification approval acc. EN 161/3394 part 1 and EN 264
- Safety function
- Response time < 1 s



CHARACTERISTIC DATA

Connection G	ND mm	k _v -Value m³/h	Operating Pressure		Weight kg	Part Number	
			min.	bar max.		DC	AC
1/4	8	1.6	0	8	1.00	8237000.9381	8237000.9382
3/8	10	2.0	0	8	0.90	8237100.9381	8237100.9382
1/2	12	2.3	0	8	0.90	8237200.9381	8237200.9382
3/4	20	5.8	0	8	1.55	8237300.9381	8237300.9382
1	25	6.1	0	8	1.45	8237400.9381	8237400.9382

ELECTRICAL DATA

Standard voltage	DC 24V	AC 24V 40-60Hz 42V 40-60Hz 110V 40-60Hz 230V 40-60Hz
Power consumption	DC	AC
Solenoid 9381	18W	-
Solenoid 9382	-	20VA
Duty cycle	100%	
Voltage range	±10%	
Protection	without power lead socket IP00 with power lead socket IP65	
Electrical design	arrangement and testing to DIN VDE 0580	

NOTE:

Only use AC in conjunction with a rectifier. This is incorporated in the power lead of solenoids 9382.

The power consumption is measured according to VDE 0580 at a coil temperature of +20°C. Physical factors reduce the value by up to about 30% when the DC solenoid coil has reached normal operating temperature.

Power lead socket type A

Socket can be turned to 4 positions 90° apart

Solenoid can be turned in any direction

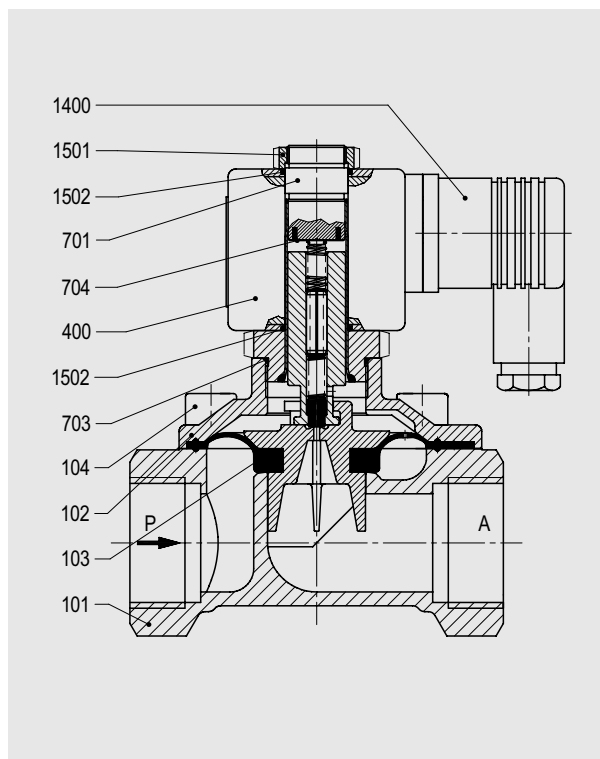
Valves must be suitably protected against contaminated fluids.

SECTIONAL DRAWING

Parts list and identification

- 101 Valve body
- 102 Valve cover
- *103 Diaphragm
- 104 Oval head cap screw up to G $\frac{1}{2}$
Socket head cap screw from G $\frac{3}{4}$
- 400 Solenoid
- 701 Core tube
- *703 O-ring
- 704 Round plate
- 1400 Socket
- 1501 Hexagon nut
- 1502 O-ring

* These individual parts form a complete wearing unit.

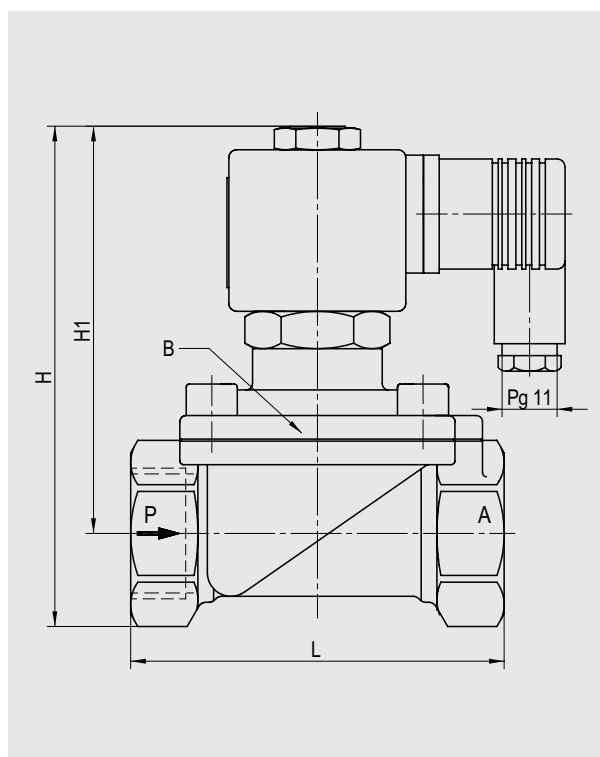


82370

DIMENSIONAL DRAWING

B = max. depth

Connection	L	B	H	H1
G	mm	mm	mm	mm
$\frac{1}{4}$	67	54	105	90
$\frac{3}{8}$	67	54	105	90
$\frac{1}{2}$	67	54	105	90
$\frac{3}{4}$	95	70	130	105
1	95	70	130	105



TECHNICAL INFORMATION

EXPLOSION PROTECTION

Explosion protection has to prevent oxygen, flammable substances and ignition sources arising simultaneously.

Electrical apparatus in hazardous areas must be regarded as an ignition source, and is therefore subject to special building and installation regulations that have undergone international harmonisation.

The members of the "European Committee for Electrotechnical Standardisation", or CENELEC for short, have devised European standards that are identically worded and have been adopted as national standards in all countries. The test certificates issued by the national bodies are therefore recognised throughout the EU.

Hazardous areas are defined as areas in which local and service conditions can give rise to a dangerous, explosive atmosphere. The frequency of occurrence is used to subdivide the areas into zones.

Electrical apparatus installed in these areas must be approved for the relevant zones and marked as defined in EN 50014.

Example: **EEx me II T4**

EEx

Electrical apparatus with European certification for hazardous areas

Explosion protection technique (e.g. "me")

Type of measures adopted to prevent ignition of the ambient atmosphere

Gas groups (e.g. II)

Group I Methane

Group II Other explosive gases

Temperature classifications (e.g. T4)

Maximum permissible surface temperature on any part of the electrical apparatus. Ignition temperature of the explosive atmosphere.

The organisation operating the installation is responsible for determining the zone and use of approved apparatus therein.

We will gladly provide you with any further information required.

2/2-way valves G 1/4 - G 1/2

solenoid actuated, with forced lifting
threaded connection

DESCRIPTION (STANDARD VALVE)

Type	diaphragm valve
Switching function	normally closed
Operating pressure	0 to 10 bar
Differential pressure	not required
Process fluid	neutral liquids and gases
Fluid temperature	-10 to maximum +90°C
Ambient temperature	-10 to maximum +50°C
Viscosity	up to 25 mm²/s
Flow direction	determined
Mounting position	optional, preferably with solenoid upright

MATERIALS

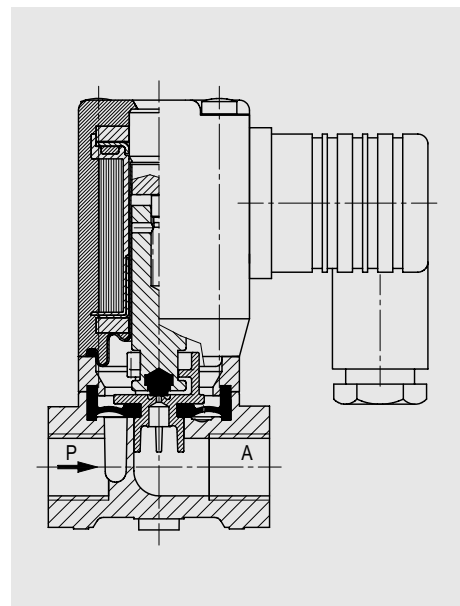
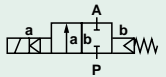
Body	brass
Internal parts	stainless steel, PVDF
Seals	NBR
Valve seat	brass

FEATURES

- Damped operation
- Suitable for vacuum
- For demanding industrial applications
- For closed installations without differential pressure
- Compact
- NPT thread optional



82530



CHARACTERISTIC DATA

Connection	ND	k _V -Value	Operating Pressure			Weight	Part Number
G	mm	m³/h	min.	bar	max.	kg	
1/4	10	1.5	0	10		0.5	8253000.8001
3/8	10	1.7	0	10		0.5	8253100.8001
1/2	10	1.7	0	10		0.6	8253200.8001

NPT- connection available: change (e.g.) 8253000 in 8263000

ELECTRICAL DATA

Standard voltages	DC	AC
		24V 50Hz
		42V 50Hz
		110V 50Hz
		230V 50Hz
Power consumption	DC	AC
Solenoid 8001	12W	inrush 20VA
	-	holding 16VA
Duty cycle	100%	
Voltage range	±10%	
Protection	without power lead socket IP00	
	with power lead socket IP65	
Electrical design	arrangement and testing to DIN VDE 0580	

NOTE:

The power consumption is measured according to VDE 0580 at a coil temperature of +20°C. Physical factors reduce the value by up to about 30% when the DC solenoid coil has reached normal operating temperature.

Power lead socket type A

Socket can be turned to 4 positions 90° apart

Solenoid can be turned to 4 positions 90° apart

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

Valves must be suitably protected against contaminated fluids.

OPTIONAL FEATURES

xxxxx 03.xxxx seals FPM T_{max.} +110°C

xxxxx 14.xxxx seals EPDM T_{max.} +110°C

xxxxx 18.xxxx seal FPM
degreased version

xxxxx 22.xxxx only for NBR and AC solenoid
P_{max.} 20 bar

xxxxx 50.xxxx M5 mounting thread

xxxxx 51.xxxx seal HNBR
P_{max.} 0 to 6 bar, T_{max.} +150°C
for hot water and steam

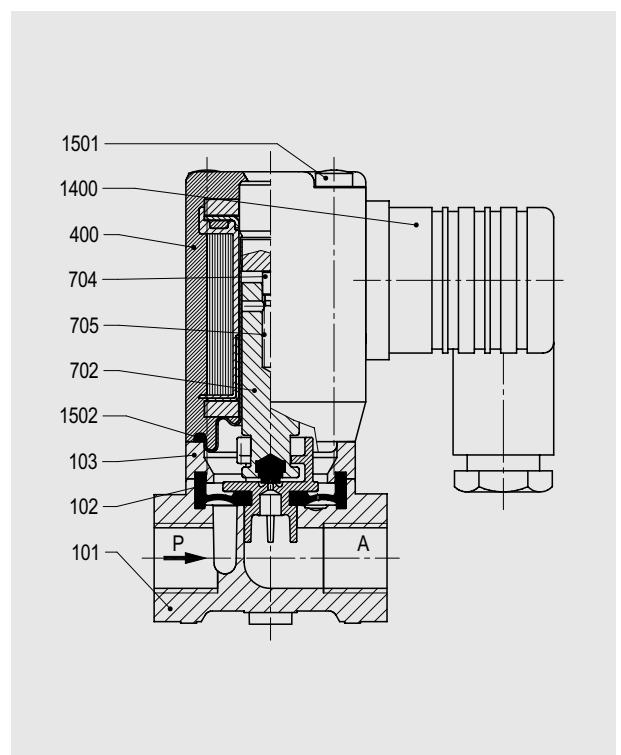
xxxxx xx.8041 solenoid in protection class
Ex me II T3

SECTIONAL DRAWING

Parts list and identification

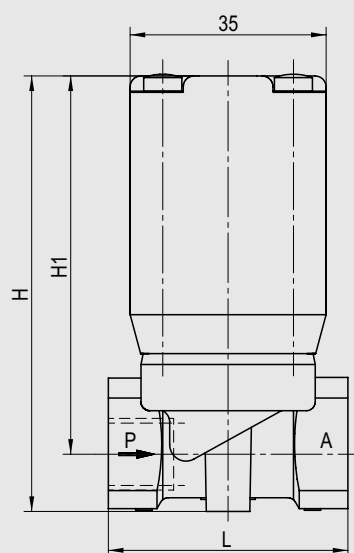
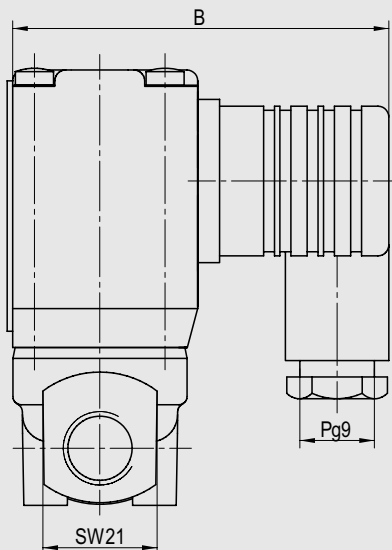
- 101 Valve body
- *102 Diaphragm
- 103 Spacer
- 400 Solenoid
- *702 Plunger
- *704 Guide pin
- *705 Pressure spring
- 1400 Socket
- 1501 Oval head cap screw
- *1502 O-ring

* These individual parts form a complete wearing unit.



DIMENSIONAL DRAWINGS

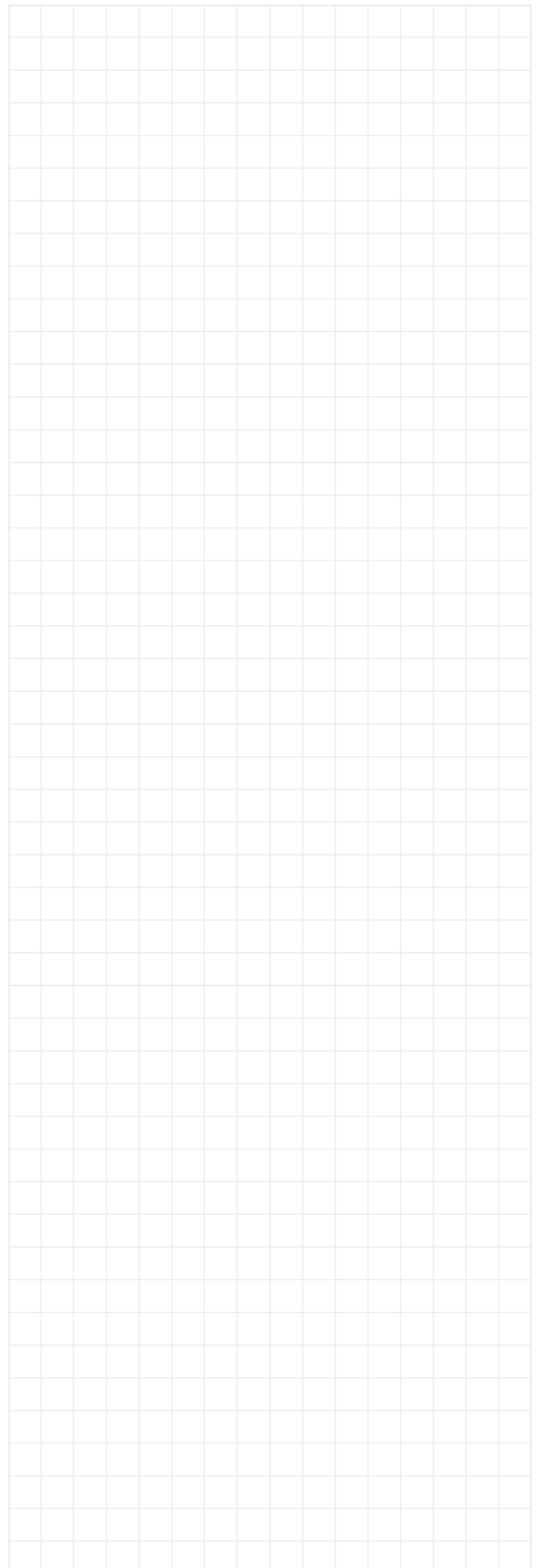
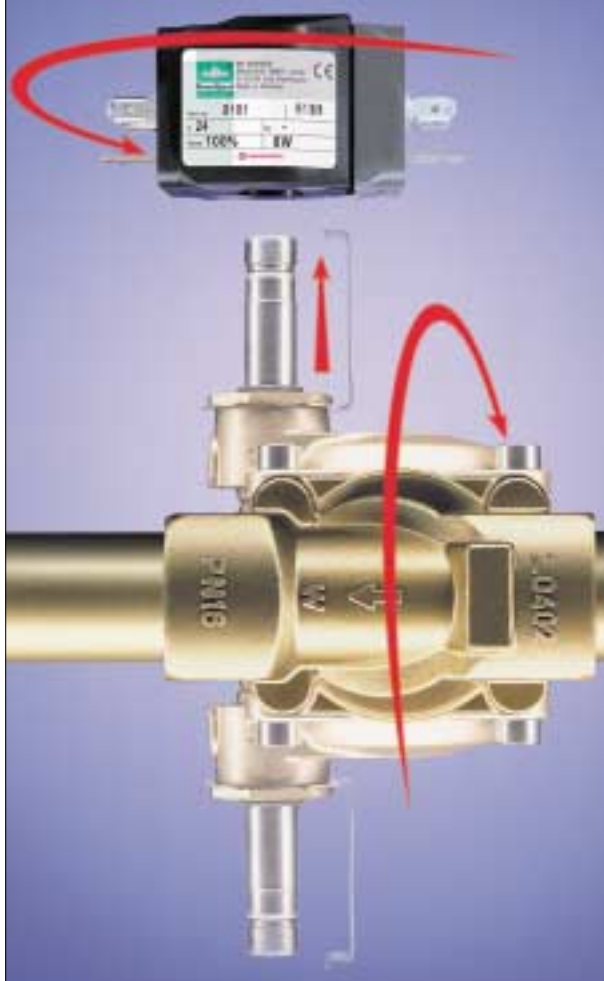
82530



Connection	L	B	H	H1
G	mm	mm	mm	mm
1/4	44	70	85.5	73.0
3/8	44	70	85.5	73.0
1/2	60	70	88.5	74.5

Turn it to good use:

Click-on®



2/2-way valves G 1/4 - G 1

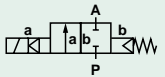
solenoid actuated, with forced lifting
threaded connection

DESCRIPTION (STANDARD VALVE)

Type	diaphragm valve
Switching function	normally closed
Operating pressure	0 to 10 bar
Differential pressure	not required
Process fluid	neutral liquids and gases
Fluid temperature	-10 to maximum of +90°C
Ambient temperature	-10 to maximum of +50°C
Viscosity	up to 25 mm²/s
Flow direction	determined
Mounting position	optional, preferably with solenoid upright



82540

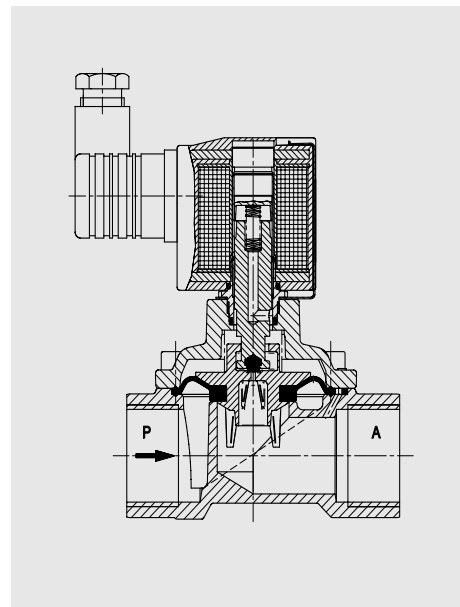


MATERIALS

Body	brass
Cover	brass
Internal parts	stainless steel, PVDF
Seals	NBR
Valve seat	brass

FEATURES

- Solenoid easily changed without tools
- Flow rate optimal
- For robust industrial applications
- Damped operation
- Suitable for vacuum
- Especially for systems with low pressure-rating
- NPT thread optional



CHARACTERISTIC DATA

Connection G	ND mm	k _v -Value m³/h	Operating Pressure			Part Number	
			min.	bar	max.	DC	AC
1/4	8	1.9	0		10	8254000.9151	8254000.9154
3/8	10	3.0	0		10	8254100.9151	8254100.9154
1/2	12	3.4	0		10	8254200.9151	8254200.9154
3/4	20	5.8	0		10	8254300.9151	8254300.9154
1	25	8.0	0		10	8254400.9151	8254400.9154

NPT- connection available: change (e.g.) 8254000 in 8264000

ELECTRICAL DATA

Standard voltage	DC 24V	AC
		24V 40-60Hz
		42V 40-60Hz
		110V 40-60Hz
		230V 40-60Hz
Power consumption	DC 18W	AC 20VA
Duty cycle	100%	
Voltage range	±10%	
Protection	without power lead socket IP00 with power lead socket IP65	
Electrical design	arrangement and testing to DIN VDE 0580	

NOTES:

The power consumption is measured according to VDE 0580 at a coil temperature of +20°C. Physical factors reduce the value by up to about 30% when the DC solenoid coil has reached normal operating temperature.

Power lead socket type A
Socket can be turned to 4 positions 90° apart
Solenoid can be turned in any direction

Valves must be suitably protected against contaminated fluids.

OPTIONAL FEATURES

xxxxx 01.xxxx normally open

xxxxx 14.xxxx seals EPDM T_{max.} +110°C

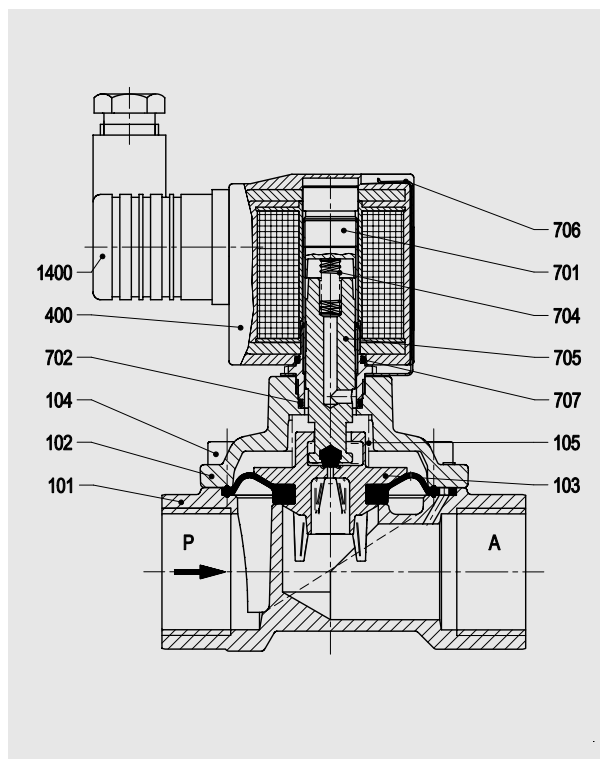
xxxxx 03.xxxx seals FPM T_{max.} +110°C

SECTIONAL DRAWING

Parts list and identification

- 101 Valve body
- 102 Body cover
- *103 Diaphragm
- 104 Socket head cap screw
- *105 Pressure spring
- 400 Solenoid
- 701 Plunger tube
- 702 O-ring
- *704 Pressure spring
- *705 Plunger
- 706 Spring clip
- *707 O-ring
- 1400 Socket

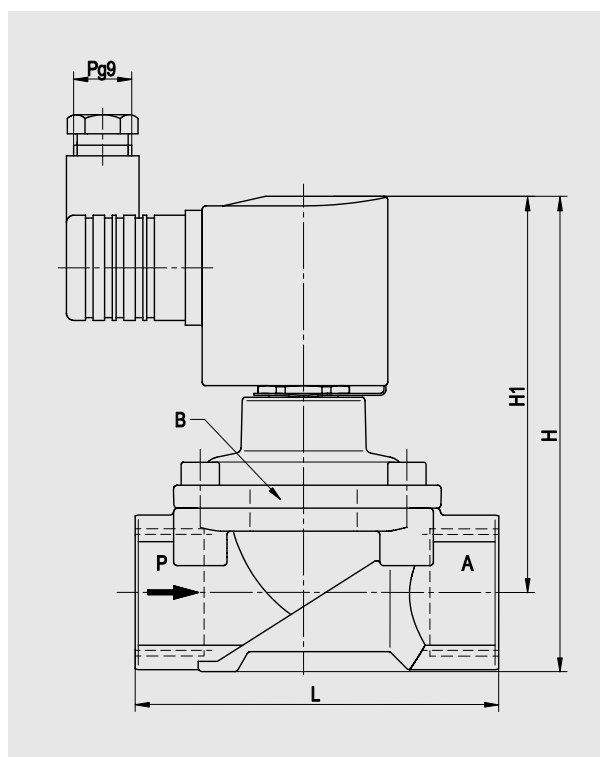
* These individual parts form a complete wearing unit.



82540

DIMENSIONAL DRAWING

Connection	L	B	H	H1
G	mm	mm	mm	mm
1/4	60	44	104	92.5
3/8	60	44	104	92.5
1/2	67	44	108	94.5
3/4	80	50	115	99.0
1	95	62	124	103.5



TECHNICAL INFORMATION

ELECTRICAL CONNECTION

Connect solenoid in accordance with the electrical regulations. Then close the terminal compartment carefully to maintain protection. Make sure the cable entry is sealed properly.

Tighten central screw of the power lead socket to a maximum of 60Ncm. The housing must not show signs of deformation. Ensure correct polarity of terminals marked + and -. If unmarked the live wires can be connected either way round. It is absolutely essential to connect the earth wire to the marked terminal provided.

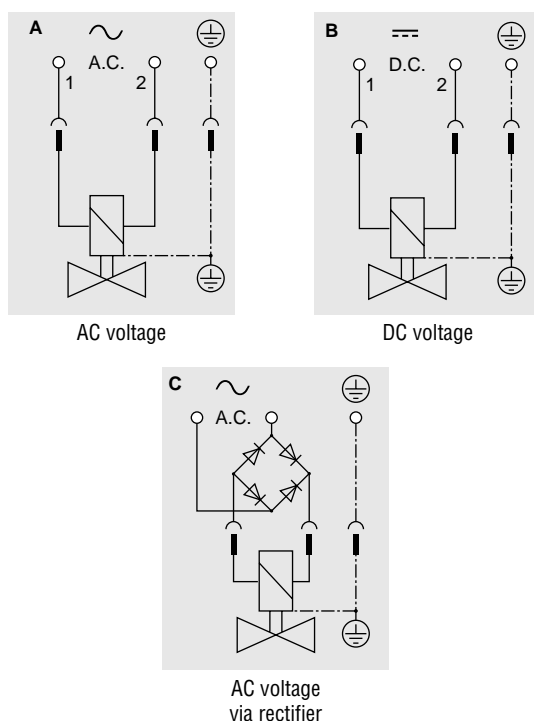
DANGER! Earth connection essential!

It is advisable to carry out an operating test before pressurising. The clicking of the plunger must be audible during switching.

The power lead socket may only be connected with the power disconnected. Operation of AC solenoids without the plunger causes irreparable damage.

The surface of the solenoid will heat up to a maximum of +120°C during continuous duty.

Wiring



2/2-way valves G 1/2 - G 2

solenoid actuated, with forced lifting
threaded connection

DESCRIPTION (STANDARD VALVE)

Type	piston valve
Switching function	normally closed
Operating pressure	0 to 25 bar
Differential pressure	not required
Process fluid	neutral liquids and gases
Fluid temperature	-10 to maximum +90°C
Ambient temperature	-10 to maximum +50°C
Viscosity	up to 40 mm²/s
Flow direction	determined
Mounting position	optional, preferably with solenoid upright

MATERIALS

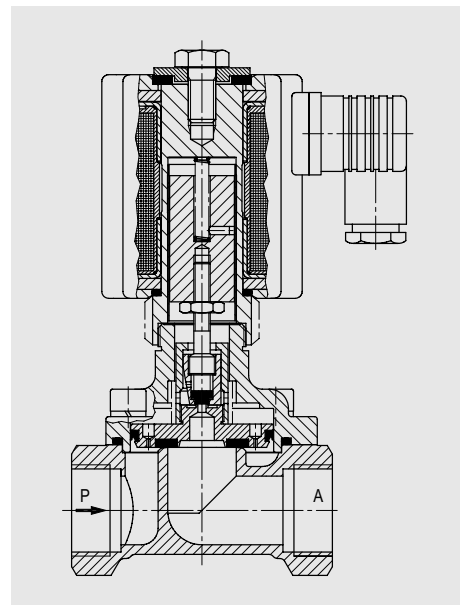
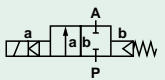
Body	brass
Cover	brass
Internal parts	stainless steel, brass
Seals	NBR
Valve seat	brass

FEATURES

- Damped operation
- High flow rate
- For closed systems without differential pressure
- For demanding industrial applications
- Suitable for vacuum
- NPT thread optional
- Practical accessories and options



85000



CHARACTERISTIC DATA

Connection G	ND mm	K _v -Value m³/h	Operating Pressure			Part Number	
			min.	bar	max.	DC	AC
1/2	12	3.8	0		25	8500200.8301	8500200.8304
3/4	20	11.0	0		25	8500300.8401	8500300.8404
1	25	13.0	0		25	8500400.8401	8500400.8404
1 1/4	32	30.0	0		25	8500500.8401	8500500.8404
1 1/2	40	31.0	0		25	8500600.8401	8500600.8404
2	50	46.0	0		25	8500700.8401	8500700.8404

NPT- connection available: change (e.g.) 8500300 in 8501300

ELECTRICAL DATA

Standard voltages	DC 24V	AC 24V 40-60 Hz 42V 40-60 Hz 110V 40-60 Hz 230V 40-60 Hz
Power consumption	DC	AC
Solenoid 8301	22W	-
Solenoid 8304	-	25 VA
Solenoid 8401	40W	-
Solenoid 8404	-	45 VA
Duty cycle	100%	
Voltage range	±10%	
Protection	without power lead socket IP00 with power lead socket IP65	
Electrical design	arrangement and testing to DIN VDE 0580	

NOTE:

Only use AC in conjunction with a rectifier. This is incorporated in the power lead of solenoids 8304 and 8404.

The power consumption is measured according to VDE 0580 at a coil temperature of +20°C. Physical factors reduce the value by up to about 30% when the DC solenoid coil has reached normal operating temperature.

Power lead socket type A

Socket can be turned to 4 positions 90° apart
Solenoid can be turned in any direction

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

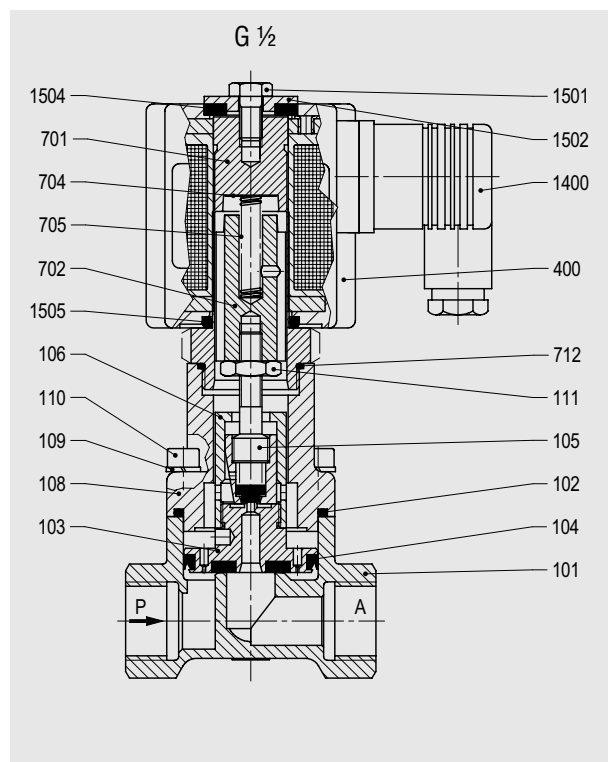
Valves must be suitably protected against contaminated fluids.

OPTIONAL FEATURES

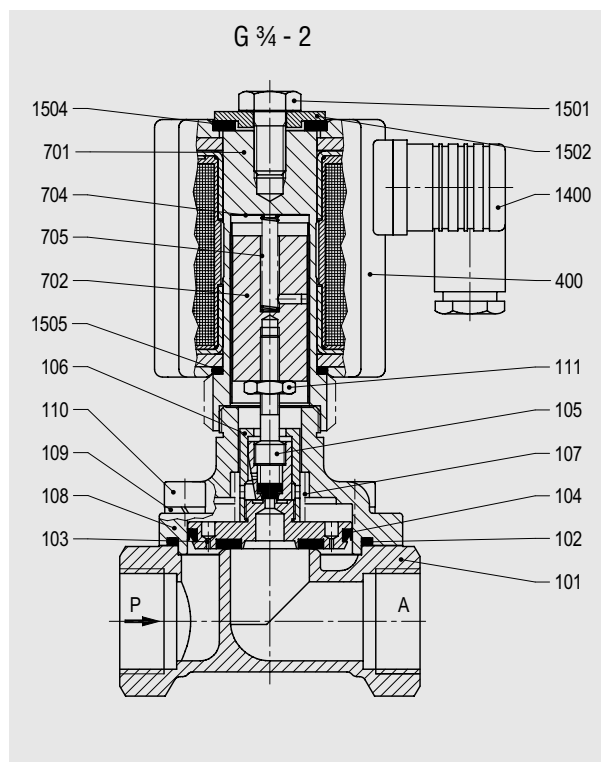
xxxxx 01.xxxx	normally open G ½ solenoid 8401/8404 mounting position solenoid vertical on top	xxxxx 33.xxxx	free of discolouring components
xxxxx 02.xxxx	G ¾ to G 2 manual override	xxxxx 35.xxxx	degreased and without oil, for oxygen, seals FPM
xxxxx 03.xxxx	seals FPM T _{max.} +110°C	xxxxx xx.8341	G ½ solenoid in protection class EEx me II T3
xxxxx 06.xxxx	seals PTFE T _{max.} +110°C, P _{max.} 16 bar	xxxxx xx.8436	G ¾ to G 2 solenoid in protection class EEx me II T4
xxxxx 14.xxxx	seals EPDM T _{max.} +110°C	xxxxx xx.8441	G ¾ to G 2 solenoid in protection class EEx me II T3
xxxxx 22.xxxx	P _{max.} 40 bar G ½ with solenoid 8401/8404	xxxxx xx.8900	G ½ to G 2 solenoid in protection class EEx de II C T4 and T5
xxxxx 23.xxxx	position indicator OPEN and CLOSED with two solenoid switch G ½ with solenoid 8401/8404	xxxxx xx.8920	G ½ to G 2 solenoid in protection class EEx d II C T4 and T5
xxxxx 25.xxxx	fuel and oil design G ½ solenoid 8401/8404 viscosity max. 80 mm²/s, seals FPM, T _{max.} +110°C		

SECTIONALS DRAWING

Parts list and identification



- 101 Valve body
- *102 O-ring
- *103 Valve plate
- *104 Grooved ring
- *105 Valve spindle
- *106 Screw piece
- *107 Pressure spring, from G 3/4
- 108 Body cover
- 109 Spring washer
- 110 Cheese head cap screw
- 111 Hexagon nut



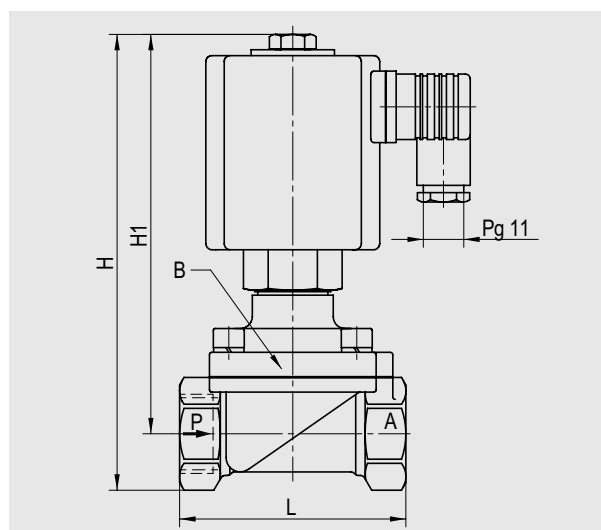
- 400 Solenoid
- 701 Plunger tube
- 702 Plunger
- 704 Round plate
- *705 Pressure spring
- *712 O-ring, only G 1/2
- 1400 Socket
- 1501 Hexagon screw
- 1502 Round plate
- 1504 Gasket
- 1505 O-ring

* These individual parts form a complete wearing unit.

DIMENSIONAL DRAWING

B = max. depth

Connection	L	B	H	H1
G	mm	mm	mm	mm
1/2	67	65	160	145
3/4	95	92	196	172
1	95	92	196	172
1 1/4	132	96	220	187
1 1/2	132	96	220	187
2	160	112	238	198



85000

TECHNICAL INFORMATION EC TYPE EXAMINED VALVES TO DVGW (GERMAN GAS INSTALLATION AND PLUMBING ASSOCIATION) REQUIREMENTS

Firing systems, gas turbines and other oil and gas appliances are operated with safety valves that shut off the fuel supply should dangerous conditions arise. Type examination is mandatory to establish their suitability for this purpose.

For the gases specified by DVGW Code of Practice G 260, the requirements of EN 161 and DIN 3394 Part 1 have to be met for working pressures in excess of 4 bar. Liquid fuels are governed by the requirements of EN 264.

The old DIN DVGW registration number has been superseded in the course of EU harmonisation.

Safety shut-off valves are not gas appliances ready for use as defined in the Gas Appliance Directive. The valves are marked with the CE product identification number rather than the CE mark.

Buschjost has developed 3 series of electrically and electropneumatically actuated valves. The 82580 series is only suitable for gaseous fuels, the others cater for gaseous and liquid fuels.

These valves are described in greater detail on their data sheets.

Overview

Series	Product ID No	Page
82 370	CE-0085AU0323	25
82 580	CE-0085AT0091	145
83 860	CE-0085AS0104	149



We will gladly provide you with any further information required.

2/2-way valves G ½ - G 2

solenoid actuated, with forced lifting
threaded connection

DESCRIPTION (STANDARD VALVE)

Type	piston valve
Switching function	normally closed
Operating pressure	0 to 16 bar
Differential pressure	not required
Process fluid	for hot water and steam
Fluid temperature	-10 to maximum of +200°C
Ambient temperature	-10 to maximum of +60°C
Viscosity	up to 80 mm²/s
Flow direction	determined
Mounting position	from T _{max.} +150°C on solenoid underneath up to T _{max.} +150°C preferably with solenoid vertical on top

MATERIALS

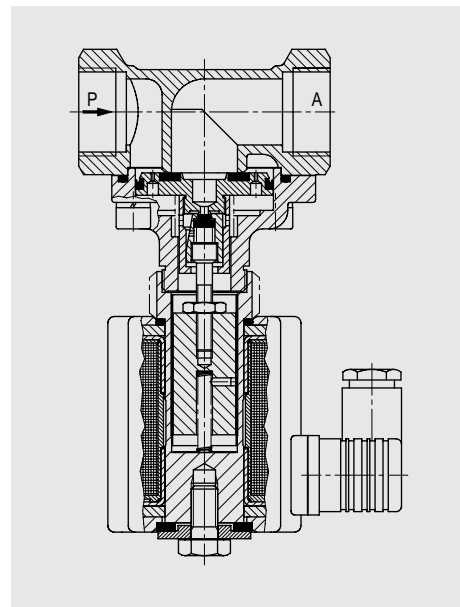
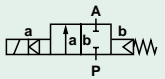
Body	brass
Cover	brass
Internal parts	stainless steel, gun metal
Seals	PTFE
Valve seat	brass

FEATURES

- Especially for steam and hot water
- High flow rate
- For closed systems without differential pressure
- Damped operation
- For exacting process systems
- Practical accessories and options
- NPT thread optional



85020



CHARACTERISTIC DATA

Connection G	ND mm	K _v -Value m³/h	Operating Pressure			Part Number	
			min.	bar	max.	DC	AC
½	12	3.0	0		16	8502200.8302	8502200.8306
¾	20	9.0	0		16	8502300.8402	8502300.8406
1	25	11.0	0		16	8502400.8402	8502400.8406
1¼	32	28.0	0		16	8502500.8402	8502500.8406
1½	40	31.0	0		16	8502600.8402	8502600.8406
2	50	43.0	0		16	8502700.8402	8502700.8406

NPT- connection available: change (e.g.) 8502300 in 8503300

ELECTRICAL DATA

Standard voltages	DC	AC
	24V	24V 40-60Hz 42V 40-60Hz 110V 40-60Hz 230V 40-60Hz
Power consumption	DC	AC
Solenoid 8302	14W	-
Solenoid 8306	-	16VA
Solenoid 8402	29W	-
Solenoid 8406	-	33VA
Duty cycle	100%	
Voltage range	±10%	
Protection	without power lead socket IP00 with power lead socket IP65	
Electrical design	arrangement and testing to DIN VDE 0580	

NOTE:

Only use AC in conjunction with a rectifier. This is incorporated in the power lead of solenoids 8306 and 8406.

The power consumption is measured according to VDE 0580 at a coil temperature of +20°C. Physical factors reduce the value by up to about 30% when the DC solenoid coil has reached normal operating temperature.

Power lead socket type A

Socket can be turned to 4 positions 90° apart

Solenoid can be turned in any direction

Valves must be suitably protected against contaminated fluids.

OPTIONAL FEATURES

xxxxx 01.xxxx normally open
G ½ with solenoid 8402/8406

xxxxx 02.xxxx G ¾ to G 2 manual override

xxxxx 14.xxxx seals EPDM T_{max.} +130°C

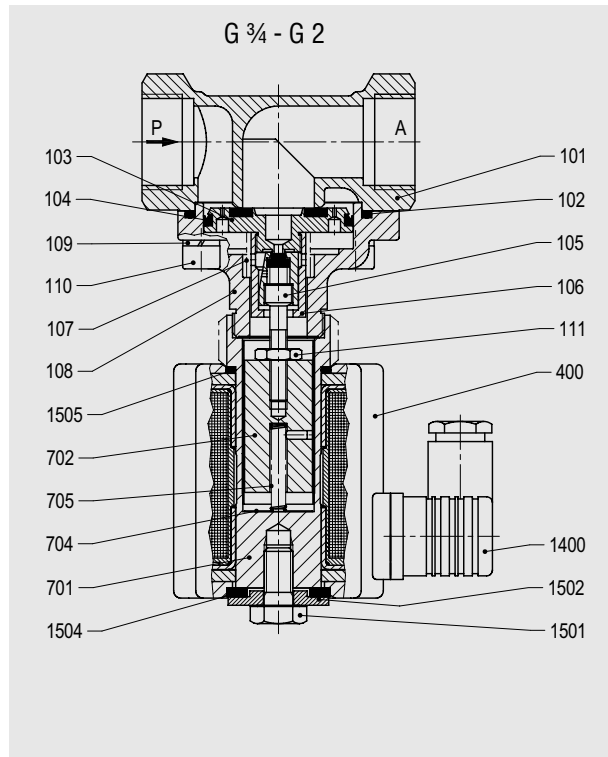
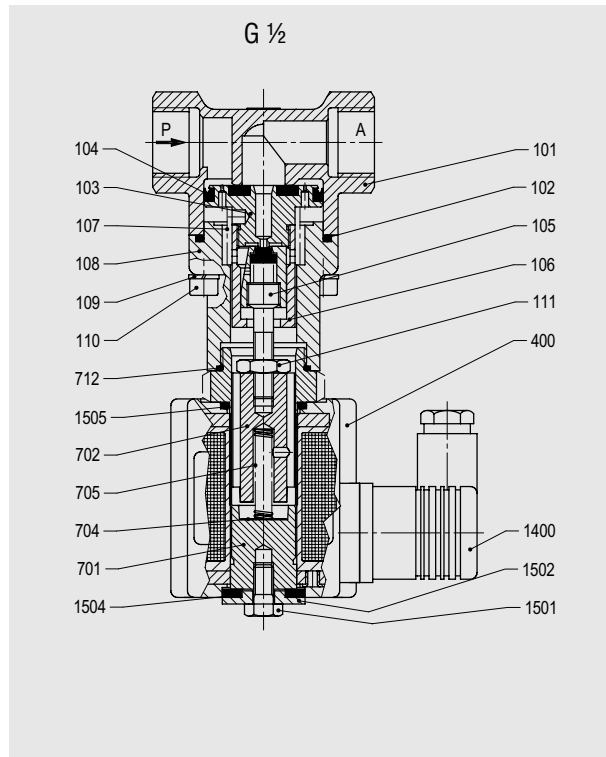
xxxxx 22.xxxx P_{max.} 25 bar

xxxxx 23.xxxx position indicator OPEN and CLOSED
with two solenoid switch
G ½ to G 2 with solenoid 8402/8406

xxxxx 33.xxxx free of discolouring components

SECTIONAL DRAWINGS

Parts list and identification



85020

- 101 Valve body
- *102 O-ring
- *103 Valve plate
- *104 Grooved ring
- *105 Valve spindle
- *106 Screw piece
- *107 Pressure spring
- 108 Body cover
- 109 Spring washer
- 110 Cheese head cap screw
- 111 Hexagon nut

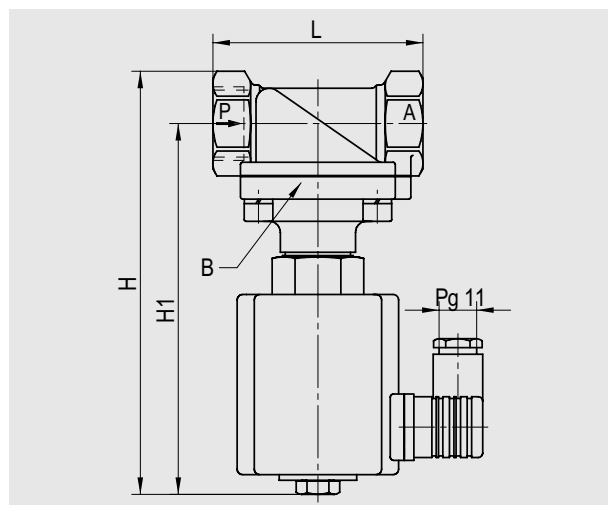
- 400 Solenoid
- 701 Plunger tube
- 702 Plunger
- 704 Round plate
- *705 Pressure spring
- *712 O-ring, only G 1/2
- 1400 Socket
- 1501 Hexagon screw
- 1502 Round plate
- 1504 Gasket
- 1505 O-ring

* These individual parts form a complete wearing unit.

DIMENSIONAL DRAWING

B = max. depth

Connection	L	B	H	H1
G	mm	mm	mm	mm
1/2	67	65	160	145
3/4	95	92	196	172
1	95	92	196	172
1 1/4	132	96	220	187
1 1/2	132	96	220	187
2	160	112	238	198



TECHNICAL INFORMATION

SWITCHING FUNCTIONS & SYMBOLS

2/2 valves have 2 controlled ports:

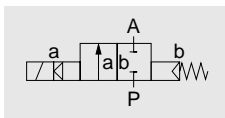
- inlet P
- outlet A

and

2 possible positions:

- normally closed (NC)
- normally open (NO)

Symbol

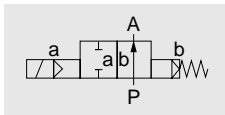


Switching function:

Normally closed.

The medium can only flow through the valve in one fixed direction.

Symbol



Switching function:

Normally open.

The medium can only flow through the valve in one fixed direction.

Whether a NC or NO 2/2 valve should be used is governed by the failset position.

3/2 valves have 3 controlled ports:

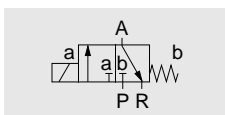
- inlet P
- outlet A
- exhaust R

and

2 possible positions:

- inlet P closed
- inlet P open

Symbol



Switching function:

Inlet P normally closed and outlet A normally connected to exhaust R.

2/2-way valves G 1/4 - G 1/2

direct acting solenoid valves
threaded connection

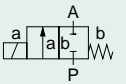


DESCRIPTION (STANDARD VALVE)

Type	seat valve
Switching function	normally closed
Operating pressure	see characteristic data table
Differential pressure	not required
Process fluid	neutral liquids and gases
Fluid temperature	-25 to maximum +80°C
Ambient temperature	-10 to maximum +55°C
Flow direction	determined
Mounting position	optional, preferably solenoid upright



95000



MATERIALS

Body	brass
Cover	brass
Internal parts	brass, steel, stainless steel
Seals	NBR

FEATURES

- High flow rate
- Suitable for vacuum down to $1.33 \cdot 10^{-3}$ mbar x l/s
- NPT thread optional
- Oil and grease free assembly
- Fast switching

CHARACTERISTIC DATA

Standard NC

Connection G	ND mm	k _v -Value m³/h	Operating Pressure			Dimension table	Solenoid group	Part Number	
			min.	bar	max.			DC	AC
1/4	2	0.12	0		40	6	A	9500200.0201	9500200.3205
1/4	3	0.20	0		10	6	A	9500300.0201	9500300.3205
1/4	4	0.35	0		4	6	A	9500400.0201	9500400.3205
1/4	4	0.35	0		12	7	A	9500400.0701	9500400.3704
1/4	5	0.45	0		7	8	B	9501500.0801	9501500.3804
1/4	6	0.55	0		5	8	B	9501600.0801	9501600.3804
1/2	8	1.20	0		2.5	9	B	9501800.0801	9501800.3804
1/2	12	1.70	0		1	9	B	9501700.0801	9501700.3804

Standard NO

1/4	2	0.10	0		20	10	-	9502210.0246	9502210.3206
1/4	3	0.16	0		10	10	-	9502310.0246	9502310.3206
1/4	6	0.30	0		6	11	-	9502430.0827	9502430.3805

ELECTRICAL DATA

Standard voltage	DC 24V	AC 230V 50Hz
Duty cycle	100%	
Voltage range	±10%	
Protection	without power lead socket IP00 with power lead socket IP65	
Electrical design	arrangement and testing to DIN VDE 0580	

NOTE:

Solenoid system for AC with built-in rectifier
 NC = normally closed
 NO = normally open
 Take account of condition of air at temperatures below +2°C
 DC = DC supply
 AC = AC supply
 EEx m II T5 with 3m connecting cable
 EEx me II T5/T6 with terminal compartment

Solenoid type

Voltage/Protection/Solenoid group/Power consumption					
DC/IP 65	Solenoid group	Power	AC/IP 65	Solenoid group	Power
0247	A	7W	3207	A	8VA
0201	A	12W	3205	A	12VA
0716	A	7W	3706	A	10VA
0701	A	16W	3704	A	18VA
0813	B	7W	3806	B	10VA
0801	B	16W	3804	B	18VA

DC/EEx m II T5	Solenoid group	Power	AC/EEx m II T5	Solenoid group	Power
0272	A	7W	0273	A	9VA
0270	A	11W	0271	A	13VA

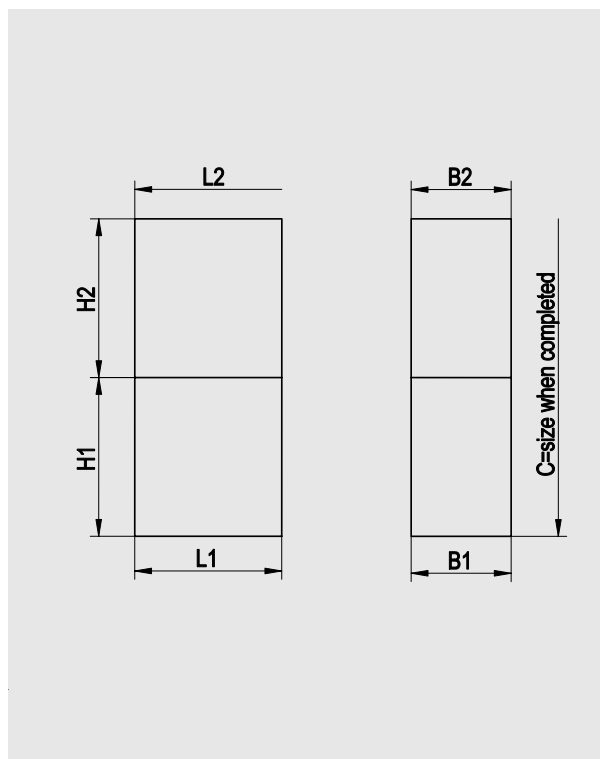
DC/EEx me II T5/T6	Solenoid group	Power	AC/EEx me II T5/T6	Solenoid group	Power
3910	A	4W	3911	A	5VA
3920	A	8W	3921	A	9VA
3930	A	12W	3931	A	13VA
3970	B	7W	3971	B	9VA
3980	B	12W	3981	B	13VA

OPTIONAL FEATURES

xxxxx x1.xxxx	seals EPDM -40°C to maximum of +140°C	xxxxx x3.xxxx	seals PTFE -50°C to maximum of +180°C
xxxxx x2.xxxx	seals FPM -10°C to maximum of +120°C	xxxxx x4.xxxx	seals FKM -10°C to maximum of +180°C

DIMENSIONAL DRAWING

H₁ = overall height valve body
H₂ = overall height solenoid
L₁ = overall length valve body
L₂ = overall length solenoid with power lead socket
B₁ = breadth valve body
B₂ = breadth solenoid
C = size when completed

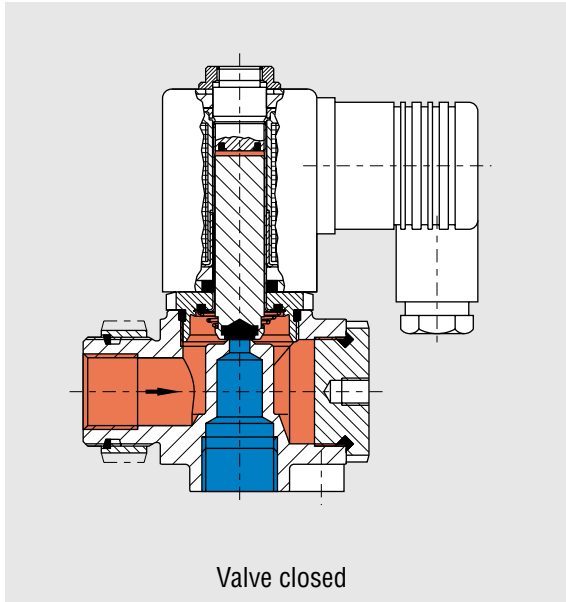


95000

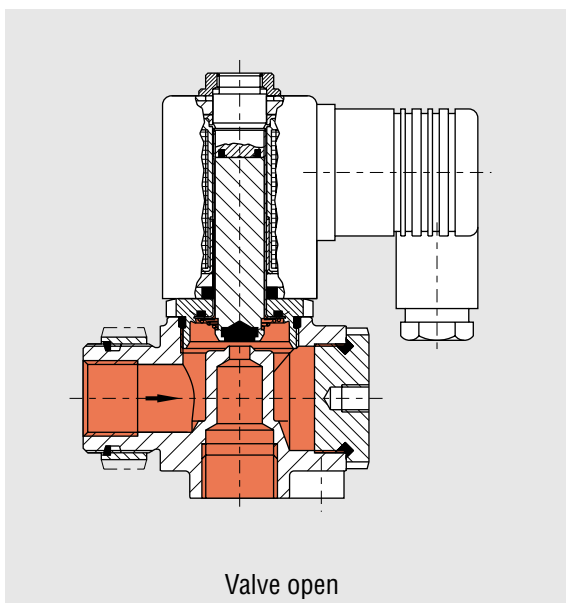
Dimensional drawing	H ₁	H ₂	L ₁	L ₂	B ₁	B ₂	C	Weight
6	28.5	40.5	36	79.5	26	29.5	120	0.21
7	28.5	40.5	36	95.0	26	43.0	120	0.25
8	29.5	40.5	36	95.0	26	43.0	120	0.25
9	40.0	40.5	75	105.0	43	43.0	120	0.80
10	46.5	40.5	36	79.5	26	29.5	120	0.21
11	46.5	40.5	36	95.0	26	43.0	120	0.25

TECHNICAL INFORMATION SOLENOID VALVES WITHOUT DIFFERENTIAL PRESSURE

(direct acting)



This type of valve is actuated entirely by the solenoid force. The plunger with seal acting as main closure device is forced directly onto the valve seat by the fluid pressure and closing spring. The valve is opened directly by the solenoid force only.



3/2-way valves G 1/4

direct acting solenoid valves
threaded connection

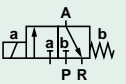


DESCRIPTION (STANDARD VALVE)

Type	seat valve
Switching function	normally closed
Operating pressure	see characteristic data table
Differential pressure	not required
Process fluid	neutral liquids and gases
Fluid temperature	-25 to maximum +80°C
Ambient temperature	-10 to maximum +55°C
Flow direction	determined
Mounting position	optional, preferably solenoid upright



96000



MATERIALS

Body	brass
Cover	brass
Internal parts	brass, steel, stainless steel
Seals	NBR

FEATURES

- High flow rate
- Suitable for vacuum down to $1.33 \cdot 10^{-3}$ mbar x l/s
- NPT thread optional
- Free from grease and other thixotropic substances
- Fast switching

CHARACTERISTIC DATA

Standard NC

Connection G	ND mm	k _v -Value m³/h	Operating Pressure			Dimension table	Solenoid- group	Part Number	
			min.	bar	max.			DC	AC
1/4	2	0.12	0		10	3	A	9600210.0247	9600210.3207
1/4	2	0.12	0		18	5	D	9600240.0701	9600240.3704
1/4	3	0.20	0		6	3	B	9600320.0201	9600330.3205
1/4	2	0.20	0		8	5	C	9600330.0716	9500330.3706
1/4	2	0.20	0		14	5	D	9600340.0701	9600340.3704
1/4	4	0.35	0		8	4	E	9601430.0813	9601430.3806
1/4	4	0.35	0		10	4	F	9601440.0801	9601400.3804
1/4	5	0.45	0		7	4	F	9601540.0801	9601500.3804

Standard NO

1/4	2	0.10	0		9	1	A	9602210.0247	9602210.3207
1/4	3	0.16	0		9	2	D	9602340.0701	9602340.3704
1/4	4	0.30	0		6	2	F	9602440.0801	9602440.3804

ELECTRICAL DATA

Standard voltage	DC 24V	AC 230V 50Hz
Duty cycle	100%	
Voltage range	±10%	
Protection	without power lead socket IP00 with power lead socket IP65	
Electrical design	arrangement and testing to DIN VDE 0580	

NOTE:

Solenoid system for AC with built-in rectifier
 NC = normally closed
 NO = normally open
 Take account of condition of air at temperatures below +2°C
 DC = DC supply
 AC = AC supply
 EEx m II T5 with 3m connecting cable
 EEx me II T5/T6 with terminal compartment

Solenoid type

Voltage/Protection/Solenoid group/Power consumption					
DC/IP 65	Solenoid group	Power	AC/IP 65	Solenoid group	Power
0247	A	7W	3207	A	8VA
0201	B	12W	3205	B	12VA
0716	C	7W	3706	C	10VA
0701	D	16W	3704	D	18VA
0813	E	7W	3806	E	10VA
0801	F	16W	3804	F	18VA

DC/EEx m II T5	Solenoid group	Power	AC/EEx m II T5	Solenoid group	Power
0272	A	7W	0273	A	9 VA
0270	B	11W	0271	B	13 VA

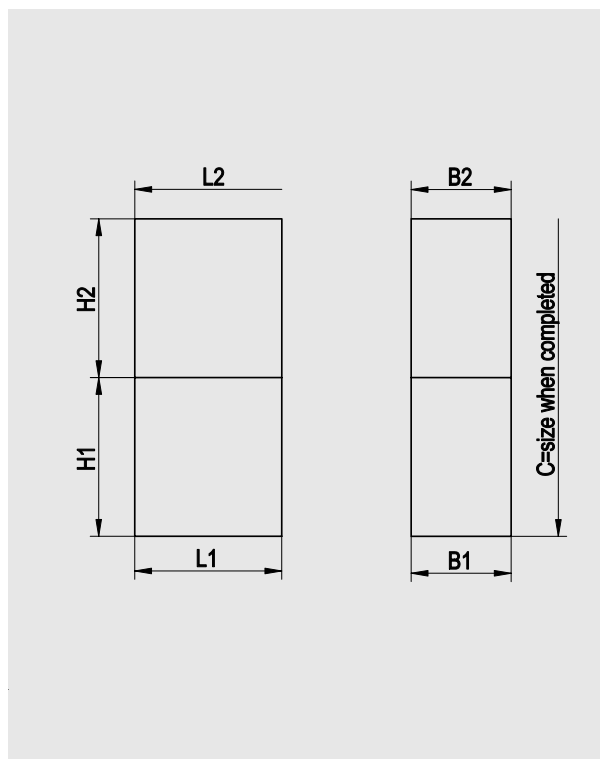
DC/EEx me II T5/T6	Solenoid group	Power	AC/EEx me II T5/T6	Solenoid group	Power
3910	A	4W	3911	A	5VA
3920	B	8W	3921	B	9VA
3930	D	12W	3931	D	13VA
3970	E	7W	3971	E	9VA
3980	F	12W	3981	F	13VA

OPTIONAL FEATURES

xxxxx x1.xxxx seals EPDM -40°C to maximum of +140°C
 xxxxx x2.xxxx seals FPM -10°C to maximum of +120°C

xxxxx x4.xxxx seals FKM -10°C to maximum of +180°C

DIMENSIONAL DRAWING



- H₁ = overall height valve body
H₂ = overall height solenoid
L₁ = overall length valve body
L₂ = overall length solenoid with power lead socket
B₁ = breadth valve body
B₂ = breadth solenoid
C = size when completed

Dimensional drawing	H ₁	H ₂	L ₁	L ₂	B ₁	B ₂	C	Weight
1	46.5	40.5	36	79.5	26	29.5	120	0.50
2	46.5	40.5	36	95.0	26	43.0	120	0.50
3	28.5	40.5	36	79.5	26	29.5	120	0.32
4	28.5	40.5	36	95.0	26	43.0	120	0.52
5	29.5	40.5	36	95.0	26	43.0	120	0.52

96000

TECHNICAL INFORMATION

AMMONIA & VALVES

Solenoid valves are used to control ammonia refrigerants.

There is a special range of Buschjost valves designed to meet the stringent and specific safety requirements for this application, through:

- Avoidance of nonferrous metals
- Use of special seal materials
- High tightness to atmosphere to prevent emissions
- Explosion protection
- Position indication
- Type approval
- Design to power station specifications
- Grooved connecting flange to DIN 2512, type NA



The Buschjost range of equipment for use in ammonia systems includes various sizes and types of solenoid valves and pressure actuated valves.

We will gladly provide you with any further information required.

2/2-way valves ND 15 - ND 100

solenoid actuated, with forced lifting
flange connection PN 40

DESCRIPTION (STANDARD VALVE)

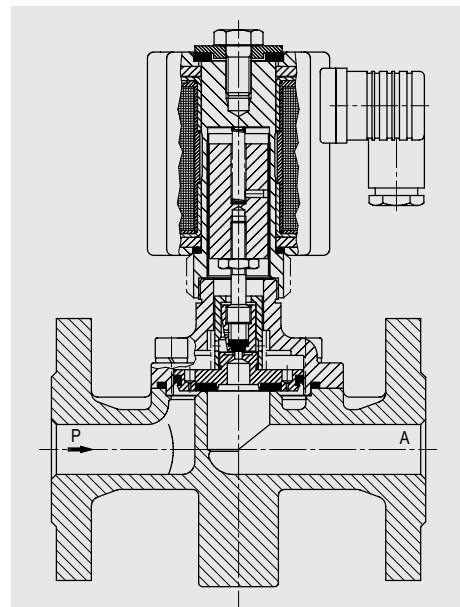
Type	piston valve
Switching function	normally closed
Operating pressure	0 to 25 bar
Differential pressure	not required
Process fluid	neutral liquids and gases
Fluid temperature	-10 to maximum of +90°C
Ambient temperature	-10 to maximum of +50°C
Viscosity	up to 40 mm²/s
Flow direction	determined
Mounting position	ND 15 - ND 50 optional, preferably with solenoid upright ND 65 - ND 100 with solenoid upright only

MATERIALS

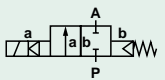
Body	cast steel
Cover	ND 15 - ND 50 brass ND 65 - ND 100 cast steel
Internal parts	stainless steel, brass, gun metal
Seals	NBR
Valve seat	cast steel

FEATURES

- Damped operation
- High flow rate
- Variety of options
- For demanding industrial applications
- Continuously adjustable closing time from ND 65
- Flange drilled to ANSI B 16.5 300 lbs RF



84200
85200



CHARACTERISTIC DATA

Connection ND	k_v -Value m³/h	Operating Pressure			Weight kg	Part Number	
		min.	bar	max.		DC	AC
15	5.5	0		25	4.2	8520200.8301	85 20200.8304
20	10.0	0		25	6.2	8520300.8401	85 20300.8404
25	12.5	0		25	6.7	8520400.8401	85 20400.8404
32	27.0	0		25	9.5	8520500.8401	85 20500.8404
40	31.0	0		25	10.3	8520600.8401	85 20600.8404
50	43.0	0		25	13.8	8520700.8401	85 20700.8404
65	67.0	0		25	35.5	8420800.9501	84 20800.9504
80	94.0	0		25	45.8	8420900.9501	84 20900.9504
100	144.0	0		25	66.3	8421000.9501	84 21000.9504

ELECTRICAL DATA

Standard voltages	DC 24V	AC
		24V 40-60Hz
		42V 40-60Hz
		110V 40-60Hz
		230V 40-60Hz
Power consumption	DC	AC
		-
		25 VA
		-
		45 VA
		-
Solenoid 8301	22W	-
		-
		-
		-
Solenoid 8304	-	-
		-
		-
		-
Solenoid 8401	40W	-
		-
		-
		-
Solenoid 8404	-	-
		-
		-
		-
Solenoid 9501	80W	-
		-
		-
		-
Solenoid 9504	-	-
		-
		-
		-
Duty cycle	100%	
Voltage range	±10%	
Protection	without power lead socket IP00 with power lead socket IP65	
Electrical design	arrangement and testing to DIN VDE 0580	

NOTE:

Only use AC in conjunction with a rectifier. This is incorporated in the power lead of solenoids 8304, 8404 and 9504.

The power consumption is measured according to VDE 0580 at a coil temperature of +20°C. Physical factors reduce the value by up to about 30% when the DC solenoid coil has reached normal operating temperature.

Power lead socket type A
Socket can be turned to 4 positions 90° apart
Solenoid can be turned in any direction

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

Valves must be suitably protected against contaminated fluids.

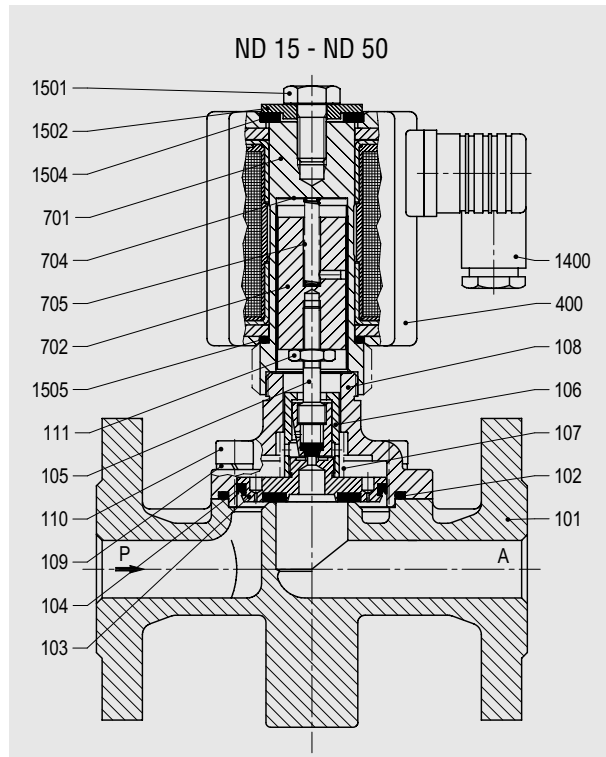
From ND 65 the closing time can be adjusted with the valve stem (302). Screwing in increases the time and vice versa. Full opening or closing of the control passage will cause the valve to malfunction.

OPTIONAL FEATURES

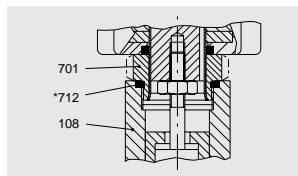
xxxxx 01.xxxx	normally open ND 15 with solenoid 8401/8404	xxxxx 25.xxxx	fuel and oil design ND 15 to ND 50, seals FPM viscosity 80 mm²/s, T _{max.} +110°C
xxxxx 02.xxxx	manual override	xxxxx xx.8341	ND 15 solenoid in protection class EEx me II T3
xxxxx 03.xxxx	seals FPM, T _{max.} +110°C	xxxxx xx.8436	ND 20 to ND 50 solenoid in protection class EEx me II T4
xxxxx 06.xxxx	seals PTFE, T _{max.} +110°C ND 15 to ND 50, P _{max.} 16 bar	xxxxx xx.8441	ND 20 to ND 50 solenoid in protection class EEx me II T3
xxxxx 14.xxxx	seals EPDM T _{max.} +110°C	xxxxx xx.8900	ND 15 to ND 50 solenoid in protection class EEx de II C T4 and T5
xxxxx 17.xxxx	normally open seals FPM, T _{max.} +110°C mounting position with solenoid upright only	xxxxx xx.8920	ND 15 to ND 50 solenoid in protection class EEx d II C T4 and T5
xxxxx 22.xxxx	P _{max.} 40 bar, ND 15 to ND 50, ND 15 solenoid 8401/8404	xxxxx xx.9540	ND 65 to ND 100 solenoid in protection class EEx me II T3 and T4
xxxxx 23.xxxx	position indicator OPEN and CLOSED with two solenoid switch		

SECTIONAL DRAWINGS

Parts list and identification

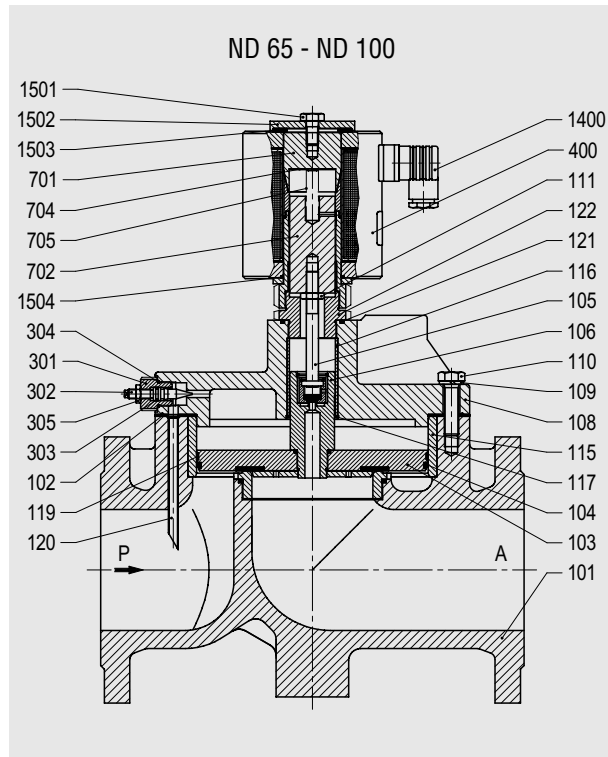


- 101 Valve body
- *102 O-ring
- *103 Valve plate
- *104 Grooved ring
- *105 Valve spindle
- *106 Screw piece
- *107 Pressure spring - not for ND 15
- 108 Body cover
- 109 Spring washer
- 110 Cheese head cap screw
- 111 Hexagon nut
- 400 Solenoid
- 701 Plunger tube
- 702 Plunger
- 704 Round plate
- *705 Pressure spring



- *712 Gasket, only for ND 15
- 1400 Socket
- 1501 Hexagon screw
- 1502 Round plate
- 1504 Gasket
- 1505 O-ring

* These individual parts form a complete wearing unit.



- 101 Valve body
- *102 Gasket
- *103 Valve plate
- *104 Grooved ring
- *105 Valve spindle
- *106 Locking ring
- 108 Body cover
- 109 Spring washer
- 110 Hexagon screw
- 111 Hexagon nut
- *112 Gasket
- 115 Bushing
- 116 Bushing
- 117 Circlip
- *119 Guide foil
- 120 Tube
- 301 Screw piece

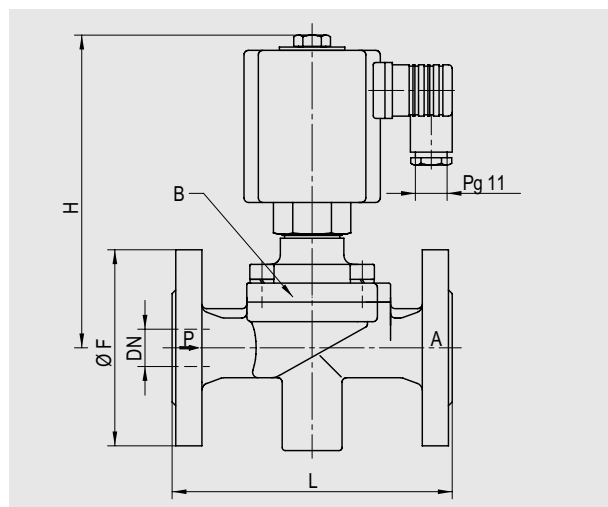
- 302 Valve spindle
- *303 O-ring
- *304 O-ring
- 305 Hexagon nut
- 400 Solenoid
- 701 Plunger tube
- 702 Plunger
- 704 Round plate
- *705 Pressure spring
- 1400 Socket
- 1501 Hexagon screw
- 1502 Round plate
- 1503 Gasket
- 1504 O-ring
- 1505 Round plate

* These individual parts form a complete wearing unit.

DIMENSIONAL DRAWING

B = max. depth

ND	L mm	B mm	H mm	øF mm
15	130	95	145	95
20	150	105	172	105
25	160	115	172	115
32	180	140	187	140
40	200	150	191	150
50	230	165	200	165
65	290	195	327	185
80	310	220	347	200
100	350	265	376	235



84200
85200

TECHNICAL INFORMATION

PROTECTION CLASS

Protection

The Ingress Protection (IP) code always consists of the letters IP followed by two digits. It specifies the degree of protection to DIN VDE 0470 (EN 60 529) provided by enclosures of electrical apparatus. The first digit applies to protection against electric shock hazard and solid bodies, the second to protection against liquids. A letter indicating protection against access to hazardous parts may follow the last digit.

The individual protection codes are defined in the following table:

1st digit

Electric shock hazard protection and protection against solid bodies

- 0 No protection
- 1 Objects greater than 50mm
- 2 Objects greater than 12mm
- 3 Objects greater than 2.5mm
- 4 Objects greater than 1.0mm
- 5 Dust-protected
- 6 Dust-tight

2nd digit

Protection against liquids

- 0 No protection
- 1 Vertically dripping water
- 2 Angled dripping water
- 3 Sprayed water
- 4 Splashed water
- 5 Water jets
- 6 Heavy seas
- 7 Effects of immersion
- 8 Indefinite immersion

The exact definitions from which these abbreviated descriptions are derived are to be found in DIN EN 60529.

Special regulations have to be followed when using solenoids in hazardous areas.

2/2-way valves G 1/4 - G 1/2

solenoid actuated, with forced lifting
threaded connection

Stainless Steel

DESCRIPTION (STANDARD VALVE)

Type	diaphragm valve
Switching function	normally closed
Operating pressure	0 to 10 bar
Differential pressure	not required
Process fluid	slightly aggressive liquids and gases
Fluid temperature	-10 to maximum of +90°C
Ambient temperature	-10 to maximum of +50°C
Viscosity	up to 25 mm²/s
Flow direction	determined
Mounting position	optional, preferably with solenoid upright

MATERIALS

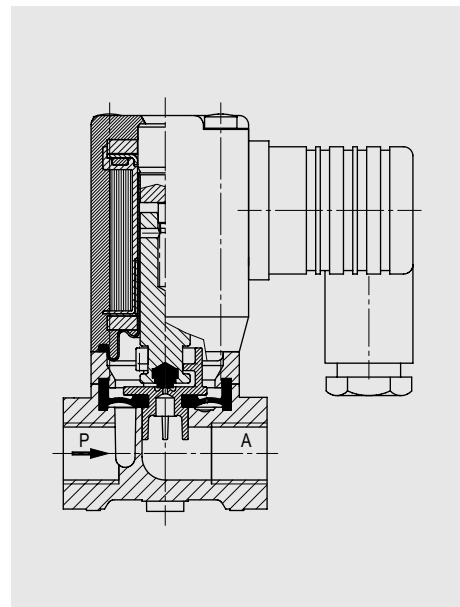
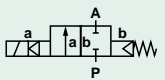
Body	stainless steel, PA 66
Internal parts	stainless steel, PVDF
Seals	NBR
Valve seat	stainless steel

FEATURES

- Damped operation
- Suitable for vacuum
- For demanding industrial applications
- Good resistance by optimised materials
- For closed installations without differential pressure
- Compact
- NPT thread optional



82560



CHARACTERISTIC DATA

Connection G	ND mm	k _V -Value m³/h	Operating Pressure		Weight kg	Part Number	
			min.	max. bar		DC	AC
1/4	10	1.5	0	10	0.5	8256000.9748	8256000.9749
3/8	10	1.7	0	10	0.5	8256100.9748	8256100.9749
1/2	10	1.7	0	10	0.6	8256200.9748	8256200.9749

NPT- connection available: change (e.g.) 8256000 in 8257000

ELECTRICAL DATA

Standard voltage	DC	AC
	24V	24V 50Hz 42V 50Hz 110V 50Hz 230V 50Hz
Power consumption	DC	AC
Solenoid 9748	12W	-
Solenoid 9749	-	inrush 13VA holding 13VA
Duty cycle	100%	
Voltage range	±10%	
Protection	without power lead socket IP00 with power lead socket IP65	
Electrical design	arrangement and testing to DIN VDE 0580	

NOTES:

The power consumption is measured according to VDE 0580 at a coil temperature of +20°C. Physical factors reduce the value by up to about 30% when the DC solenoid coil has reached normal operating temperature.

Power lead socket type A

Socket can be turned to 4 positions 90° apart

Solenoid can be turned to 4 positions 90° apart

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

Valves must be suitably protected against contaminated fluids.

OPTIONAL FEATURES

xxxxx 03.xxxx seals FPM T_{max.} +110°C

xxxxx xx.8043 solenoid in protection class
EEx me II T3

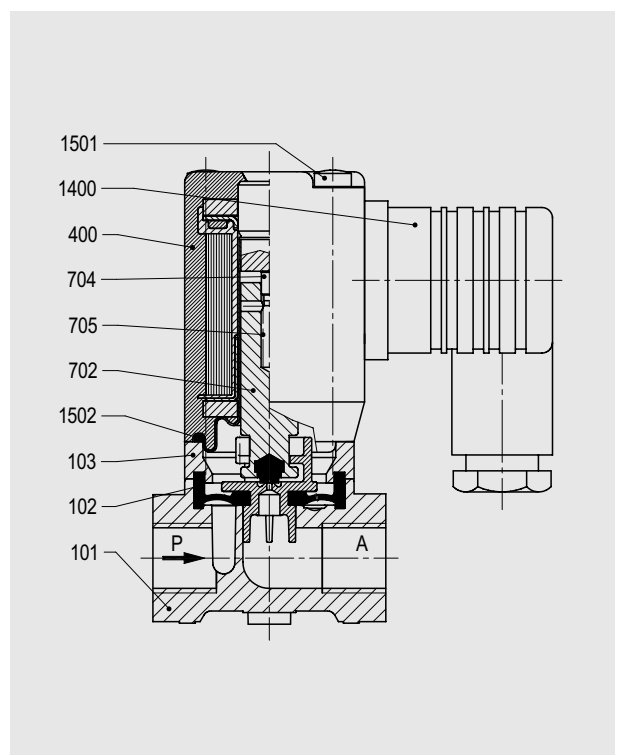
xxxxx 14.xxxx seals EPDM T_{max.} +110°C

SECTIONAL DRAWING

Parts list and identification

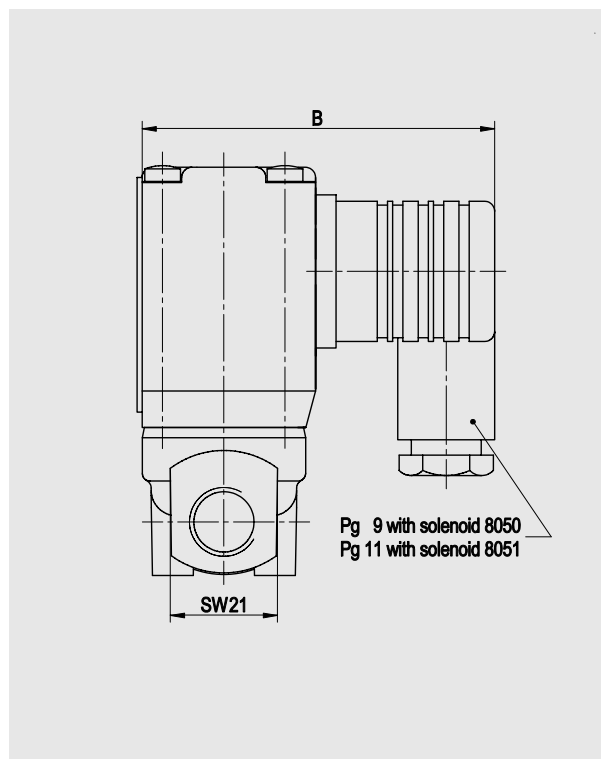
- 101 Valve body
- *102 Diaphragm
- 103 Spacer
- 400 Solenoid
- *702 Plunger
- *704 Guide pin
- *705 Pressure spring
- 1400 Socket
- 1501 Oval head cap screw
- *1502 O-ring

* These individual parts form a complete wearing unit.



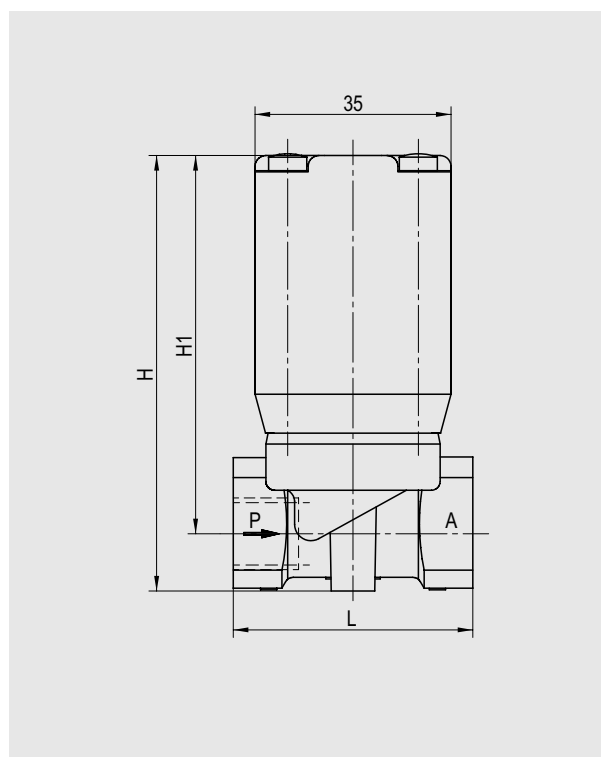
DIMENSIONAL DRAWINGS

B = max. depth



82560

Connection	L	B	H	H1
G	mm	mm	mm	mm
1/4	44	69.5	85.5	73.0
3/8	44	69.5	85.5	73.0
1/2	60	69.5	88.5	74.5



TECHNICAL INFORMATION

STRAINER

RP	Filter 0.25	Ms	PN 25	Part Number
3/8				1239601.0000
1/2				1239602.0000
3/4				1239603.0000
1				1239604.0000
1 1/4				1239605.0000
1 1/2				1239606.0000
2				1239607.0000

RP	Filter 0.25	1.4408	PN 40	Part Number
1/2				1239612.0000
3/4				1239613.0000
1				1239614.0000
1 1/4				1239615.0000
1 1/2				1239616.0000
2				1239617.0000

ND	Filter 0.25	G1/4 25	PN 16	Part Number
15				1239622.0000
20				1239623.0000
25				1239624.0000
32				1239625.0000
40				1239626.0000
50				1239627.0000
65				1239628.0000
80				1239629.0000
100				1239630.0000

ND	Filter 0.25	GS C 25	PN 40	Part Number
15				1239642.0000
20				1239643.0000
25				1239644.0000
32				1239645.0000
40				1239646.0000
50				1239647.0000
65				1239648.0000
80				1239649.0000
100				1239650.0000

ND	Filter 0.25	1.4581	PN 16	Part Number
15				1239662.0000
20				1239663.0000
25				1239664.0000
32				1239665.0000
40				1239666.0000
50				1239667.0000
65				1239668.0000
80				1239669.0000
100				1239670.0000

ND	Filter 0.25	1.4581	PN 40	Part Number
15				1239682.0000
20				1239683.0000
25				1239684.0000
32				1239685.0000
40				1239686.0000
50				1239687.0000
65				1239688.0000
80				1239689.0000
100				1239690.0000

2/2-way valves ND 15 - ND 100

solenoid actuated, with forced lifting
flange connection PN 16

Stainless Steel

DESCRIPTION (STANDARD VALVE)

Type	piston valve
Switching function	normally closed
Operating pressure	0 to 16 bar
Differential pressure	not required
Process fluid	aggressive and neutral fluids
Fluid temperature	ND 15 - ND 50 -20 to maximum of +110°C ND 65 - ND 100 -10 to maximum of +110°C
Ambient temperature	-10 to maximum of +50°C
Viscosity	up to 40 mm²/s
Flow direction	determined
Mounting position	ND 15 - ND 50 optional, preferably with solenoid upright ND 65 - ND 100 with solenoid upright only

MATERIALS

Body	stainless steel
Cover	stainless steel
Internal parts	stainless steel
Seals	PTFE
Valve seat	stainless steel

FEATURES

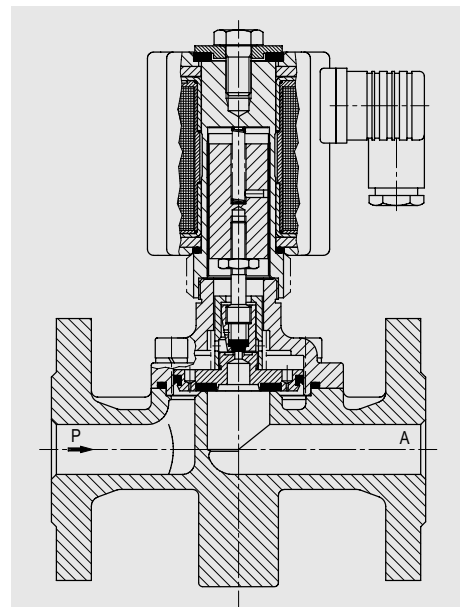
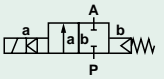
- Good resistance by optimised materials
- High flow rate
- For closed systems without differential pressure
- Damped operation
- For exacting process systems
- Practical accessories and options

CHARACTERISTIC DATA

Connection ND	k _v -Value m³/h	Operating Pressure			Weight kg	Part Number	
		min.	bar	max.		DC	AC
15	5.5	0	16		3.8	8514200.8301	8514200.8304
20	10.0	0	16		6.2	8514300.8401	8514300.8404
25	12.5	0	16		6.7	8514400.8401	8514400.8404
32	27.0	0	16		9.9	8514500.8401	8514500.8404
40	31.0	0	16		11.0	8514600.8401	8514600.8404
50	43.0	0	16		14.5	8514700.8401	8514700.8404
65	67.0	0	16		36.5	8414800.9501	8414800.9504
80	94.0	0	16		45.6	8414900.9501	8414900.9504
100	144.0	0	16		65.6	8415000.9501	8415000.9504



84140
85140



ELECTRICAL DATA

Standard voltages	DC 24V	AC 24V 40-60 Hz 42V 40-60 Hz 110V 40-60 Hz 230V 40-60 Hz
Power consumption	DC	AC
Solenoid 8301	22W	-
Solenoid 8304	-	25VA
Solenoid 8401	40W	-
Solenoid 8404	-	45VA
Solenoid 9501	80W	-
Solenoid 9504	-	89VA
Duty cycle	100%	
Voltage range	±10%	
Protection	without power lead socket IP00 with power lead socket IP65	
Electrical design	arrangement and testing to DIN VDE 0580	

NOTE:

Only use AC in conjunction with a rectifier. This is incorporated in the power lead of solenoids 8304, 8404 and 9504.

The power consumption is measured according to VDE 0580 at a coil temperature of +20°C. Physical factors reduce the value by up to about 30% when the DC solenoid coil has reached normal operating temperature.

Power lead socket type A
Socket can be turned to 4 positions 90° apart
Solenoid can be turned in any direction

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

Valves must be suitably protected against contaminated fluids.

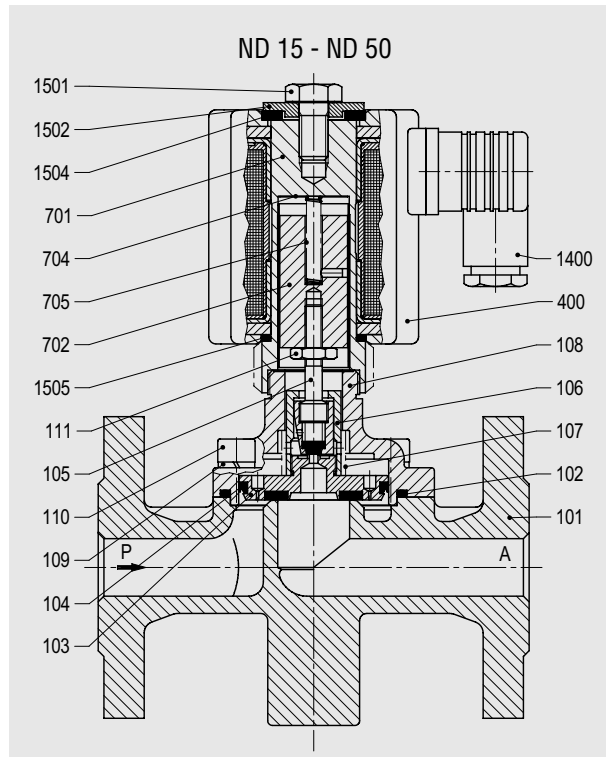
From ND 65 the closing time can be adjusted with the valve stem (302). Screwing in increases the time and vice versa. Full opening or closing of the control passage will cause the valve to malfunction.

OPTIONAL FEATURES

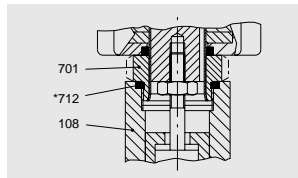
xxxxx 01.xxxx	normally open ND 15 to ND 50 with solenoid 8401/8404 ND 65 to ND 100 with solenoid 9501/9504 mounting position with solenoid upright only	xxxxx xx.8341	ND 15 solenoid in protection class EEx me II T3
xxxxx 02.xxxx	manual override	xxxxx xx.8436	ND 20 to ND 50 solenoid in protection class EEx me II T4
xxxxx 23.xxxx	position indicator OPEN and CLOSED with two solenoid switch ND 15 with solenoid 8401/8404	xxxxx xx.8441	ND 20 to ND 50 solenoid in protection class EEx me II T3
xxxxx xx.8402	ND 15 to ND 50 solenoid DC, T _{max.} +200°C, mounting position vertical, only with solenoid downwards	xxxxx xx.8900	ND 15 to ND 50 solenoid in protection class EEx de II C T4 and T5
xxxxx xx.8406	ND 15 to ND 50 solenoid AC, T _{max.} +200°C mounting position vertical, only with solenoid downwards	xxxxx xx.8920	ND 15 to ND 50 solenoid in protection class EEx d II C T4 and T5
		xxxxx xx.9540	ND 65 to ND 100 solenoid in protection class EEx me II T3 and T4

SECTIONAL DRAWINGS

Parts list and identification

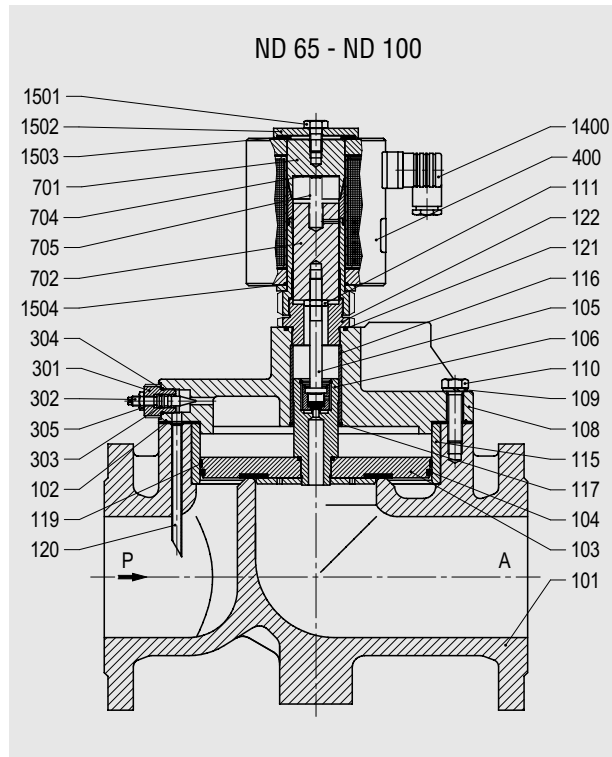


- 101 Valve body
- *102 Gasket
- *103 Valve plate
- *104 Grooved ring
- *105 Valve spindle
- *106 Screw piece
- *107 Pressure spring - not for ND 15
- 108 Body cover
- 109 Spring washer
- 110 Hexagon screw
- 111 Hexagon nut
- 400 Solenoid
- 701 Plunger tube
- 702 Plunger
- 704 Round plate
- *705 Pressure spring



- *712 Gasket - only for ND 15
- 1400 Socket
- 1501 Hexagon screw
- 1502 Round plate
- 1504 Gasket
- 1505 O-ring

* These individual parts form a complete wearing unit.



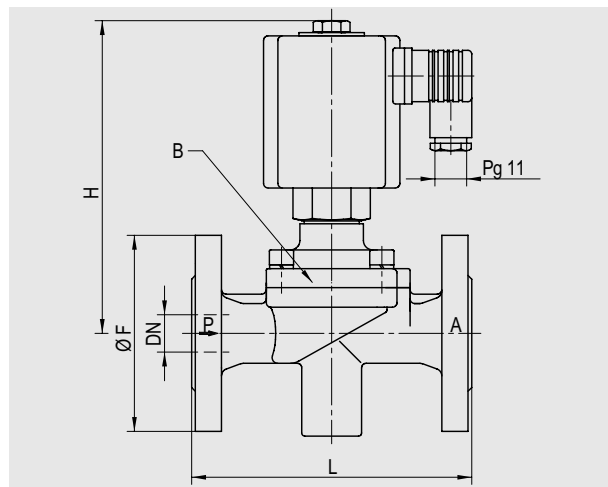
- 101 Valve body
- *102 Gasket
- *103 Valve plate
- *104 Grooved ring
- *105 Valve spindle
- 108 Body cover
- 109 Spring washer
- 110 Hexagon screw
- 111 Hexagon nut
- *112 Gasket
- 115 Bushing
- *119 Guide foil
- 120 Tube
- 148 Screw piece
- 149 Screw piece
- 150 Gasket
- 151 Round plate
- 301 Screw piece
- 302 Valve spindle
- *303 O-ring
- *304 O-ring
- 305 Hexagon nut
- *306 Grooved ring
- 400 Solenoid
- 701 Plunger tube
- 702 Plunger
- 704 Round plate
- *705 Pressure spring
- 1400 Socket
- 1501 Hexagon screw
- 1502 Round plate
- 1503 Gasket
- 1504 O-ring
- 1505 Round plate

* These individual parts form a complete wearing unit.

DIMENSIONAL DRAWING

B = max. depth

ND	L mm	B mm	H mm	øF mm
15	130	95	145	95
20	150	105	172	105
25	160	115	172	115
32	180	140	187	140
40	200	150	191	150
50	230	165	200	165
65	290	195	330	185
80	310	220	350	200
100	350	260	378	220



84140
85140

TECHNICAL INFORMATION

MATERIALS METALLIC

Material selection

Information about the concentration, temperature and the degree of contamination of the fluid is important in making the right choice of materials. Further criteria are the operating pressure and maximum flow rate. As well as high temperatures, pressures and flow rates must be taken into consideration when choosing a material.

Brass (Ms 58) M. no. 2.0402

Has many applications, not suitable for aggressive and ammoniacal fluids.

Grey cast iron (G1/4-25) M. no. 0.6025

Mainly for flanged valve bodies up to PN 16, the temperature range is limited, suitable for neutral fluids.

Spheroidal cast iron (GGG-40.3) M. no. 0.7040

Mainly for flanged valve bodies up to PN 16, suitable for neutral fluids.

Cast steel (GS-C 25) M. no. 1.0619

Mainly for flanged valve bodies up to PN 40, high temperature range, suitable for neutral fluids.

Gun metal (Rg 5) M. no. 2.1096

(CuSn 5 ZnPb)

Seawater, mildly aggressive water or steam.

Cast stainless steel M. no. 1.4581

(G-X 7 CrNiMo 18 10)

Austenitic high-alloy steel for aggressive fluids.

Stainless steel - Ingot material M. no. 1.4571

(X 10 CrNiMoTi 18 10)

Austenitic high-alloy steel for aggressive fluids.

Stainless steel M. no. 1.4301

(X 5 CrNi 18 9)

Low-alloy austenitic stainless steel for valve's internal parts.

Stainless steel M. no. 1.4104

(X 12 CrMo S 17)

Corrosion-resistant magnetisable stainless steel, not suitable for aggressive fluids or seawater.

Sandvik Stainless steel 1802

Magnetic stainless steel, suitable for aggressive fluids.

Aluminium M. no. 3.2162.05

(AlSi 8 Cu 3)

Aluminium die casting for bodies up to PN 16, suitable for neutral fluids.

2/2-way valves G $\frac{3}{8}$ - G 1

solenoid actuated, with forced lifting
threaded connection

Stainless Steel

DESCRIPTION (STANDARD VALVE)

Type	piston valve
Switching function	normally closed
Operating pressure	0 to 25 bar
Differential pressure	not required
Process fluid	slightly aggressive gaseous and liquid fluids
Fluid temperature	-20 to maximum of +90°C
Ambient temperature	-20 to maximum of +50°C
Viscosity	up to 40 mm ² /s
Flow direction	determined
Mounting position	optional, preferably with solenoid upright

MATERIALS

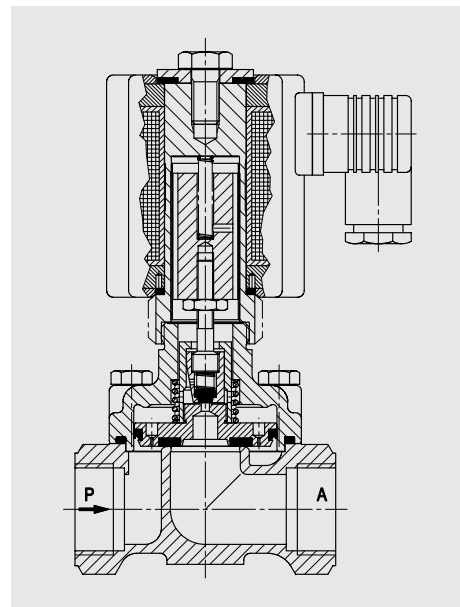
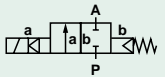
Body	stainless steel
Cover	stainless steel
Internal parts	stainless steel
Seals	NBR
Valve seat	stainless steel

FEATURES

- Good resistance by optimised materials
- High flow rate
- Suitable for vacuum
- Damped operation
- For exacting process systems
- Practical accessories and options
- NPT thread optional



85040



CHARACTERISTIC DATA

Connection G	ND mm	k _v -Value m ³ /h	Operating Pressure			Weight kg	Part Number	
			min.	bar	max.		DC	AC
$\frac{3}{8}$	10	3.4	0		25	1.5	8504100.8301	8504100.8304
$\frac{1}{2}$	12	3.8	0		25	1.5	8504200.8301	8504200.8304
$\frac{3}{4}$	20	11.0	0		25	3.7	8504300.8401	8504300.8404
1	25	13.0	0		25	3.6	8504400.8401	8504400.8404

NPT- connection available: change (e.g.) 8504100 in 8505100

ELECTRICAL DATA

Standard voltages	DC 24V	AC 24V 40-60Hz 42V 40-60Hz 110V 40-60Hz 230V 40-60Hz
Power consumption	DC	AC
Solenoid 8301	22W	-
Solenoid 8304	-	25VA
Solenoid 8401	40W	-
Solenoid 8404	-	45VA
Duty cycle	100%	
Voltage range	±10%	
Protection	without power lead socket IP00 with power lead socket IP65	
Electrical design	arrangement and testing to DIN VDE 0580	

NOTE:

Only use AC in conjunction with a rectifier. This is incorporated in the power lead of solenoids 8304 and 8404.

The power consumption is measured according to VDE 0580 at a coil temperature of +20°C. Physical factors reduce the value by up to about 30% when the DC solenoid coil has reached normal operating temperature.

Power lead socket type A

Socket can be turned to 4 positions 90° apart

Solenoid can be turned in any direction

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

Valves must be suitably protected against contaminated fluids.

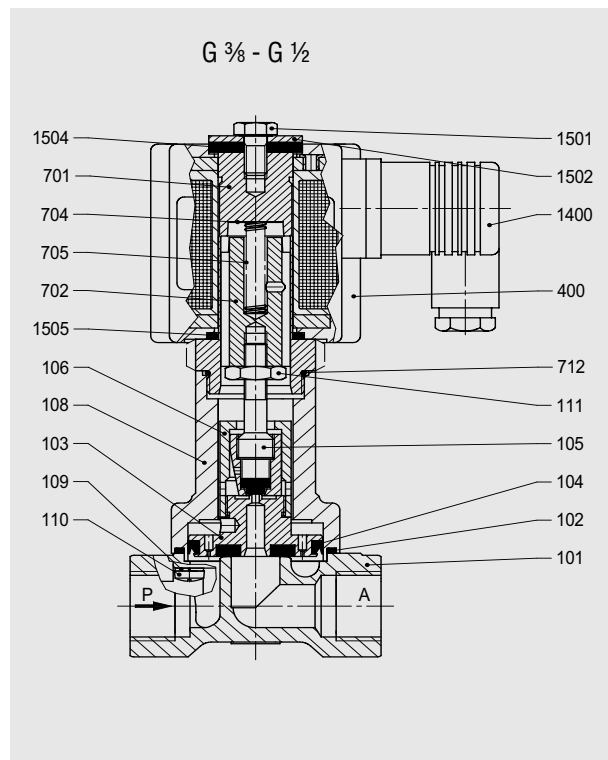
OPTIONAL FEATURES

xxxxx 01.xxxx	normally open G $\frac{3}{8}$ to G 1 with solenoid 8401/8404 mounting position solenoid on top
xxxxx 03.xxxx	seals FPM T _{max.} +110°C
xxxxx 06.xxxx	seals PTFE T _{max.} +110°C, P _{max.} 16 bar
xxxxx 14.xxxx	seals EPDM T _{max.} +110°C
xxxxx 22.xxxx	P _{max.} 40 bar G $\frac{3}{8}$ to G $\frac{1}{2}$ with solenoid 8401/8404
xxxxx 23.xxxx	position indicator OPEN and CLOSED with two solenoid switch G $\frac{3}{8}$ to G $\frac{1}{2}$ with solenoid 8401/8404

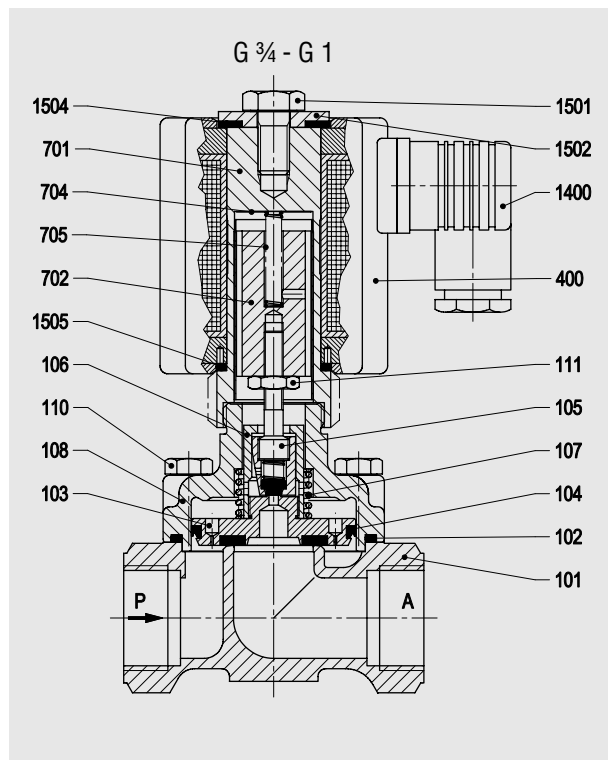
xxxxx 33.xxxx	free of discolouring components
xxxxx xx.8341	G $\frac{1}{2}$ solenoid in protection class EEx me II T3
xxxxx xx.8436	G $\frac{3}{4}$ to G 2 solenoid in protection class EEx me II T4
xxxxx xx.8441	G $\frac{3}{4}$ to G 2 solenoid in protection class EEx me II T3
xxxxx xx.8900	G $\frac{1}{2}$ to G 2 solenoid in protection class EEx de II C T4 and T5
xxxxx xx.8920	G $\frac{1}{2}$ to G 2 solenoid in protection class EEx d II C T4 and T5

SECTIONAL DRAWINGS

Parts list and identification



- 101 Valve body
- *102 O-ring
- *103 Valve plate
- *104 Grooved ring
- *105 Valve spindle
- *106 Screw piece
- *107 Pressure spring, from G 3/4
- 108 Body cover
- 109 Spring washer, only for G 3/8 to G 1/2
- 110 Cheese head cap screw G 3/8 to G 1/2
- 111 Hexagon nut



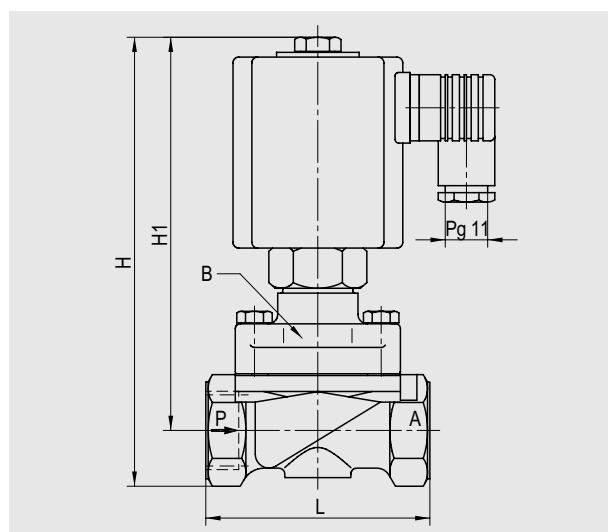
- 400 Solenoid
- 701 Plunger tube
- 702 Plunger
- 704 Round plate
- *705 Pressure spring
- *712 O-ring, only for G 3/8 to G 1/2
- 1400 Socket
- 1501 Hexagon screw
- 1502 Round plate
- 1504 Gasket
- 1505 O-ring

* These individual parts form a complete wearing unit.

DIMENSIONAL DRAWING

B = max. depth

Connection	L mm	B mm	H mm	H1 mm
3/8	67	65	165	150
1/2	67	65	165	150
3/4	95	92	196	172
1	95	92	196	172



85040

TECHNICAL INFORMATION

MATERIALS POLYMER

Materials

The design of the valve is decided by the application, with the materials ability to resist the operating fluid constituting an important factor.

Information about the concentration, temperature and the degree of contamination of the fluid is important in making the right choice of materials. Further criteria are the operating pressure and maximum flow rate. As well as high temperatures, pressures and flow rates must be taken into consideration when choosing a material.

All of the materials used for the bodies, seals, solenoids etc of Buschjost valves are carefully selected to suit the different applications.

Plastics for valve bodies

PVC Polyvinylchloride

Resistant to most acids, alkalis, salt solutions and organic solutions miscible with water. Not resistant to aromatic and chlorinated hydrocarbons.

PVDF Polyvinylidenfluoride

Suitable for nearly all aggressive fluids in the temperature range from -20 to +100°C.

PFA Perfluoralkoxy

As resistant as PVDF but in a higher temperature range from -20 to +150°C.

PP Polypropylene (e. g. Hostalen)

Resistant to aqueous solutions of acids, alkalis and salts, depending on concentration and temperature.

POM Polyoxymethylene (e. g. Delrin)

A material with a high degree of hardness and low water absorption. Not suitable for bases, acids or oxidation agents.

2/2-way valves G 1/4 - G 3/8

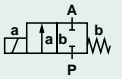
direct acting solenoid valves
threaded connection

DESCRIPTION (STANDARD VALVE)

Type	seat valve
Switching function	normally closed
Operating pressure	see characteristic data table
Differential pressure	not required
Process fluid	aggressive liquids and gases
Fluid temperature	-10 to maximum of +110°C
Ambient temperature	-10 to maximum of +50°C
Viscosity	up to 80 mm²/s
Flow direction	determined
Mounting position	optional, preferably with solenoid upright



82080

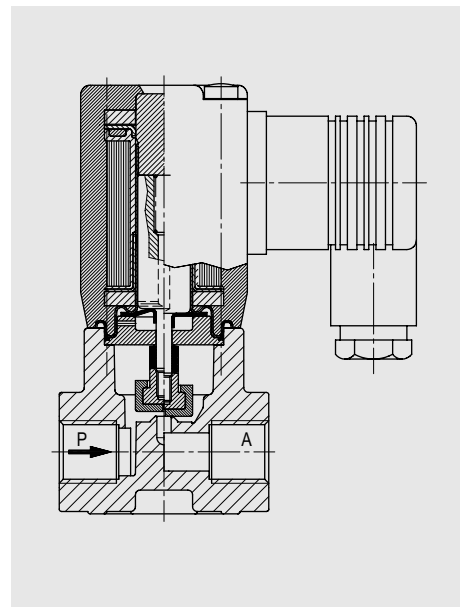


MATERIALS

Body	PVDF
Internal parts	PTFE bellows
Seals	PVDF
Valve seat	PVDF
Seat seal	EPDM

FEATURES

- Good resistance by optimised materials
- Suitable for vacuum
- For demanding industrial applications
- Solenoid hermetically sealed from fluid
- Compact
- For high contaminated fluids



CHARACTERISTIC DATA

Connection G	ND mm	k _v -Value m³/h	Operating Pressure			Part Number	
			min.	bar	max.	DC	AC
1/4	3.0	0.23	0		7	8208000.8050	8208000.8051
3/8	3.0	0.23	0		7	8208100.8050	8208100.8051
1/4	4.5	0.42	0		5	8208060.8050	8208060.8051
3/8	4.5	0.42	0		5	8208160.8050	8208160.8051
1/4	6.0	0.62	0		2	8208070.8050	8208070.8051
3/8	6.0	0.62	0		2	8208170.8050	8208170.8051
1/4	8.0	0.83	0		1	8208080.8050	8208080.8051
3/8	8.0	0.83	0		1	8208180.8050	8208180.8051

ELECTRICAL DATA

Standard voltage	DC 24V	AC
		24V 50 Hz
		42V 50 Hz
		110V 50 Hz
		230V 50 Hz
Power consumption	DC Solenoid 8050 Solenoid 8051	AC
		-
		13VA
Duty cycle	100%	
Voltage range	±10%	
Protection	without power lead socket IP00 with power lead socket IP65	
Electrical design	arrangement and testing to DIN VDE 0580	

NOTES:

The power consumption is measured according to VDE 0580 at a coil temperature of +20°C. Physical factors reduce the value by up to about 30% when the DC solenoid coil has reached normal operating temperature.

Power lead socket type A

Socket can be turned to 4 positions 90° apart

Solenoid can be turned to 4 positions 90° apart

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

OPTIONAL FEATURES

xxxxx x3.xxxx seals FPM

xxxxx xx.8042

solenoid DC
protection class EEx me II T3

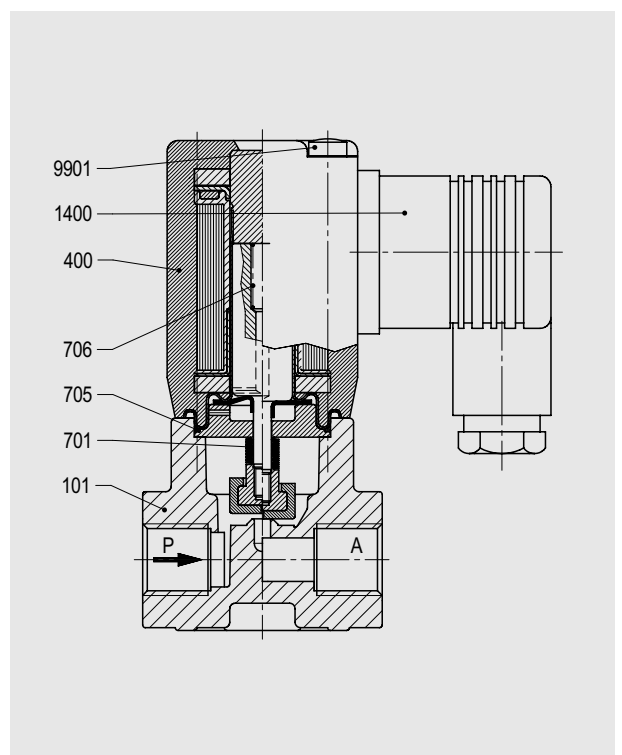
xxxxx x6.xxxx seals PTFE

SECTIONAL DRAWING

Parts list and identification

- 101 Valve body
- 400 Solenoid
- *701 Bellows
- *705 O-ring
- *706 Pressure spring
- 1400 Socket
- 9901 Oval head cap screw

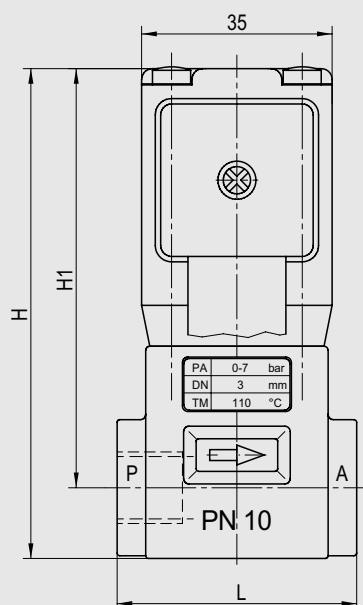
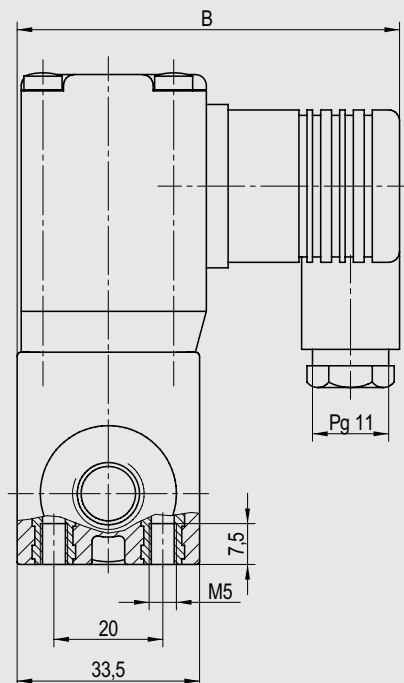
* These individual parts form a complete wearing unit.



DIMENSIONAL DRAWINGS

B = max. depth

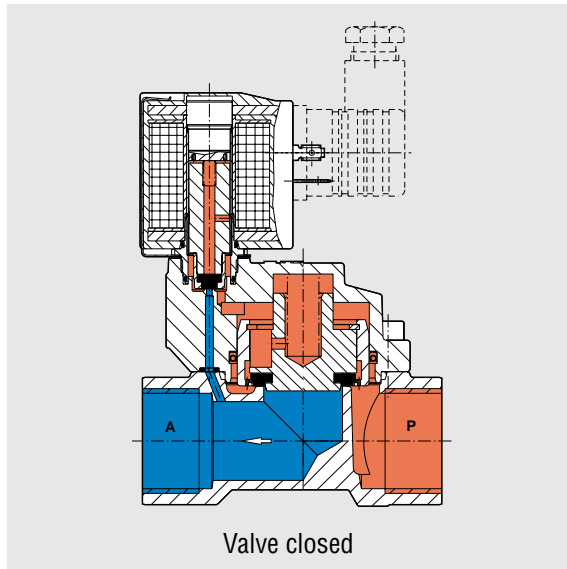
82080



Connection	L	B	H	H1
G	mm	mm	mm	mm
1/4	44	70	90	77
3/8	44	70	90	77

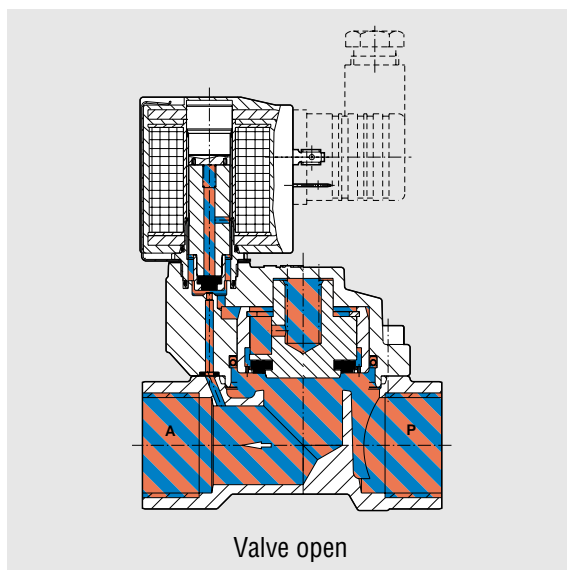
TECHNICAL INFORMATION SOLENOID VALVES WITH DIFFERENTIAL PRESSURE

(servo assisted, pilot operated or indirect acting)



These valves operate on the servo assistance principle, which requires a specified differential pressure for opening and closing. The solenoid opens the pilot seat. This relieves the pressure on the main closure device, which is raised into the open position by the increasing effective force on its underside.

Closure of the pilot seat builds up a closing force on the main closure device via bleed orifices. Provided the inlet pressure is at least the required differential higher than the outlet pressure, the valve remains securely closed.



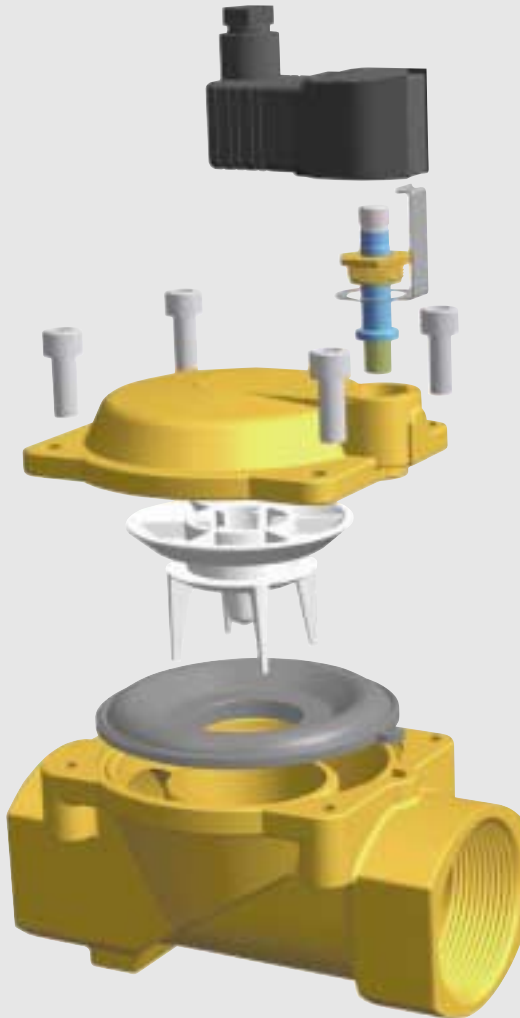
Solenoid Valves with Differential Pressure

Solenoid Valves with Differential Pressure

Material	Connection	Pressure	Temperature	Series	Page
Brass	G ¼ - G 2	0.1 - 16	+90°C	82400	75
Brass	G ¼ - G 1	0.1 - 10	+150°C	82470	79
Brass	G ¾	0.1 - 10	+90°C	83620	83
Brass	G ¾	0.1 - 10	+90°C	83630	83
Brass	G ¼ - G 2	0.5 - 40	+90°C	85300	87
Brass	G ¼ - G 1	1.0 - 25	+200°C	85320	91

Cast iron	ND 20 - ND 50	1.0 - 16	+80°C	83050	95
Cast iron	ND 65 - ND 150	0.5 - 10	+90°C	83580	99

Click-on®



Diaphragm Valve

2/2-way valves G 1/4 - G 2

pilot operated solenoid valves
requiring differential pressure
threaded connection

DESCRIPTION (STANDARD VALVE)

Type	diaphragm valve
Switching function	normally closed
Operating pressure	see table of characteristic data
Differential pressure	0.1 bar required
Process fluid	neutral liquids and gases
Fluid temperature	-10 to maximum of +90°C
Ambient temperature	-10 to maximum of +50°C
Viscosity	up to 25 mm²/s
Flow direction	determined
Mounting position	optional, preferably with solenoid upright

MATERIALS

Body	brass
Cover	brass
Internal parts	stainless steel, PVDF
Seals	NBR
Valve seat	brass

FEATURES

- Solenoid easily changed without tools
- Damped operation as standard
- Optional bracket
- Small differential pressure required
- Low power consumption
- NPT thread optional

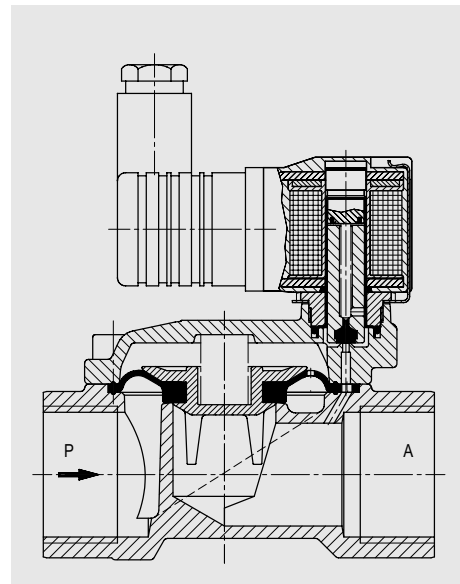
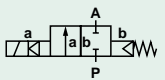
CHARACTERISTIC DATA

Connection G	ND mm	k _v -Value m³/h	Operating Pressure		Weight kg	Part Number
			min.	bar	max.	
1/4	8	1.9	0.1		16	8240000.9101
3/8	10	3.0	0.1		16	8240100.9101
1/2	12	3.8	0.1		16	8240200.9101
3/4	20	6.1	0.1		16	8240300.9101
1	25	9.5	0.1		16	8240400.9101
1 1/4	32	23.0	0.1		10	8240500.9101
1 1/4	32	23.0	0.1		16	8240500.9151
1 1/2	40	25.0	0.1		10	8240600.9101
1 1/2	40	25.0	0.1		16	8240600.9151
2	50	41.0	0.1		10	8240700.9101
2	50	41.0	0.1		16	8240700.9151

NPT- connection available: change (e.g.) 8240000 in 8241000



82400



ELECTRICAL DATA

Standard voltage	DC 24V	AC 24V 50Hz 42V 50Hz 110V 50Hz 230V 50Hz
Power consumption	DC	AC
Solenoid 9101	8W	inrush 15VA holding 12VA
Solenoid 9151	18W	inrush 45VA holding 35VA
Duty cycle	100%	
Voltage range	±10%	
Protection	without power lead socket IP00 with power lead socket IP65	
Electrical design	arrangement and testing to DIN VDE 0580	

NOTES:

The power consumption is measured according to VDE 0580 at a coil temperature of +20°C. Physical factors reduce the value by up to about 30% when the DC solenoid coil has reached normal operating temperature.

Power lead socket type A
Socket can be turned to 4 positions 90° apart
Solenoid can be turned in any direction

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

Valves must be suitably protected against contaminated fluids.

OPTIONAL FEATURES

xxxxx 01.xxxx	normally open G 1¼ to G 2 with solenoid 9150/51	xxxxx 50.xxxx	latching coil
xxxxx 02.xxxx	manual override	xxxxx 64.xxxx	body and cover chromium-plated
xxxxx 03.xxxx	seat seal FPM, T _{max.} +110°C	xxxxx xx.9130	solenoid according to UL- and CSA-standard
xxxxx 14.xxxx	seat seal EPDM, 0.3 to 10 bar for hot water T _{max.} +110°C	xxxxx xx.9136	solenoid in protection class EEx m II T4; 3 m cable

Flow table

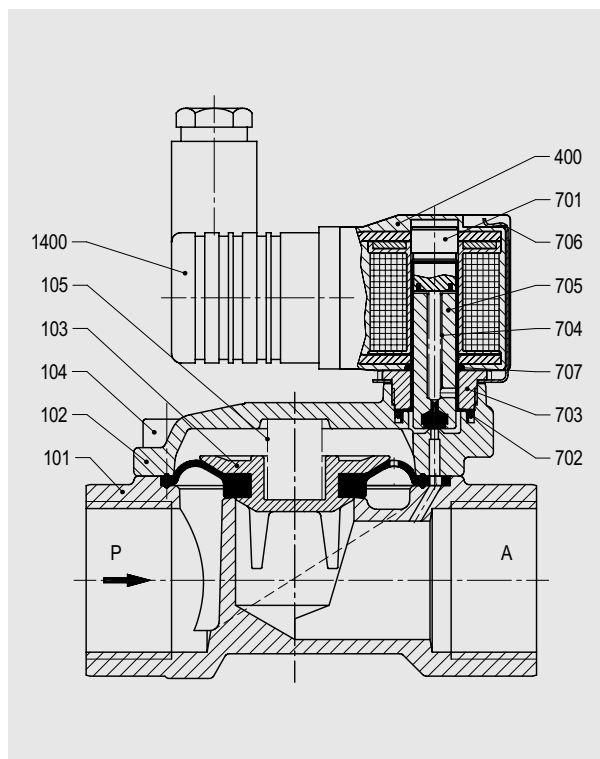
								Value in m³/h for Water 20°C			
ND / Differential pressure [bar]	0.1	0.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0
G ¼	0.6	1.3	1.9	2.3	2.7	3.0	3.3	3.6	3.8	4.0	4.3
G ⅜	1.0	2.1	3.0	3.7	4.2	4.7	5.2	5.6	6.0	6.4	6.7
G ½	1.2	2.7	3.8	4.7	5.4	6.0	6.6	7.1	7.6	8.1	8.5
G ¾	1.9	4.3	6.1	7.5	8.6	9.6	10.6	11.4	12.2	12.9	13.6
G 1	3.0	6.7	9.5	11.6	13.4	15.0	16.5	17.8	19.0	20.2	21.2
G 1¼	7.3	16.3	23.0	28.2	32.5	36.4	39.8	43.0	46.0	48.8	51.4
G 1½	7.9	17.7	25.0	30.6	35.4	39.5	43.3	46.8	50.0	53.0	55.9
G 2	13.0	29.0	41.0	50.2	58.0	64.8	71.0	76.7	82.0	87.0	91.7

SECTIONAL DRAWING

Parts list and identification

- 101 Valve body
- 102 Valve cover
- *103 Diaphragm
- 104 Socket head cap screw
- *105 Pressure spring
- 400 Solenoid
- 701 Plunger tube
- *702 O-ring
- 703 Screw piece
- *704 Pressure spring
- *705 Plunger
- 706 Spring clip
- 707 O-ring
- 1400 Socket

* These individual parts form a complete wearing unit.



82400

DIMENSIONAL DRAWING

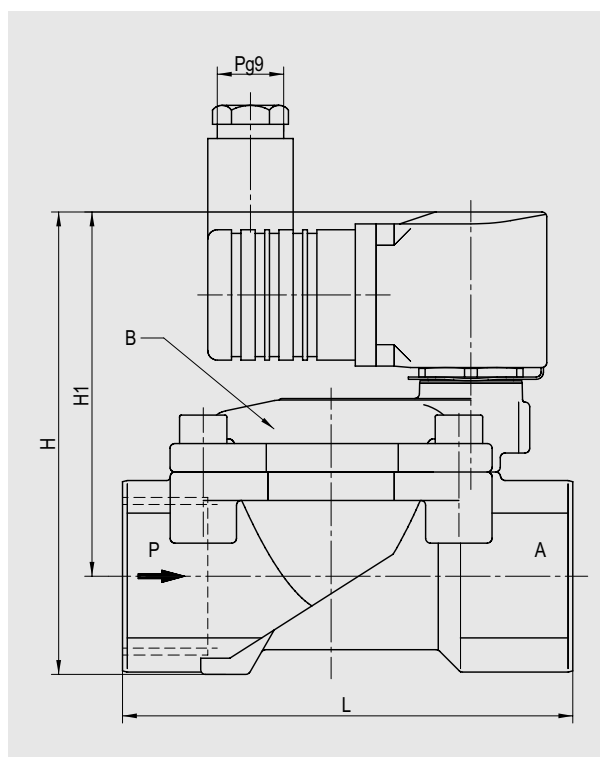
B = max. depth

with Solenoid 9101

Connection	L	B	H	H1
G	mm	mm	mm	mm
1/4	60	44	78.5	67.0
3/8	60	44	78.5	67.0
1/2	67	44	81.0	67.0
3/4	80	50	88.0	71.5
1	95	62	79.5	77.0
1 1/4	132	92	124.5	95.5
1 1/2	132	92	124.5	95.5
2	160	109	142.5	108.0

with Solenoid 9151

Connection	L	B	H	H1
G	mm	mm	mm	mm
1 1/4	132	92	142	113.0
1 1/2	132	92	142	113.0
2	160	109	160	125.5



TECHNICAL INFORMATION

SEAT VALVES

Buschjost solenoid valves are a seated design, with a diaphragm or piston for tight flow shut-off. The axial movement of this closure device opens and closes the valve seat.

The high density we achieved is optimised by using the appropriate combination of materials for each application.



Piston seat valve

An internal piston is moved axially into the position required by the particular function. This type of valve is available in materials catering for relatively high pressure and temperature ranges.



Diaphragm seat valve

A specially shaped diaphragm clamped between body and cover is moved into the position dictated by the valve function. This extremely cost-effective design offers the ideal technology for use in systems with neutral gases and liquids.

2/2-way valves G 1/4 - G 1

pilot operated solenoid valves
requiring differential pressure
threaded connection

DESCRIPTION (STANDARD VALVE)

Type	diaphragm valve
Switching function	normally closed
Operating pressure	0.1 to 10 bar
Differential pressure	0.1 bar required
Process fluid	for hot water and steam
Fluid temperature	-10 to maximum of +150°C
Ambient temperature	-10 to maximum of +60°C
Viscosity	up to 25 mm²/s
Flow direction	determined
Mounting position	optional, preferably with solenoid upright

MATERIALS

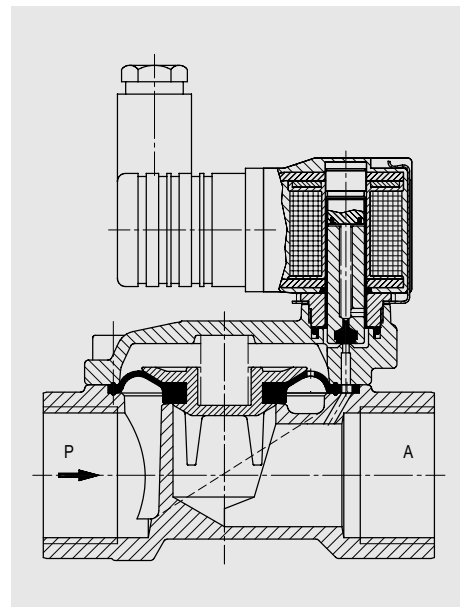
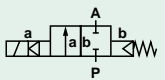
Body	brass
Cover	brass
Internal parts	stainless steel, brass
Seals	HNBR
Valve seat	brass

FEATURES

- Solenoid easily changed without tools
- Damped operation as standard
- Flow rate optimal
- Small differential pressure required
- NPT thread optional



82470



CHARACTERISTIC DATA

Connection G	ND mm	k _v -Value m³/h	Operating Pressure		Weight kg	Part Number
			min.	bar max.		
1/4	8	1.7	0.1	10	0.47	8247000.9101
3/8	10	2.7	0.1	10	0.45	8247100.9101
1/2	12	3.4	0.1	10	0.50	8247200.9101
3/4	20	5.5	0.1	10	0.65	8247300.9101
1	25	8.5	0.1	10	0.95	8247400.9101

NPT- connection available: change (e.g.) 8247000 in 8268000

ELECTRICAL DATA

Standard voltage	DC 24V	AC 24V 50Hz 42V 50Hz 110V 50Hz 230V 50Hz
Power consumption Solenoid 9101	DC 8W -	AC inrush 15VA holding 12VA
Duty cycle	100%	
Voltage range	±10%	
Protection	without power lead socket IP00 with power lead socket IP65	
Electrical design	arrangement and testing to DIN VDE 0580	

NOTES:

The power consumption is measured according to VDE 0580 at a coil temperature of +20°C. Physical factors reduce the value by up to about 30% when the DC solenoid coil has reached normal operating temperature.

Power lead socket type A
Socket can be turned to 4 positions 90° apart
Solenoid can be turned in any direction

Valves must be suitably protected against contaminated fluids.

OPTIONAL FEATURES

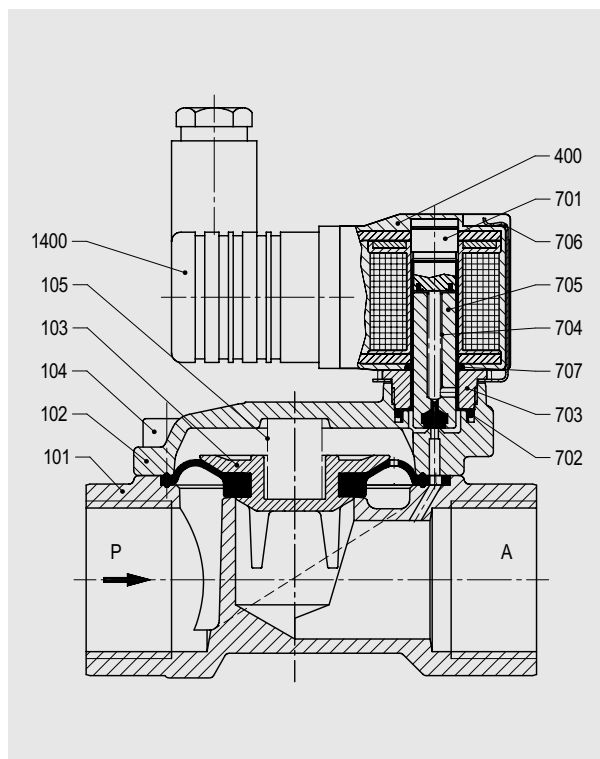
xxxxx 01.xxxx normally open

SECTIONAL DRAWING

Parts list and identification

- 101 Valve body
- 102 Valve cover
- *103 Diaphragm
- 104 Socket head cap screw
- *105 Pressure spring
- 400 Solenoid
- 701 Plunger tube
- *702 O-ring
- 703 Screw piece
- *704 Pressure spring
- *705 Plunger
- 706 Spring clip
- 707 O-ring
- 1400 Socket

* These individual parts form a complete wearing unit.

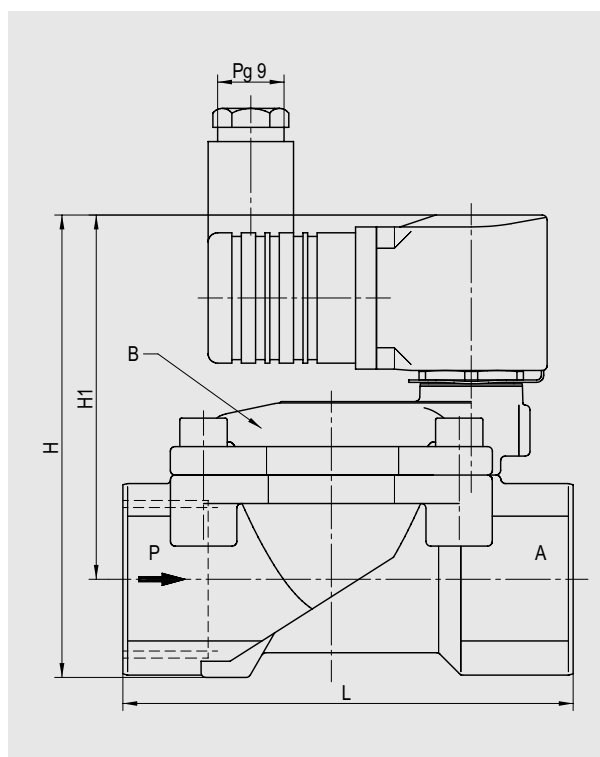


82470

DIMENSIONAL DRAWING

B = max. depth

Connection	L	B	H	H1
G	mm	mm	mm	mm
1/4	60	44	78.5	67.0
3/8	60	44	78.5	67.0
1/2	67	44	81.0	67.0
3/4	80	50	88.0	71.5
1	95	62	97.5	77.0



TECHNICAL INFORMATION

GROUP MOUNTED VALVES

The inline series of angle valves was developed as a compact arrangement that minimises pipelaying costs.

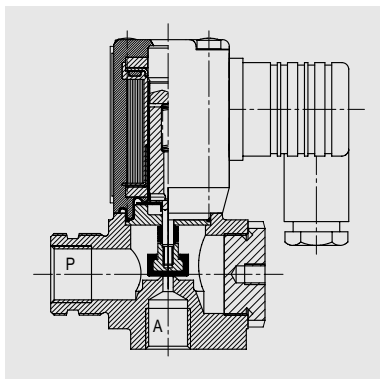
Three types are available to the user:

- The conventional servo assisted design requiring differential pressure, ND10 and 0.1 to 10 bar.
- A direct acting valve, with ND3 and ND4.5 valve seat and pressures up to 6 or 10 bar.
- A model with bellows specially protecting the plunger tube against dirt and limescale.



Up to 8 valves can be connected in line, with a common supply inlet. Individual switching is used to vary the consumption or control the required loads.

Individual valves can be isolated to form two separate circuits controlling different media.



Individual valve with sealed plunger tube

We will gladly provide you with any further information required.

2/2-way valves G $\frac{3}{8}$

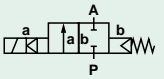
pilot operated solenoid valves
requiring differential pressure
threaded connection

DESCRIPTION (STANDARD VALVE)

Type	diaphragm valve
Switching function	normally closed
Operating pressure	0.1 to 10 bar
Differential pressure	0.1 bar required
Process fluid	neutral liquids and gases
Fluid temperature	-10 to maximum of +90°C
Ambient temperature	-10 to maximum of +50°C
Viscosity	up to 25 mm ² /s
Flow direction	determined
Mounting position	optional, preferably with solenoid upright



83620
83630

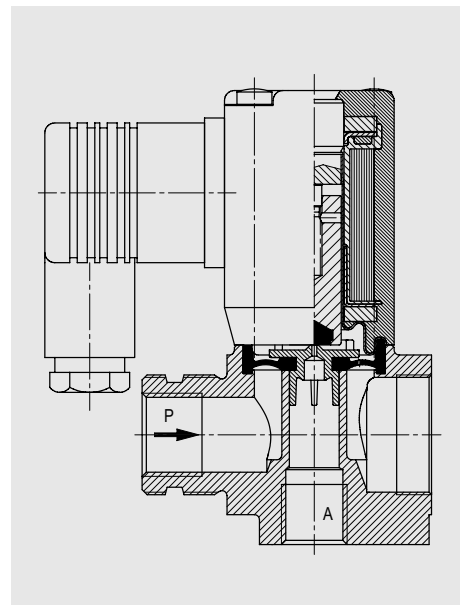


MATERIALS

Body	brass
Internal parts	stainless steel, PVDF
Seals	NBR
Valve seat	brass

FEATURES

- Very small weight and installation dimensions
- For exacting process systems
- Various combination possible
- Connection up to 8 valves without pipework
- Damped operation



CHARACTERISTIC DATA

Connection			ND mm	k_v -Value m ³ /h	Operating Pressure			Weight kg	Part Number
P	G	A			min.	bar	max.		
$\frac{3}{8}$		$\frac{1}{4}$	10	1.5	0.1		10	0.49	8362100.8001
$\frac{3}{8}$		$\frac{3}{8}$	10	1.7	0.1		10	0.46	8363100.8001

Group-mounting valves

Valve quantity	ND mm	Operating Pressure			Weight		Part Number			
		min.	bar	max.	A= G $\frac{1}{4}$	kg	A= G $\frac{3}{8}$	P= G $\frac{3}{8}$	A= G $\frac{1}{4}$	P= G $\frac{3}{8}$
2	10	0.1		10	1.0	0.9		8362200.8001		8363200.8001
3	10	0.1		10	1.5	1.4		8362300.8001		8363300.8001
4	10	0.1		10	2.0	1.9		8362400.8001		8363400.8001
5	10	0.1		10	2.5	2.4		8362500.8001		8363500.8001
6	10	0.1		10	3.0	2.9		8362600.8001		8363600.8001
7	10	0.1		10	3.5	3.3		8362700.8001		8363700.8001
8	10	0.1		10	4.0	3.8		8362800.8001		8363800.8001

ELECTRICAL DATA

Standard voltage	DC 24V	AC 24V 50Hz 42V 50Hz 110V 50Hz 230V 50Hz
Power consumption Solenoid 8001	DC 12W -	AC inrush 20VA holding 16VA
Duty cycle	100%	
Voltage range	±10%	
Protection	without power lead socket IP00 with power lead socket IP65	
Electrical design	arrangement and testing to DIN VDE 0580	

NOTES:

The power consumption is measured according to VDE 0580 at a coil temperature of +20°C. Physical factors reduce the value by up to about 30% when the DC solenoid coil has reached normal operating temperature.

Power lead socket type A
Socket can be turned to 4 positions 90° apart
Solenoid 180° rotatable

Valves must be suitably protected against contaminated fluids.

Assembly accessories

Bracket
Part number 1241203
consisting of:
2 Brackets
Hexagon nut
Hexagon screw

Pressure connection P = G 3/4
Part number 1241438
If assembly **without** brackets
consisting of:
Adapter
O-ring
Hexagon nut

Pressure connection P = G 3/4
Part number 1241104
If assembly **with** bracket
consisting of:
Adapter
O-ring

Plug
Part number 1241110
consisting of:
plug
O-ring

Mounting parts M 24 x 1
Part number 1241202
consisting of:
Hexagon nut
O-ring

OPTIONAL FEATURES

xxxxx 02.xxxx manual override

xxxxx 14.xxxx seals EPDM T_{max.} +110°C

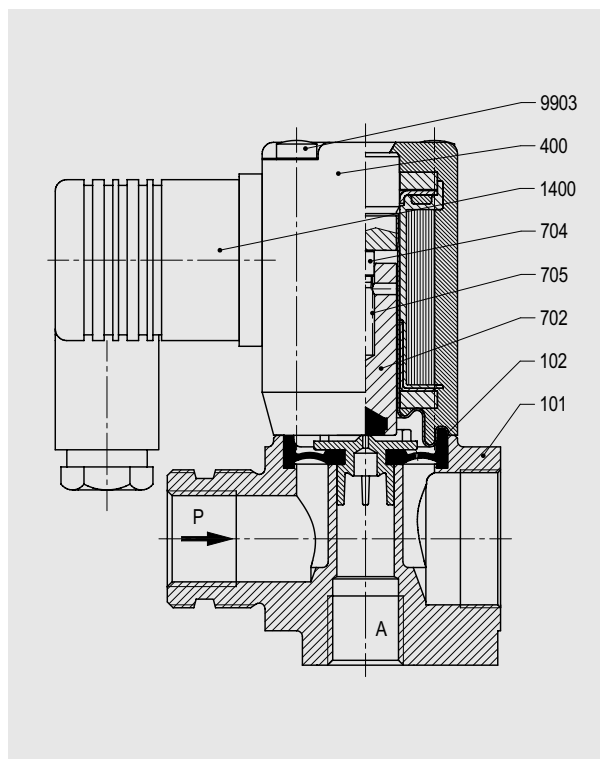
xxxxx 03.xxxx seals FPM T_{max.} +110°C

SECTIONAL DRAWING

Parts list and identification

- 101 Valve body
- *103 Diaphragm
- 400 Solenoid
- *702 Plunger
- *704 Guide bolt
- *705 Pressure spring
- 1400 Socket
- 9903 Oval head screw

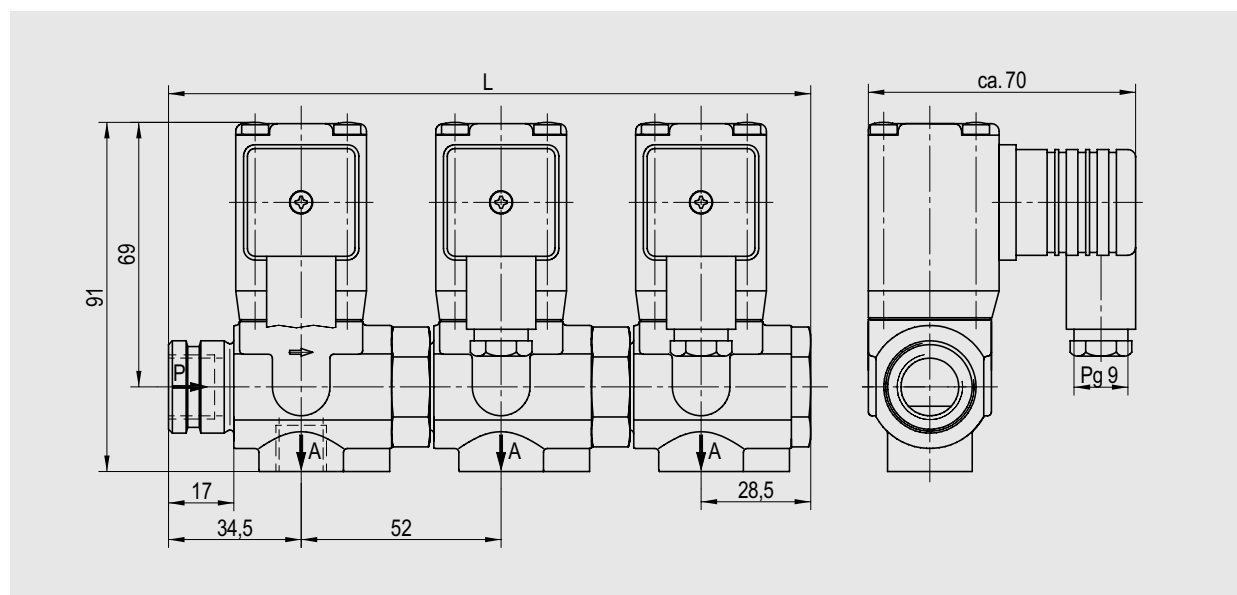
* These individual parts form a complete wearing unit.



83620
83630

DIMENSIONAL DRAWING

Valve quantity	1	2	3	4	5	6	7	8
L mm	63	115	167	219	271	323	375	427



Click-on®



Piston Valve

2/2-way valves G 1/4 - G 2

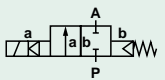
pilot operated solenoid valves
requiring differential pressure
threaded connection

DESCRIPTION (STANDARD VALVE)

Type	piston valve
Switching function	normally closed
Operating pressure	0.5 to 40 bar
Differential pressure	0.5 bar required
Process fluid	neutral liquids and gases
Fluid temperature	-10 to maximum of +90°C
Ambient temperature	-10 to maximum of +50°C
Viscosity	up to 40 mm²/s
Flow direction	determined
Mounting position	optional, preferably with solenoid upright



85300

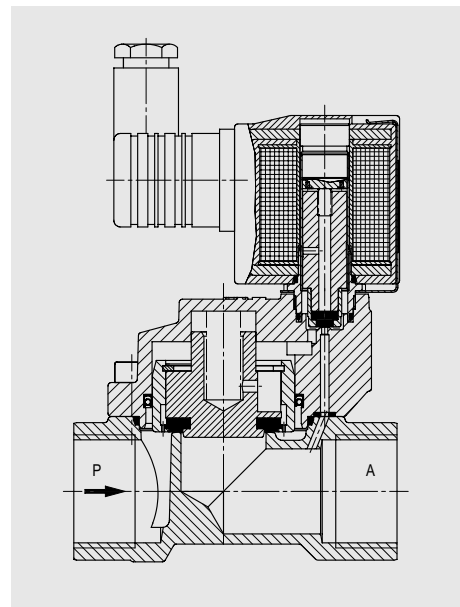


MATERIALS

Body	brass
Cover	brass
Internal parts	stainless steel, brass, PTFE
Seals	NBR
Valve seat	brass

FEATURES

- Solenoid easily changed without tools
- Damped operation
- Small differential pressure required
- For demanding industrial applications
- NPT thread optional
- Optional bracket



CHARACTERISTIC DATA

Connection G	ND mm	k _v -Value m³/h	Operating Pressure		Weight kg	Part Number
			min.	bar	max.	
1/4	8	2.2	0.5		40	8530000.9151
3/8	10	3.4	0.5		40	8530100.9151
1/2	12	4.4	0.5		40	8530200.9151
3/4	20	7.0	0.5		40	8530300.9151
1	25	10.5	0.5		40	8530400.9151
1 1/4	32	25.0	0.5		40	8530500.9151
1 1/2	40	27.0	0.5		40	8530600.9151
2	50	43.0	0.5		40	8530700.9151

NPT- connection available: change (e.g.) 8530000 in 8531000

ELECTRICAL DATA

Standard voltage	DC 24V	AC 24V 50Hz 42V 50Hz 110V 50Hz 230V 50Hz
Power consumption Solenoid 9151	DC 18W -	AC inrush 45VA holding 35VA
Duty cycle	100%	
Voltage range	±10%	
Protection	without power lead socket IP00 with power lead socket IP65	
Electrical design	arrangement and testing to DIN VDE 0580	

NOTES:

The power consumption is measured according to VDE 0580 at a coil temperature of +20°C. Physical factors reduce the value by up to about 30% when the DC solenoid coil has reached normal operating temperature.

Power lead socket type A
Socket can be turned to 4 positions 90° apart
Solenoid can be turned in any direction

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

Valves must be suitably protected against contaminated fluids.

OPTIONAL FEATURES

xxxxx 01.xxxx	normally open G 1¼ to G 2 pressure range 0.5 to 30 bar	xxxxx 14.xxxx	seals EPDM T _{max.} +110°C
xxxxx 02.xxxx	manual override	xxxxx 52.xxxx	seals FPM T _{max.} +110°C, free of discolouring components
xxxxx 03.xxxx	seals FPM T _{max.} +110°C	xxxxx xx.9186	solenoid in protection class EEx me II T4

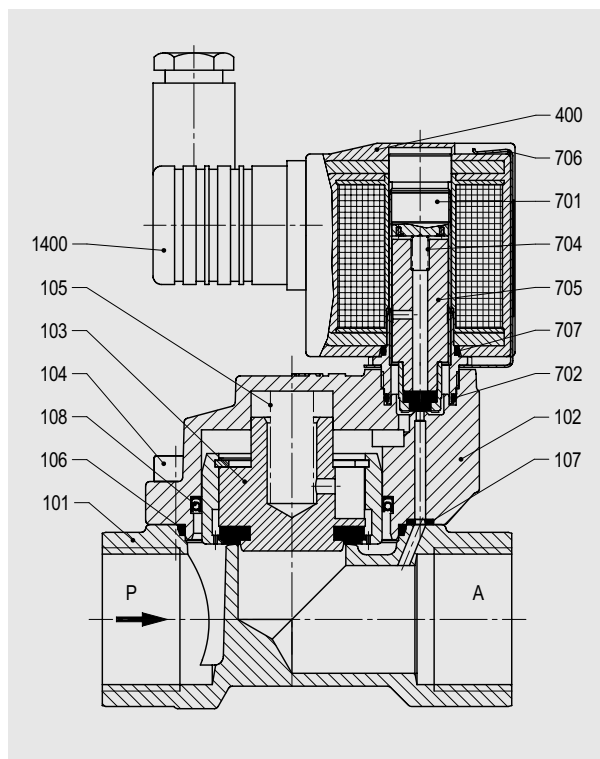
ND / Differential pressure [bar]	Value in m³/h for Water 20°C									
	0.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0
G ¼	1.6	2.2	2.7	3.1	3.5	3.8	4.1	4.4	4.7	4.9
G ⅜	2.4	3.4	4.2	4.8	5.4	5.9	6.4	6.8	7.2	7.6
G ½	3.1	4.4	5.4	6.2	7.0	7.6	8.2	8.8	9.3	9.8
G ¾	4.9	7.0	8.6	9.9	11.1	12.1	13.1	14.0	14.8	15.7
G 1	7.4	10.5	12.9	14.8	16.6	18.2	19.6	21.0	22.3	23.5
G 1¼	17.7	25.0	30.6	35.4	39.5	43.3	46.8	50.0	53.0	55.9
G 1½	19.1	27.0	33.1	38.2	42.7	46.8	50.5	54.0	57.3	60.4
G 2	30.4	43.0	52.7	60.8	68.0	74.5	80.4	86.0	91.2	96.2

SECTIONAL DRAWING

Parts list and identification

- 101 Valve body
- 102 Valve cover
- *103 Valve piston
- 104 Cheese head cap screw
- *105 Pressure spring
- *106 Seal ring
- *107 O-ring
- *108 Grooved ring
- 400 Solenoid
- 701 Plunger tube
- *702 O-ring
- *704 Pressure spring
- *705 Plunger
- 706 Spring clip
- 707 O-ring
- 1400 Socket

* These individual parts form a complete wearing unit.

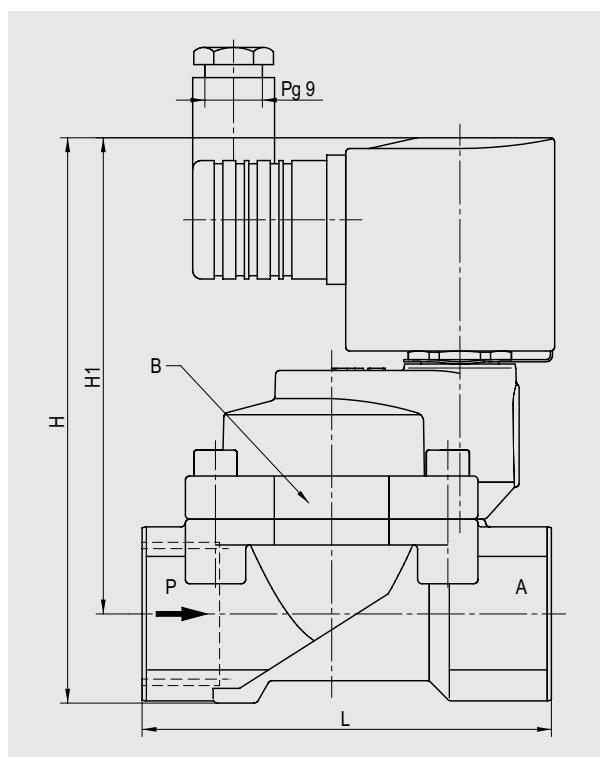


85300

DIMENSIONAL DRAWING

B = max. depth

Connection G	L mm	B mm	H mm	H1 mm
1/4	60	44	105.0	93.5
3/8	60	44	105.0	93.5
1/2	67	44	107.5	93.5
3/4	80	50	119.0	102.5
1	95	62	131.5	110.5
1 1/4	132	92	166.0	137.0
1 1/2	132	92	166.0	137.0
2	160	109	186.0	151.5



TECHNICAL INFORMATION

STEAM, HOT WATER & VALVES

Process engineering valves for steam and hot water have to withstand pressure and heat. Valve selection must take account of any influencing factors.

Solenoid valves with the following features are suitable:

- Seated design
- Heat-resistant seals
- Suitable material combinations
- Powerful, heat-resistant solenoids
- Corrosion resistance
- High tightness to atmosphere
- Tight valve seat seal
- Optional position indicators
- Variable mounting position
- High durability
- Glandless valve system

Steam pressure table

t °C	p bar	t °C	p bar	t °C	p bar
0	0.006108	46	0.10086	92	0.7561
2	0.007055	48	0.11162	94	0.8146
4	0.008129	50	0.12335	96	0.8769
6	0.009345	52	0.13613	98	0.9430
8	0.010720	54	0.15002	100	1.0133
10	0.012270	56	0.16511	105	1.2080
12	0.014014	58	0.18147	110	1.4327
14	0.015973	60	0.19920	115	1.6906
16	0.018168	62	0.2184	120	1.9854
18	0.02062	64	0.2391	125	2.3210
20	0.02337	66	0.2615	130	2.7013
22	0.02642	68	0.2856	135	3.131
24	0.02982	70	0.3116	140	3.614
26	0.03360	72	0.3396	145	4.155
28	0.03778	74	0.3696	150	4.760
30	0.04241	76	0.4019	155	5.433
32	0.04753	78	0.4365	160	6.181
34	0.05318	80	0.4736	165	7.008
36	0.05940	82	0.5133	170	7.920
38	0.06624	84	0.5557	175	8.924
40	0.07375	86	0.6011	180	10.027
42	0.08198	88	0.6495	185	11.233
44	0.09100	90	0.7011		

A technical description of the valves is to be found on pages 21, 41, 79 and 91.

We will gladly provide you with any further information required.

2/2-way valves G 1/4 - G 1

pilot operated solenoid valves
requiring differential pressure
threaded connection

DESCRIPTION (STANDARD VALVE)

Type	piston valve
Switching function	normally closed
Operating pressure	1 to 25 bar
Differential pressure	1 bar required
Process fluid	for hot water and steam
Fluid temperature	-10 to maximum of +200°C
Ambient temperature	-10 to maximum of +50°C -10 to maximum of +60°C with solenoid pointing vertically downwards
Viscosity	up to 40 mm²/s
Flow direction	determined
Mounting position	optional, preferably with solenoid upright

MATERIALS

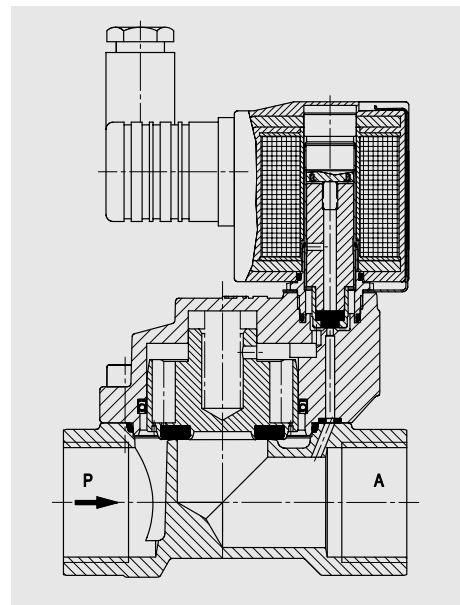
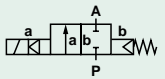
Body	brass
Cover	brass
Internal parts	stainless steel, FPM, PTFE
Seals	PTFE
Valve seat	brass

FEATURES

- Solenoid easily changed without tools
- Damped operation
- Flow rate optimal
- Stainless steel guide piston
- For demanding industrial applications
- NPT thread optional



85320



CHARACTERISTIC DATA

Connection G	ND mm	k _v -Value m³/h	Operating Pressure		Weight kg	Part Number
			min.	bar max.		
1/4	8	2.2	1	25	0.83	8532000.9152
3/8	10	3.4	1	25	0.82	8532100.9152
1/2	12	4.4	1	25	0.85	8532200.9152
3/4	20	7.0	1	25	1.25	8532300.9152
1	25	10.5	1	25	1.70	8532400.9152

NPT- connection available: change (e.g.) 8532000 in 8533000

ELECTRICAL DATA

Standard voltage	DC 24V	AC
		24V 40-60Hz
		42V 40-60Hz
		110V 40-60Hz
		230V 40-60Hz
Power consumption	DC	AC
Solenoid 9152	10W	inrush 15VA
	-	holding 10VA
Duty cycle	100%	
Voltage range	±10%	
Protection	without power lead socket IP00	
	with power lead socket IP65	
Electrical design	arrangement and testing to DIN VDE 0580	

NOTES:

The power consumption is measured according to VDE 0580 at a coil temperature of +20°C. Physical factors reduce the value by up to about 30% when the DC solenoid coil has reached normal operating temperature.

Power lead socket type A
Socket can be turned to 4 positions 90° apart
Solenoid can be turned in any direction

Valves must be suitably protected against contaminated fluids.

OPTIONAL FEATURES

xxxxx 01.xxxx normally open

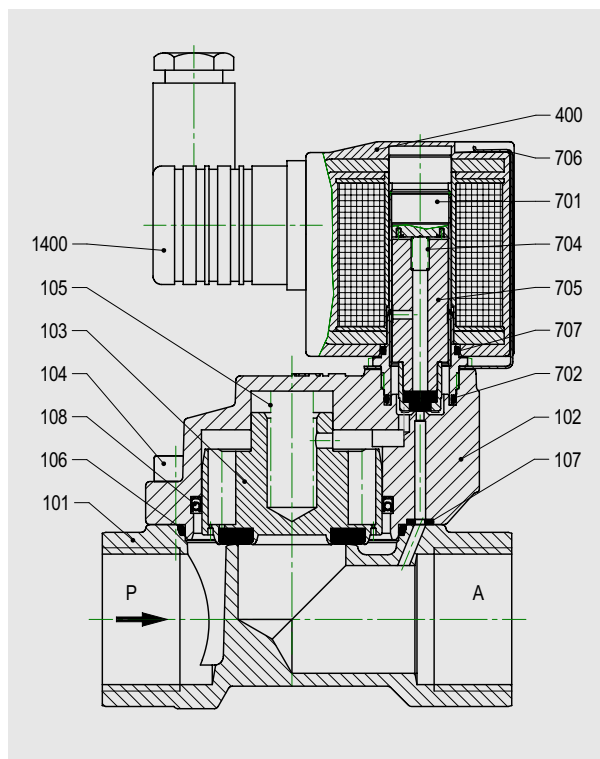
xxxxx 02.xxxx manual override

SECTIONAL DRAWING

Parts list and identification

- 101 Valve body
- 102 Valve cover
- *103 Valve piston
- 104 Socket head cap screw
- *105 Pressure spring
- *106 Seal ring
- *107 O-ring
- *108 Grooved ring
- 400 Solenoid
- 701 Plunger tube
- *702 O-ring
- 703 Screw piece
- *704 Pressure spring
- *705 Plunger
- 706 Spring clip
- 707 O-ring
- 1400 Socket

* These individual parts form a complete wearing unit.

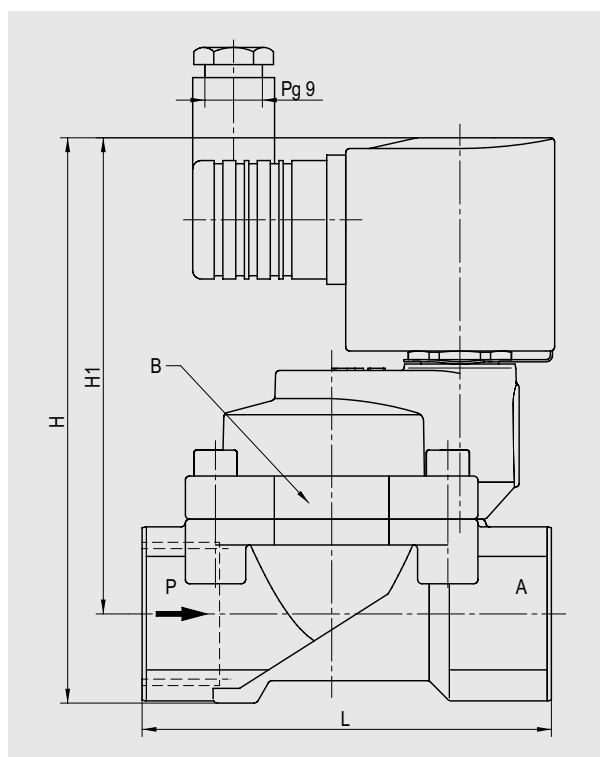


85320

DIMENSIONAL DRAWING

B = max. depth

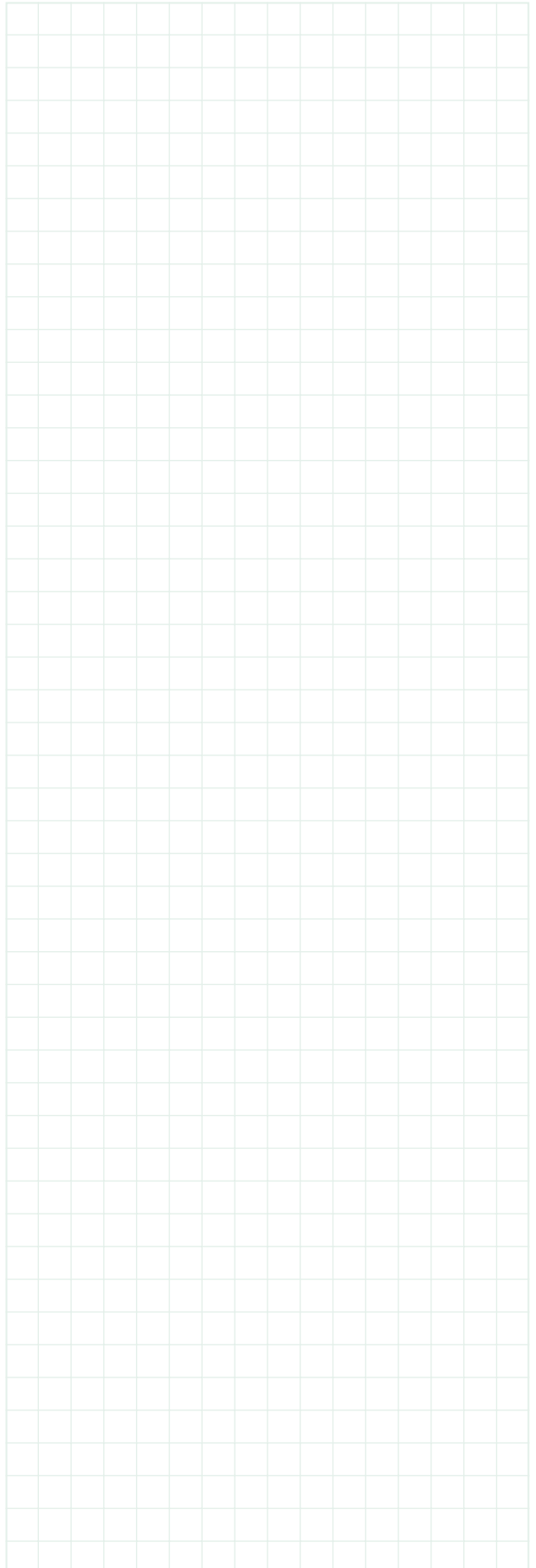
Connection G	L mm	B mm	H mm	H1 mm
1/4	60	44	105.0	93.5
3/8	60	44	105.0	93.5
1/2	67	44	107.5	93.5
3/4	80	50	119.0	102.5
1	95	62	131.5	110.5



Special Approvals



We will gladly provide you with any further information required.



2/2-way valves ND 20 - ND 50

pilot operated solenoid valves
requiring differential pressure
flange connection PN 16

DESCRIPTION (STANDARD VALVE)

Type	diaphragm valve
Switching function	normally closed
Operating pressure	1 to 16 bar
Differential pressure	1 bar required
Process fluid	neutral liquids and gases
Fluid temperature	-10 to maximum of +80°C
Ambient temperature	-10 to maximum of +55°C
Viscosity	up to 25 mm²/s
Flow direction	determined
Mounting position	optional, preferably with solenoid upright

MATERIALS

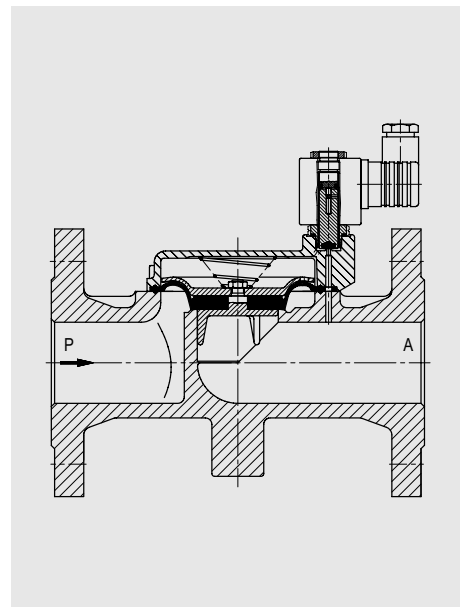
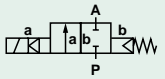
Body	cast iron
Cover	brass
Internal parts	stainless steel, brass
Seals	NBR
Valve seat	cast iron

FEATURES

- Damped operation
- Compact
- Flow rate optimal
- For demanding industrial applications
- Variety of options



83050



CHARACTERISTIC DATA

Connection ND	k _v -Value m³/h	Operating Pressure		Weight kg	Part Number
		min.	bar max.		
20	8.0	1	16	3.1	8305300.0201
25	10.0	1	16	3.5	8305400.0201
32	22.0	1	16	6.1	8305500.0201
40	25.0	1	16	6.9	8305600.0201
50	43.0	1	16	9.2	8305700.0201

ELECTRICAL DATA

Standard voltage	DC 24V	AC 24V 50Hz 42V 50Hz 110V 50Hz 230V 50Hz
Power consumption Solenoid 0201	DC 11W -	AC inrush 22VA holding 15VA
Duty cycle	100%	
Voltage range	±10%	
Protection	without power lead socket IP00 with power lead socket IP65	
Electrical design	arrangement and testing to DIN VDE 0580	

NOTES:

The power consumption is measured according to VDE 0580 at a coil temperature of +20°C. Physical factors reduce the value by up to about 30% when the DC solenoid coil has reached normal operating temperature.

Power lead socket type A
Socket can be turned to 4 positions 90° apart
Solenoid can be turned in any direction

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

Valves must be suitably protected against contaminated fluids.

OPTIONAL FEATURES

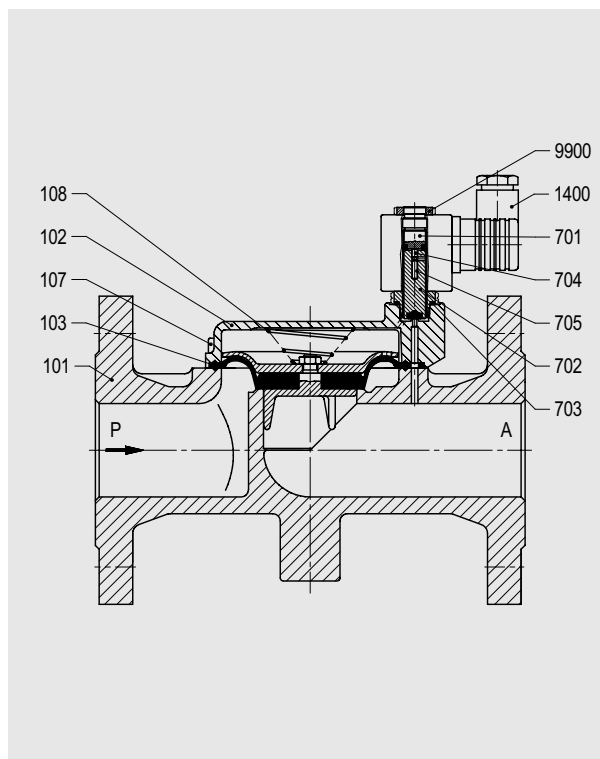
xxxxx 01.xxxx	normally open	xxxxx 14.4000	seals EPDM T _{max.} +130°C
xxxxx 02.xxxx	manual override	xxxxx 17.4000	normally open seals FPM T _{max.} +130°C
xxxxx 03.0201	seals FPM T _{max.} +80°C	xxxxx xx.9336	solenoid in protection class EEx me II T4
xxxxx 03.4000	seals FPM T _{max.} +130°C		
xxxxx 14.0201	seals EPDM T _{max.} +80°C		

SECTIONAL DRAWING

Parts list and identification

- 101 Valve body
- 102 Body cover
- *103 Diaphragm
- 107 Cheese head cap screw
- *108 Pressure spring
- 400 Solenoid
- 701 Plunger tube
- *702 Plunger
- *703 O-ring
- *704 Guide bolt
- 1400 Socket
- 9999 Hexagon nut

* These individual parts form a complete wearing unit.

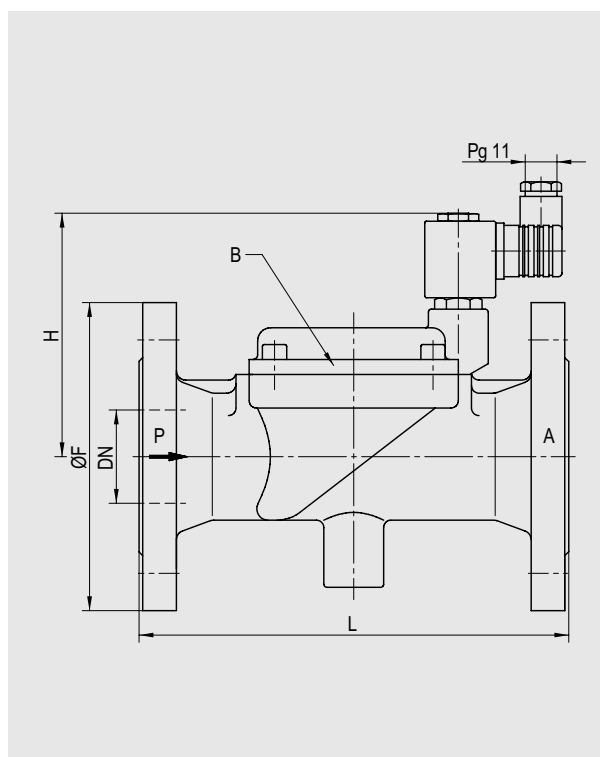


83050

DIMENSIONAL DRAWING

B = max. depth

ND	L mm	B mm	H mm	øF mm
20	150	105	105	105
25	160	115	105	115
32	180	140	118	140
40	200	150	122	150
50	230	165	132	165



Technical Information

EMC

ELECTROMAGNETIC COMPATIBILITY

Electromagnetic compatibility is the ability of an item of equipment, installation or system to work satisfactorily in the electromagnetic environment, without itself causing electromagnetic interference that would be unacceptable for all of the other equipment present.

EU Declaration of Conformity (sample)

We hereby declare that all IMI Norgren Buschjost GmbH + Co. KG solenoid actuators marketed under our sole responsibility conform to the EU Directives listed below. Unauthorised modification invalidates this declaration.

Relevant EU Directives:

89/336/EEC Electromagnetic Compatibility
amended by
91/263/EEC, 92/31/EEC
and 93/68/EEC

72/23/EEC Low Voltage Directive
amended by
93/68/EEC

The electromagnetic compatibility of the products has been assessed with reference to the following standards:

EN 50081-1 Interference (03/94 edition)
EN 50082-2 Interference Immunity
(02/96 edition)

IMI Norgren Buschjost GmbH + Co. KG

2/2-way valves ND 65 - ND 150

pilot operated solenoid valves
requiring differential pressure
flange connection PN 16

DESCRIPTION (STANDARD VALVE)

Type	diaphragm valve
Switching function	normally closed
Operating pressure	0.5 to 10 bar
Differential pressure	0.5 bar required
Process fluid	neutral liquids and gases
Fluid temperature	-10 to maximum of +90°C
Ambient temperature	-10 to maximum of +50°C
Viscosity	up to 40 mm²/s
Flow direction	determined
Mounting position	optional, preferably with solenoid upright

MATERIALS

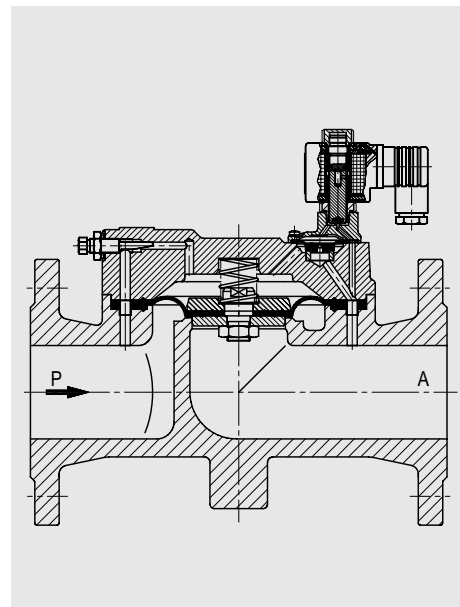
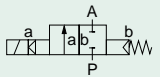
Body	cast iron
Cover	cast iron
Internal parts	stainless steel, brass, gun metal
Seals	NBR
Valve seat	cast iron

FEATURES

- Continuously adjustable closing time
- Compact
- Flow rate optimal
- For robust industrial applications
- Low power consumption



83580



CHARACTERISTIC DATA

Connection ND	k _v -Value m³/h	Operating Pressure		Weight kg	Part Number
		min.	bar max.		
65	56	0.5	10	21.3	8358800.9366
80	90	0.5	10	28.6	8358900.9366
100	150	0.5	10	40.2	8359000.9366
125	191	0.5	10	63.0	8359100.9366
150	277	0.5	10	93.0	8359200.9366

ELECTRICAL DATA

Standard voltage	DC 24V	AC 24V 50Hz 42V 50Hz 110V 50Hz 230V 50Hz
Power consumption Solenoid 9366	DC 18W -	AC inrush 106VA holding 35VA
Duty cycle	100%	
Voltage range	±10%	
Protection	without power lead socket IP00 with power lead socket IP65	
Electrical design	arrangement and testing to DIN VDE 0580	

NOTES:

The power consumption is measured according to VDE 0580 at a coil temperature of +20°C. Physical factors reduce the value by up to about 30% when the DC solenoid coil has reached normal operating temperature.

Power lead socket type A
Socket can be turned to 4 positions 90° apart
Solenoid can be turned in any direction

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

Valves must be suitably protected against contaminated fluids.

The closing time can be adjusted with the valve stem (302). Screwing in increases the time and vice versa. Full opening or closing of the control passage will cause the valve to malfunction.

OPTIONAL FEATURES

xxxxx 01.xxxx normally open

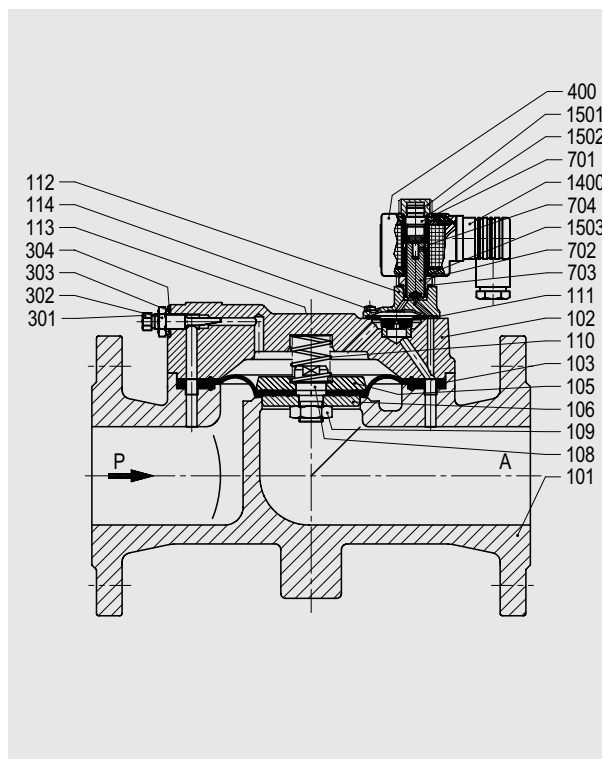
xxxxx xx.9336 solenoid in protection class
EEx me II T4

SECTIONAL DRAWING

Parts list and identification

101	Valve body	303	Round plate
102	Valve cover	*304	O-ring
*103	Diaphragm	400	Solenoid
105	Round plate	701	Plunger tube
106	Round plate	*702	Plunger
107	Bushing	*703	O-ring
108	Screw piece	*704	Pressure spring
109	Hexagon nut	1400	Socket
*110	Pressure spring	1402	Gasket
*111	Diaphragm	1501	Hexagon nut
112	Valve cover	1502	O-ring
113	Cheese head cap screw	1503	Gasket
114	Oval head cap screw		
301	Hexagon screw		
302	Hexagon nut		

* These individual parts form a complete wearing unit.

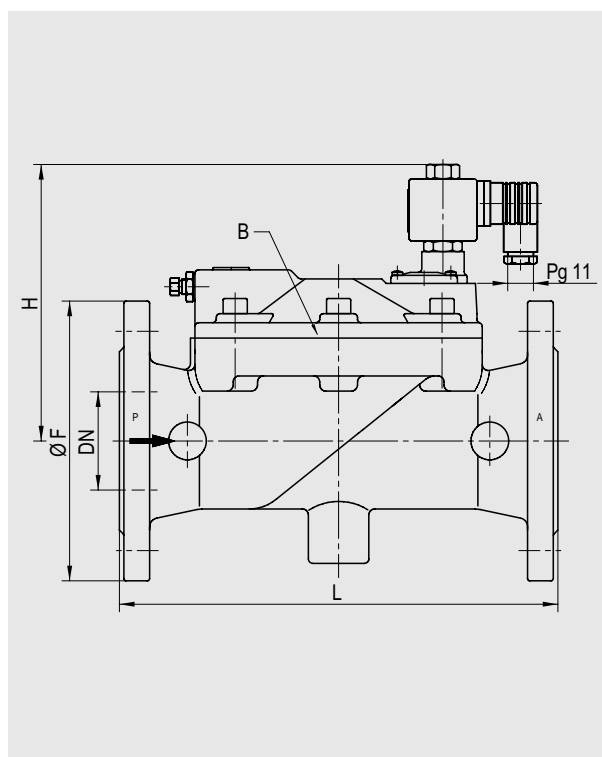


83580

DIMENSIONAL DRAWING

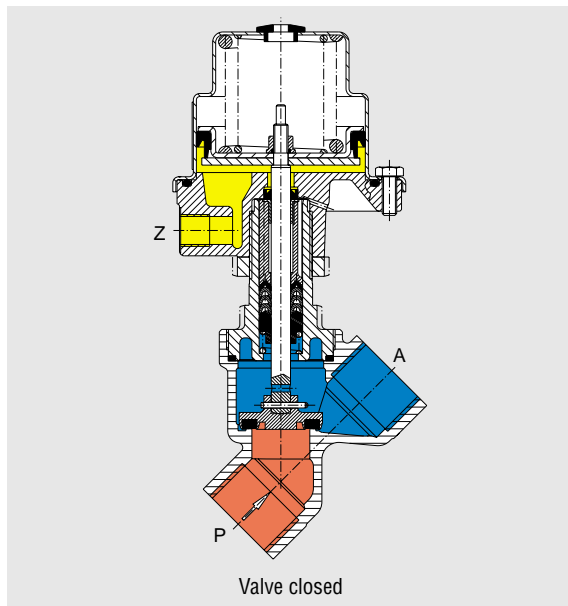
B = max. depth

ND	L mm	B mm	H mm	øF mm
65	290	190	185	185
80	310	220	195	200
100	350	250	220	220
125	400	285	235	250
150	480	330	265	285



TECHNICAL INFORMATION PRESSURE ACTUATED VALVES

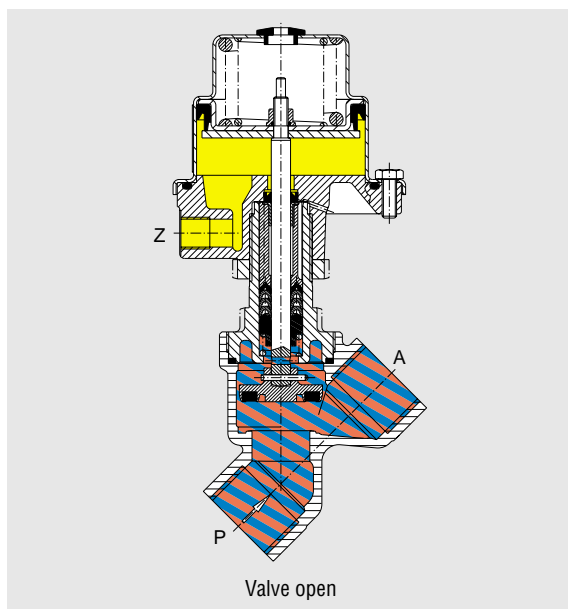
(pneumatically actuated isolating valves)



This type of valve is controlled by a pilot fluid supplied to the actuator by means of a pilot valve.

A stem connects the closure device to the control member of the actuator. The spring acting on the control member forces the closure device down into the closed position on the valve seat. The pilot supply overcomes the spring force to lift the control member into the open position.

These valves are mainly suitable for contaminated or extremely viscous process fluids.



Pressure Actuated Valves

Pressure Actuated Valves

Material	Connection	Pressure	Temperature	Series	Page
Brass	G ¼ - G 2	0.2 - 16	+90°C	82160	105
Brass	G ¼ - G ½	-0.9 - 6	+90°C	82710	109

Gun metal	G ½ - G 2	0 - 16	+180°C	82180	113
Gun metal	G 1¼ - G 2	0 - 16	+180°C	82280	113
Gun metal	G ½ - G 2	0 - 16	+180°C	84500	117
Gun metal	G ½ - G 1	0 - 16	+180°C	84720	121

Stainless steel	G ½ - G 2	0 - 16	+180°C	82380	125
Stainless steel	G 1¼ - G 2	0 - 16	+180°C	82480	125
Stainless steel	G ½ - G 2	0 - 16	+180°C	84520	129
Stainless steel	G ½ - G 1	0 - 16	+180°C	84740	133
Stainless steel	ND 15 - ND 25	0 - 16	+180°C	84760	137

Cast iron	ND 15 - ND 100	0 - 10	+180°C	83200	141
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EC type examination

Gun metal	G ½ - G 2	0 - 10	+60°C	82580	145
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EC qualification approval

Casting steel	ND 15 - ND 25	0 - 25	+140°C	83860	149
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TECHNICAL INFORMATION

SEALING MATERIALS

Material selection

Information about the concentration, temperature and the degree of contamination of the fluid is important in making the right choice of materials. Further criteria are the operating pressure and maximum flow rate. As well as high temperatures, pressures and flow rates must be taken into consideration when choosing a material.

NBR Acrylnitrile Butadiene India Rubber (e.g. Buna "N")
Standard flexible material for neutral fluids such as air, water, oil. Good resistance to mechanical loads. Temperature range depending on working conditions from -10 to +90°C.

HNBR Hydrogenated Nitrile Rubber (e.g. Therban)
Similar in many features to NBR. Particularly suitable for hot water and steam. Temperature range depending on working conditions from -20 to +150°C.

EPDM Ethylene Propylene India Rubber (e.g. Nordel)
Resistant to alkalis and acids of fluid concentration, water, hot water and steam. Not resistant to oils and greases. Temperature range depending on working conditions from -20 to +130°C.

FPM Fluoride India Rubber (e.g. Viton)
A highly temperature- and weatherproof elastomer. Suitable for many acids, bases, fuels and oils (including synthetic). Not resistant to steam. Temperature range depending on working conditions from -10 to +180°C.

CR Chloroprene India Rubber (e.g. Neopren)
Similar in many features to NBR. Particularly suitable for most refrigerants. Temperature range depending on working conditions from -20 to +90°C.

PTFE Polytetrafluoroethene (e.g. Teflon)
A duroplastic, not a flexible material and therefore not suitable for the conventional diaphragms (separating membranes are possible). Resistance is almost universal in the temperature ranges from -20 to +200°C. Valve bodies and internal parts are also made of this material.

Kalrez Perfluoride Elastomer
A flexible material with the same resistance as PTFE and excellent sealing qualities. Temperature range depending on working conditions from -30 to +200°C.

TPE Thermoplastic elastomers
Very durable yet flexible over a wide temperature range. Resist oils, grease, many solvents and weathering.

2/2-way valves G 1/4 - G 2

diaphragm valves
threaded connection

DESCRIPTION (STANDARD VALVE)

Type	pressure actuated diaphragm valve
Switching function	NO; NC with pilot pressure
Operating pressure	0.2 to 16 bar
Differential pressure	0.2 bar required
Process fluid	neutral liquids and gases
Fluid temperature	-10 to maximum of +90°C
Viscosity	up to 80 mm²/s
Pilot fluid	air max. +60°C
Pilot pressure	G 1/4 - G 1/2 max. 6 bar over operating pressure G 3/4 - G 2 max. 1 bar over operating pressure
Ambient temperature	-10 to maximum of +60°C
Flow direction	determined
Mounting position	optional

MATERIALS

Body	brass
Cover	brass
Internal parts	brass, stainless steel
Seals	NBR
Seat seal	fabric diaphragm NBR with valve plate
Valve seat	brass

FEATURES

- For high contaminated fluids
- Solenoid hermetically sealed from fluid
- Small dimension
- Vacuum as on option
- Compact valve for industrial applications
- NPT thread optional

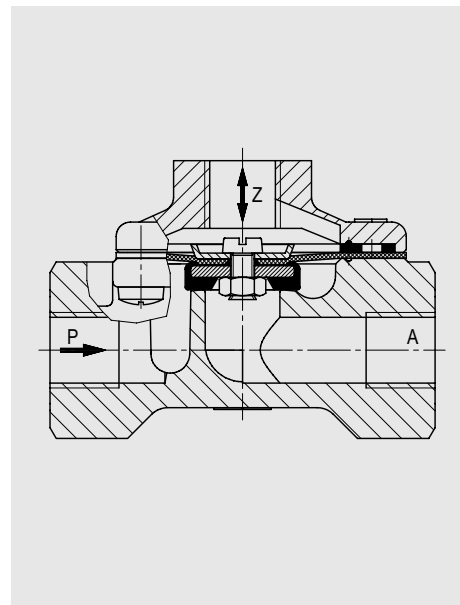
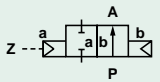
CHARACTERISTIC DATA

Connection G	ND mm	k _v -Value m³/h	Operating Pressure			Weight kg	Part Number
			min.	bar	max.		
1/4	8	1.7	0.2		16	0.50	8216000.0000
3/8	10	3.4	0.2		16	0.45	8216100.0000
1/2	12	4.0	0.2		16	0.40	8216200.0000
3/4	20	11.0	0.2		16	1.15	8216300.0000
1	25	13.0	0.2		16	1.00	8216400.0000
1 1/4	32	28.0	0.2		16	2.35	8216500.0000
1 1/2	40	31.0	0.2		16	2.10	8216600.0000
2	50	46.0	0.2		16	3.35	8216700.0000

NPT- connection available: change (e.g.) 8216000 in 8226000



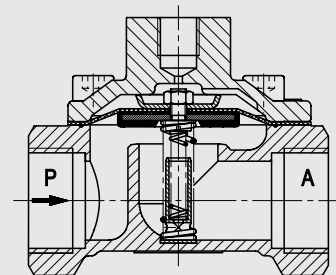
82160



OPTIONAL FEATURES

xxxxx 03.xxxx	<p>fabric diaphragm FPM with valve plate T_{max.} +110°C operating pressure 0.2 to 16 bar control pressure = operating pressure</p> <p>G ¼ to G ½ max. control pressure 6 bar over operating pressure but max. control pressure 16 bar</p> <p>G ¾ to G 2 max. control pressure 1 bar over operating pressure but max. control pressure 16 bar</p>
xxxxx 51.xxxx	<p>fabric diaphragm NBR with valve plate T_{max.} +90°C operating pressure 0.2 to 16 bar control pressure = operating pressure G ¾ to G 2 max. control pressure 6 bar over operating pressure but max. control pressure 16 bar</p>
xxxxx 52.xxxx	<p>fabric diaphragm FPM with valve plate T_{max.} +110°C operating pressure 0.2 to 16 bar control pressure = operating pressure G ¾ to G 2 max. control pressure 6 bar over operating pressure but max. control pressure 16 bar</p>

xxxxx 53.xxxx	<p>suitable for vacuum with pressure spring under diaphragm, FPM-fabric diaphragm T_{max.} +110°C operating pressure -0.9 to 16 bar control pressure 2 to 16 bar max. control pressure 6 bar over operating pressure</p>
xxxxx 54.xxxx	<p>suitable for vacuum with pressure spring under diaphragm, NBR-fabric diaphragm T_{max.} +90°C Operating pressure -0.9 to 16 bar control pressure 2 to 16 bar max. control pressure 6 bar over operating pressure</p>



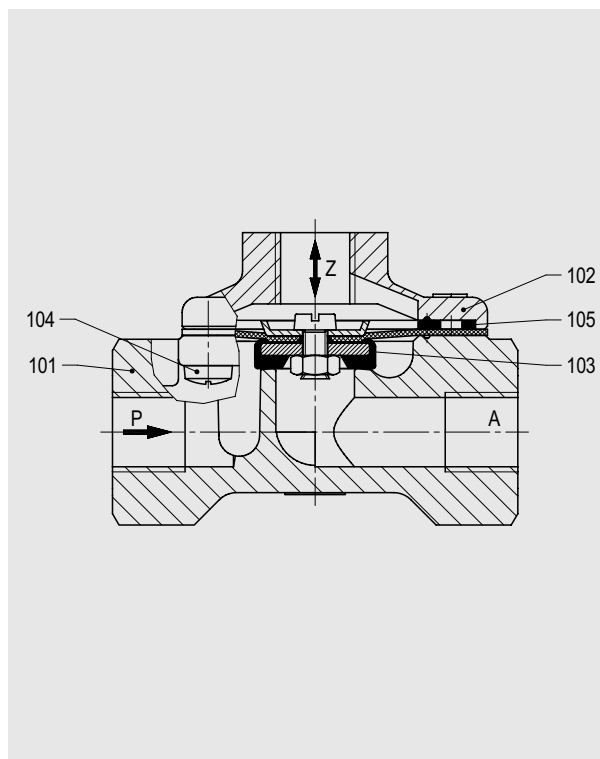
Vacuum execution

SECTIONAL DRAWING

Parts list and identification

- 101 Valve body
- 102 Body cover
- *103 Diaphragm
- 104 Oval head cap screw up to G ½
Hexagon screw from G ¾
- *105 Seal ring, not for G ¾ and G1

* These individual parts form a complete wearing unit.

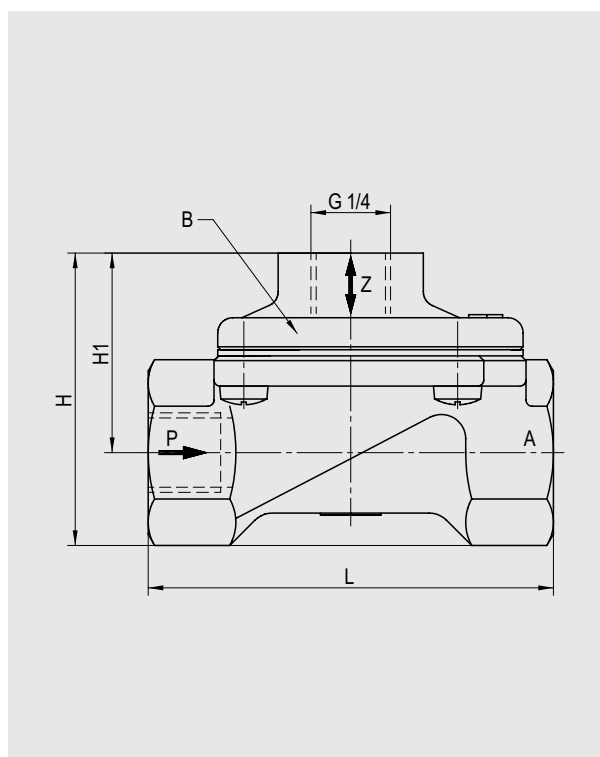


82160

DIMENSIONAL DRAWING

B = max. depth

Connection G	L mm	B mm	H mm	H1 mm
¼	67	44	48	33
⅜	67	44	48	33
½	67	44	48	33
¾	95	70	81	57
1	95	70	81	57
1¼	132	96	103	70
1½	132	96	103	70
2	160	112	121	81



TECHNICAL INFORMATION

VACUUMS & VALVES

The term vacuum is used loosely for any gas pressure lower than atmospheric, i.e. a negative pressure. The unit of measurement is the millibar (mbar) or hecto pascal (1 hPa = 1 mbar).

The user often specifies the degree of vacuum as a percentage. For example, a relative vacuum of 40% indicates an absolute residual pressure of 600 mbar.

Most mechanical engineering applications of solenoid valves or pressure actuated isolating valves lie within the rough vacuum range.

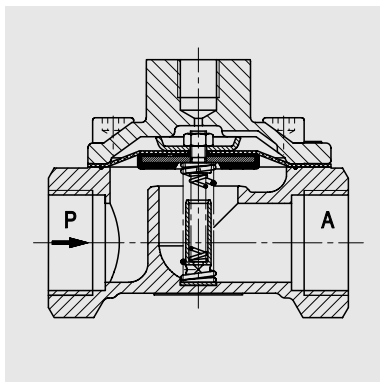
Since only very small differential pressures are available in this type of application, valves that optimise the flow and therefore have a high coefficient (K_v) should be chosen. These valves should also operate without differential pressure.

The actual pressure regime has to be carefully examined before valves requiring differential pressure can be used.

Valves must always be mounted so the flow is from P to A, ie the vacuum has to be present at their outlet.

The supply available to actuate the valve against the vacuum must be sufficient to move the closure device into the open position and hold it there during the system sequence.

If this supply is interrupted, the vacuum, assisted by the forces tending to close the valve, will shut the valve by forcing the closure device back onto its seat.



We will gladly provide you with any further information required.

2/2-way valves G 1/4 - G 1/2

diaphragm valves
threaded connection

DESCRIPTION (STANDARD VALVE)

Type	pressure actuated diaphragm valve
Switching function	normally closed closed by spring force open by external fluid
Operating pressure	-0.9 to 6 bar
Process fluid	neutral liquids and gases
Fluid temperature	-10 to maximum of +90°C
Viscosity	up to 80 mm²/s
Pilot fluid	air up to +60°C
Pilot pressure	3 to 8 bar
Ambient temperature	-10 to maximum of +50°C
Flow direction	optional
Mounting position	optional

MATERIAL VALVE

Body	brass
Cover	brass
Internal parts	brass, stainless steel
Seals	NBR
Seat seal	fabric diaphragm NBR with valve plate
Valve seat	brass

MATERIAL ACTUATOR

Body	brass
Cover	plastic
Seals	NBR

FEATURES

- For high contaminated fluids
- Damped operation
- Optical position indicator
- Suitable for vacuum
- Solenoid hermetically sealed from fluid
- Small dimensions
- NPT thread optional

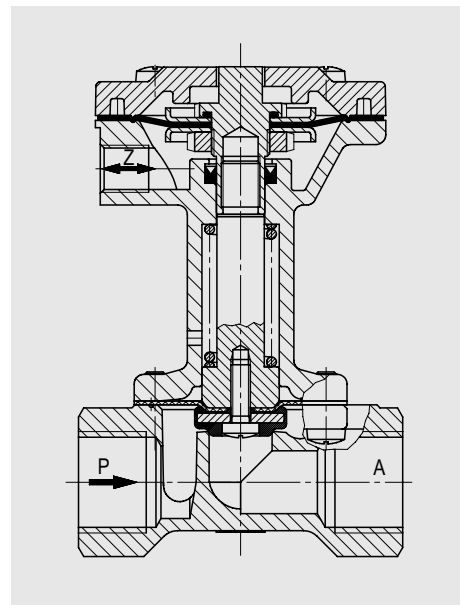
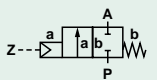
CHARACTERISTIC DATA

Connection	ND	k _v -Value	Operating Pressure			Weight	Part Number
G	mm	m³/h	min.	bar	max.	kg	
1/4	8	1.9	-0.9		6	1.9	8271000.0000
3/8	10	2.4	-0.9		6	2.4	8271100.0000
1/2	12	2.9	-0.9		6	2.9	8271200.0000

NPT- connection available: change (e.g.) 8271000 in 8275000



82710



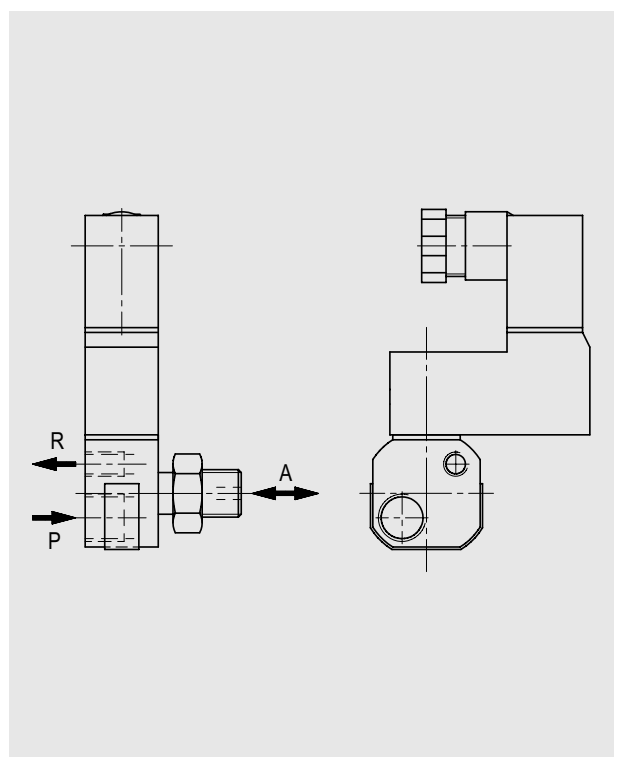
OPTIONAL FEATURES

xxxxx 01.xxxx	normally open	xxxxx 52.xxxx	G ¾ to G ½ valve body and internal parts stainless, seat seal Kalrez, FPM-diaphragm with PTFE-foil T _{max.} +110°C P _{max.} 6 bar
xxxxx 03.xxxx	seals FPM T _{max.} +110°C		
xxxxx 14.xxxx	seals EPDM T _{max.} +110°C		
xxxxx 50.xxxx	G ¾ to G ½ valve body and internal parts stainless steel	xxxxx xx.0164	with assembled standard pilot valve 8494171.0164 DC
xxxxx 51.xxxx	G ¾ to G ½ valve body and internal parts stainless seals FPM T _{max.} +110°C	xxxxx xx.0165	with assembled standard pilot valve 8494171.0165 AC

3/2-way standard pilot valve G ¾ ND 1.6

Part Number: 8494171.xxxx

Type	seat valve requiring differential pressure switching function	
Function	switching function	
Process fluid	air T _{max.} +60°C	
Operating pressure	1 to 8 bar	
Material		
Body	brass	
Internal parts	stainless steel	
Seat seal	NBR	
Electrical data		
Standard voltage	DC	AC
		24V / 42V 50Hz
		110V / 230V 50Hz
Power consumption	DC	AC
Solenoid 0164	5W	-
Solenoid 0165	-	inrush 6VA
	-	holding 6VA
Duty cycle	100%	
Protection	without power lead socket IP00	
	with power lead socket IP65	
Electrical design	DIN VDE 0580	

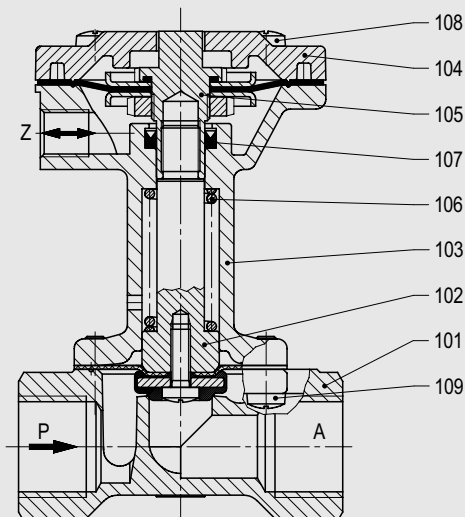


SECTIONAL DRAWING

Parts list and identification

- 101 Valve body
- 102 Valve plate
- 103 Actuator housing
- 104 Actuator housing cover
- *105 Diaphragm
- *106 Pressure spring
- *107 Grooved ring
- *108 Oval head cap screw

* These individual parts form a complete wearing unit.

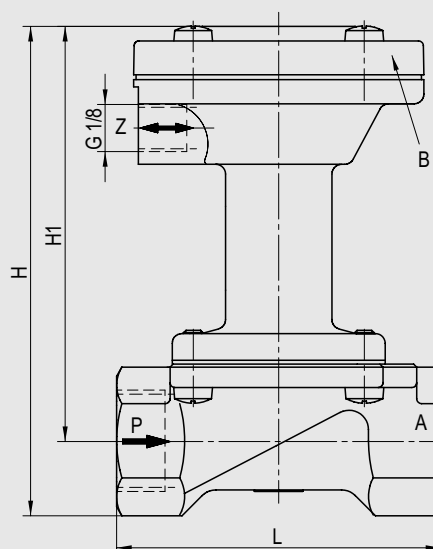


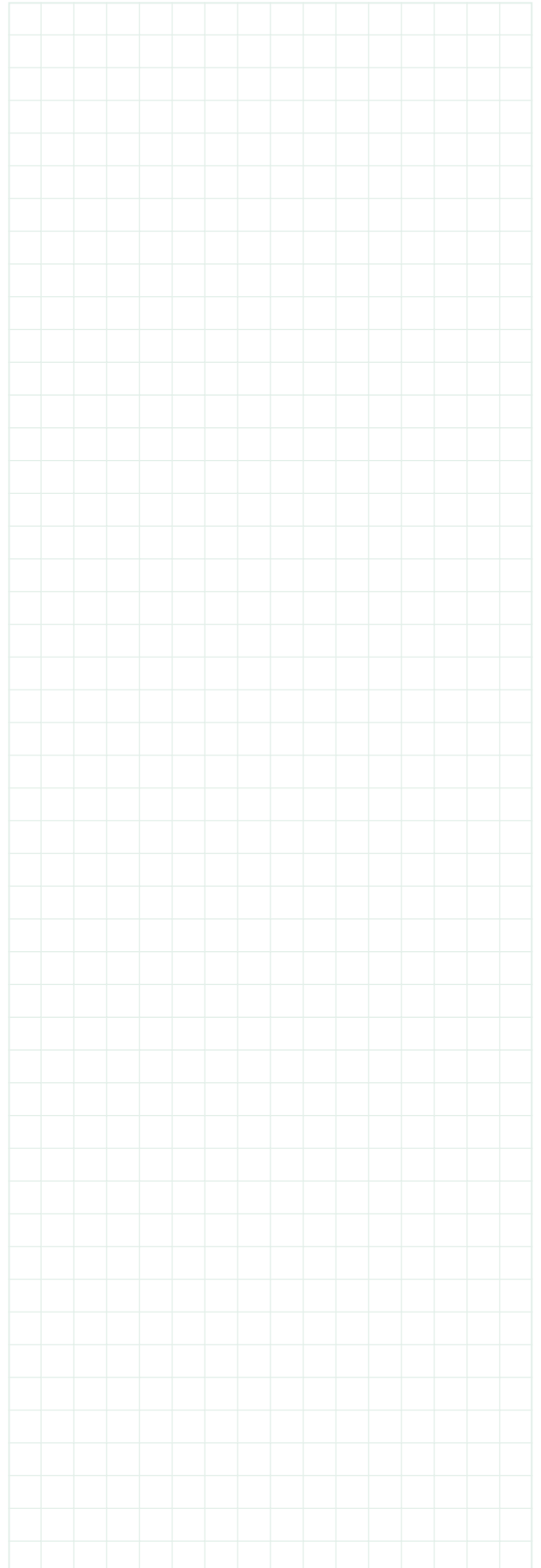
82710

DIMENSIONAL DRAWING

B = max. depth

Connection	L	B	H	H1
G	mm	mm	mm	mm
1/4	67	60	101	86
3/8	67	60	101	86
1/2	67	60	101	86





2/2-way valves G ½ - G 2

externally controlled seat valve
threaded connection

DESCRIPTION (STANDARD VALVE)

Type	pressure actuated seat valve by external fluid
Switching function	normally closed closed by spring force open by external fluid
Operating pressure	see characteristic data table
Process fluid	neutral liquids and gases
Fluid temperature	-10 to maximum of +180°C
Viscosity	up to 600 mm²/s
Pilot fluid	air up to +80°C
Pilot pressure	3.5 to 8 bar
Ambient temperature	-10 to maximum of +60°C
Flow direction	determined
Mounting position	optional

MATERIALS VALVE

Body	gun metal
Internal parts	stainless steel, brass
Seat seal	PTFE
Seal packing	PTFE/FPM
Valve seat	gun metal

MATERIALS ACTUATOR

Actuator body	stainless steel
bottom	aluminium WEMA-Kor coated
Seals	NBR
Internal parts	coated steel

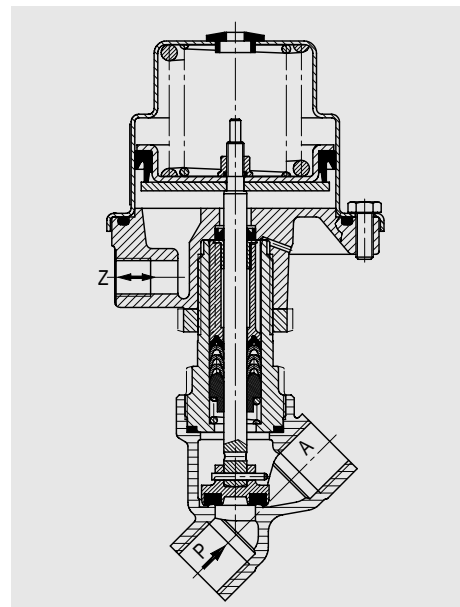
FEATURES

- For high contaminated fluids
- High flow rate
- For robust industrial applications
- Soft closing
- Suitable for vacuum
- NPT thread optional

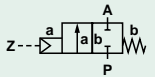
CHARACTERISTIC DATA

Connection	ND	k _v -Value	Operating Pressure		Weight	Part Number
G	mm	m³/h	min.	bar	kg	
½	15	4.8	0	16.0	1.4	8218200.0000
¾	20	10.0	0	10.0	1.5	8218300.0000
1	25	14.0	0	10.0	1.8	8218400.0000
1¼	32	23.0	0	7.0	2.4	8218500.0000
1½	40	30.0	0	4.5	2.7	8218600.0000
2	50	37.0	0	3.0	3.9	8218700.0000
1¼	32	27.0	0	16.0	5.3	8228500.0000
1½	40	37.0	0	10.0	5.5	8228600.0000
2	50	53.0	0	10.0	7.0	8228700.0000

NPT- connection available: change (e.g.) 8218200 in 8219200; 8228500 in 8229500



82180
82280



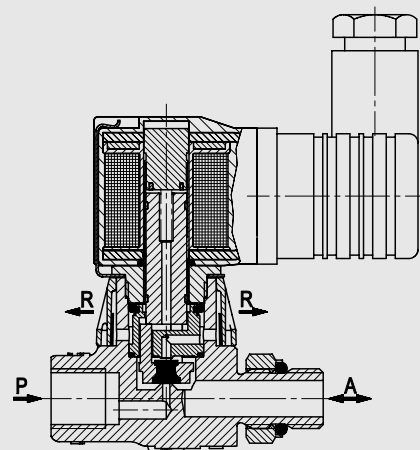
OPTIONAL FEATURES

xxxxx 01.xxxx	normally open; opens with spring force closed by external fluid pilot pressure P _{max.} 1 to 6 bar	xxxxx 52.xxxx	optical position indicator
xxxxx 03.xxxx	seals FPM T _{max.} +180°C	xxxxx 58.xxxx	electrical position indicator EEx
xxxxx 22.xxxx	operating pressure G ½ 25 bar, G ¾ 16 bar	xxxxx 59.xxxx	T _{max.} +200°C
xxxxx 23.xxxx	electrical position indicator OPEN + CLOSED with two solenoid switch		

3/2-way standard pilot valve G ¼ ND 1.6

Part Number 8466000.9101

Type	seat valve requiring differential pressure		
Function	normally closed		
Process fluid	air T _{max.} +60°C		
Operating pressure	1 to 10 bar		
Materials			
Body	brass		
Internal parts	stainless steel		
Seat seal	NBR		
Electrical data			
Standard voltage	DC	AC	
	24V	24V /	42V 50Hz
		110V /	230V 50Hz
Power consumption	DC	AC	
Solenoid 9101	8W	inrush	15VA
		holding	12VA
Duty cycle	100%		
Protection	without power lead socket IP00		
	with power lead socket IP65		
Electrical design	DIN VDE 0580		

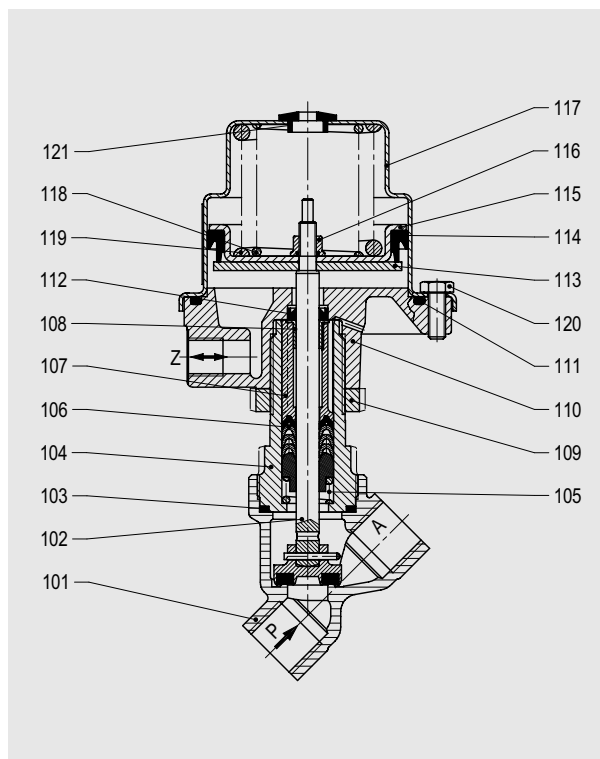


SECTIONAL DRAWING

Parts list and identification

101	Valve body	*114	Grooved ring
*102	Valve spindle, complete	115	Round plate
*103	Flat seal	*116	Seal lock nut
104	Screw piece	117	Control head housing
*105	Pressure spring	*118	Pressure spring only for G 1 and G 2
*106	Seal packing	*119	Pressure spring
107	Spacer bush	120	Hex bolt
*108	Plain bearing	121	Plug
109	Nut		
110	control head housing		
*111	O-ring		
*112	FPM Grooved ring		
113	Round plate		

*These individual parts form a complete wearing unit.

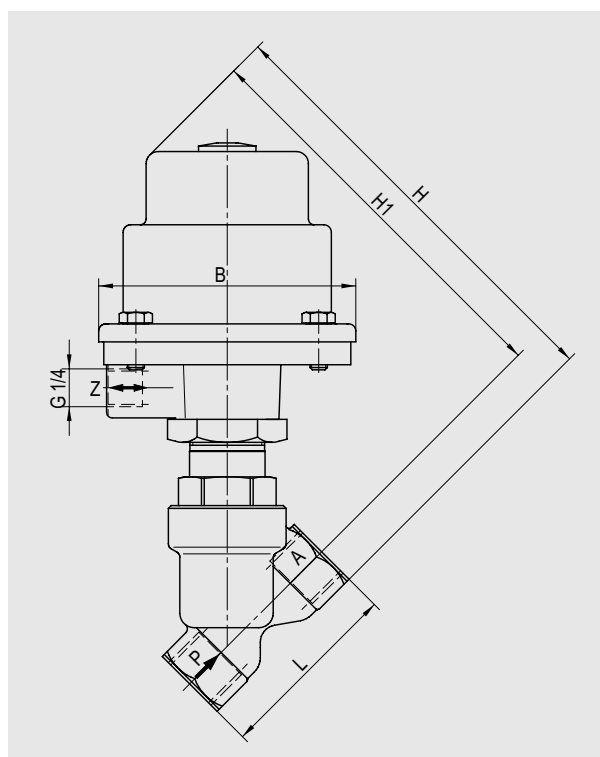


82180
82280

DIMENSIONAL DRAWING

B = max. depth

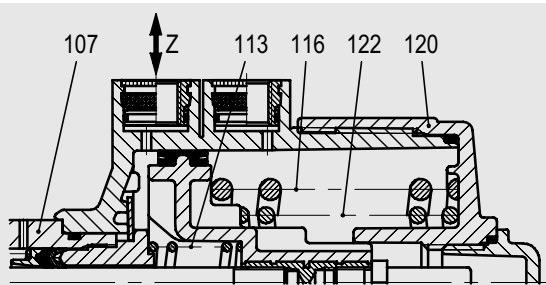
Connection	L mm	B mm	H mm	H1 mm
1/2	65	89.5	154.0	140.5
3/4	75	89.5	160.0	144.0
1	90	89.5	171.0	150.5
1 1/4	110	89.5	186.0	161.0
1 1/2	120	89.5	190.0	162.5
2	150	89.5	206.0	171.0
1 1/4	110	163.0	250.0	225.0
1 1/2	120	163.0	255.0	227.5
2	150	163.0	270.0	235.0



TECHNICAL INFORMATION

PRESSURE ACTUATED VALVES – conversion from NC to NO

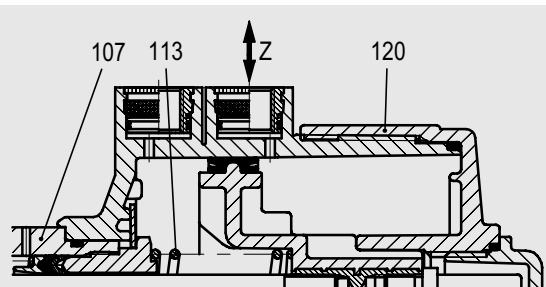
The pressure actuated 84 500, 84 520 and 84 540 series of valves are designed to allow relatively simple conversion of the standard switching function – normally closed (NC) – to normally open (NO).



Normally closed – under spring force

NC to NO the easy way:

- Step 1 Vent actuator
- Step 2 Use 36mm ring or socket spanner to release and unscrew actuator cover (120). This fully releases the compression spring(s) in the actuator.
- Step 3 Remove the compression springs (116 and 122) (not present in all types of valve).
- Step 4 Replace actuator cover (120) and tighten firmly. The factory fitted compression spring (113) will now move the depressurised piston into the normally open (NO) position.
- Step 5 The top port of the two is to be used as the pilot.
- Step 6 Prior to commissioning, it is advisable to carry out an operating test of the actuator with air as the pilot fluid and without process fluid.
- Step 7 Check actuator and valve body tightness to atmosphere, and tightness of the stem seals using the vent in the screw piece (107).



Normally open – under spring force

2/2-way valves G ½ - G 2

externally controlled seat valve
threaded connection

DESCRIPTION (STANDARD VALVE)

Type	pressure actuated seat valve by external fluid
Switching function	normally closed closed by spring force open by external fluid
Operating pressure	see characteristic data table
Process fluid	neutral liquids and gases
Fluid temperature	-10 to maximum of +180°C
Viscosity	up to 600 mm²/s
Pilot fluid	air up to +60°C
Pilot pressure	3.5 to 10 bar
Ambient temperature	-10 to maximum of +60°C
Flow direction	determined
Mounting position	optional

MATERIALS VALVE

Body	gun metal
Internal parts	stainless steel, brass
Seat seal	PTFE
Seal packing	PTFE/FPM
Valve seat	gun metal

MATERIALS ACTUATOR

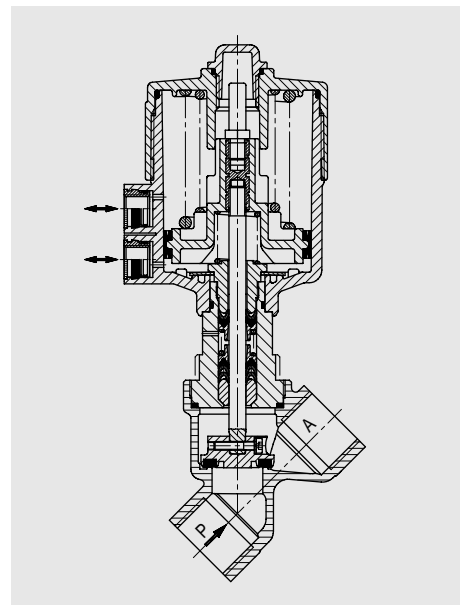
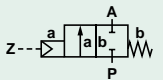
Actuator	polyamide 66
Seals	NBR
Internal parts	stainless steel, brass

FEATURES

- For high contaminated fluids
- High flow rate
- Optical position indicator
- Damped operation
- Suitable for vacuum
- NPT thread optional



84500



CHARACTERISTIC DATA

Connection G	ND mm	k _V -Value m³/h	Operating Pressure			Weight kg	Part Number
			min.	bar	max.		
½	15	4.8	0		16	1.4	8450200.0000
¾	20	10.0	0		10	1.5	8450300.0000
1	25	14.0	0		10	1.8	8450400.0000
1¼	32	23.0	0		7	2.4	8450500.0000
1½	40	30.0	0		4	2.7	8450600.0000
2	50	37.0	0		3	3.9	8450700.0000

NPT- connection available: change (e.g.) 8450200 in 8451200

OPTIONAL FEATURES

xxxxx 01.xxxx	normally open; pilot pressure 1 to 10 bar opens with spring force closed by external fluid	micro-switch
xxxxx 03.xxxx	seals FPM T _{max.} +180°C	xxxxx 50.xxxx NAMUR interface plate
xxxxx 08.xxxx	actuation double acting	xxxxx 50.3037 with assembled NAMUR pilot valve 9710000.3037 DC or AC
xxxxx 22.xxxx	operating pressure G ½ 25 bar, G ¾ 16 bar	xxxxx xx.0164 with assembled standard pilot valve 8495475.0164 DC
xxxxx 23.xxxx	electrical position indicator OPEN + CLOSED with two	xxxxx xx.0165 with assembled standard pilot valve 8495475.0165 AC
		xxxxx 55.xxxx stroke limiter

3/2-way standard pilot valve G ¼ ND 1.6

Part Number 8466000.9101

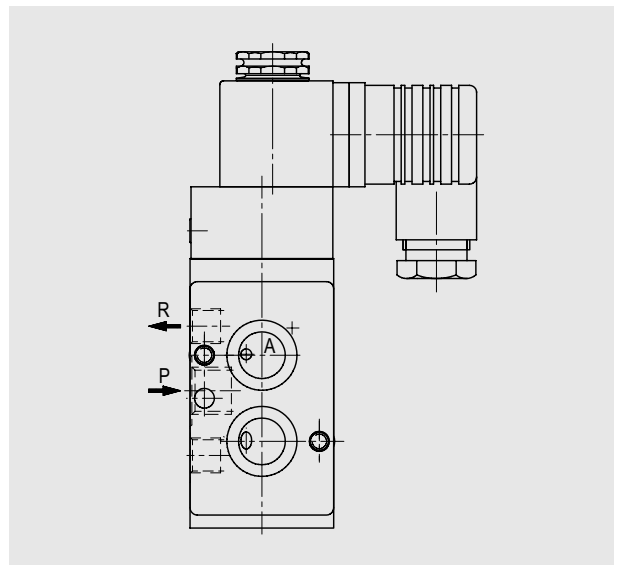
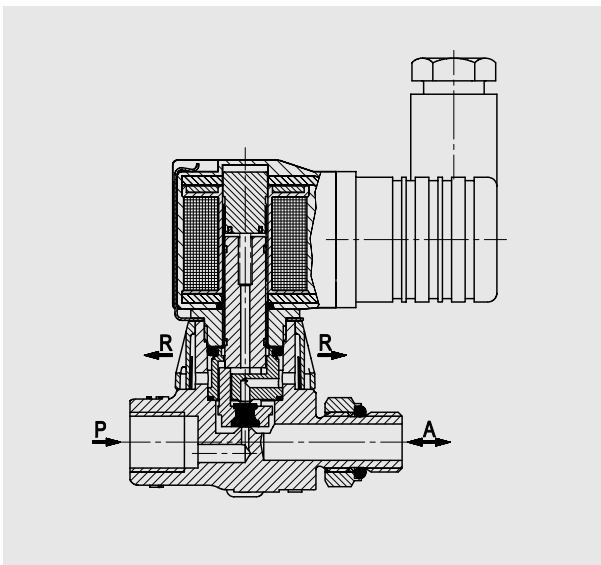
Type	seat valve requiring differential pressure		
Function	normally closed		
Process fluid	air T _{max.} +60°C		
Operating pressure	1 to 10 bar		
Materials			
Body	brass		
Internal parts	stainless steel		
Seat seal	NBR		
Electrical data			
Standard voltage	DC	AC	
	24V	24V / 42V 50Hz 110V / 230V 50Hz	
Power consumption	DC	AC	
Solenoid 9101	8W	inrush	15VA
		holding	12VA
Duty cycle	100%		
Protection	without power lead socket IP00 with power lead socket IP65		
Electrical design	DIN VDE 0580		

5/2-way NAMUR pilot valve G ¼ ND 6

Performance 3/2-way function

Part Number 9710000.3037

Type	seat valve requiring differential pressure		
Function	normally closed		
Process fluid	air T _{max.} +50°C		
Operating pressure	2 to 8 bar		
Body	aluminium anodize		
Internal parts	stainless steel		
Seat seal	NBR		
Standard voltage	DC	AC	
	24V	24V / 42V 50Hz 110V / 230V 50Hz	
Power consumption	DC	AC	
Solenoid 3037	1.6W	-	
Solenoid 3037	-	inrush	4.55VA
	-	holding	3.50VA
Duty cycle	100%		
Protection	without power lead socket IP00 with power lead socket IP65		
Electrical design	DIN VDE 0580		

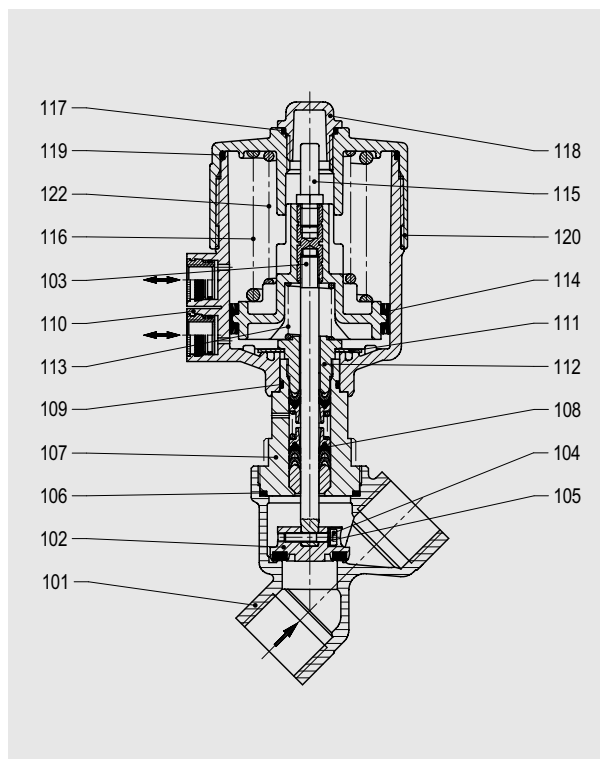


SECTIONAL DRAWING

Parts list and identification

- | | | | |
|-------|---|-------|----------------------------|
| 101 | Valve body | * 111 | Cup spring |
| *102 | Valve plate | 112 | Screw piece |
| 103 | Valve spindle, complete | * 113 | Pressure spring |
| 104 | Cheese head cap screw | * 114 | Cylinder packing |
| 105 | Spring washer | 115 | Signal pin |
| * 106 | Seal ring | * 116 | Pressure spring |
| 107 | Screw piece | 117 | O-ring |
| * 108 | Seal packing | 118 | Cover cap |
| * 109 | O-ring | * 119 | O-ring |
| 110 | Control head housing cover, bottom part | 120 | Control head housing cover |
| | | * 122 | Pressure spring |

*These individual parts form a complete wearing unit.

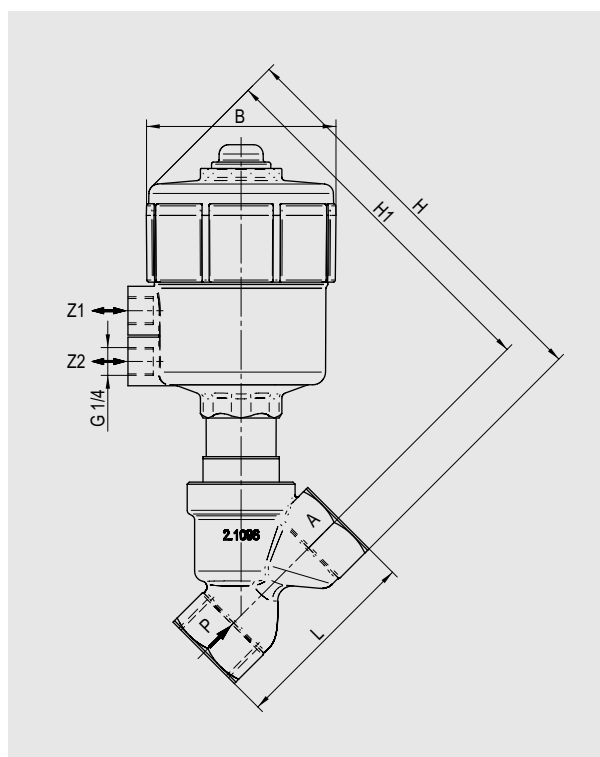


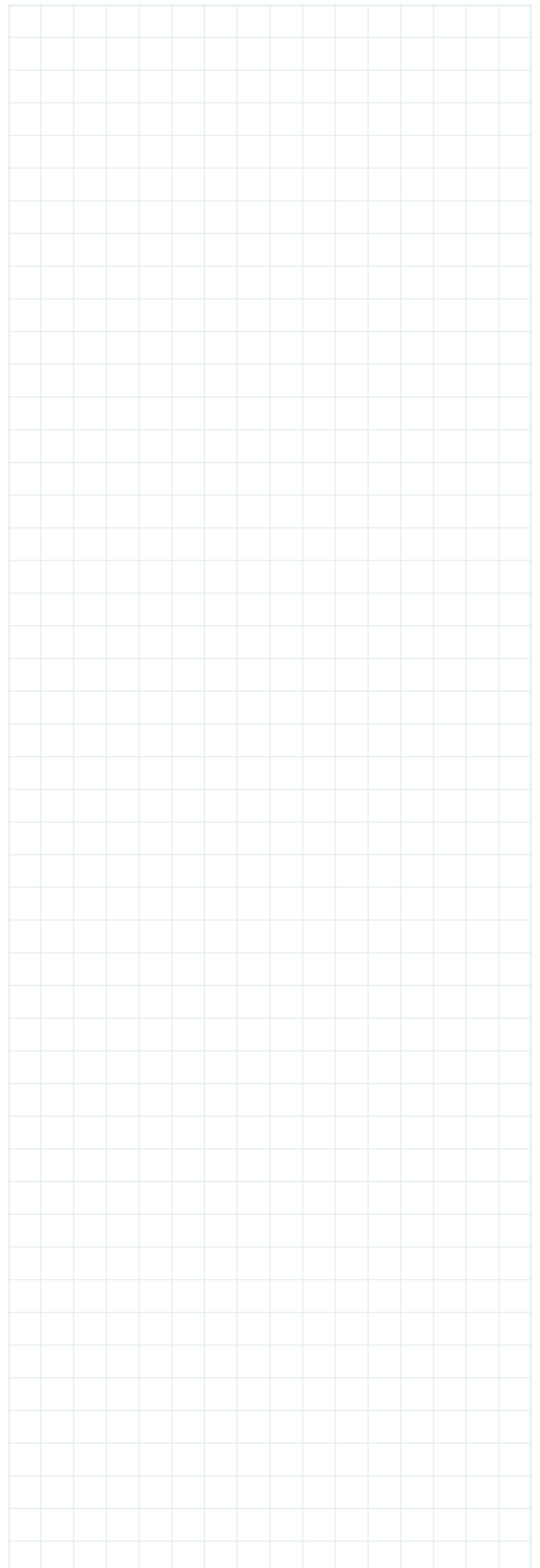
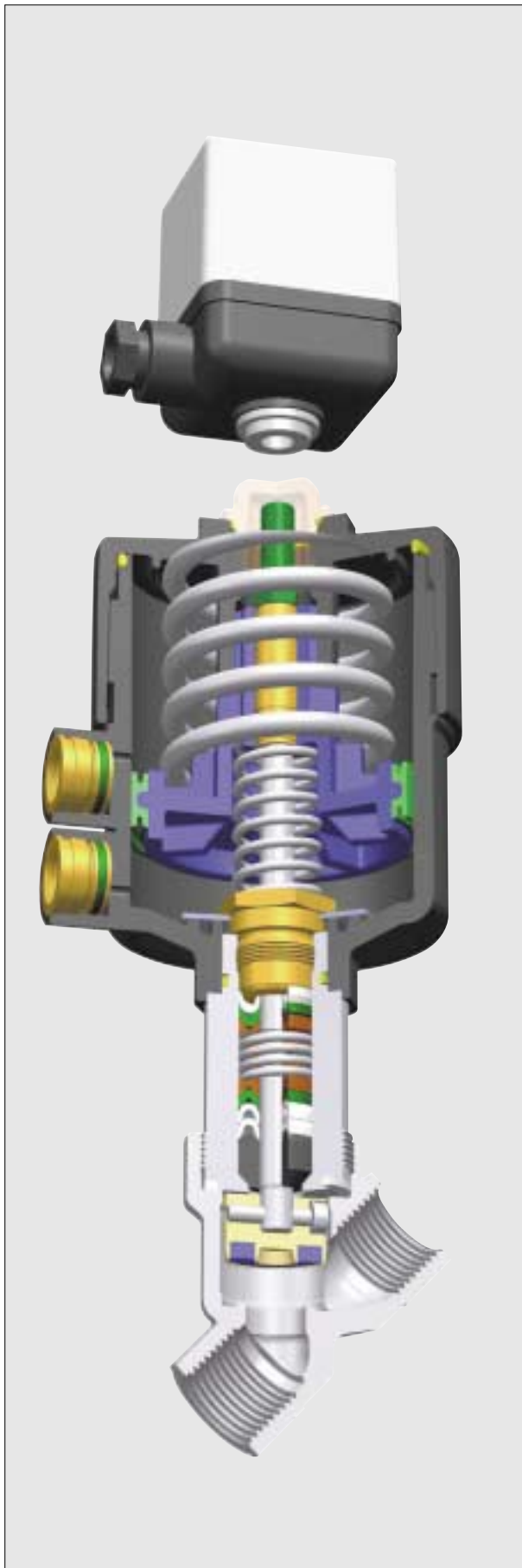
84500

DIMENSIONAL DRAWING

B = max. depth

Connection G	L mm	B mm	H mm	H1 mm
1/2	65	89.5	177.5	164.0
3/4	75	89.5	184.0	168.0
1	90	89.5	194.5	174.0
1 1/4	110	89.5	209.5	184.5
1 1/2	120	89.5	213.5	186.0
2	150	89.5	229.5	194.5





2/2-way valves G ½ - G 1

externally controlled seat valve
threaded connection

DESCRIPTION (STANDARD VALVE)

Type	pressure actuated seat valve by external fluid
Switching function	normally closed closed by spring force open by external fluid
Operating pressure	see characteristic data table
Process fluid	neutral liquids and gases
Fluid temperature	-10 to maximum of +180°C
Viscosity	up to 600 mm²/s
Pilot fluid	air up to +60°C
Pilot pressure	3.5 to 10 bar
Ambient temperature	-10 to maximum of +60°C
Flow direction	determined
Mounting position	optional

MATERIALS VALVE

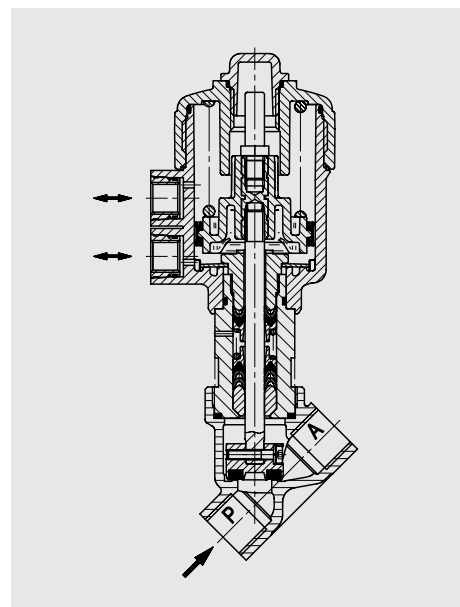
Body	gun metal
Internal parts	stainless steel, brass
Seat seal	PTFE
Seal packing	PTFE/FPM
Valve seat	gun metal

MATERIALS ACTUATOR

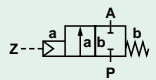
Actuator	polyamide 66
Seals	NBR
Internal parts	stainless steel, brass

FEATURES

- For high contaminated fluids
- High flow rate
- Optical position indicator
- Soft closing
- Suitable for vacuum
- NPT thread optional



84720



CHARACTERISTIC DATA

Connection	ND	k _v -Value	Operating Pressure		Weight	Part Number
G	mm	m³/h	min.	bar	kg	
½	15	4.8	0	16	1.3	8472200.0000
¾	20	10.0	0	8	1.4	8472300.0000
1	25	14.0	0	5	1.7	8472400.0000

OPTIONAL FEATURES

xxxxx 01.xxxx	normally open; opens with spring force closed by external fluid	xxxxx 50.xxxx	NAMUR interface plate
xxxxx 03.xxxx	seals FPM T _{max.} +180°C	xxxxx 50.3037	with assembled NAMUR pilot valve 9710000.3037 DC or AC
xxxxx 08.xxxx	actuation double acting	xxxxx xx.9101	with assembled standard pilot valve 8266000.9101 DC or AC
xxxxx 23.xxxx	electrical position indicator OPEN + CLOSED with two micro-switch		

3/2-way standard pilot valve G 1/4 ND 1.6

Part Number 8466000.9101

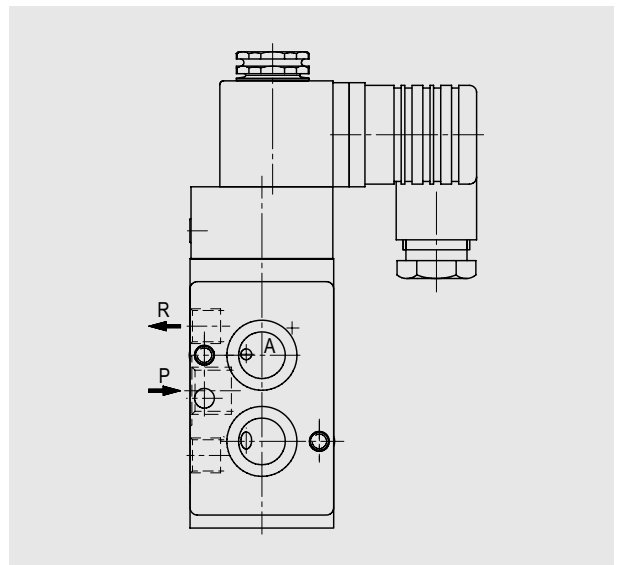
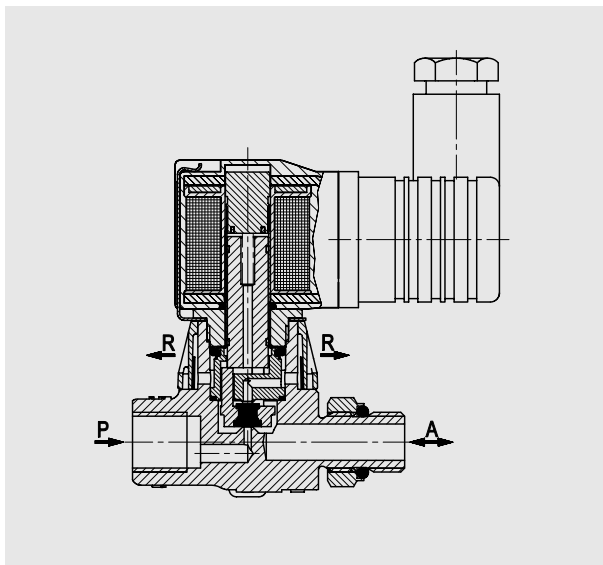
Type	seat valve requiring differential pressure		
Function	normally closed		
Process fluid	air T _{max.} +60°C		
Operating pressure	1 to 10 bar		
Materials			
Body	brass		
Internal parts	stainless steel		
Seat seal	NBR		
Electrical data			
Standard voltage	DC	AC	
	24V	24V / 42V 50Hz 110V / 230V 50Hz	
Power consumption	DC	AC	
Solenoid 9101	8W	inrush	15VA
		holding	12VA
Duty cycle	100%		
Protection	without power lead socket IP00 with power lead socket IP65		
Electrical design	DIN VDE 0580		

5/2-way NAMUR pilot valve G 1/4 ND 6

Performance 3/2-way function

Part Number 9710000.3037

Type	seat valve requiring differential pressure		
Function	normally closed		
Process fluid	air T _{max.} +50°C		
Operating pressure	2 to 8 bar		
Body	aluminium anodize		
Internal parts	stainless steel		
Seat seal	NBR		
Standard voltage	DC	AC	
	24V	24V / 42V 50Hz 110V / 230V 50Hz	
Power consumption	DC	AC	
Solenoid 3037	1.6W	-	
Solenoid 3037	-	inrush	4.55VA
	-	holding	3.50VA
Duty cycle	100%		
Protection	without power lead socket IP00 with power lead socket IP65		
Electrical design	DIN VDE 0580		

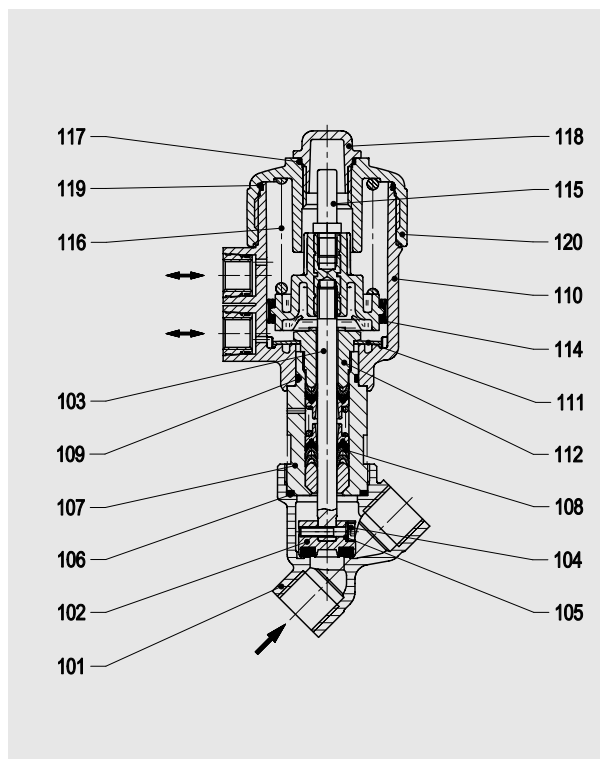


SECTIONAL DRAWING

Parts list and identification

- | | |
|---|--------------------------------|
| 101 Valve body | * 111 Cup spring |
| * 102 Valve plate | 112 Screw piece |
| 103 Valve spindle, complete | * 113 Pressure spring |
| 104 Cheese head cap screw | * 114 Cylinder packing |
| 105 Spring washer | 115 Signal pin |
| * 106 Seal ring | * 116 Pressure spring |
| 107 Screw piece | 117 O-ring |
| * 108 Seal packing | 118 Cover cap |
| * 109 O-ring | * 119 O-ring |
| 110 Control head housing cover, bottom part | 120 Control head housing cover |

*These individual parts form a complete wearing unit.

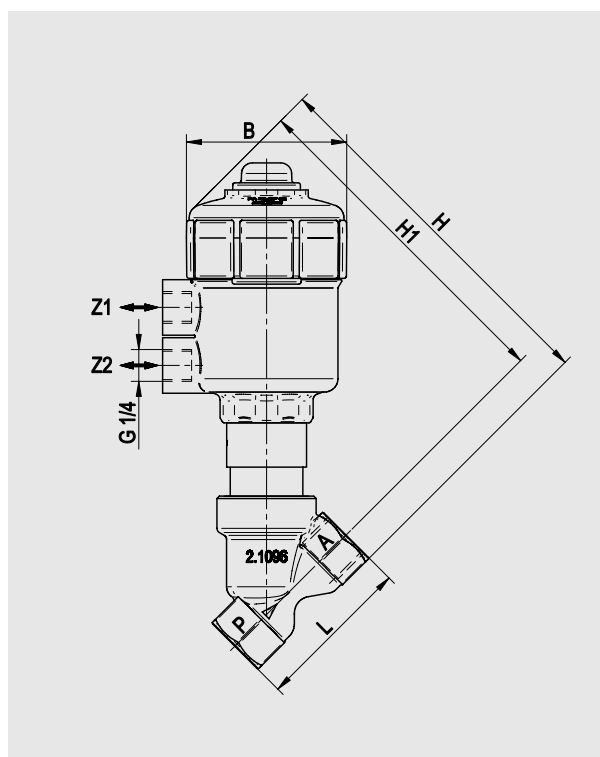


84720

DIMENSIONAL DRAWING

B = max. depth

Connection	L	B	H	H1
G	mm	mm	mm	mm
1/2	65	66	154	140.5
3/4	75	66	160	144.5
1	90	66	171	150.5



TECHNICAL INFORMATION
**TEST CERTIFICATES TO
DIN 50 049 / EN 10 204**

Type of certificate
Scope of certified testing

Catalogue number 1237461

Works test certificate to EN 10 204 - 2.1

General confirmation of conformity based on performance of

- Operating and leak tests
- Pressure test
- Voltage test

Catalogue number 1237462

Works test certificate to EN 10 204 - 2.2

General confirmation of conformity based on performance/issuing of

- Operating and leak tests
- Pressure test
- Voltage test
- Material identification certificate with numbers of constituent materials of individual parts according to parts list

Catalogue number 1237463

Approval test certificate EN 10 204 - 3.1.B

based on performance/issuing of

- Operating and leak tests to DIN 3230 Part 3
- Pressure test to DIN 3230 Part 3
- Voltage test to DIN VDE 580 §38
- Material identification certificate from parts list with Material No to EN 10 204 - 2.2

Catalogue number 1244316

Approval test certificate to EN 10 204 - 3.1.B

based on performance/issuing of

- Material quality certificate for valve body, cover, body screws and plunger tube to EN 10 204 - 3.1.A and 3.1.B
- Material quality certificate for parts in contact with fluid to EN 10 204 - 2.2
- Operating and leak tests to EN 10 204 - 3.1.B
- Leakage rate 1 in test to DIN 3230 Part 3

Any tampering with the ex factory condition certified by Buschjost automatically invalidates the approval test certificate.

2/2-way valves G ½ - G 2

externally controlled seat valve
threaded connection

Stainless Steel

DESCRIPTION (STANDARD VALVE)

Type	pressure actuated seat valve by external fluid
Switching function	normally closed closed by spring force open by external fluid
Operating pressure	see characteristic data table
Process fluid	neutral liquids and gases
Fluid temperature	-10 to maximum of +180°C
Viscosity	up to 600 mm²/s
Pilot fluid	air up to +80°C
Pilot pressure	3.5 to 8 bar
Ambient temperature	-10 to maximum of +60°C
Flow direction	determined
Mounting position	optional

MATERIAL VALVE

Body	stainless steel
Internal parts	stainless steel
Seat seal	PTFE
Seal packing	PTFE/FPM
Valve seat	stainless steel

MATERIALS ACTUATOR

Actuator body	stainless steel
bottom	aluminium WEMA-Kor coated
Seals	NBR
Internal parts	coated steel

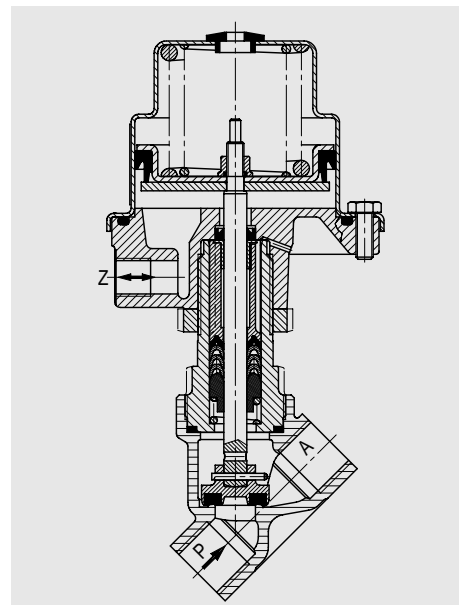
FEATURES

- For high contaminated fluids
- Good resistance by optimised materials
- For robust industrial applications
- Soft closing
- Suitable for vacuum
- NPT thread optional

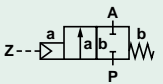
CHARACTERISTIC DATA

Connection G	ND mm	k _v -Value m³/h	Operating Pressure		Weight kg	Part Number
			min.	bar max.		
½	15	4.8	0	16.0	1.3	8238200.0000
¾	20	10.0	0	10.0	1.4	8238300.0000
1	25	14.0	0	10.0	1.7	8238400.0000
1¼	32	23.0	0	7.0	2.4	8238500.0000
1½	40	30.0	0	4.5	2.6	8238600.0000
2	50	37.0	0	3.0	3.8	8238700.0000
1¼	32	27.0	0	16.0	5.1	8248500.0000
1½	40	37.0	0	10.0	5.5	8248600.0000
2	50	53.0	0	10.0	7.0	8248700.0000

NPT- connection available: change (e.g.) 8238200 in 8239200; 8248500 in 8249500



82380
82480



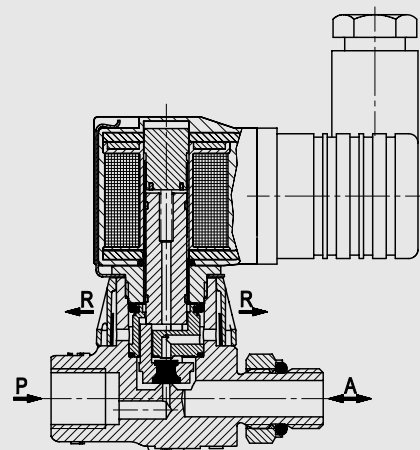
OPTIONAL FEATURES

xxxxx 01.xxxx	normally open; opens with spring force closed by external fluid pilot pressure P _{max.} 1 to 6 bar	xxxxx 52.xxxx	optical position indicator
xxxxx 03.xxxx	seals FPM T _{max.} +180°C	xxxxx 58.xxxx	electrical position indicator EEx
xxxxx 22.xxxx	operating pressure G ½ 25 bar, G ¾ 16 bar	xxxxx 59.xxxx	T _{max.} +200°C
xxxxx 23.xxxx	electrical position indicator OPEN + CLOSED with two solenoid switch	xxxxx 60.xxxx	actuator in stainless steel
		xxxxx 80.xxxx	seal packing in stainless steel

3/2-way standard pilot valve G ¼ ND 1.6

Part Number 8466000.9101

Type	seat valve requiring differential pressure		
Function	normally closed		
Process fluid	air T _{max.} +60°C		
Operating pressure	1 to 10 bar		
Materials			
Body	brass		
Internal parts	stainless steel		
Seat seal	NBR		
Electrical data			
Standard voltage	DC	AC	
	24V	24V /	42V 50Hz
		110V /	230V 50Hz
Power consumption	DC	AC	
Solenoid 9101	8W	inrush	15VA
		holding	12VA
Duty cycle	100%		
Protection	without power lead socket IP00 with power lead socket IP65		
Electrical design	DIN VDE 0580		

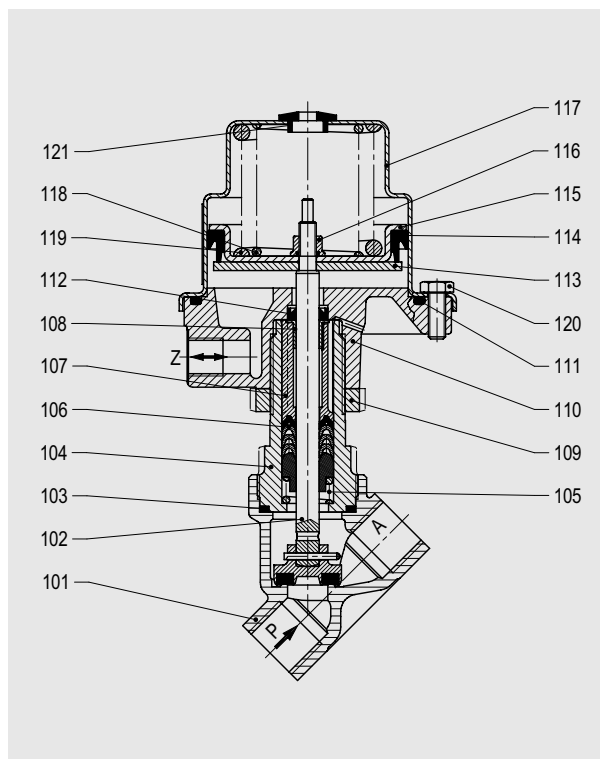


SECTIONAL DRAWING

Parts list and identification

- | | | | |
|------|-----------------------------------|------|--------------------------------------|
| 101 | Valve body | *112 | FPM grooved ring |
| *102 | Valve spindle, complete | 113 | Round plate |
| *103 | Flat seal | *114 | grooved ring |
| 104 | Screw piece | 115 | Round plate |
| *105 | Pressure spring | *116 | Seal-lock-nut |
| *106 | Seal packing | 117 | Control head housing |
| 107 | Spacer bush | *118 | Pressure spring only for G 1 and G 2 |
| *108 | Plain bearing | *119 | Pressure spring |
| 109 | Nut | 120 | Hexagon screw |
| 110 | Control head housing, bottom part | 121 | Plug |
| *111 | O-ring | | |

*These individual parts form a complete wearing unit.

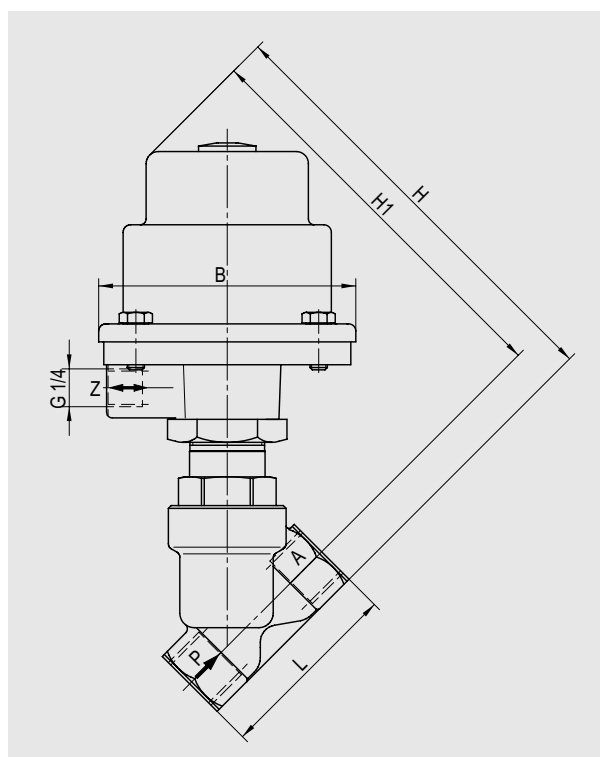


82380
82480

DIMENSIONAL DRAWING

B = max. depth

Connection	L	B	H	H1
G	mm	mm	mm	mm
½	65	89.5	154.0	140.5
¾	75	89.5	160.0	144.0
1	90	89.5	171.0	150.5
1¼	110	89.5	186.0	161.0
1½	120	89.5	190.0	162.5
2	150	89.5	206.0	171.0
1¼	110	163.0	250.0	225.0
1½	120	163.0	255.0	227.5
2	150	163.0	270.0	235.0



TECHNICAL INFORMATION

OXYGEN & VALVES

Increasing importance is being attached to the safe handling and control of oxygen.

Buschjost has had the **Bundesanstalt für Materialforschung and -prüfung** (BAM) (German Federal Institute of Materials Research and Testing) carry out the necessary tests for certain series of valves.

The materials in contact with the medium in the following valves conform to the German Safety Regulations for Oxygen (UVV Sauerstoff VBG 62). All nonmetallic materials have been subjected to a special test by the BAM.

Valve testing covers the following criteria:

- Material strength and durability.
- Burnout resistance under pressure surge.

Oxygen up to 16 bar

82 400 **36.9101** series

Technical requirements:

Working pressure up to 16 bar

Pressure rating PN16

Degreased

FPM seals

Maximum fluid temperature +60°C

Maximum ambient temperature +60°C

Oxygen up to 25 bar

The type and materials of the following types of valve were tested by the BAM for burnout resistance at higher pressures. The valves can be used for oxygen at up to 25 bar.

Technical requirements:

Working pressure up to 25 bar

Pressure rating PN25

Degreased

FPM seals

Maximum fluid temperature +60°C

Maximum ambient temperature +60°C

G ½ 8497300.8401

G ¾ 8497301.8401

G 1 8497302.8401

G 1¼ 8497303.8401

G 1½ 8497305.8401

G 2 8497306.8401

We will gladly provide you with any further information required.

2/2-way valves G 1/2 - G 2

externally controlled seat valve
threaded connection

Stainless Steel

DESCRIPTION (STANDARD VALVE)

Type	pressure actuated seat valve by external fluid
Switching function	normally closed closed by spring force open by external fluid
Operating pressure	see characteristic data table
Process fluid	neutral liquids and gases
Fluid temperature	-10 to maximum of +180°C
Viscosity	up to 600 mm²/s
Pilot fluid	air up to +60°C
Pilot pressure	3.5 to 10 bar
Ambient temperature	-10 to maximum of +60°C
Flow direction	determined
Mounting position	optional

MATERIAL VALVE

Body	stainless steel
Internal parts	stainless steel
Seat seal	PTFE
Seal packing	PTFE/FPM
Valve seat	stainless steel

MATERIALS ACTUATOR

Actuator	polyamide 66
Seals	NBR
Internal parts	stainless steel, brass

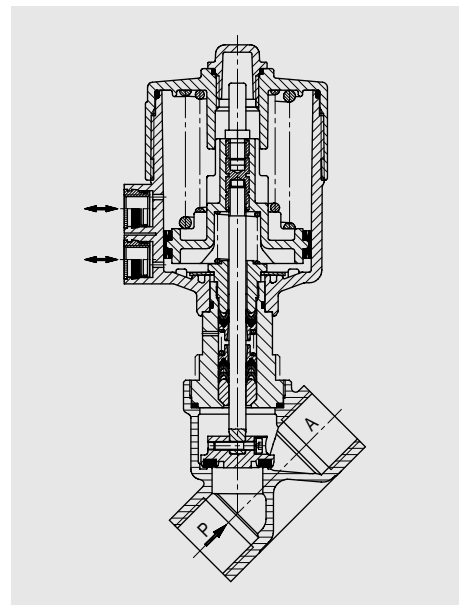
FEATURES

- For high contaminated fluids
- Good resistance by optimised materials
- For robust industrial applications
- Damped operation
- Suitable for vacuum
- NPT thread optional

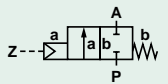
CHARACTERISTIC DATA

Connection G	ND mm	k _v -Value m³/h	Operating Pressure			Weight kg	Part Number
			min.	bar	max.		
1/2	15	4.8	0		16.0	1.4	8452200.0000
3/4	20	10.0	0		10.0	1.5	8452300.0000
1	25	14.0	0		10.0	1.8	8452400.0000
1 1/4	32	23.0	0		7.0	2.4	8452500.0000
1 1/2	40	30.0	0		4.5	2.7	8452600.0000
2	50	37.0	0		3.0	3.9	8452700.0000

NPT- connection available: change (e.g.) 8452200 in 8453200



84520



OPTIONAL FEATURES

xxxxx 01.xxxx	normally open; pilot pressure 1 to 10 bar opens with spring force closed by external fluid	micro-switch
xxxxx 03.xxxx	seals FPM T _{max.} +180°C	xxxxx 50.xxxx NAMUR interface plate
xxxxx 08.xxxx	actuation double acting	xxxxx 50.3037 with assembled NAMUR pilot valve 9710000.3037 DC or AC
xxxxx 22.xxxx	operating pressure G ½ 25 bar, G ¾ 16 bar	xxxxx xx.0164 with assembled standard pilot valve 8495475.0164 DC
xxxxx 23.xxxx	electrical position indicator OPEN + CLOSED with two	xxxxx xx.0165 with assembled standard pilot valve 8495475.0165 AC
		xxxxx 55.xxxx stroke limiter

3/2-way standard pilot valve G ¼ ND 1.6

Part Number 8466000.9101

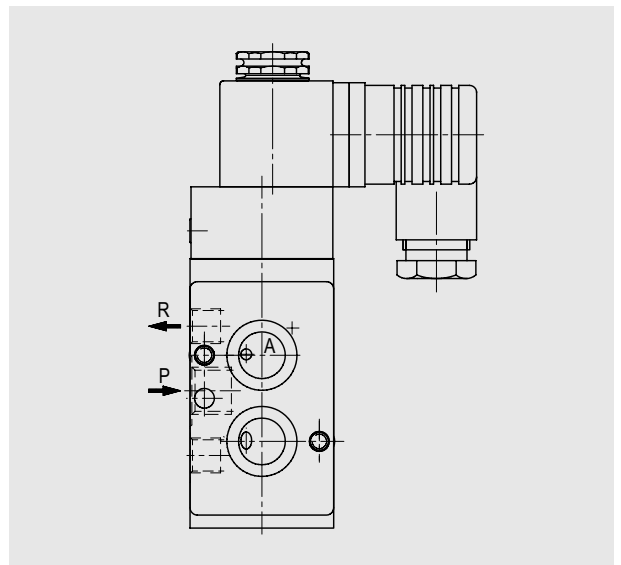
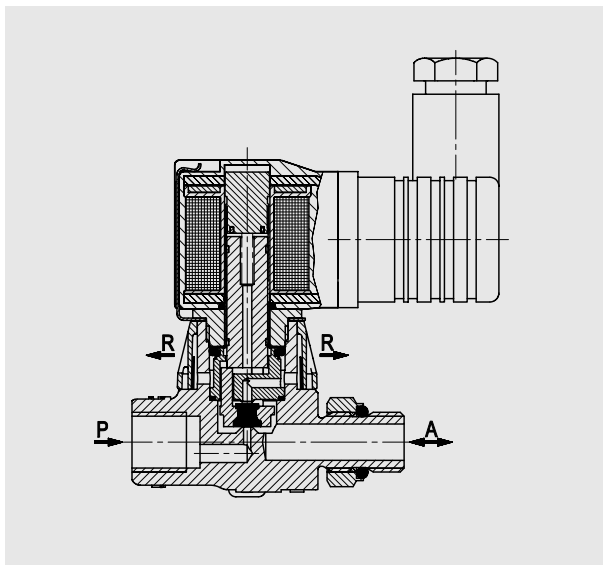
Type	seat valve requiring differential pressure		
Function	normally closed		
Process fluid	air T _{max.} +60°C		
Operating pressure	1 to 10 bar		
Materials			
Body	brass		
Internal parts	stainless steel		
Seat seal	NBR		
Electrical data			
Standard voltage	DC	AC	
	24V	24V / 42V 50Hz 110V / 230V 50Hz	
Power consumption	DC	AC	
Solenoid 9101	8W	inrush	15VA
		holding	12VA
Duty cycle	100%		
Protection	without power lead socket IP00 with power lead socket IP65		
Electrical design	DIN VDE 0580		

5/2-way NAMUR pilot valve G ¼ ND 6

Performance 3/2-way function

Part Number 9710000.3037

Type	seat valve requiring differential pressure		
Function	normally closed		
Process fluid	air T _{max.} +50°C		
Operating pressure	2 to 8 bar		
Body	aluminium anodize		
Internal parts	stainless steel		
Seat seal	NBR		
Standard voltage	DC	AC	
	24V	24V / 42V 50Hz 110V / 230V 50Hz	
Power consumption	DC	AC	
Solenoid 3037	1.6W	-	
Solenoid 3037	-	inrush	4.55VA
	-	holding	3.50VA
Duty cycle	100%		
Protection	without power lead socket IP00 with power lead socket IP65		
Electrical design	DIN VDE 0580		

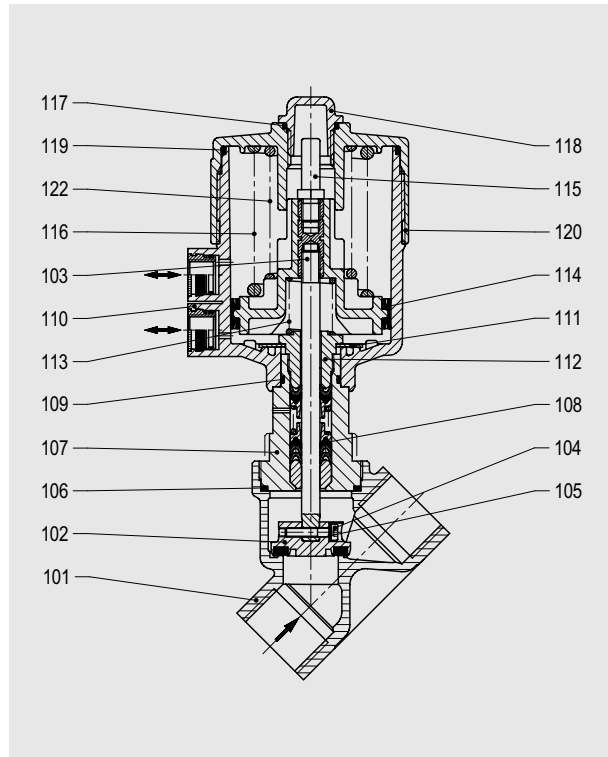


SECTIONAL DRAWING

Parts list and identification

- | | | | |
|-------|---|-------|----------------------------|
| 101 | Valve body | 112 | Screw piece |
| * 102 | Valve plate | * 113 | Pressure spring |
| 103 | Valve spindle, complete | * 114 | Cylinder packing |
| 104 | Cheese head cap screw | 115 | Signal pin |
| 105 | Spring washer | * 116 | Pressure spring |
| * 106 | Seal ring | 117 | O-ring |
| 107 | Screw piece | 118 | Cover cap |
| * 108 | Seal packing | * 119 | O-ring |
| * 109 | O-ring | 120 | Control head housing cover |
| 110 | Control head housing cover, bottom part | * 122 | Pressure spring |
| * 111 | Cup spring | | |

* These individual parts form a complete wearing unit.

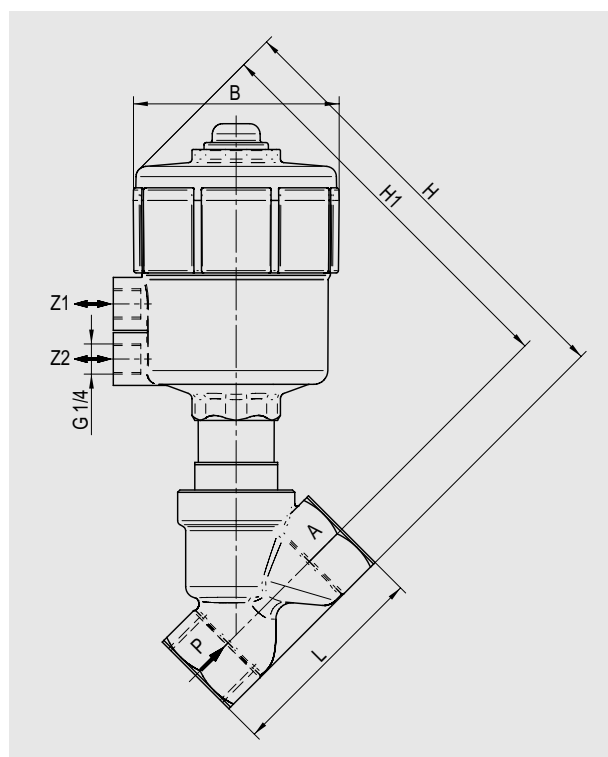


84520

DIMENSIONAL DRAWING

B = max. depth

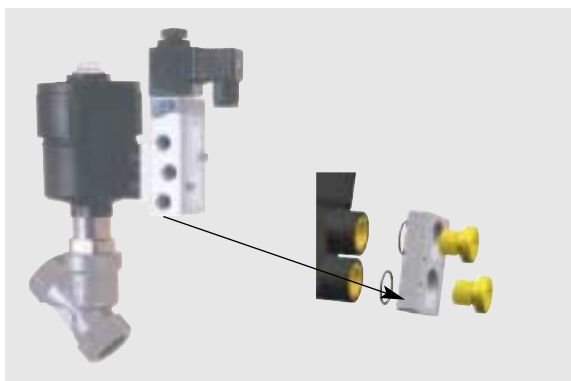
Connection G	L mm	B mm	H mm	H1 mm
1/2	65	89.5	177.5	164.0
3/4	75	89.5	184.0	168.0
1	90	89.5	194.5	174.0
1 1/4	110	89.5	209.5	184.5
1 1/2	120	89.5	213.5	186.0
2	150	89.5	229.5	194.5



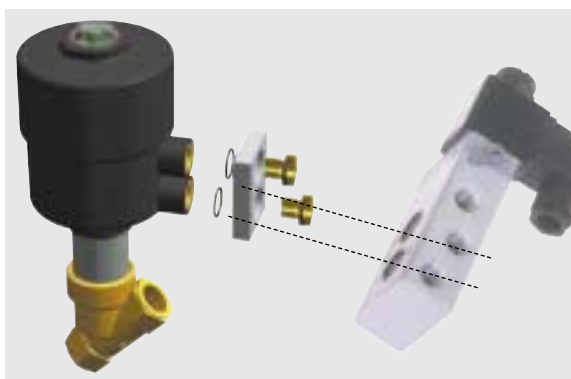
TECHNICAL INFORMATION

NAMUR ADAPTER PLATE

for the 84 500, 84 520 and 84 540 isolating valves



An adapter plate can be used to mount pilot valves with NAMUR interface on the actuators of these valve series.



STROKE LIMITING SYSTEM

For 84 500, 84 520 and 84 540 isolating valves



This system is available as an option for adjusting the minimum and maximum flow rate.

It can also be retrofitted after removal of the standard position indicator.

2/2-way valves G ½ - G 1

externally controlled seat valve
threaded connection

Stainless Steel

DESCRIPTION (STANDARD VALVE)

Type	pressure actuated seat valve by external fluid
Switching function	normally closed closed by spring force open by external fluid
Operating pressure	see characteristic data table
Process fluid	neutral liquids and gases
Fluid temperature	-10 to maximum of +180°C
Viscosity	up to 600 mm²/s
Pilot fluid	air up to +60°C
Pilot pressure	3.5 to 10 bar
Ambient temperature	-10 to maximum of +60°C
Flow direction	determined
Mounting position	optional

MATERIALS VALVE

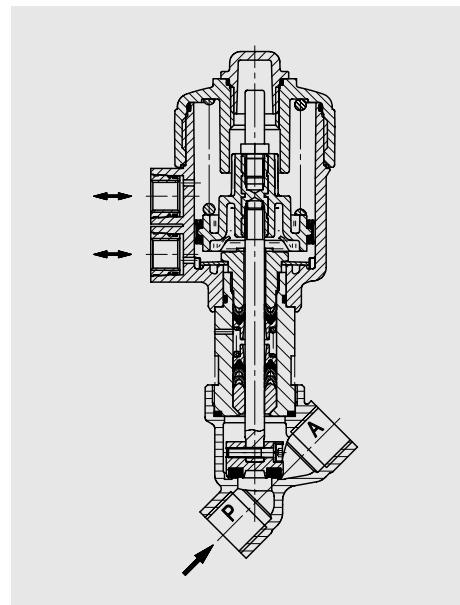
Body	stainless steel
Internal parts	stainless steel
Seat seal	PTFE
Seal packing	PTFE/FPM
Valve seat	stainless steel

MATERIALS ACTUATOR

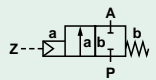
Actuator	polyamide 66
Seals	NBR
Internal parts	stainless steel, brass

FEATURES

- For high contaminated fluids
- Good resistance by optimised materials
- for robust industrial applications
- Soft closing
- Suitable for vacuum
- NPT thread optional



84740



CHARACTERISTIC DATA

Connection	ND	k _v -Value	Operating Pressure			Weight	Part Number
G	mm	m³/h	min.	bar	max.	kg	
½	15	4.8	0		16	1.3	8474200.0000
¾	20	10.0	0		8	1.4	8474300.0000
1	25	14.0	0		5	1.7	8474400.0000

OPTIONAL FEATURES

xxxxx 01.xxxx	normally open; opens with spring force closed by external fluid	xxxxx 50.xxxx	NAMUR interface plate
xxxxx 03.xxxx	seals FPM T _{max.} +180°C	xxxxx 50.3037	with assembled NAMUR pilot valve 9710000.3037 DC or AC
xxxxx 08.xxxx	actuation double acting	xxxxx xx.9101	with assembled standard pilot valve 8266000.9101 DC or AC
xxxxx 23.xxxx	electrical position indicator OPEN + CLOSED with two micro-switch		

3/2-way standard pilot valve G 1/4 ND 1.6

Part Number 8466000.9101

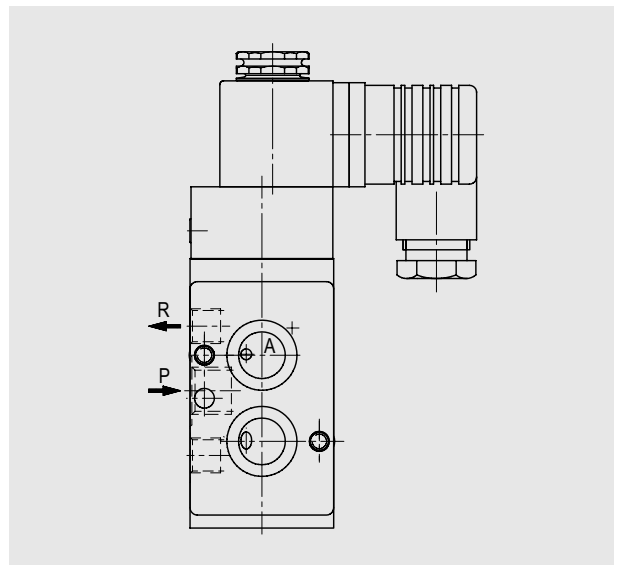
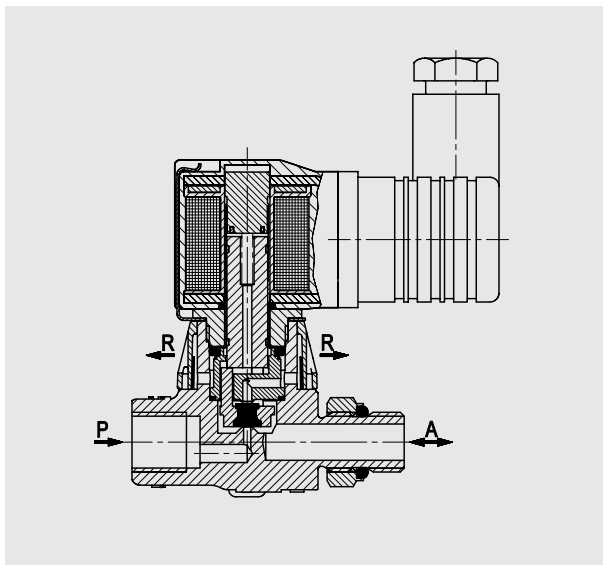
Type	seat valve requiring differential pressure		
Function	normally closed		
Process fluid	air T _{max.} +60°C		
Operating pressure	1 to 10 bar		
Materials			
Body	brass		
Internal parts	stainless steel		
Seat seal	NBR		
Electrical data			
Standard voltage	DC	AC	
	24V	24V / 42V 50Hz 110V / 230V 50Hz	
Power consumption	DC	AC	
Solenoid 9101	8W	inrush	15VA
		holding	12VA
Duty cycle	100%		
Protection	without power lead socket IP00 with power lead socket IP65		
Electrical design	DIN VDE 0580		

5/2-way NAMUR pilot valve G 1/4 ND 6

Performance 3/2-way function

Part Number 9710000.3037

Type	seat valve requiring differential pressure		
Function	normally closed		
Process fluid	air T _{max.} +50°C		
Operating pressure	2 to 8 bar		
Body	aluminium anodize		
Internal parts	stainless steel		
Seat seal	NBR		
Standard voltage	DC	AC	
	24V	24V / 42V 50Hz 110V / 230V 50Hz	
Power consumption	DC	AC	
Solenoid 3037	1.6W	-	
Solenoid 3037	-	inrush	4.55VA
	-	holding	3.50VA
Duty cycle	100%		
Protection	without power lead socket IP00 with power lead socket IP65		
Electrical design	DIN VDE 0580		

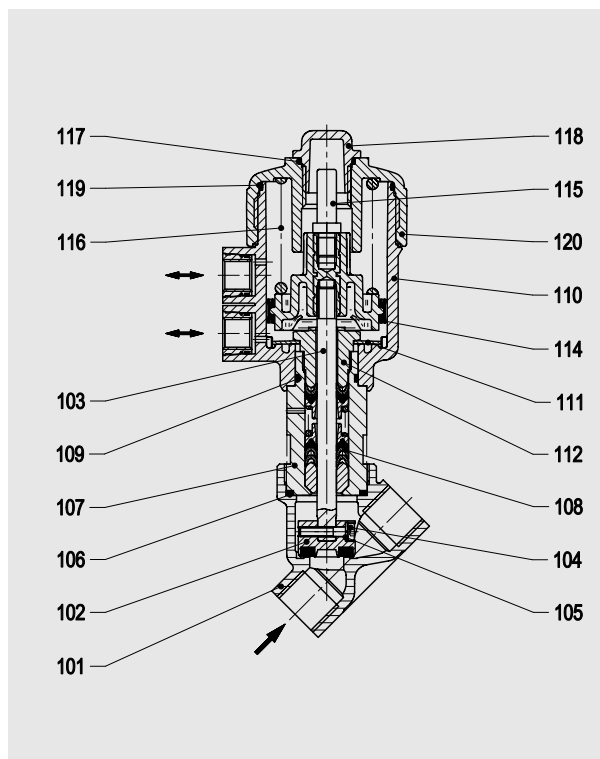


SECTIONAL DRAWING

Parts list and identification

- | | | | |
|-------|---|-------|----------------------------|
| 101 | Valve body | * 111 | Cup spring |
| * 102 | Valve plate | 112 | Screw piece |
| 103 | Valve spindle, complete | * 113 | Pressure spring |
| 104 | Cheese head cap screw | * 114 | Cylinder packing |
| 105 | Spring washer | 115 | Signal pin |
| * 106 | Seal ring | * 116 | Pressure spring |
| 107 | Screw piece | 117 | O-ring |
| * 108 | Seal packing | 118 | Cover cap |
| * 109 | O-ring | * 119 | O-ring |
| 110 | Control head housing cover, bottom part | 120 | Control head housing cover |

*These individual parts form a complete wearing unit.

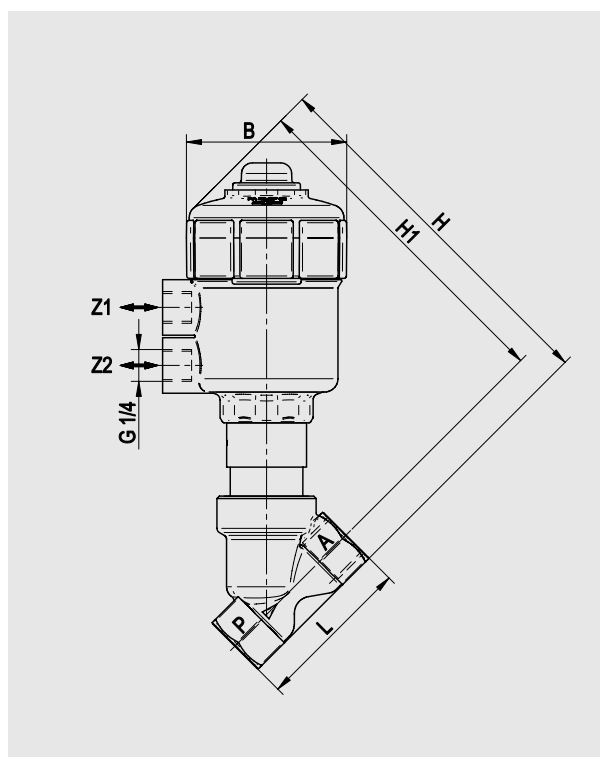


84740

DIMENSIONAL DRAWING

B = max. depth

Connection	L	B	H	H1
G	mm	mm	mm	mm
1/2	65	66	154	140.5
3/4	75	66	160	144.5
1	90	66	171	150.5



TECHNICAL INFORMATION

pH-VALUE

The pH-value represents a measure of the neutrality, acidity or basicity of an aqueous solution.

Pure water is neutral and has a pH of 7. The range below 7 is described as acidic and that above as basic or alkaline.

acid (acid) 0-1-2-3 (strong)	4-5-6 (weak)	neutral (water) 7	8-9-10-11 (weak)	alkaline (lye) 12-13-14 (strong)
---------------------------------------	-----------------	-------------------------	---------------------	---

A strong acid has a low pH.

A value of 5.5 is unlikely to cause skin irritation.

VISCOSITY

The kinematic viscosity in mm²/s is a measure of the internal friction of gases and liquids. It represents the resistance to movement of the contact surfaces of adjoining layers of different (external friction) or identical (internal friction, viscosity) material.

The viscosity depends on pressure and temperature, and decreases with increasing temperature. Its value is measured at +20°C from the rate of efflux from capillaries or speed at which balls sink in test fluids.

2/2-way valves ND 15 - ND 25

externally controlled seat valve
butt weld ends

Stainless Steel

DESCRIPTION (STANDARD VALVE)

Type	pressure actuated seat valve by external fluid
Switching function	normally closed closed by spring force open by external fluid
Operating pressure	see characteristic data table
Process fluid	neutral liquids and gases
Fluid temperature	-10 to maximum of +180°C
Viscosity	up to 600 mm²/s
Pilot fluid	air up to +60°C
Pilot pressure	3.5 to 10 bar
Ambient temperature	-10 to maximum of +60°C
Flow direction	determined
Mounting position	optional

MATERIALS VALVE

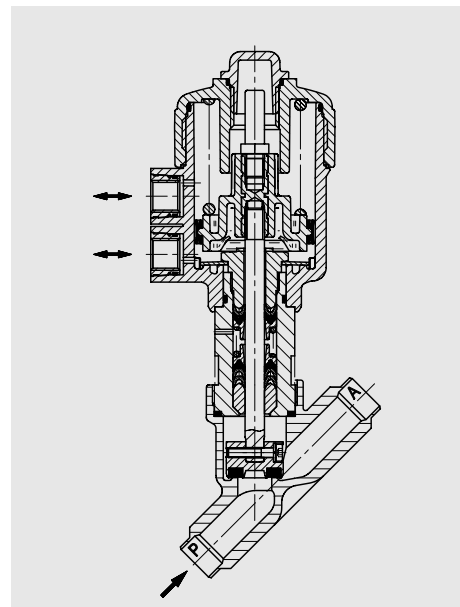
Body	stainless steel
Internal parts	stainless steel, sandvik
Seat seal	PTFE
Seal packing	PTFE/FPM
Valve seat	stainless steel

MATERIALS ACTUATOR

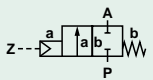
Actuator body	polyamide
Seals	NBR
Internal parts	stainless steel, brass

FEATURES

- For high contaminated fluids
- Good resistance by optimised materials
- For robust industrial applications
- Soft closing
- Suitable for vacuum-
- ISO-welded ends optional



84760



CHARACTERISTIC DATA

Connection DIN	ND mm	k _v -Value m³/h	Operating Pressure			Weight kg	Part Number
			min.	bar	max.		
Series 1	15	4.8	0		16	1.3	8476200.0000
Series 1	20	10.0	0		8	1.4	8476300.0000
Series 1	25	14.0	0		5	1.7	8476400.0000

OPTIONAL FEATURES

xxxxx 01.xxxx	normally open; opens with spring force closed by external fluid	xxxxx 50.xxxx	NAMUR interface plate
xxxxx 03.xxxx	seals FPM T _{max.} +180°C	xxxxx 50.3037	with assembled NAMUR pilot valve 9710000.3037 DC or AC
xxxxx 08.xxxx	actuation double acting	xxxxx xx.9101	with assembled standard pilot valve 8266000.9101 DC or AC
xxxxx 23.xxxx	electrical position indicator OPEN + CLOSED with two micro-switch		

3/2-way standard pilot valve G 1/4 ND 1.6

Part Number 8466000.9101

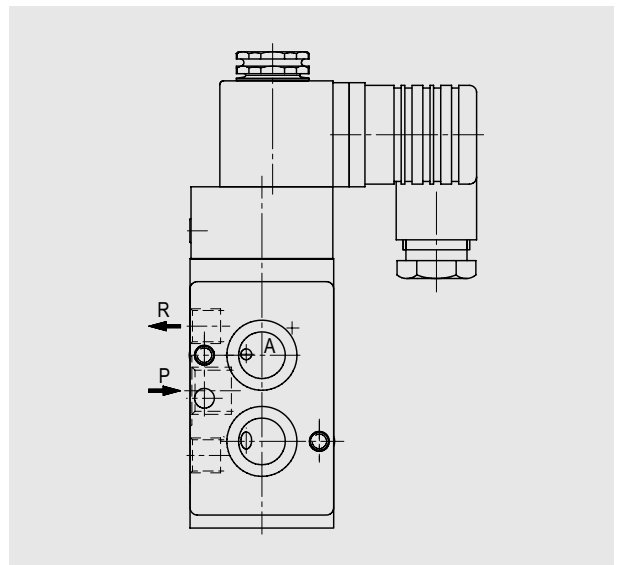
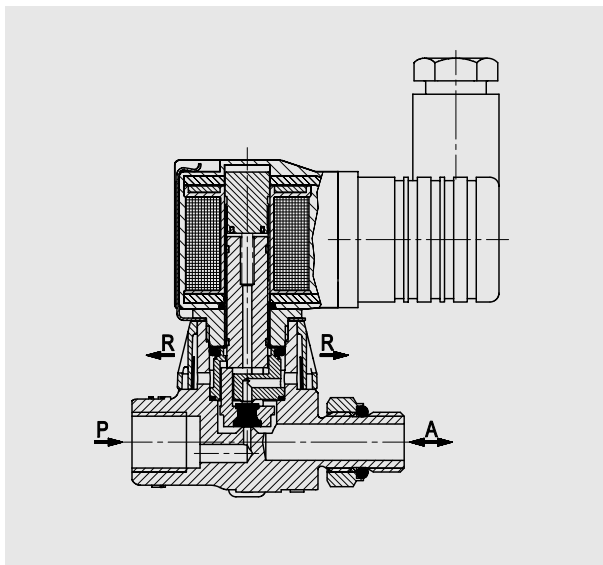
Type	seat valve requiring differential pressure		
Function	normally closed		
Process fluid	air T _{max.} +60°C		
Operating pressure	1 to 10 bar		
Materials			
Body	brass		
Internal parts	stainless steel		
Seat seal	NBR		
Electrical data			
Standard voltage	DC	AC	
	24V	24V / 42V 50Hz 110V / 230V 50Hz	
Power consumption	DC	AC	
Solenoid 9101	8W	inrush	15VA
		holding	12VA
Duty cycle	100%		
Protection	without power lead socket IP00 with power lead socket IP65		
Electrical design	DIN VDE 0580		

5/2-way NAMUR pilot valve G 1/4 ND 6

Performance 3/2-way function

Part Number 9710000.3037

Type	seat valve requiring differential pressure		
Function	normally closed		
Process fluid	air T _{max.} +50°C		
Operating pressure	2 to 8 bar		
Body	aluminium anodize		
Internal parts	stainless steel		
Seat seal	NBR		
Standard voltage	DC	AC	
	24V	24V / 42V 50Hz 110V / 230V 50Hz	
Power consumption	DC	AC	
Solenoid 3037	1.6W	-	
Solenoid 3037	-	inrush	4.55VA
	-	holding	3.50VA
Duty cycle	100%		
Protection	without power lead socket IP00 with power lead socket IP65		
Electrical design	DIN VDE 0580		

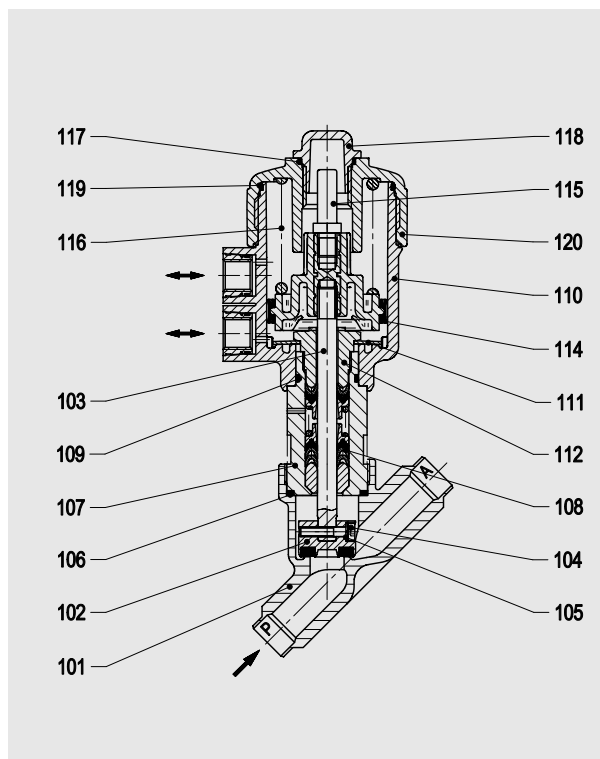


SECTIONAL DRAWING

Parts list and identification

- | | | | |
|-------|----------------------------------|-------|----------------------------|
| 101 | Valve body | * 111 | Cup spring |
| * 102 | Valve plate | 112 | Screw piece |
| 103 | Valve spindle, complete | * 114 | Cylinder packing |
| 104 | Cheese head cap screw | 115 | Signal pin |
| 105 | Spring washer | * 116 | Pressure spring |
| * 106 | Seal ring | 117 | O-ring |
| 107 | Screw piece | 118 | Cover cap |
| * 108 | Seal packing | * 119 | O-ring |
| * 109 | O-ring | 120 | Control head housing cover |
| 110 | Control head housing bottom part | | |

*These individual parts form a complete wearing unit.

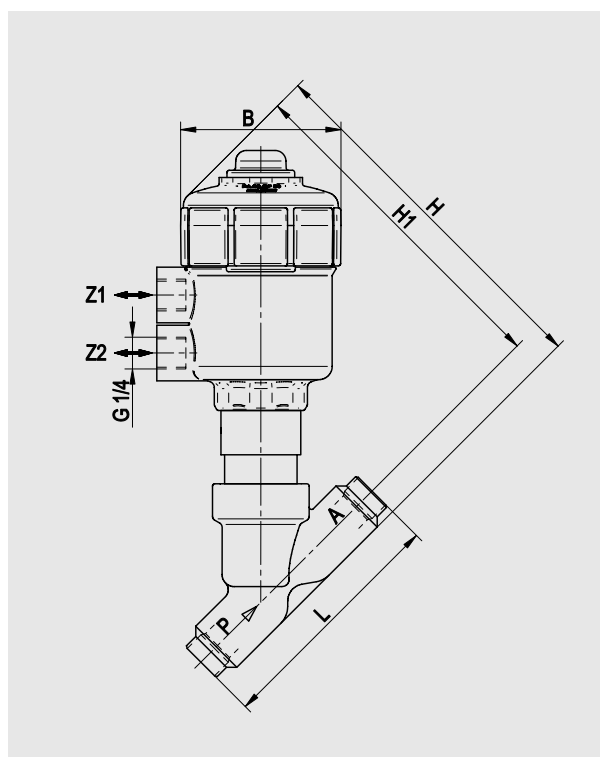


84760

DIMENSIONAL DRAWING

B = max. depth

Connection	L	B	H	H1
ND	mm	mm	mm	mm
15	100	66	149.5	140.5
20	110	66	156.0	145.0
25	120	66	165.0	150.5



TECHNICAL INFORMATION

SOLENOID HEATING

The solenoids are normally designed for continuous duty, so under normal conditions there is no danger of the permanent operating temperature of the coil reaching an impermissible value.

The coil temperature that is reached during operation is influenced by 3 factors:

- the intrinsic heating
- the temperature of the fluid flowing through
- the ambient temperature

The highest permissible solenoid temperature is generally determined by the thermal durability of the material used for insulation.

In order to ensure that there is no thermal damage, the specifications for the maximum permitted fluid and ambient temperatures should not be exceeded.

In this context, particular attention should be paid to the power consumption of the solenoids. Many valve manufacturers give their power consumption at operating temperature, which is lower than the specifications given in this catalogue, because of the high coil resistance.

Particular attention should be paid to the passage in the Buschjost data sheets:

The power consumption is measured according to VDE 0580 at a coil temperature of +20°C. Physical factors reduce the value by up to about 30% when the DC solenoid coil has reached normal operating temperature.

The actuating solenoids are offered with a range of different connections. The most common are the sockets to DIN 43 650, terminals in the terminal compartment with cable passing through a Pg gland or directly encapsulated in the coil area (flying lead).

At continuous duty the surface temperature of the solenoid can reach up to 120°C.

2/2-way valves ND 15 - ND 100

externally controlled seat valve
flange connection PN 16

DESCRIPTION (STANDARD VALVE)

Type	pressure actuated seat valve by external fluid
Switching function	normally closed closed by spring force open by external fluid
Operating pressure	see characteristic data table
Process fluid	neutral liquids and gases
Fluid temperature	-10 to maximum of +180°C
Viscosity	up to 600 mm²/s
Pilot fluid	air up to +80°C
Pilot pressure	4 to 10 bar
Ambient temperature	-10 to maximum of +80°C
Flow direction	determined
Mounting position	optional

MATERIALS VALVE

Body	cast iron
Internal parts	stainless steel, brass
Seat seal	PTFE
Seal packing	PTFE/FPM
Valve seat	cast iron

MATERIALS ACTUATOR

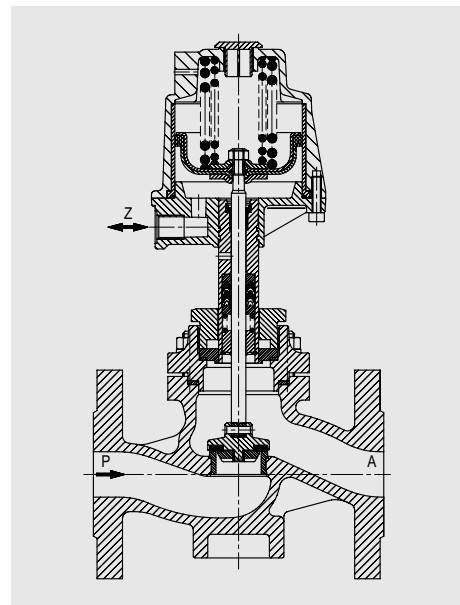
Actuator body	aluminium
bottom	aluminium
Seals	NBR
Internal parts	coated steel

FEATURES

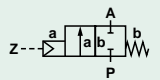
- For high contaminated fluids
- High flow rate
- Damped operation
- Self adjusting packing
- Mounting position optional
- For robust industrial applications

CHARACTERISTIC DATA

Connection ND	k _v -Value m³/h	Operating Pressure			Weight kg	Part Number
		min.	bar	max.		
15	3.6	0		16.0	3.6	8320200.0000
20	6.1	0		16.0	4.6	8320300.0000
25	5.9	0		10.0	5.2	8320400.0000
32	15.0	0		10.0	10.4	8320500.0000
40	23.0	0		10.0	12.2	8320600.0000
50	35.0	0		10.0	15.2	8320700.0000
65	61.0	0		7.0	22.4	8320800.0000
80	90.0	0		5.0	26.0	8320900.0000
100	138.0	0		2.5	34.5	8321000.0000



83200



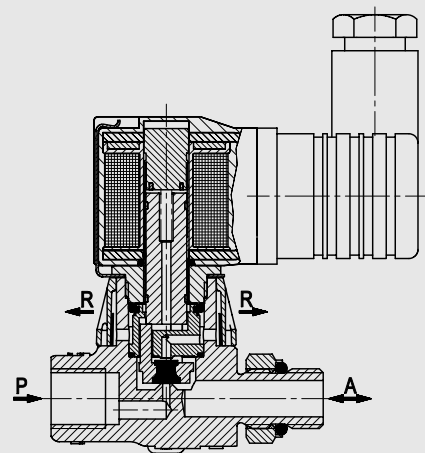
OPTIONAL FEATURES

xxxxx 01.xxxx	normally open; opens with spring force closed by external fluid	xxxxx 58.xxxx	electrical position indicator design 2
xxxxx 53.xxxx	pilot fluid water	xxxxx 64.xxxx	electrical position indicator EEx de II C T6
xxxxx 55.xxxx	optical position indicator	xxxxx 95.xxxx	body cast steel PN 40, T _{max.} +300°C
xxxxx 57.xxxx	electrical position indicator design 1		

3/2-way standard pilot valve G ¼ ND 1.6

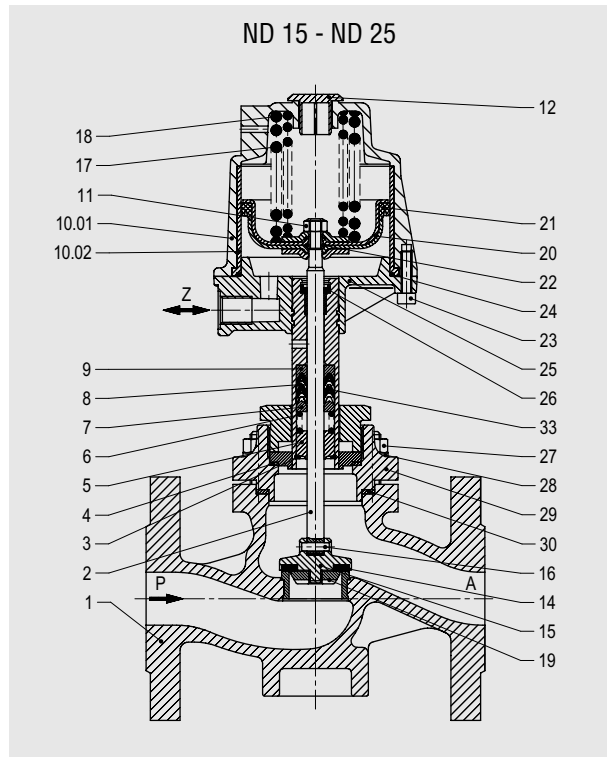
Part Number 8466000.9101

Type	seat valve requiring differential pressure		
Function	normally closed		
Process fluid	air T _{max.} +60°C		
Operating pressure	1 to 10 bar		
Materials			
Body	brass		
Internal parts	stainless steel		
Seat seal	NBR		
Electrical data			
Standard voltage	DC	AC	
	24V	24V / 42V 50Hz	
		110V / 230V 50Hz	
Power consumption	DC	AC	
Solenoid 9101	8W	inrush	15VA
		holding	12VA
Duty cycle	100%		
Protection	without power lead socket IP00		
	with power lead socket IP65		
Electrical design	DIN VDE 0580		

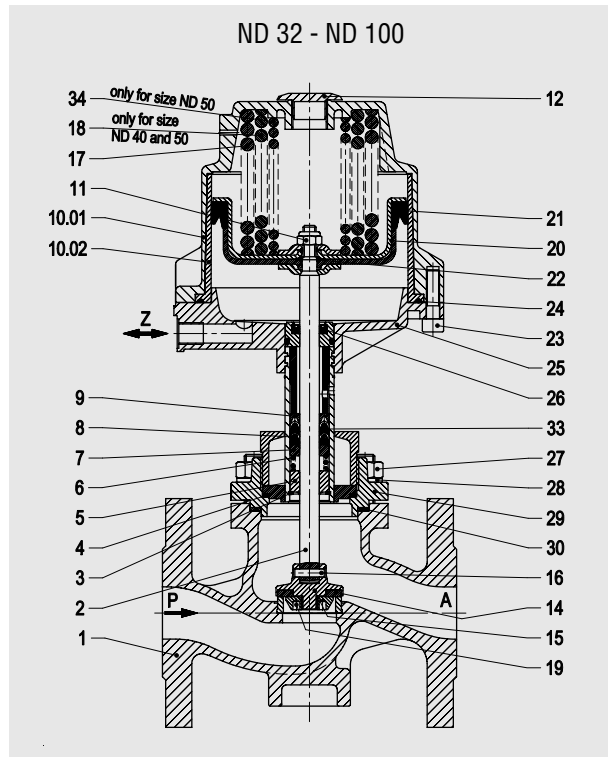


SECTIONAL DRAWINGS

Parts list and identification



- | | |
|--------------------|--------------------|
| 1 Valve body | 11 Hexagon nut |
| 2 Spindle | 12 Stopper |
| 3 Locking ring | *14 Seat seal |
| *4 Gasket | 15 Valve plate |
| 5 Guide ring | 16 Pin |
| *6 Pressure spring | 17 Pressure spring |
| 7 Support ring | 18 Pressure spring |
| *8 Packing ring | 19 Retaining nut |
| 9 Thrust collar | 20 Sleeve complete |
| 10 Cover | *21 Lip-ring |
| *10.01 Sleeve | *22 O-ring |

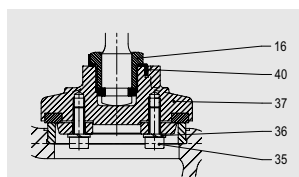


- | | |
|-------------------------|-------------------------|
| 23 Hexagon socket screw | ND 65 - ND 100 |
| *24 O-ring | 16 Collar bush |
| 25 Base complete | 35 Hexagon socket screw |
| *26 Lip-ring | 36 Pressure spring |
| 27 Hexagon nut | 37 Semimonocoque |
| 28 Spring washer | 40 Locking plate |
| 29 Flange | |
| *30 Seal ring | |
| *33 Packing ring | |
| 34 Pressure spring | |

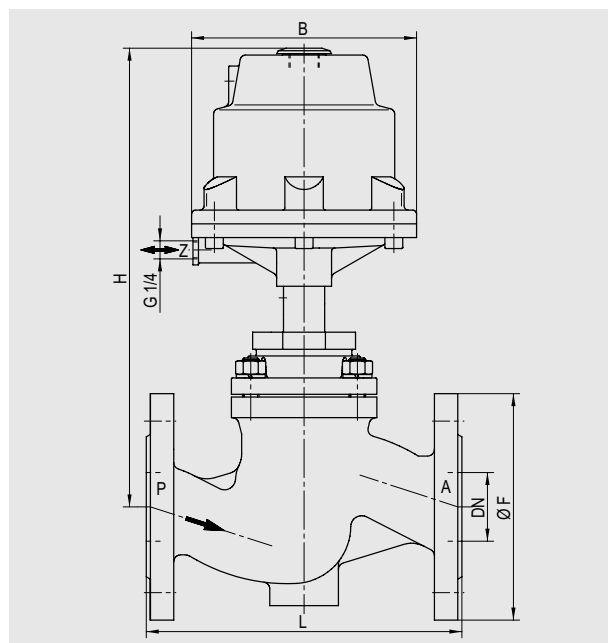
*These individual parts form a complete wearing unit.

DIMENSIONAL DRAWING

B = max. depth



ND	L mm	B mm	H mm	ØF mm
15	130	96	215	95
20	150	105	198	105
25	160	115	214	115
32	180	164	247	140
40	200	164	272	150
50	230	165	310	165
65	290	185	387	185
80	310	200	419	200
100	350	220	480	220



83200

TECHNICAL INFORMATION

SOLENOIDS

General

Valve actuating solenoids are designed for the service conditions and conform to VDE 0580.

Power supply, voltage ranges

The preferred voltages are specified in the separate publications.

Special voltages are possible on request.

The permissible voltage range is $\pm 10\%$ of the nominal value.

Type of supply

Solenoids are available for connection to a DC or AC supply.

Those designed for AC may only be used at the specified frequency.

The more powerful solenoids are a DC design. They can be operated off an AC supply via a rectifier, which is connected in series as standard. The permissible frequency is then 40 to 60Hz.

Duty cycle

All standard solenoids are designed for continuous duty in order to rule out the possibility of the winding overheating during normal service conditions.

DC solenoids

The main advantage of this type is constant current consumption. This gives soft switching and makes the winding less sensitive to binding of the plunger. The maximum frequency of operation is only limited by the system's electrical and mechanical inertia.

AC solenoids

The current consumption of this system depends on the position of the plunger. The plunger must be able to reach its limit unhindered, otherwise the winding will overheat.

Special spark quenching is generally not necessary.

Ensure that the mains frequency agrees with the value specified on the name plate. If it is higher, the solenoid will develop less force and may burn out, since the plunger cannot reach its limit. At a lower frequency the smaller inductive reactance causes more heating, which can influence the lifetime of the coil.

2/2-way valves G 1/2 - G 2

externally controlled seat valve
type examination certificate - threaded connection



DESCRIPTION (STANDARD VALVE)

Type	pressure actuated seat valve
Switching function	by external fluid normally closed closed by spring force open by external fluid
Operating pressure	0 to 10 bar
Process fluid	combustible gas according to EC gas appliance directive
Fluid temperature	-10 to maximum of +60°C
Viscosity	up to 400 mm²/s
Pilot fluid	air up to +60°C
Pilot pressure	5 to 8 bar
Ambient temperature	-10 to maximum of +60°C
Flow direction	determined
Mounting position	optional

MATERIALS VALVE

Body	gun metal
Internal parts	stainless steel, brass
Seat seal	FPM
Seal packing	PTFE/FPM
Valve seat	gun metal

MATERIALS ACTUATOR

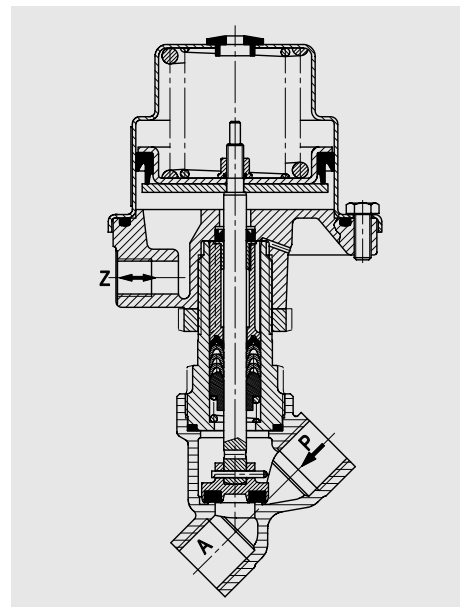
Actuatorbody	stainless steel
bottom	aluminium WEMA-Kor coated
Seals	NBR
Internal parts	coated steel

FEATURES

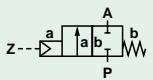
- EC type examination
Product ID-No.: CE-0085 AT0091, Valve class A - Valve group 2
- High function safety
- Short response time < 1 s
- For robust industrial applications
- Qualification approval acc. to EN 161/3394 Part 1

CHARACTERISTIC DATA

Connection G	ND mm	k _v -Value m³/h	Operating Pressure			Weight kg	Part Number
			min.	bar	max.		
1/2	15	4.8	0		10	1.4	8258200.0000
3/4	20	10.0	0		10	1.5	8258300.0000
1	25	14.0	0		10	1.8	8258400.0000
1 1/4	32	23.0	0		10	2.4	8258500.0000
1 1/2	40	30.0	0		10	2.7	8258600.0000
2	50	37.0	0		10	3.9	8258700.0000



82580



OPTIONAL FEATURES

xxxxx 53.xxxx	optical position indicator
xxxxx 55.xxxx	welded ends and optical position indicator

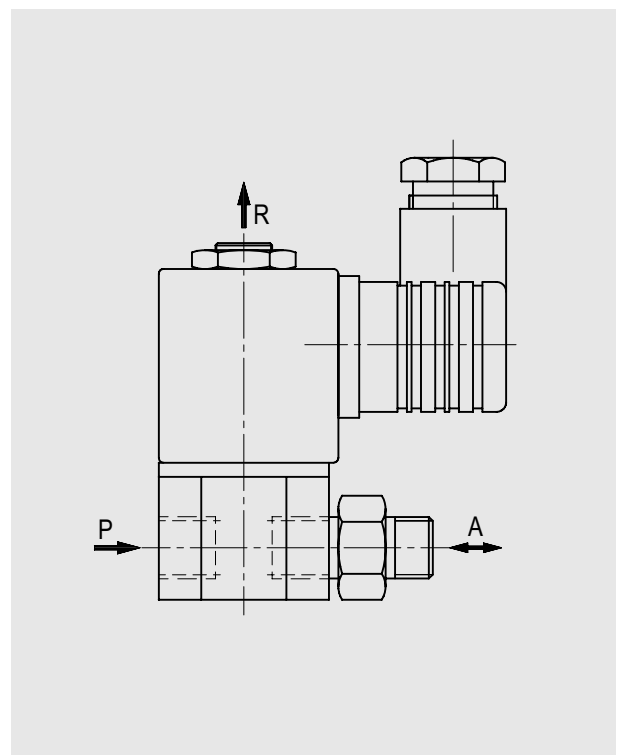
Note

Generating pressure exceeding 4 bars female threaded sealing connections are not allowed.
Male thread possible.

3/2-way standard pilot valve G 1/4 ND 2

Part Number 9600210.0247

Type	seat valve not requiring differential pressure		
Function	normally closed		
Process fluid	air $T_{max.} +60^{\circ}C$		
Operating pressure	0 to 10 bar		
Body	brass		
Internal parts	stainless steel		
Seat seal	NBR		
Standard voltage	DC	AC	
	24V	24V / 42V 50Hz	
		110V / 230V 50Hz	
Power consumption	DC	AC	
Solenoid 0247	7W	-	
Solenoid 0247	-	inrush	18VA
	-	holding	10VA
Duty cycle	100 %		
Protection	without power lead socket IP00		
	with power lead socket IP65		
Electrical design	DIN VDE 0580		

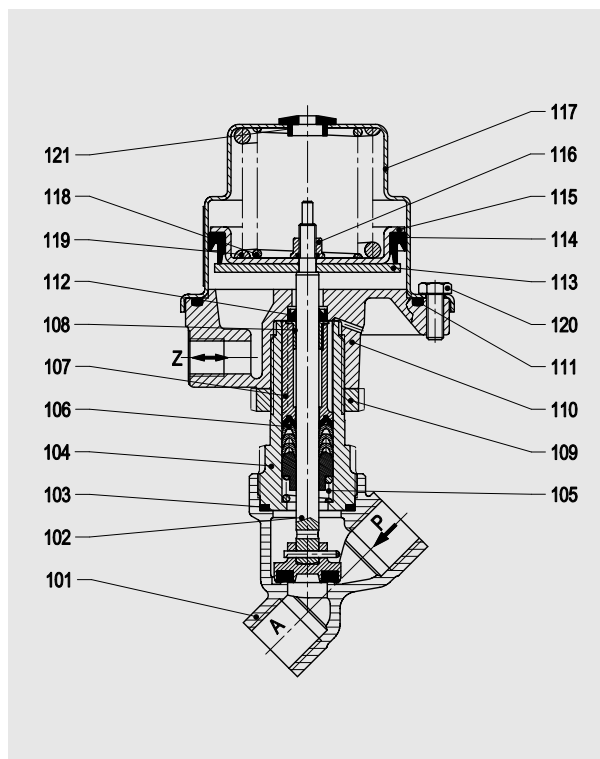


SECTIONAL DRAWING

Parts list and identification

- | | |
|--------------------------|--------------------------|
| 101 Valve body | 113 Round plate |
| *102 Valve spindle | *114 Grooved ring |
| *103 O-ring | 115 Round plate |
| 104 Screw piece | *116 Seal-lock-nut |
| *105 Pressure spring | 117 Control head housing |
| *106 Seal packing | *118 Pressure spring |
| 107 Spacer bush | *119 Pressure spring |
| *108 Plain bearing | 120 Hexagon screw |
| 109 Nut | 121 Plug |
| 110 Control head housing | |
| *111 O-ring | |
| *112 Grooved ring | |

*These individual parts form a complete wearing unit.

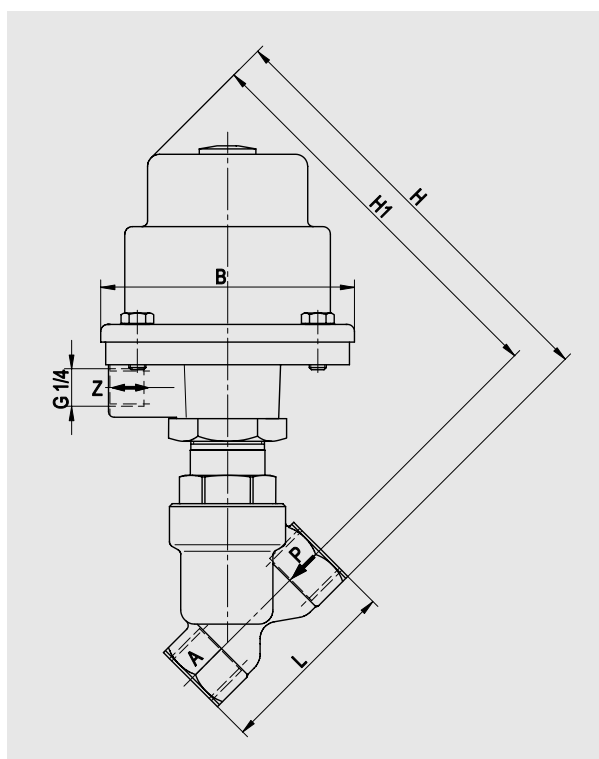


82580

DIMENSIONAL DRAWING

B = max. depth

Connection G	L mm	B mm	H mm	H1 mm
1/2	65	89.5	154.0	140.5
3/4	75	89.5	160.0	144.0
1	90	89.5	171.0	150.5
1 1/4	110	89.5	186.0	161.0
1 1/2	120	89.5	190.0	162.5
2	150	89.5	206.0	171.0



TECHNICAL INFORMATION

POSITION INDICATOR

Noncontact electric type

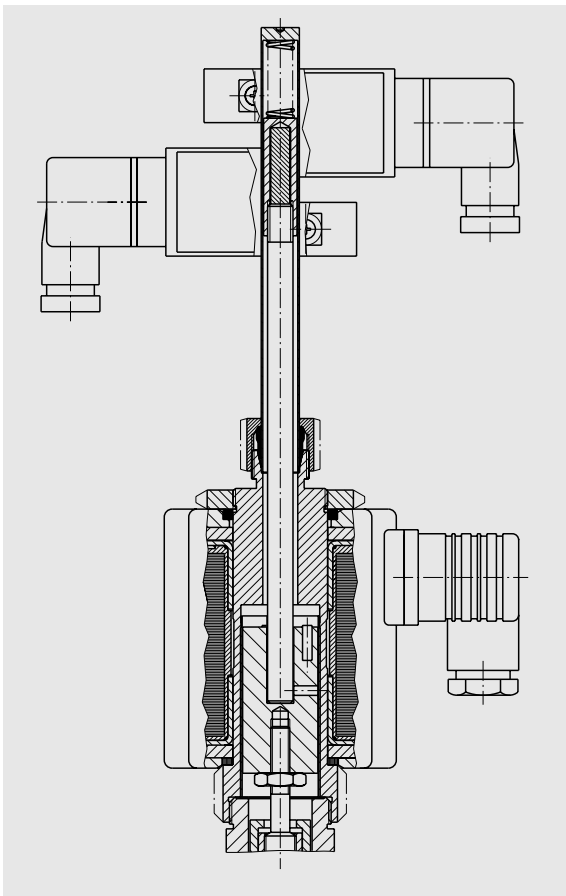
This indicator has two magnetic switches; one for the CLOSED and one for the OPEN position of solenoid and pressure actuated valves.

The reed contact of the switch is deflected by a permanent magnet tightly screwed into a spindle. This spindle is connected to the valve piston or stem.

These indicators can be mounted with IP65 or EEx protection.

Features

- Emissionproof, switching magnet incorporated in valve system
- Easily mounted in any position
- Small valve strokes detected
- Accurately reproducible switching points
- Glass fibre reinforced thermoplastic housing
- Good mechanical and electrical durability



We will gladly provide you with any further information required.

2/2-way valves ND 15 - ND 25

externally controlled seat valve

type examination certificate - flange connection PN 40



DESCRIPTION (STANDARD VALVE)

Type	pressure actuated seat valve
Switching function	normally closed closed by spring force open by external fluid
Operating pressure	0 to 25 bar
Process fluid	liquid and gaseous fuel
Fluid temperature	-10 to maximum of +140°C
Viscosity	up to 400 mm²/s
Pilot fluid	air up to +80°C
Pilot pressure	4 to 8 bar
Ambient temperature	-10 to maximum of +80 °C
Flow direction	determined
Mounting position	optional, preferably vertical on top

MATERIALS VALVE

Body	cast steel
Cover	stainless steel
Internal parts	stainless steel, brass
Seat seal	PTFE
Seal packing	PTFE/FPM
Valve seat	stainless steel

MATERIALS ACTUATOR

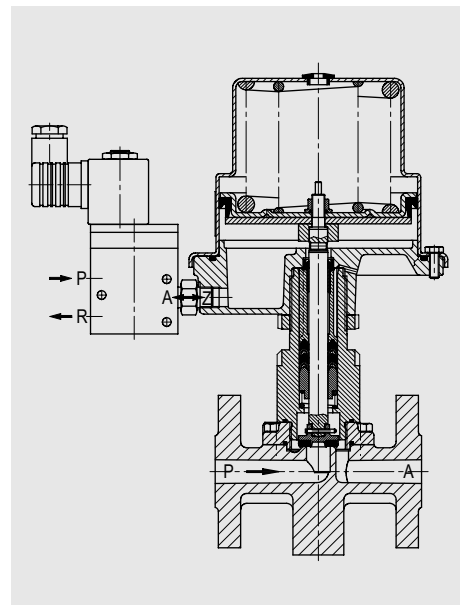
Actuator body	stainless steel
bottom	aluminium WEMA-Kor coated
Seals	NBR
Internal parts	coated steel

FEATURES

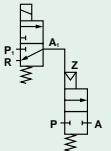
- EC type examination certificate to EN 264 / DIN 3394 T2 / EN 161
- High function safety
- Short response time < 1 s
- Inspection certificate DIN 50 049 (EN 10204) - 3.1.B
- Product ID-No.: CE-0085AS0104

CHARACTERISTIC DATA

Connection ND	k _v -Value m³/h	Operating Pressure min. bar max.	Weight kg	Part Number
15	5.5	0 25	9.0	8386200.0247
20	10.0	0 25	9.2	8386300.0247
25	12.5	0 25	9.2	8386400.0247



83860



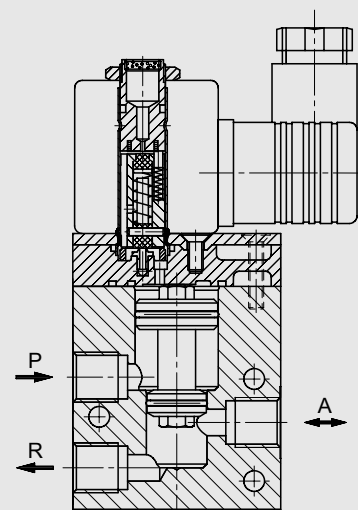
OPTIONAL FEATURES

xxxxx 23.xxxx electrical position indicator
with two solenoid switches

3/2-way standard pilot valve G ¼ ND 6

Part Number 8020754.0247

Type	seat valve requiring differential pressure	
Function	normally closed	
Process fluid	air Tmax. +60°C	
Operating pressure	1 to 10 bar	
Materials		
Body	aluminium anodize	
Internal parts	stainless steel	
Seat seal	NBR	
Electrical data		
Standard voltage	DC	AC
	24V	24V / 42V 50Hz 110V / 230V 50Hz
Power consumption	DC	AC
Solenoid 0247	7W	-
Solenoid 0247	-	inrush 18VA holding 10VA
Duty cycle	100%	
Protection	without power lead socket IP00 with power lead socket IP65	
Electrical data	DIN VDE 0580	

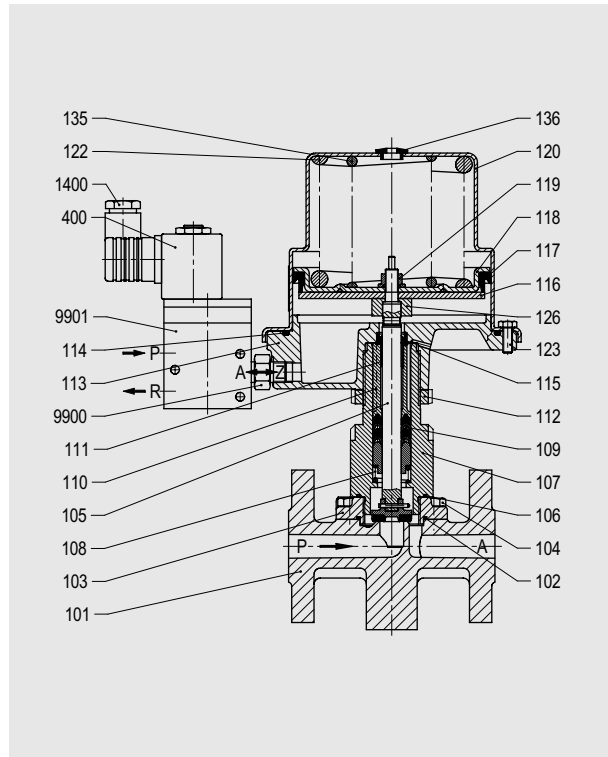


SECTIONAL DRAWING

Parts list and identification

- | | |
|--------------------------------------|--------------------------------|
| 101 Valve body | *117 Grooved ring profile 2 |
| *102 O-ring | 118 Round plate |
| 103 Body cover | *119 Seal-lock-nut |
| 104 Hexagon screw | 120 Control head housing |
| *105 Valve spindle | *122 Pressure spring |
| *106 Gasket | 123 Hexagon screw |
| 107 Screw piece | 126 Bush |
| *108 Pressure spring | *135 Pressure spring |
| *109 Seal packing | 136 Plug |
| 110 Spacer bush | 400 Solenoid |
| *111 Plain bearing | 1400 Socket |
| 112 Nut | 9900 Double screwed connection |
| 113 Control head housing bottom part | 9901 3/2-way Pilot valve |
| *114 O-ring | |
| *115 Grooved ring profile 1 | |
| 116 Round plate | |

*These individual parts form a complete wearing unit.

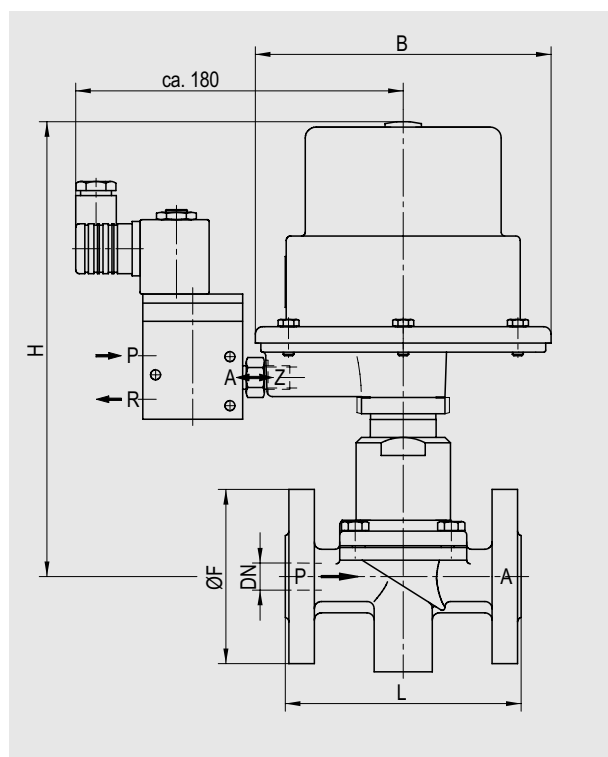


83860

DIMENSIONAL DRAWING

B = max. depth

ND	L mm	B mm	H mm	øF mm
15	130	163	250	96
20	150	163	265	105
25	160	163	265	115



TECHNICAL INFORMATION DUST COLLECTOR VALVES AND SYSTEMS

Valves

Filter pulse valves produce the pressure intensity crucial for effective cleaning of filter media with compressed air.

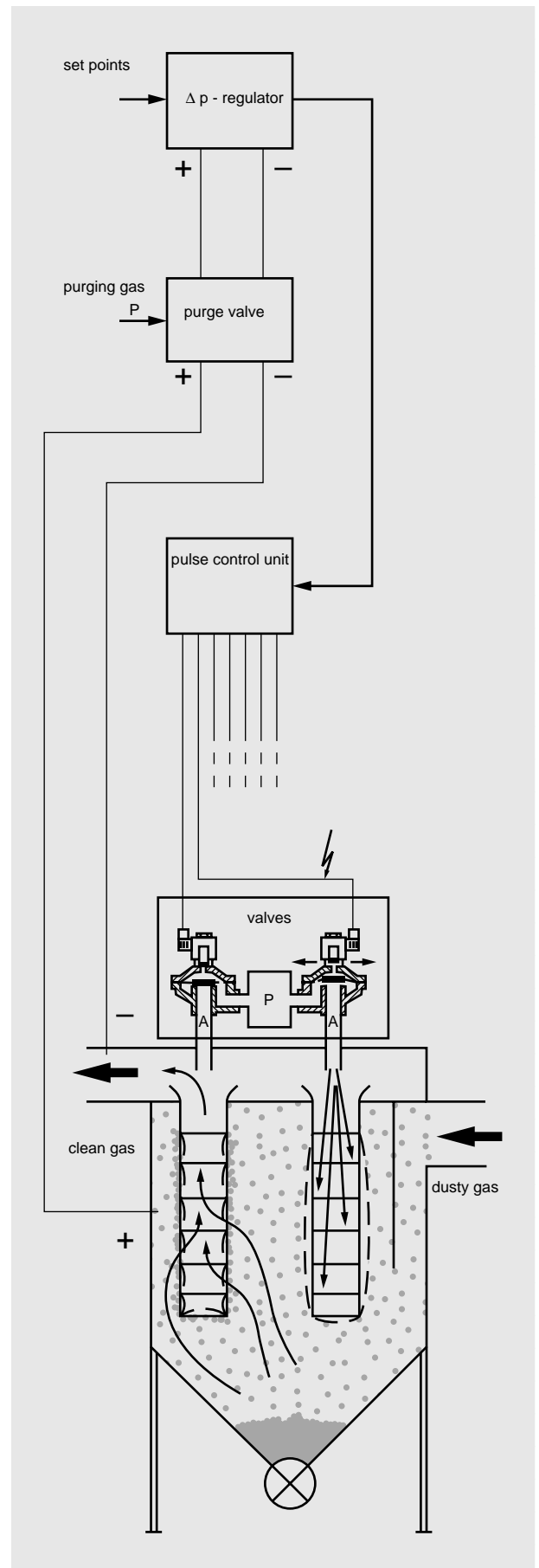
To meet the requirements these valves have to be designed to open and close extremely quickly and allow high flow rates. This response also reduces air consumption.

Control systems

An electronic control unit or pneumatic controller presets the duration of the pulse and interval required of the valves in this application. These control systems actuate the valves directly. The timing can be adjusted if service conditions change.

Differential pressure regulator

This regulator initiates cleaning on the basis of the differential pressure between the dusty and clean gas sides of the filter. When the pressure drop across the filter reaches the preset upper limit, the regulator actuates the cleaning valves by means of the control system. Cleaning is interrupted immediately the lower limit is reached. This type of control extends the life of the filter media and valves. Another bonus is considerably reduced air consumption.



Valves and Systems for Dust Filters

Valves and Systems for Dust Filters

Valves

Material	Connection	Pressure	Temperature	Series	Page
Aluminium	G ¾ - G 2	0.3 - 8	+90°C	82850	155
Aluminium	G ¾ - G 2	0.3 - 8	+90°C	82860	159
Aluminium	G ¾ - G 1	0.4 - 8	+65°C	82900	163
Aluminium	G ¾ - G 1	0.4 - 8	+65°C	82960	167

Systems

Pneumatic controller	82870	171
Electronic pulse control unit	83720	175
Differential pressure regulator electronic	83400	179
Purge valve electric	8493571	183
Purge valve pneumatic	8497030	183
Timer solenoid		174

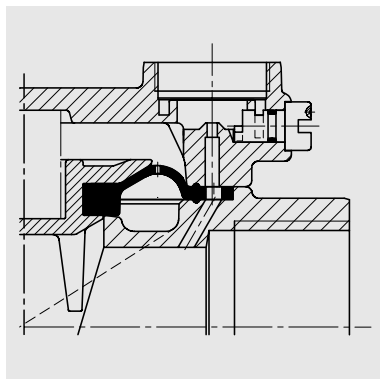
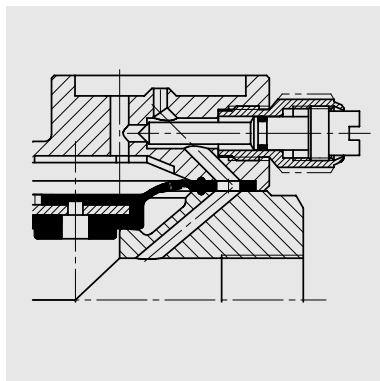
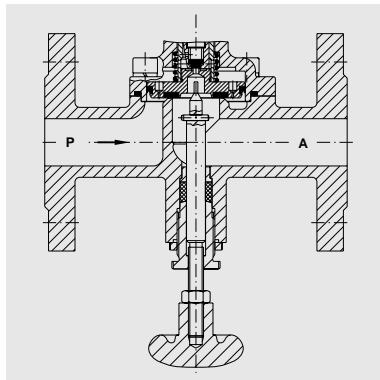
TECHNICAL INFORMATION

MANUAL OVERRIDE KNOBS

If the actuating supply fails, solenoid and pressure actuated valves are brought into their normal position.

A manual override knob then allows the valve to be opened or closed.

A wide variety of alternative types are offered to cater for the different valve designs.



We will gladly provide you with any further information required.

2/2-way diaphragm valves G $\frac{3}{4}$ - G 2

pilot operated valves for cleaning dust filters
requiring differential pressure
threaded connection

DESCRIPTION (STANDARD VALVE)

Type	diaphragm valve
Switching function	normally closed
Operating pressure	0.3 to 8 bar
Differential pressure	0.3 bar required
Process fluid	neutral gases
Fluid temperature	-10 to maximum of +90°C
Ambient temperature	-10 to maximum of +50°C
Flow direction	determined
Mounting position	optional

MATERIALS

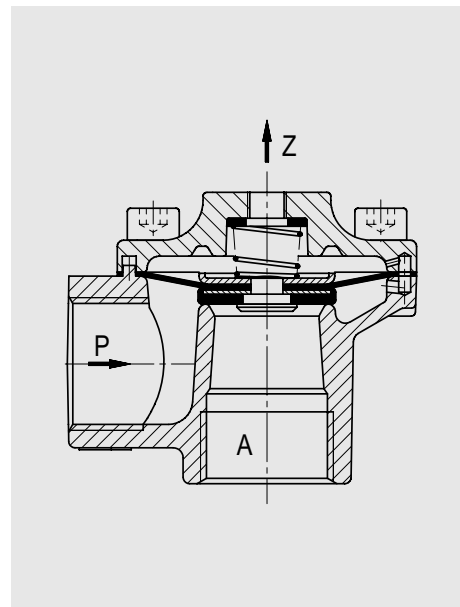
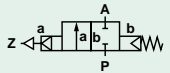
Body	aluminium
Cover	aluminium
Internal parts	stainless steel
Seals	NBR
Valve seat	aluminium

FEATURES

- High flow rate
- Small differential pressure required
- Fast switching
- High frequency



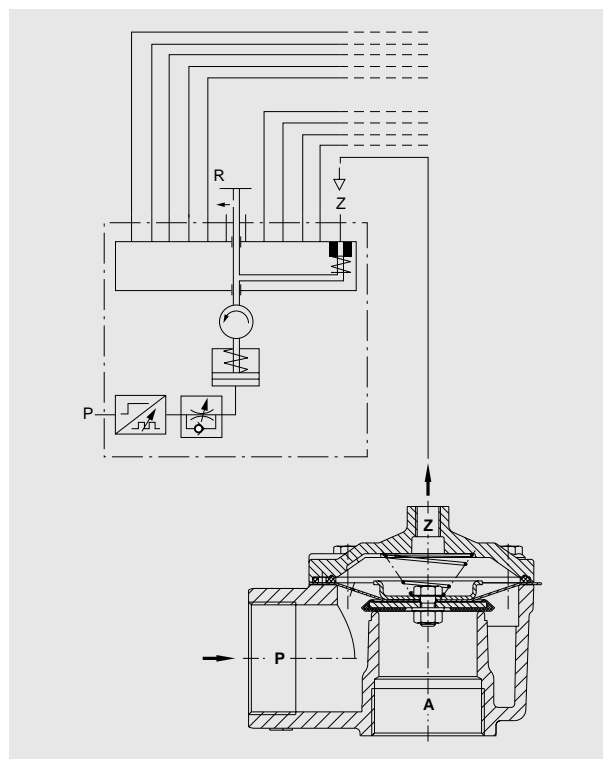
82850



CHARACTERISTIC DATA

Connection	ND	Connection	k _v -Value	Operating Pressure			Weight	Part Number
G	mm	Z	m ³ /h	min.	bar	max.	kg	
$\frac{3}{4}$	20	$\frac{1}{8}$	15	0.3		8	0.45	8285351.0000
1	25	$\frac{1}{8}$	20	0.3		8	0.50	8285451.0000
1½	40	$\frac{1}{4}$	43	0.3		8	0.95	8285651.0000
2	50	$\frac{1}{4}$	61	0.3		8	1.45	8285751.0000

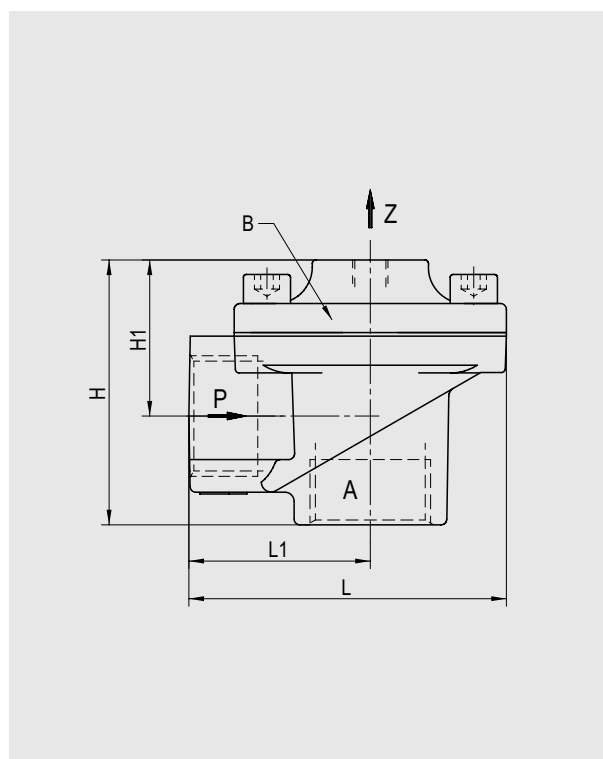
EXTERNAL CONTROL VIA PNEUMATIC CONTROLLER



DIMENSIONAL DRAWING

B = max. depth

Connection G	L mm	L1 mm	B mm	H mm	H1 mm
3/4	81	44	□ 75	70	40
1	87	50	□ 75	74	44
1½	132	75	Ø 115	100	69
2	151	95	□ 112	122	81



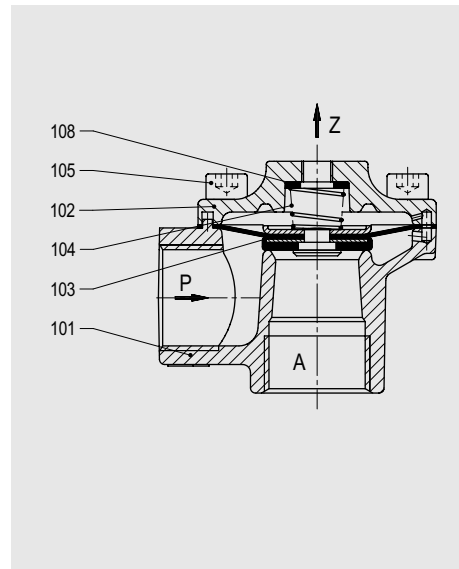
SECTIONAL DRAWING 01

Parts list and identification

Size G $\frac{3}{4}$ - 1

- 101 Valve body
- 102 Body cover
- * 103 Diaphragm
- * 104 Pressure spring
- 105 Locking bolt
- * 108 Flat seal

*These individual parts form a complete wearing unit.



82850

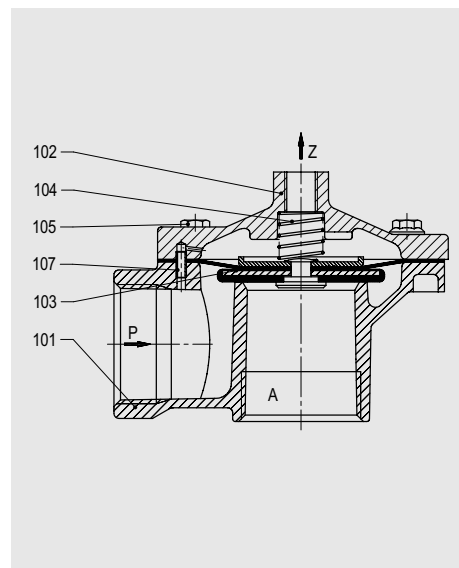
SECTIONAL DRAWING 02

Parts list and identification

Size G $1\frac{1}{2}$

- 101 Valve body
- 102 Body cover
- * 103 Diaphragm
- * 104 Pressure spring
- 105 Locking bolt
- * 107 Bush

*These individual parts form a complete wearing unit.



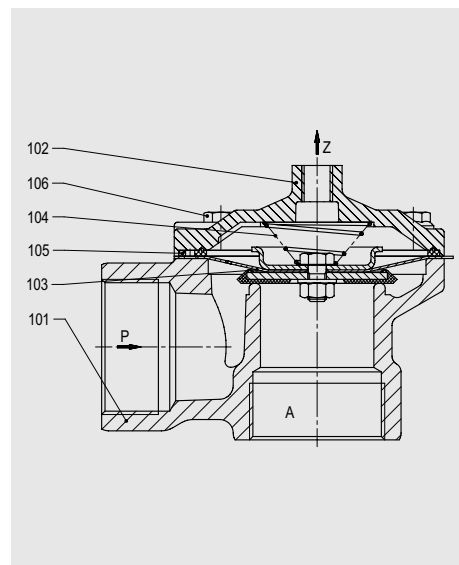
SECTIONAL DRAWING 03

Parts list and identification

Size G 2

- 101 Valve body
- 102 Body cover
- * 103 Diaphragm
- * 104 Pressure spring
- * 105 Seal ring
- 108 Hex bolt

*These individual parts form a complete wearing unit.



TECHNICAL INFORMATION

DUST COLLECTOR VALVES & FACTS

The 82 960 series solenoid system with bayonet connection is easily mounted – just push down and turn.



The internal components of the pilot system are captive.

The plastic encased solenoid can be turned to 3 different positions, 120° apart, without using tools.

The factory fitted silencer prevents annoying noise and stops ingress of foreign matter into the valve.

The solenoid design of the pilot offers maximum security against icing.

The volume above the diaphragm is minimised for extremely fast opening with optimised peak pressures. The similarly ideal closing time ensures low air consumption.

All of the dynamically loaded valve elements are designed to last.

The various parts of the case are designed for high air flow.

Available with internal BSP or NPT threaded connection to international standards.

2/2-way diaphragm valves G $\frac{3}{4}$ - G 2

pilot operated valves for cleaning dust filters
requiring differential pressure
threaded connection

DESCRIPTION (STANDARD VALVE)

Type	diaphragm valve
Switching function	normally closed
Operating pressure	0.3 to 8 bar
Differential pressure	0.3 bar required
Process fluid	neutral gases
Fluid temperature	-10 to maximum of +90°C
Ambient temperature	-10 to maximum of +50°C
Flow direction	determined
Mounting position	optional, preferably with solenoid upright

MATERIALS

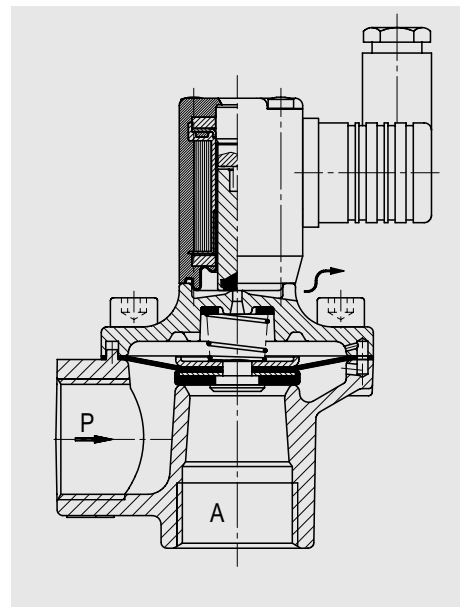
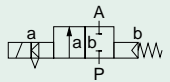
Body	aluminium
Cover	aluminium
Internal parts	stainless steel
Seals	NBR
Valve seat	aluminium

FEATURES

- High flow rate
- Small differential pressure required
- Fast switching
- High frequency



82860



CHARACTERISTIC DATA

Connection G	ND mm	k _v -Value m³/h	Operating Pressure		Weight kg	Part Number
			min.	bar	max.	
$\frac{3}{4}$	20	15	0.3		8	8286351.8001
1	25	20	0.3		8	8286451.8001
1½	40	43	0.3		8	8286651.9303
2	50	61	0.3		8	8286751.9303

2/2-way valves double acting

1½	40	43	0.3	8	1.40	8286656.9251
----	----	----	-----	---	------	--------------

ELECTRICAL DATA

Standard voltages	DC	AC
	24V	24V 50Hz 42V 50Hz 110V 50Hz 230V 50Hz
Power consumption	DC	AC
Solenoid 8001	12W	inrush 20VA holding 16VA
Solenoid 9303	16W	inrush 50VA holding 24VA
Solenoid 9251	8W	inrush 13VA holding 10VA
Duty cycle	100%	
Voltage range	±10%	
Protection	without power lead socket IP00 with power lead socket IP65	
Electrical design	arrangement and testing to DIN VDE 0580	

Notes

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

The power consumption is measured according to VDE 0580 at a coil temperature of +20°C. Physical factors reduce the value by up to about 30% when the DC solenoid coil has reached normal operating temperature.

Power lead socket type A

Socket can be turned to 4 positions 90° apart

Solenoid 8001 can be turned to 4 positions 90° apart

Solenoid 9303 can be turned in any direction

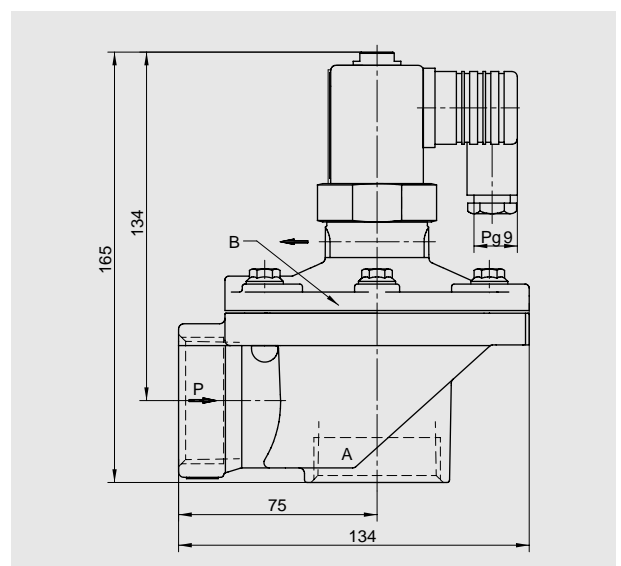
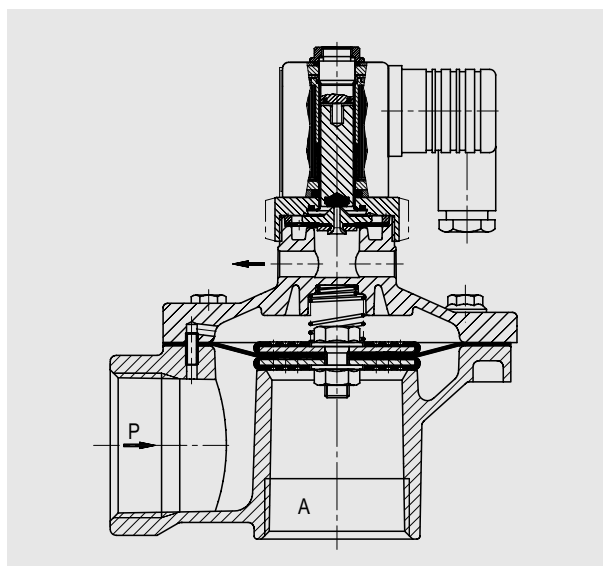
Solenoid 9251 can be turned in any direction

OPTIONAL FEATURES

xxxxx.xx.8041 G ¾ to G 1 solenoid in protection class EEx me II T3

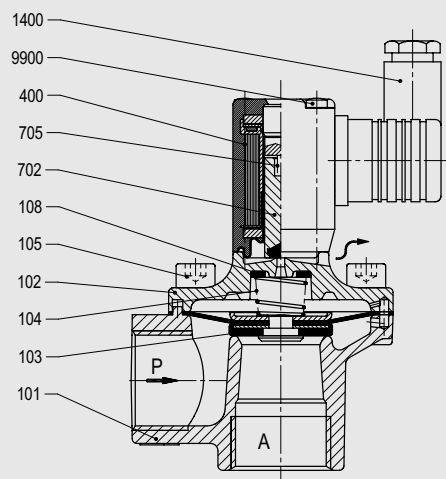
xxxxx.xx.9386 G 1½ to G 2 solenoid in protection class EEx me II T3

2/2-way valves double acting

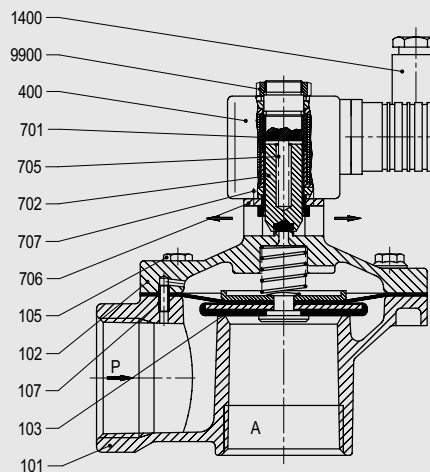


SECTIONAL DRAWINGS Parts list and identification

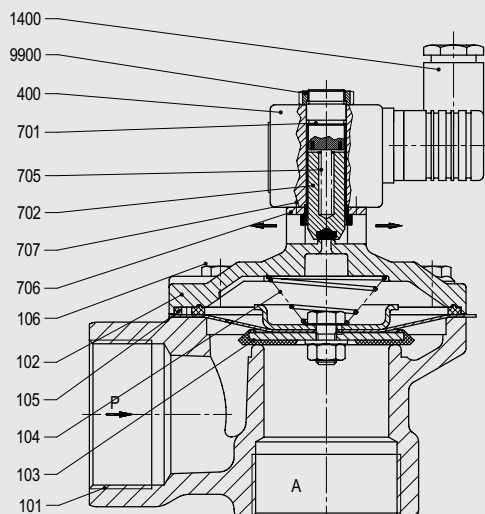
01



02



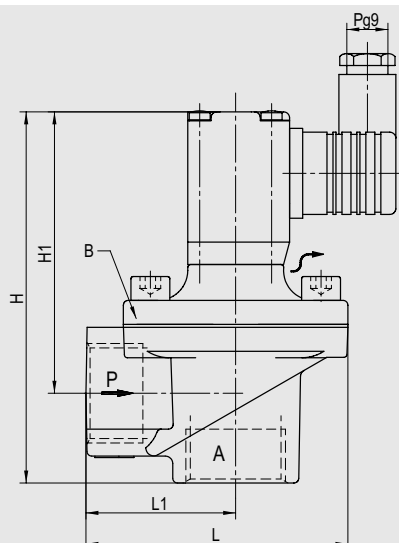
03



- 101 Valve body
- 102 Body cover
- * 103 Diaphragm
- * 104 Pressure spring
- 105 Locking bolt
- * 105 Seal ring
- 106 Hex bolt
- 107 Bush
- * 108 Flat seal
- 400 Solenoid
- 701 Core tube
- * 702 Plunger
- * 705 Pressure spring
- 706 Plate
- 707 Countersunk screw
- 1400 Socket
- 9900 Oval head cap screw 01
- 9900 Hex nut 02 and 03

*These individual parts form a complete wearing unit.

DIMENSIONAL DRAWING B = max. depth



Connection G	L mm	L1 mm	B mm	H1 mm	H1 mm
3/4	81	44	□ 75	120	90
1	87	50	□ 75	125	95
1 1/2	132	50	Ø 115	145	114
2	151	95	□ 112	174	133

TECHNICAL INFORMATION

FLANGE MEASUREMENTS

The latest edition of the relevant DIN standard brochure.

PN 10/16, DIN 2533				
ND	ø D	ø k	ø d ₂	z
10	90	60	14	4
15	95	65	14	4
20	105	70	14	4
25	115	85	14	4
32	140	100	18	4
40	150	110	18	4
50	165	125	18	4
65	185	145	18	4
80	200	160	18	8
100	220	180	18	8

PN 40, DIN 2545				
ND	ø D	ø k	ø d ₂	z
10	90	60	14	4
15	95	65	14	4
20	105	75	14	4
25	115	85	14	4
32	140	100	18	4
40	150	110	18	4
50	165	125	18	4
65	185	145	18	8
80	200	160	18	8
100	235	190	22	8

ANSI B 16.5 Class 150				
ND	ø D	ø k	ø d ₂	z
15	88.9	60.3	16	4
20	98.4	69.8	16	4
25	107.9	79.2	16	4
32	117.5	88.9	16	4
40	127.0	98.4	16	4
50	152.4	120.6	19	4
65	177.8	139.7	19	4
80	190.5	152.4	19	4
100	228.6	190.5	19	8

ANSI B 16.5 Class 300				
ND	ø D	ø k	ø d ₂	z
15	95.2 (94.0)	66.7	16.0	4
20	117.5 (108.0)	82.5	19.0	4
25	123.8 (115.0)	88.9	19.0	4
32	133.3	98.4	19.0	4
40	155.6 (150.0)	114.3	22.2	4
50	165.1	127.0	19.0	8
65	190.5 (185.0)	149.2	22.2	8
80	209.5 (200.0)	168.3	22.2	8
100	254.0	200.0	22.2	8

ø D =
Flange diameter

ø k =
Pitch circle diameter

ø k =
Hole diameter

z = Number of holes

The Buschjost
flange valves are
ø D values given in
rackets.

2/2-way valves G $\frac{3}{4}$ - G 1

pilot operated valves for cleaning dust filters
requiring differential pressure
thread connection

DESCRIPTION (STANDARD VALVE)

Type	diaphragm valve requiring differential pressure
Switching function	normally closed
Operating pressure	0.4 to 8 bar
Differential pressure	0.4 bar required
Process fluid	neutral gases
Fluid temperature	-40 to maximum of +65°C
Ambient temperature	-20 to maximum of +65°C
Flow direction	determined
Mounting position	optional

MATERIALS

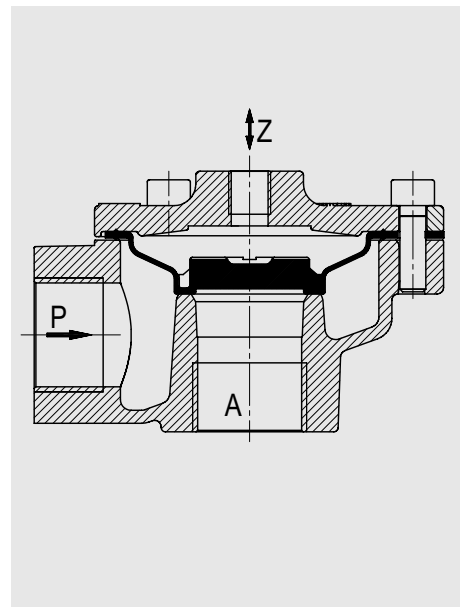
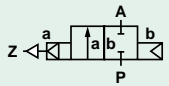
Body	aluminium
Cover	aluminium
Diaphragm	TPE
Valve seat	aluminium

FEATURES

- High flow rate
- High switching frequency
- Fast switching
- Few components
- Favourable grid layout
- Long service life
- NPT thread optional



82900

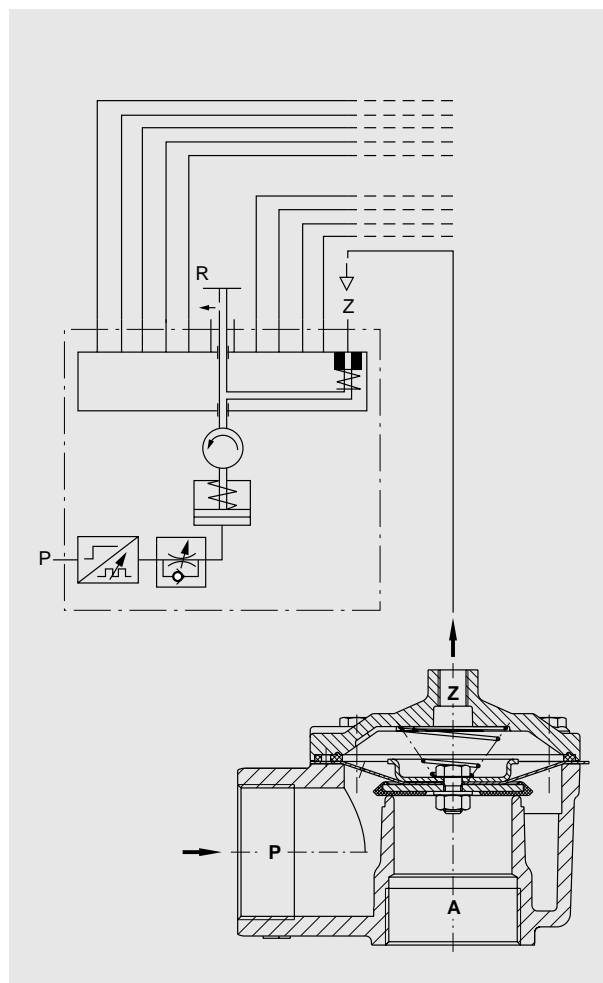


CHARACTERISTIC DATA

Connection G	ND mm	Connection Z	k _v -Value m³/h	Operating Pressure		Weight kg	Part Number
				min.	bar max.		
$\frac{3}{4}$	25	$\frac{1}{8}$	18	0.4	8	0.29	8290300.0000
1	25	$\frac{1}{8}$	22	0.4	8	0.26	8290400.0000

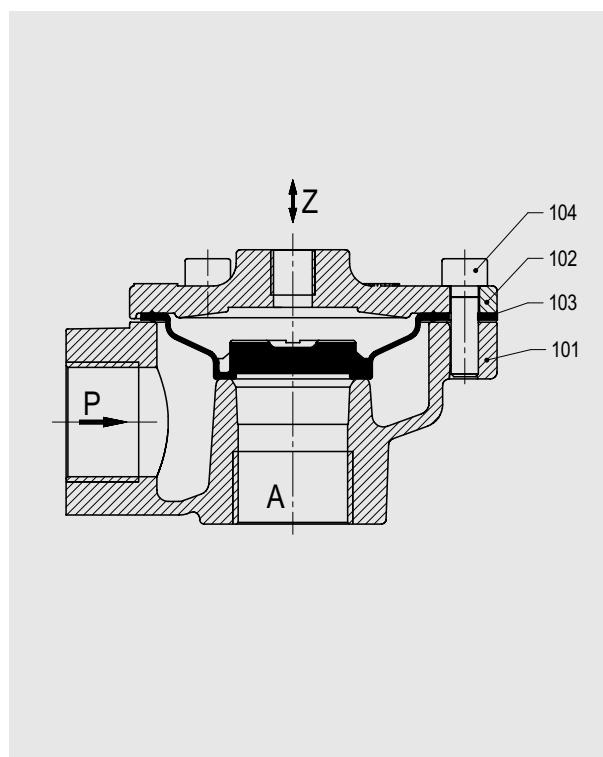
NPT- connection available: change (e.g.) 8290300 in 8291300

EXTERNAL CONTROL VIA PNEUMATIC CONTROLLER



SECTIONAL DRAWING

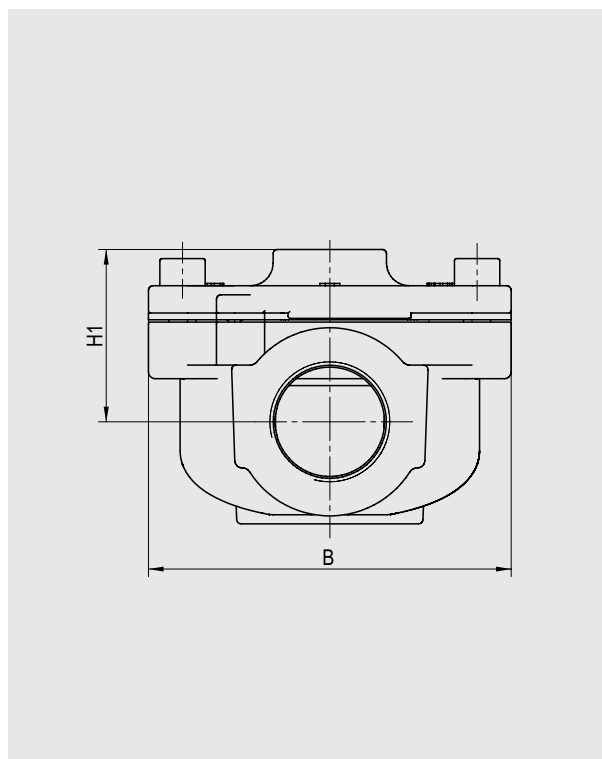
Parts list and identification



- 101 Valve body
- 102 Valve cover
- 103 Diaphragm
- 104 Socket head cap screw

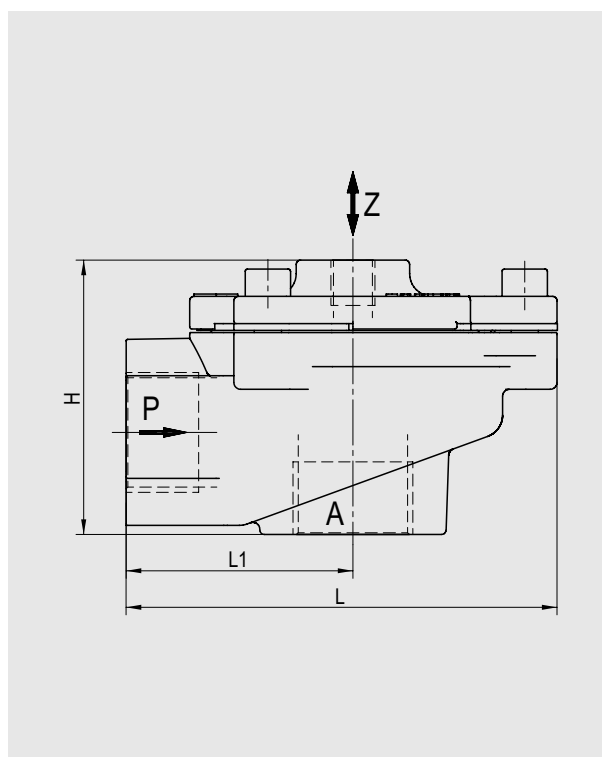
DIMENSIONAL DRAWING 01

B = max. depth

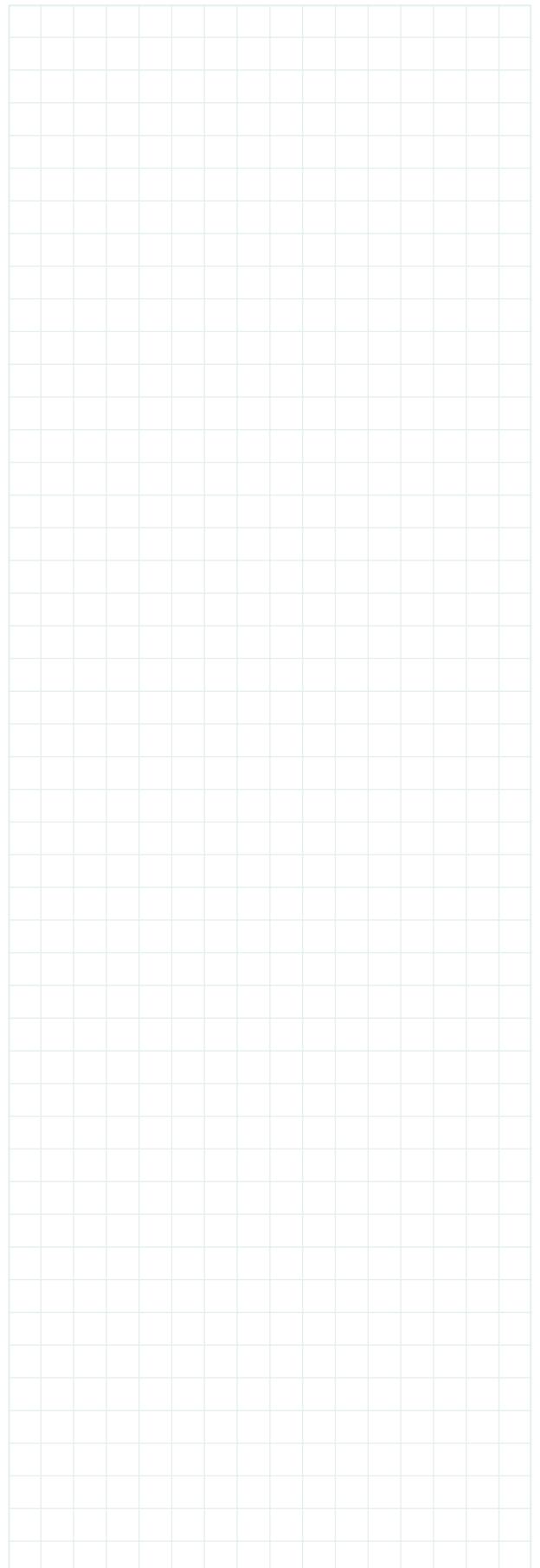


82 900

DIMENSIONAL DRAWING 02



Connection G	L mm	L1 mm	B mm	H mm	H1 mm
3/4	95	50	80	61.5	39
1	95	50	80	61.5	39



2/2-way valves G $\frac{3}{4}$ - G 1

pilot operated solenoid valves for cleaning dust filters
with differential pressure
thread connection

DESCRIPTION (STANDARD VALVE)

Type	diaphragm valve requiring differential pressure
Switching function	normally closed
Operating pressure	0.4 to 8 bar
Differential pressure	0.4 bar required
Process fluid	neutral gases
Fluid temperature	-40 to maximum of +65°C
Ambient temperature	-20 to maximum of +65°C
Flow direction	determined
Mounting position	optional, preferably with solenoid upright

MATERIALS

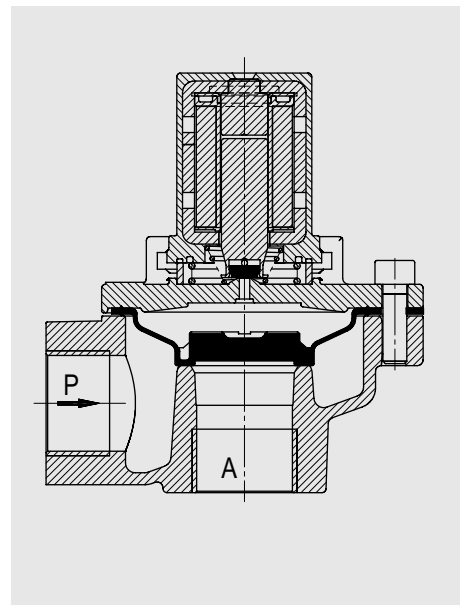
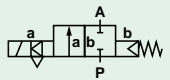
Body	aluminium
Cover	aluminium
Internal parts	stainless steel
Seals	TPE
Diaphragm	TPE
Valve seat	aluminium

FEATURES

- High flow rate
- Factory fitted silencer
- Solenoid easily changed without tools
- Captive internal parts
- Fast switching
- Few components
- Long service life
- Favourable grid layout
- NPT thread optional



82960



CHARACTERISTIC DATA

Connection	ND	k_V -Value	Operating Pressure		Weight	Part Number
G	mm	m^3/h	min.	bar max.	kg	
$\frac{3}{4}$	25	18	0.4	8	0.50	8296300.8171
1	25	22	0.4	8	0.47	8296400.8171

NPT- connection available: change (e.g.) 8296300 in 8297300

ELECTRICAL DATA

Standard voltage	DC 24V	AC 24V 50Hz 110V 50Hz 230V 50Hz
Power consumption Solenoid 8171	DC 12W	AC inrush 23VA holding 16VA
Duty cycle	100%	
Voltage range	±10%	
Protection	without power lead socket IP00 with power lead socket IP65	
Electrical design	arrangement and testing to DIN VDE 0580	

NOTES:

The power consumption is measured according to VDE 0580 at a coil temperature of +20°C. Physical factors reduce the value by up to about 30% when the DC solenoid coil has reached normal operating temperature.

Power lead socket type A

Socket can be turned to 4 positions 90° apart

Solenoid can be turned 3 x 120°

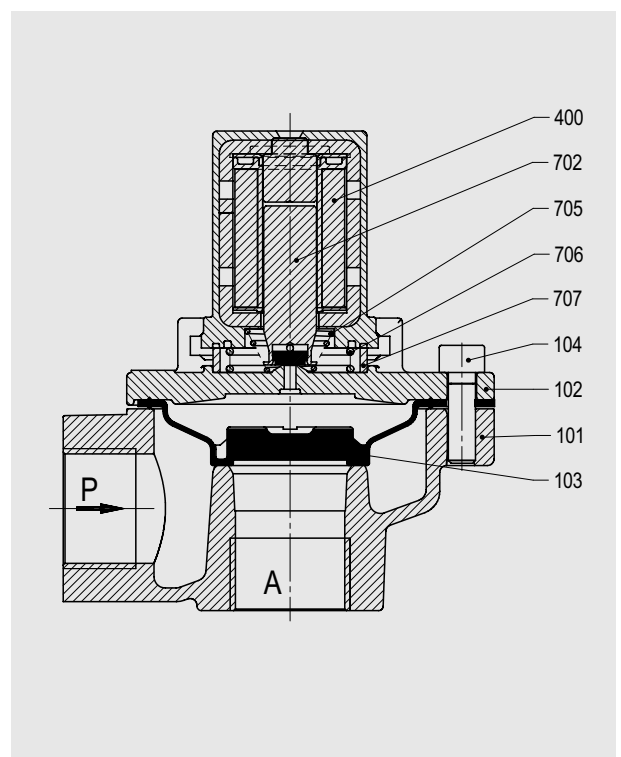
Valves must be suitably protected against contaminated fluids.

SECTIONAL DRAWING

Parts list and identification

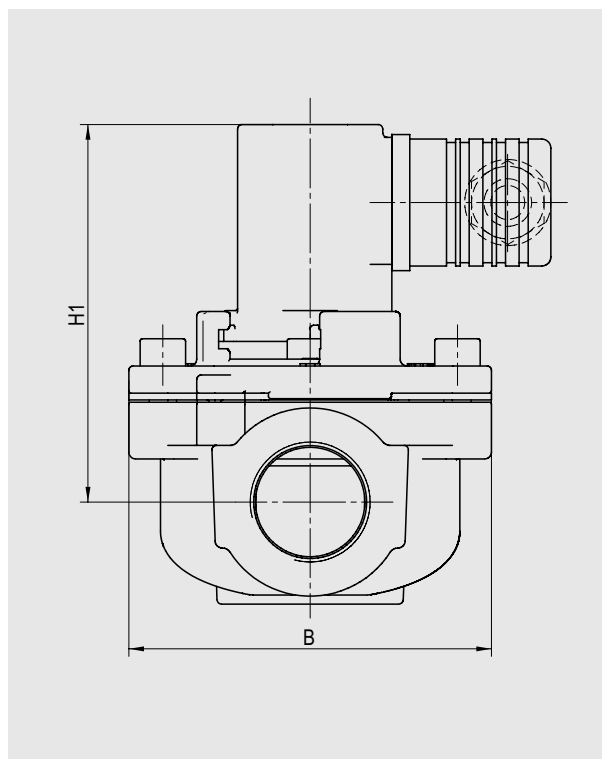
- 101 Valve body
- 102 Valve cover
- * 103 Diaphragm
- 104 Socket head cap screw
- 400 Solenoid
- * 702 Plunger
- * 705 Pressure spring
- * 706 Pressure spring
- * 707 Silencer
- 1400 Socket

* These individual parts form a complete wearing unit.



DIMENSIONAL DRAWING 01

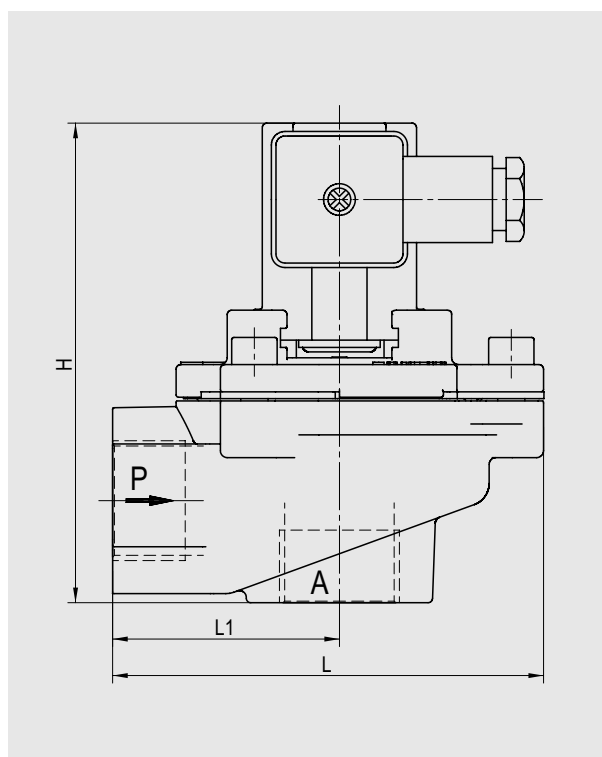
B = max. depth



82960

DIMENSIONAL DRAWING 02

B = max. depth



Connection	L	L1	B	H	H1
G	mm	mm	mm	mm	mm
3/4	95	50	80	105.5	83
1	95	50	80	105.5	83

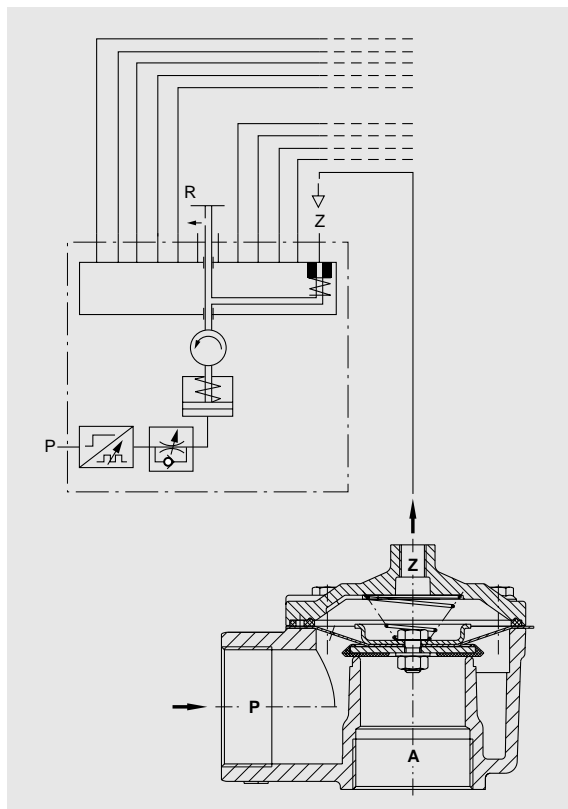
TECHNICAL INFORMATION

PNEUMATIC VALVE CONTROLLER

Operation of filter systems in difficult environments or hazardous areas necessitates expensive electronic control systems and solenoid valves. Pneumatic control systems offer an effective technological alternative at the right price.

Principle of operation

The valves are connected to the pressure chamber of the controller by air lines. The wiper arm assembly of the controller is operated by a pneumatic ratchet drive. It pauses between valve connections for an interval that can be preset by the user. The duration of the air pulse is also user adjustable by means of a throttle valve accessed after removal of the bottom casing. During this period the wiper arm passes beneath a valve connection port and vents the pilot line to that particular valve. The valve opens and remains open until the wiper arm moves on to the next position. The pilot air is vented through the port marked R. The pilot air is vented through the port marked R.



A spring return mechanism positions the wiper arm assembly reliably during each interval of the intermittent operation.

Pneumatic controller

for dust filter valves

DESCRIPTION

Type	pneumatic controller
Outlets	10 to 20 ports
Body	cast iron
Control section consisting of	pneumatic impulse generator throttle valve pneumatic ratchet drive
Operating section consisting of	pressure chamber wiper arm assembly control ports Z
Mounting position	optional

CONTROL SECTION

Supply pressure	2 to 8 bar
Fluid	filtered compressed air
Fluid temperature	-10 to maximum of +70°C
Ambient temperature	T _{max.} +40°C
Inlet P	G 1/8
Interval	adjustable 2 to 200s, factory setting 10s

OPERATING SECTION

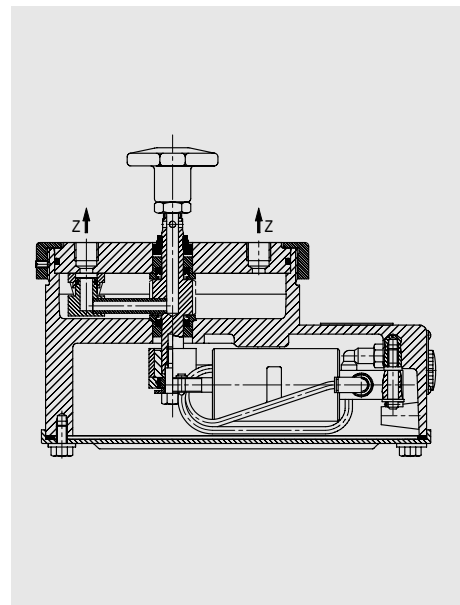
System pressure	0.5 to 8 bar
System fluid	neutral gases
Fluid temperature	-10 to maximum of +70°C
Ambient temperature	T _{max.} +40°C
Control ports Z	G 1/4

FEATURES

- Separately adjustable air pulse duration and interval
- Suits robust industrial applications
- Compact
- Fully pneumatic operation
- Ideal for use in hazardous zones

CHARACTERISTIC DATA

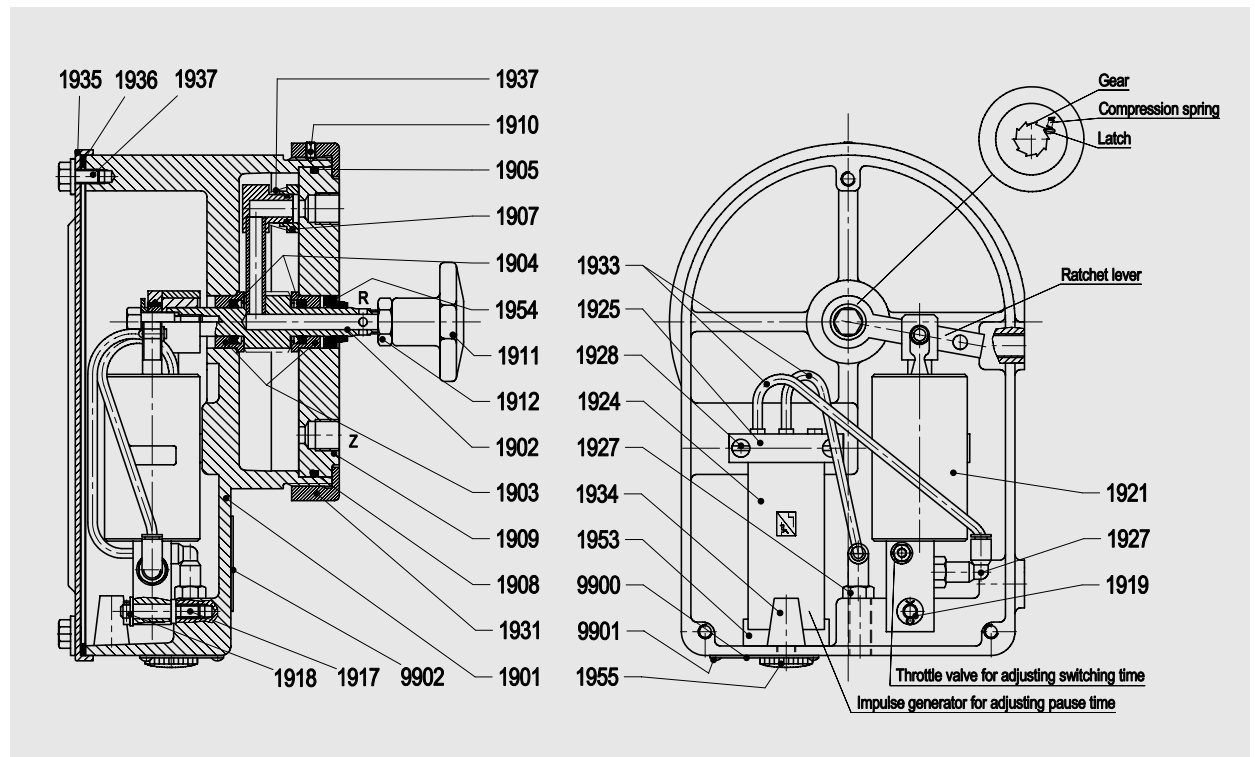
Number of Z ports	Weight kg	Dimension table	Part Number
10	7.80	01	8287054.0000
12	7.80	02	8287154.0000
14	7.80	03	8287254.0000
16	10.90	04	8287354.0000
20	10.90	06	8287554.0000



82870

SECTIONAL DRAWING

Parts list and identification



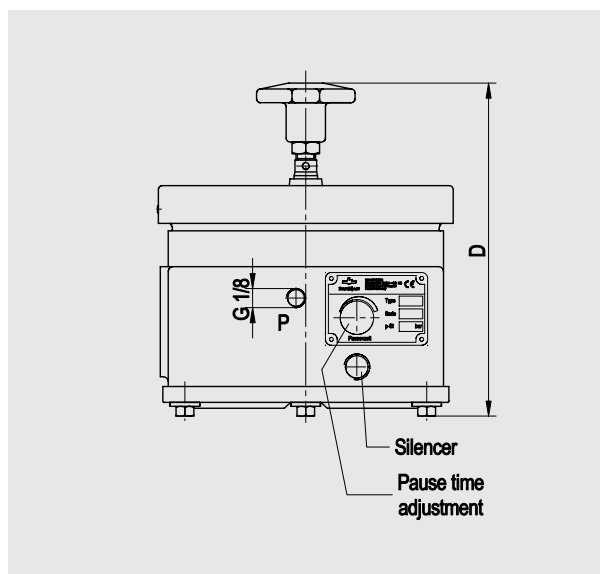
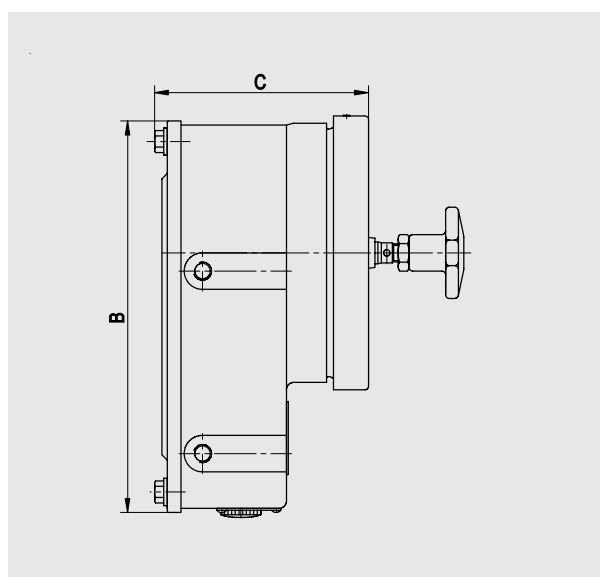
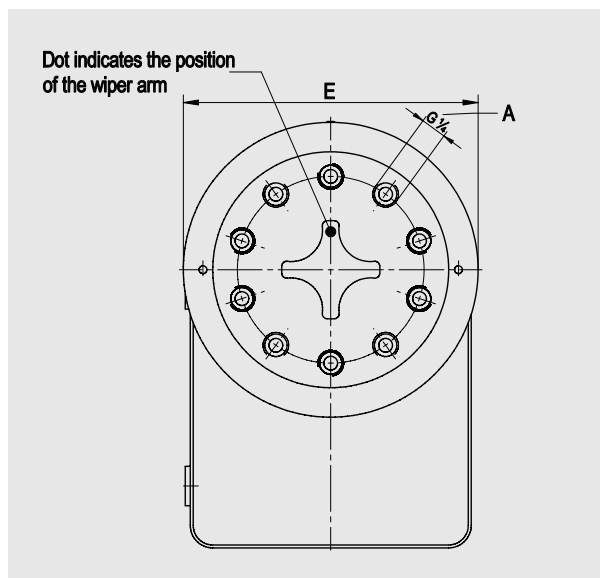
- 1901 Body
- 1902 Ratchet drive complete with wiper arm,
gear, latch and compression spring
- 1903 Shouldered bush
- *1904 Grooved ring
- *1905 O-ring
- *1906 Compression spring
- *1907 Sealing bush
- *1908 O-ring
- 1909 Round plate
- 1910 Grub screw
- 1911 Star knob
- 1912 Hex nut
- 1917 Spindle
- 1918 Washer
- 1919 Split pin
- 1921 Pneumatic cylinder complete with yoke

- 1924 Pneumatic timer
- 1925 Base plate
- 1927 Quick-action threaded union
- 1928 Cheese-head screw
- 1931 Screw fitting
- 1933 Rilsan tube
- 1934 Silencer
- 1935 Body cover
- 1936 Gasket
- 1937 Locking bolt
- 1953 Gasket
- *1954 Wiper ring
- 1955 Plug
- 9900 Rating plate
- 9901 Half-round slotted pin
- 9902 Label

* These individual parts form a complete wearing unit.

DIMENSIONAL DRAWINGS

82870



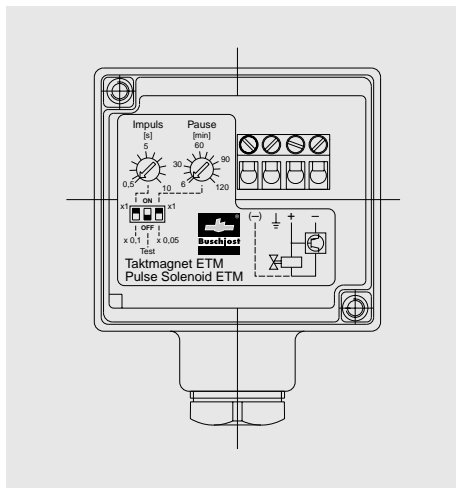
Dimensions table no	Number of control ports	A	B	C	D	E
01	10	215	118	170	150	
02	12	215	118	170	150	
03	14	215	118	170	150	
04	16	215	128	180	190	
06	20	215	128	180	190	

TECHNICAL INFORMATION DUST COLLECTOR VALVES & TIMER SOLENOID

Solenoid with built-in electronic timer

Combination with a timer built into the solenoid offers a way of cleaning filter systems with just one filter pulse valve.

The necessary terminals and two graduated potentiometers for separate adjustment of pulse duration and interval are behind the solenoid's cover.



When power is supplied to the solenoid, the electronic control system is activated with a pulse in the preset time window. This repeated sequence of pulse followed by interval is maintained until the power supply is interrupted.

The time ranges that are typically used for this application are made available.



We will gladly provide you with any further information required.

Electronic pulse control unit

for valves in dust filter systems

DESCRIPTION

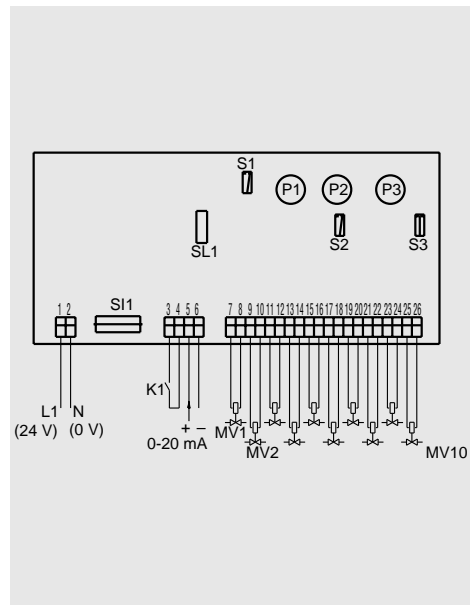
Type	electronic pulse control unit
Outputs	10, expandable to 30
Principle of operation	Continuous actuation of the valves according to the preset pulse duration and interval. Differential pressure dependent control when combined with one of the 83 400 series of differential pressure regulators.
Power supply	115V/230V $\pm 10\%$; 50-60Hz
Output voltage	24V DC
Max power output	
standard unit & 2 expansion units	AC model 44VA DC model 20W
Rated power/output	max 20 W
Ambient temperature	-20 to +60°C
Time ranges	
pulse duration	30 to 1000ms
interval	1 to 240 s

FEATURES

- Microprocessor controlled
- Short-circuit-proof solid state outputs
- Valves supplied with power from the electronic unit
- Spring terminals
- Interval can be selected with potentiometer or using a 0 to 20mA signal



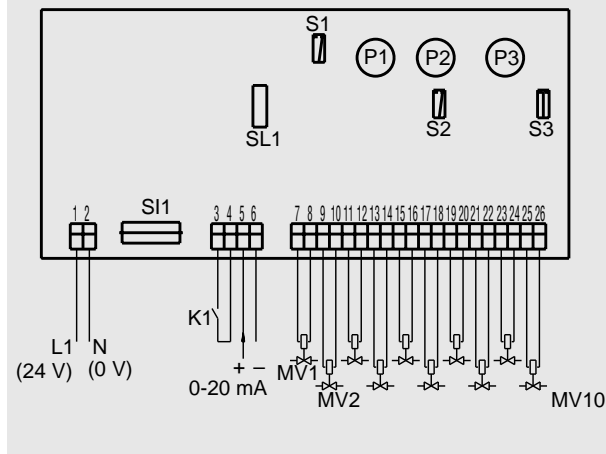
83720



CHARACTERISTIC DATA

Name	Type	Protection	Dimensional Drawing	Part Number
Standard unit	Switch cabinet mounting	IP 00	01	8372000.0000
Standard unit	Protective housing	IP 65	02	8372100.0000
Standard unit	Printed circuit board	IP 00	03	8372200.0000
Expansion unit	Switch cabinet mounting	IP 00	01	8372500.0000
Expansion unit	Printed circuit board	IP 00	03	8372500.0000

WIRING



CONTROLS

P1 Potentiometer for adjusting pulse duration

P2 Potentiometer for adjusting pause time

P3 Potentiometer for setting required number of outputs (valves):

S3:N standard unit 1 to 10

S3:E1 standard unit + expansion unit 11 to 20

S3:E2 standard unit + expansion unit 21 to 30

S1 Selector switch for START/STOP function:

"Immediate" cleaning interrupted immediately K1 opened

"Cycle" when K1 opened, cleaning continued until last valve set with P3

S2 Selector switch for adjusting interval:

"int" with potentiometer P2

"ext" with 0 to 20mA signal, eg from a Buschjost differential pressure regulator

S3 Selector switch for operation with expansion units:

Operation without any expansion units

N (= not connected) setting

Operation of the standard unit with 1 expansion unit

standard unit on E1 setting
expansion unit on E1 setting

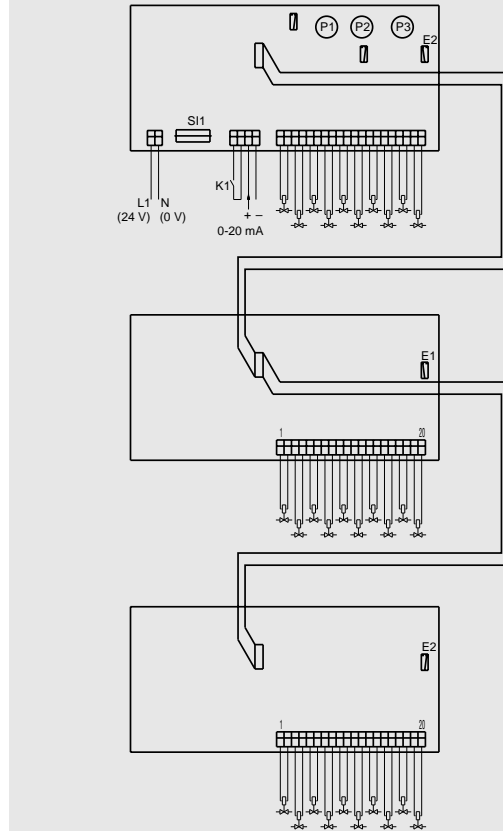
Operation of the standard unit with 2 expansion units

standard unit on E2 setting
expansion unit 1 on E1 setting
expansion unit 2 on E2 setting

SI1 Mains fuse - disconnect unit from the power before changing the fuse

SL1 10 way male connector - for ribbon cable interconnecting standard unit and expansion units

OPERATION WITH EXPANSION UNITS



TERMINALS

01	live (24V for DC model)
02	neutral (0V for DC model)
03+04	terminals for external floating contact, START/STOP input, K1 closed: cleaning performed
05+06	0 to 20mA analog input for external control of interval
07-28	terminals for solenoid valves 1 to 10

IMPORTANT NOTES

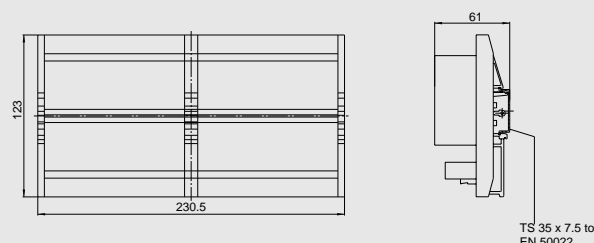
Connecting the power supply for the DC model the wrong way round will blow fuse SI1.

Standard unit and expansion units must be mounted right next to each other. An 0.5 metre long ribbon cable fitted with 3 female connectors is supplied with each expansion unit.

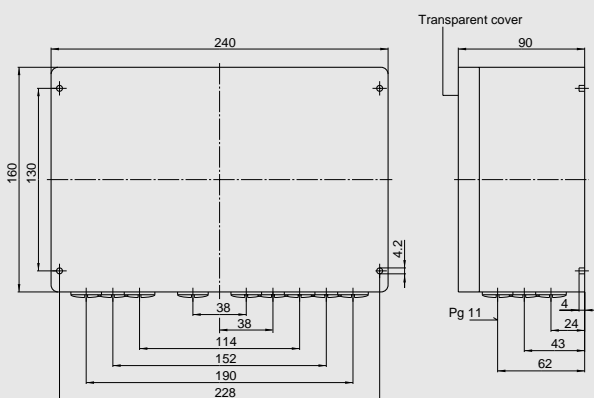
If S1 is in the middle position when the power is switched on, the control system shortens the interval to about 50 to 1050ms. This mode may only be activated briefly for test purposes. Normal operation can be resumed by moving the switch to one of its other positions, then switching the power off briefly.

Plugs for PG11 cable glands are supplied with the IP65 model. The actual glands required for installation have to be ordered separately (Cat No 1230157).

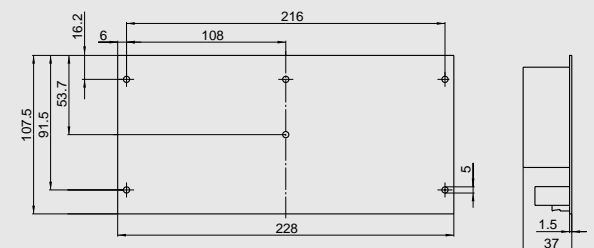
DIMENSIONAL DRAWING 01



DIMENSIONAL DRAWING 02



DIMENSIONAL DRAWING 03



Description of operation

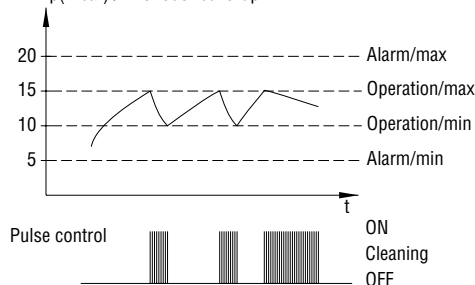
When the power is switched on, outputs 1 to 10 are activated cyclically according to the pulse duration and interval set. The number of outputs to be controlled can be preset with potentiometer P3. The interval can also be controlled via the 0 to 20mA input. The potentiometer setting affects the interval in this case. The operating sequence can be interrupted with the aid of the external contact K1 and continued later. 2 modes of operation are therefore possible.

1. ON/OFF operation

Pulse control is activated and deactivated by means of an ON/OFF signal. This signal can be derived from a Buschjost differential regulator, which gives the cleaning command via a relay output when the dust build-up on the filter reaches an upper limit. The control unit actuates the filter valves until the layer reduces to its lower limit. Cleaning then stops until the dust builds up the upper limit again, when it recommences.

1. ON/OFF operation

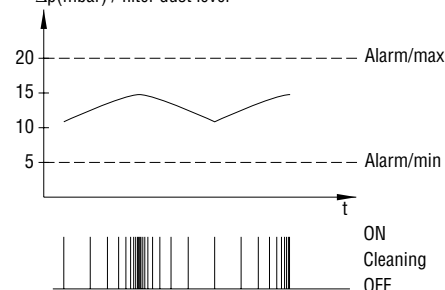
$\Delta p(\text{mbar})$ / filter dust build-up



2. Varying the interval as a function of the dust build-up

The Buschjost differential pressure regulator has a 0 to 10V / 0 to 20mA analog output, which provides a measure of the dust build-up on the filter. To avoid wide fluctuations in cleaning efficiency and build-up, the pulse control unit evaluates this signal and varies the interval accordingly; shortening the interval when the filter is dirty and vice versa.

2. Variable interval

 $\Delta p(\text{mbar})$ / filter dust level

83720

TECHNICAL INFORMATION

FILTER CLEANING & DIFFERENTIAL PRESSURE REGULATORS

The 83 400 series of regulators can be used in combination with the 83 720 series of electronic pulse control units to automatically adapt the cleaning to the dust loading.

A dust-resistant piezoresistive pressure sensor measures the differential between the clean and dusty sides of the filter system, which depends on the build-up, and provides a continuous digital readout.

All of the settings can be programmed with the buttons.

The host pulse control unit continues to operate until cleaning has progressed to the extent where the preset limit is reached. Any after-cleaning programmed is then started. Its duration is adjustable.

Two other switching points, Alarm 1 and Alarm 2, set above or below the set points as required, can be used to give an alarm in the event of faults.

The switching outputs can also be operated manually.

The regulator can be switched between 0 to 10V, 0 to 20mA or 4 to 20mA analog output signals and can be operated off 230V AC or 24V DC.

The unit conforms to the Electromagnetic Compatibility Directive 89/336/EEC and the Low Voltage Directive 73/23/EEC.

Differential pressure regulator

for monitoring differential pressures for variable cleaning of dust filter systems according to dust build-up

DESCRIPTION

Type	Electronic differential pressure regulator with piezoresistive pressure sensor
Gas ports	Fitting for 6/4mm tube
Number of set points	2, fully adjustable
Number of alarm points	2, fully adjustable
Display	LCD/digital
Maximum pressure	1 bar for 50/100 mbar measuring range 2 bar for 500/1000 mbar measuring range
Pressurised fluid	neutral gases
Power supply	115V/230V $\pm 10\%$; 50-60Hz 24V DC
Analog output	0 to 10V, 0 to 20mA or 4 to 20mA
Ambient temperature	-20 to +60°C
After-cleaning time	0 to 60 min, resolution 1s

FEATURES

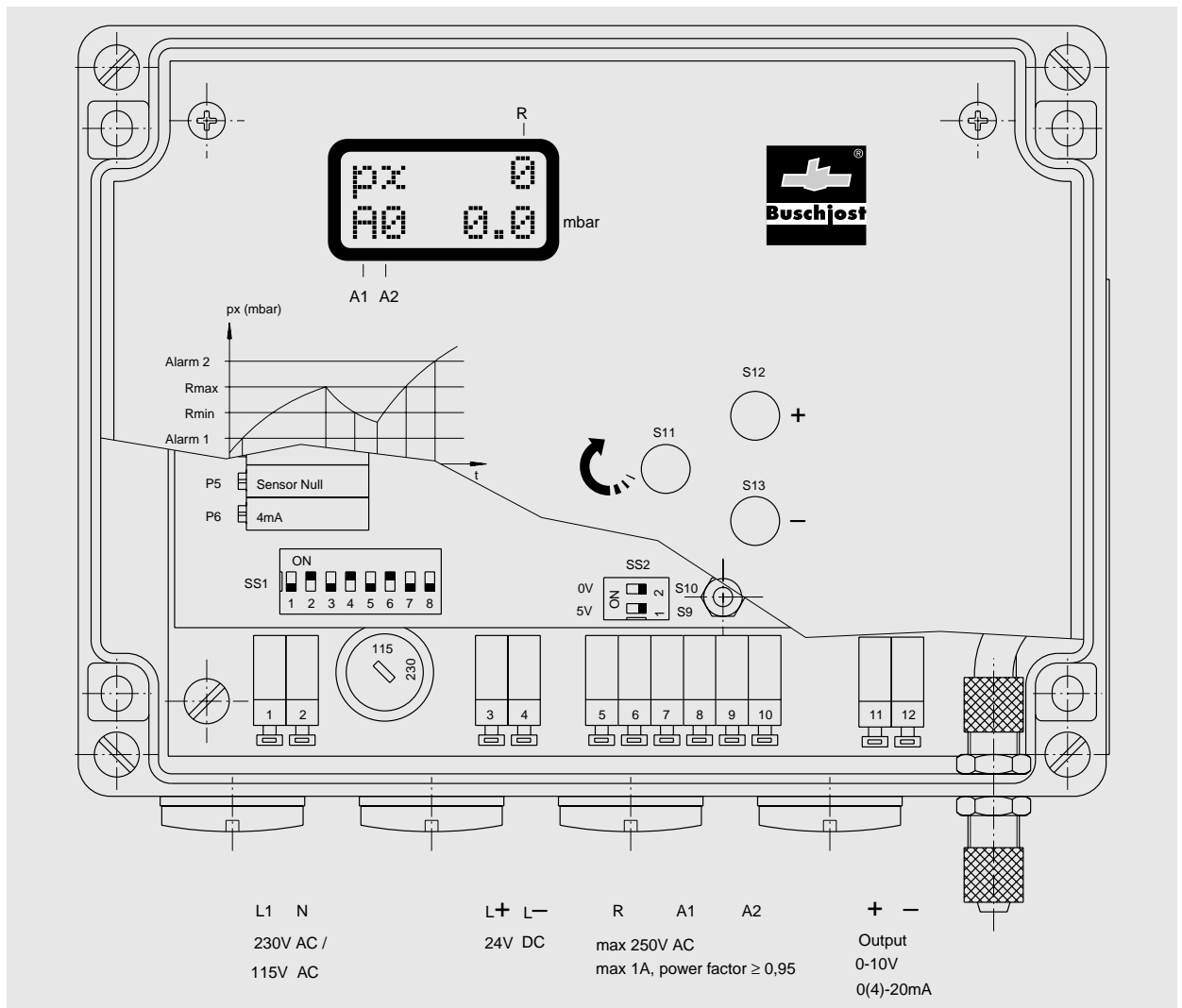
- Good interference immunity to EMC Directive
- Operation using dot matrix LCD display and 3 buttons
- Each model offers choice of two measuring ranges
- All relay outputs can be switched manually
- Separately adjustable switching points
- Pressure signal damping



83400

CHARACTERISTIC DATA

Pressure range mbar	Type	Protection	Dimensions	Part Number
10	Protective case	IP 65	01	8340000.0000
10	Standard rail mounting	IP 00	02	8340100.0000
10	Panel mounting case	IP 54 / IP 20	03	8340200.0000
25/50	Protective case	IP 65	01	8340001.0000
25/50	Standard rail mounting	IP 00	02	8340101.0000
25/50	Panel mounting case	IP 54 / IP 20	03	8340201.0000
50/100	Protective case	IP 65	01	8340002.0000
50/100	Standard rail mounting	IP 00	02	8340102.0000
50/1000	Panel mounting case	IP 54 / IP 20	03	8340202.0000
500/1000	Protective case	IP 65	01	8340003.0000
500/1000	Standard rail mounting	IP 00	02	8340103.0000
500/1000	Panel mounting case	IP 54 / IP 20	03	8340203.0000



CONTROLS S11 TO S13

- S11 Button for displaying next parameter
- S12 Button for incrementing displayed parameter
- S13 Button for decrementing displayed parameter

PARAMETERS ADJUSTABLE WITH BUTTONS S11 TO S13

- Actual value
- Regulator MIN set point
- Regulator MAX set point
- Alarm 1 switching point
- Alarm 2 switching point
- After-cleaning time
- Manual regulator output
- Manual alarm 1 output
- Manual alarm 2 output
- Display range
- Alarm 1 switching mode
- Alarm 2 switching mode

NB

SS2 for factory calibration only
Terminals 4 and 12 are connected inside the regulator

TERMINALS

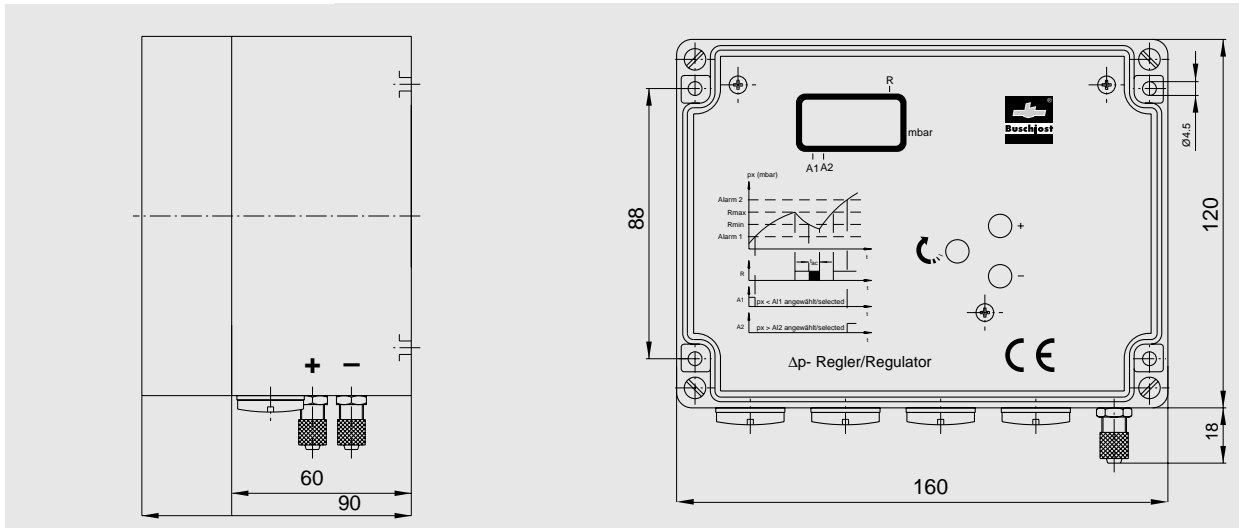
- Live for AC
- Neutral for AC
- L+ for DC
- L- for DC
- Regulator switching output
- Alarm 1 switching output
- Alarm 2 switching output
- + or 0 to 10V analog output
- or 0V analog output

SS1 SWITCHES

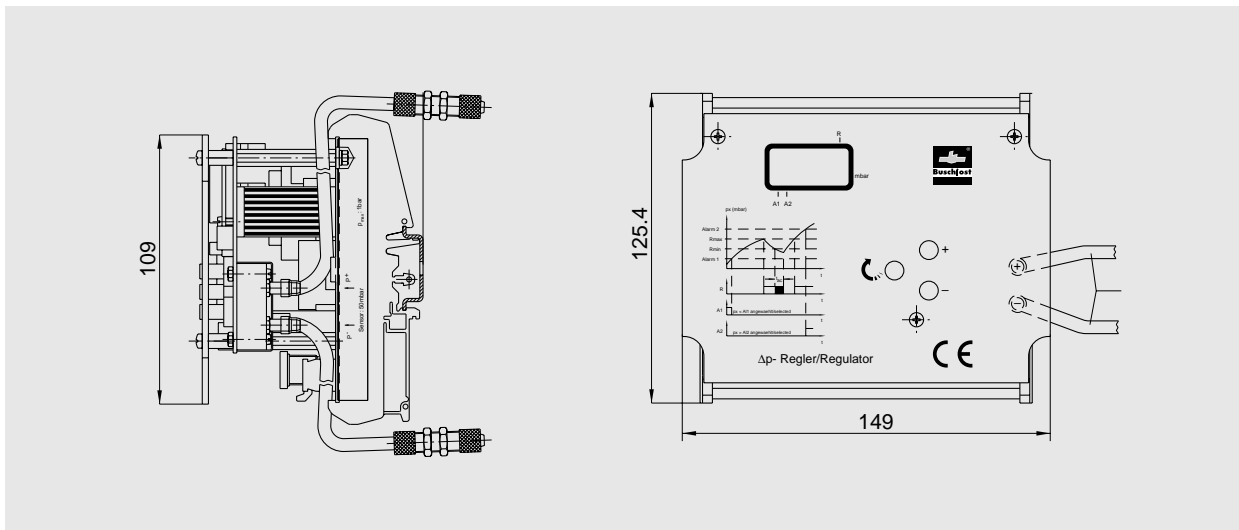
for programming

- Analog output
- Pressure sensor measuring range
- Sensor damping ON/OFF

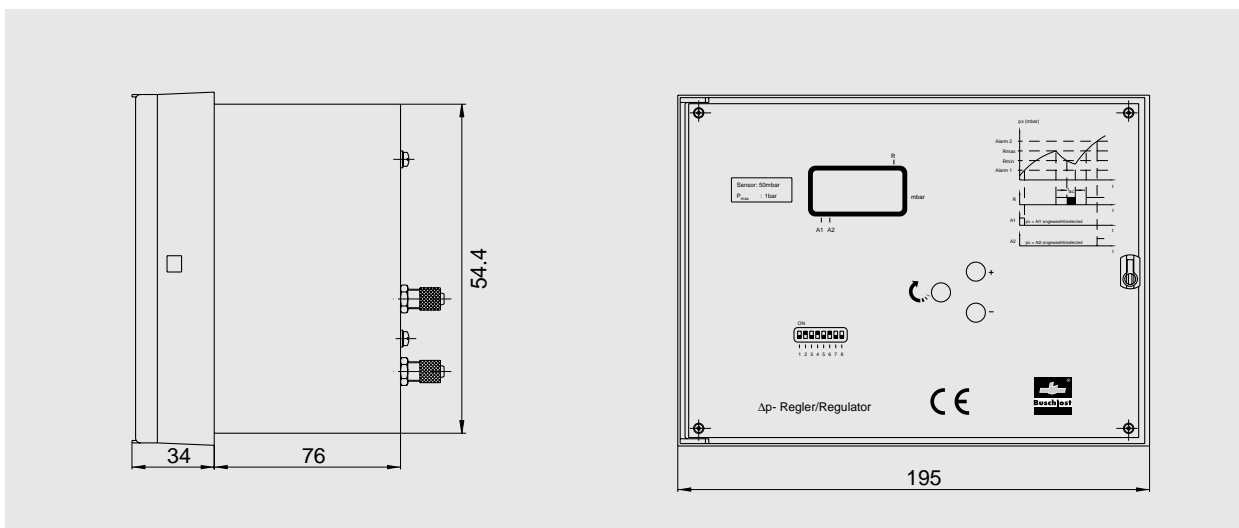
DIMENSIONAL DRAWING 01



DIMENSIONAL DRAWING 02



DIMENSIONAL DRAWING 03



TECHNICAL INFORMATION

DUST COLLECTOR VALVES & SHOCK EFFECT

Parameter indicating cleaning effectiveness.

Background

The valves used are designed to release almost explosive pulses of air that shake the dust particles off the filter bags. However, this method is not effective if the pressure rises too slowly or the flow coefficient (Kv) of the filter pulse valve is too low. The nominal diameter of the valve also has to match the filter volume. The **flow coefficient** divided by the **pressure rise time** therefore represents the most important technical parameter for filter valves.

Reasons

If the pressure rises too slowly, the flow rate increases too gradually to shake the dust off the filter bags. Effective cleaning therefore requires the valve to open abruptly and blow a very short burst of compressed air (just a few hundred milliseconds) into the filter. The advantage of this method is that the released particles do not immediately settle on the filter bags again. Its disadvantage is higher air consumption.

The dust is also not shaken off if the pressure increases very quickly but the air throughput is insufficient. The volume released is then too small to subject the filter bags to a shock wave.

Summary

For effective cleaning, the pressure rise time has to be very short and the flow coefficient (Kv) as large as possible. This is expressed by the following formula:

$$\text{Shock effect} = \frac{K_v [\text{m}^3/\text{s}]}{\text{pressure rise time} [\text{s}]} [\text{m}^2 \times \text{m}/\text{s}^2]$$

This parameter, with units of area x acceleration, is used to certify the shock effect. The larger the quotient the more effectively the pulse valve cleans the filter.

Purge valve

for cyclical cleaning of the measuring lines between differential pressure regulator and dust filter systems

DESCRIPTION

Type electric purge valve with electronic timer

Operating pressure	2 to 8 bar
Pulse duration	0.5 to 10s
Interval	10 to 120 min
Voltage	230V 50Hz
Fluid	neutral gases
Fluid temperature	-10 to +80°C
Ambient temperature	-10 to +50°C

Part Number 8493571.8821.23050

FEATURES

- Cyclical cleaning
- Compatible with any differential pressure regulator
- Compact
- Adjustable cleaning times
- Pressure sensor protection function
- Effective pulse of compressed air



**8493571
8497030**

Purge valve

for continuous cleaning of the measuring lines between differential pressure regulator and dust filter systems

DESCRIPTION

Type pneumatic purge valve

Operating pressure	2 to 10 bar
Working pressure	0.5 to 2 bar
Fluid	neutral gases
Fluid temperature	-20 to +50°C
Ambient temperature	-20 to +50°C
Mounting position	with plug-in connectors facing downwards

Part Number 8497030.0000.00000

FEATURES

- Continuous cleaning
- Compatible with any differential pressure regulator
- Automatic condensate drainage
- Compact and robust
- Maintenance-free, no parts subject to wear
- Factory presets



**PURGE VALVE
ELECTRIC
Part Number 8493571.8821**

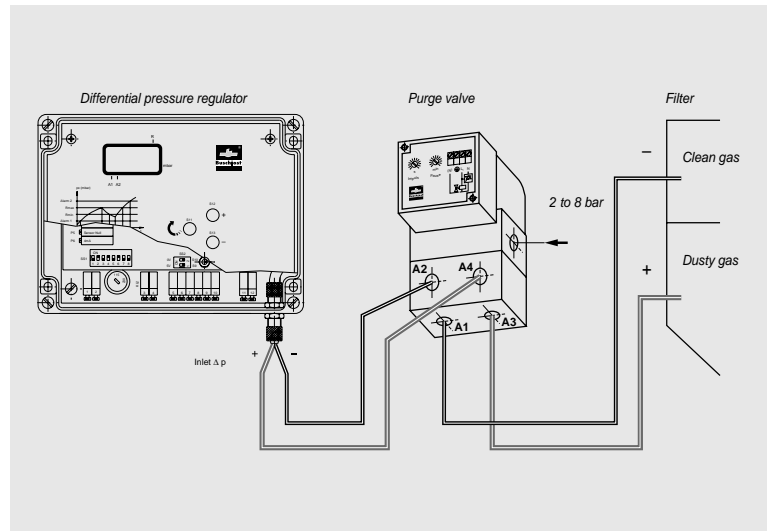
Connections

Port	A1	clean gas side of filter
	A2	clean gas side/ differential pressure regulator
	A3	dusty gas side of filter
	A4	dusty gas side/ differential pressure regulator

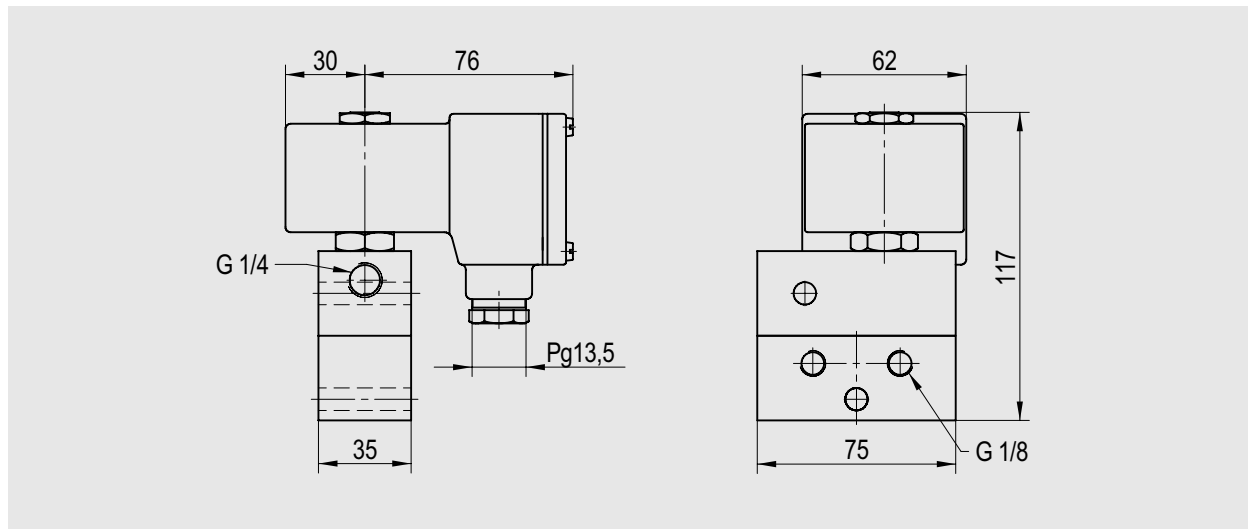
Line length

Between filter and purge valve: min 1m,
max 3m

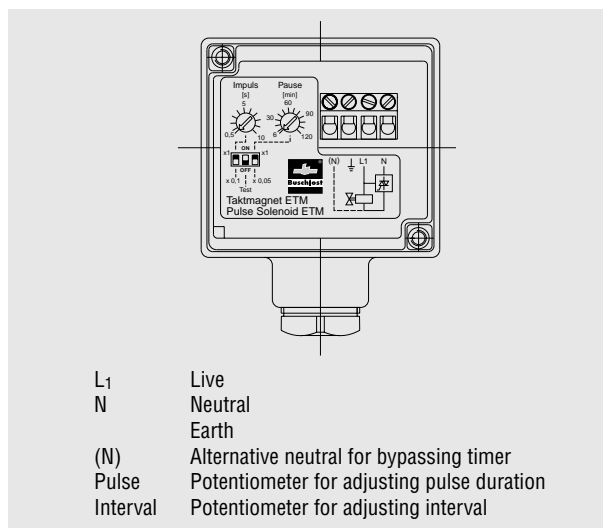
Between purge valve and
differential pressure regulator: max 10 m



DIMENSIONAL DRAWING



TERMINALS ELECTRONIC TIMER SOLENOID



PRINCIPLE OF OPERATION

In filter systems with high dust loadings the purge valve makes it possible to avoid the measuring lines to the differential pressure regulator getting blocked. Both of these lines are cleared by short blasts of air controlled by a built-in solenoid valve. The dusty and clean gas measuring lines are routed via the purge valve to the differential pressure regulator. The cleaning air is supplied via port P.

A solenoid with built-in electronic timer actuates the valve so that it admits short pulses of air at long intervals into both measuring lines. To protect the sensor against pressure surges, prior to each blast of air the measuring lines are reliably shut off with nozzles. They are only reopened after the pressure has been reduced. The differential pressure regulator's display remains unchanged during the cleaning process.

**PURGE VALVE
PNEUMATIC
Part Number 8497030.0000**

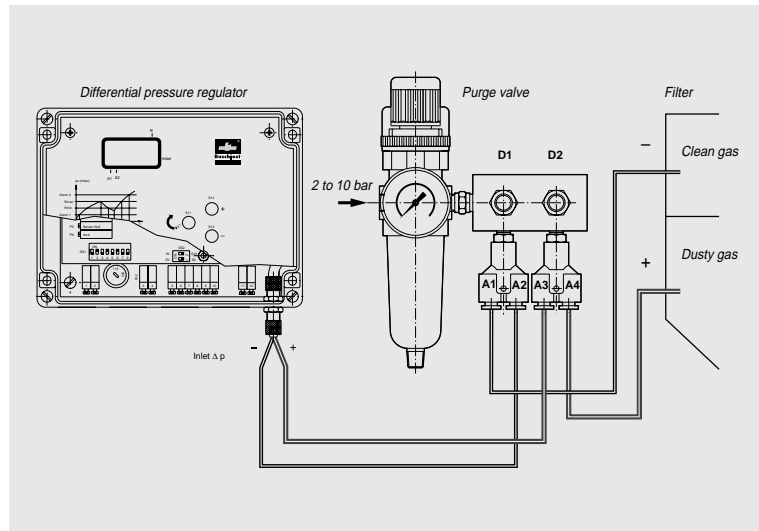
Connections

Port	A1	clean gas side of filter
	A2	clean gas side/ differential pressure regulator
	A3	dusty gas side of filter
	A4	dusty gas side/ differential pressure regulator

Line length

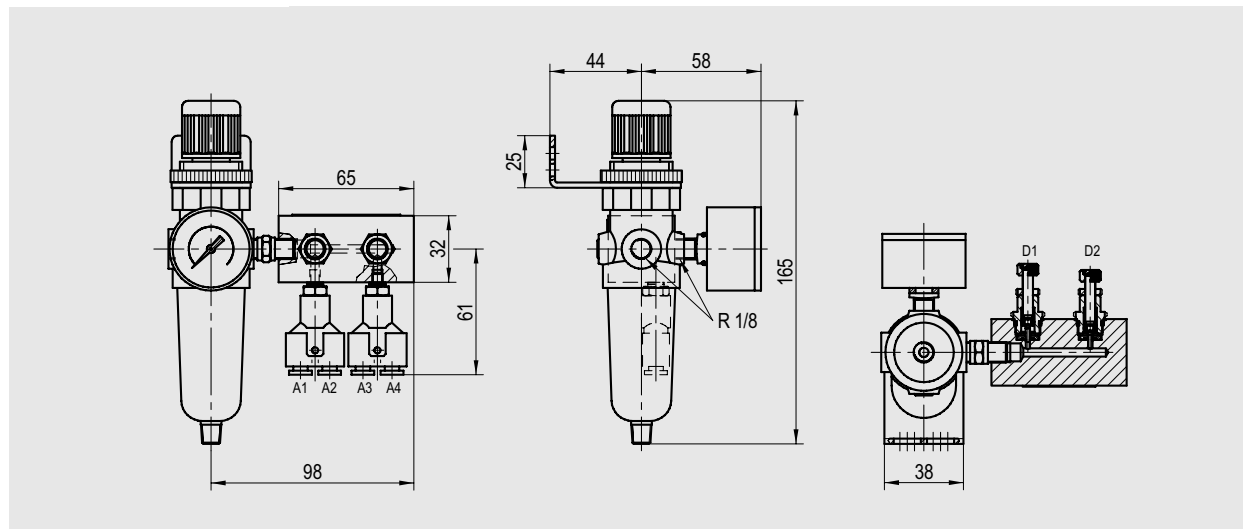
Between filter and purge valve: min 1m,
max 5m

Between purge valve and
differential pressure regulator: max 25m



**8493571
8497030**

DIMENSIONAL DRAWING



PRINCIPLE OF OPERATION

Using a filter regulator, the compressed air is fed into a block with two precision throttle valves. Each of these valves has two measurement ports. Air blown continuously through the measuring lines to the filter keeps them at a higher pressure than the measuring point. This is an effective way of preventing ingress of microparticulates into the measuring line and regulator.

TECHNICAL INFORMATION

PROPORTIONAL VALVES

Motorised valves

Production and process automation with electronic regulation and control equipment requires interfaces between the electronic and fluidic control loops.

The valve described below for regulating the flow rate of liquids and gases represents such an interface. Motorised valves are used wherever exact adjustment to the actual requirements is needed. There is a choice of different designs to suit the application and requisite accuracy.

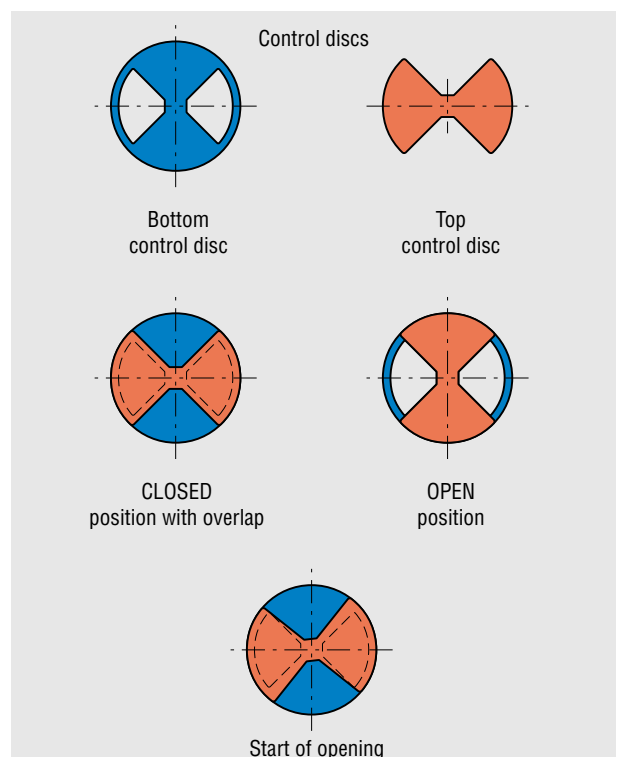
It is a rotary valve, with two oxide ceramic throttling disks that resist dirt and do not wear.

The maintenance-free electric actuator consists of a powerful, reversible motor; with a choice of DC, synchronous and stepper designs to suit different types of control system.

The control disc is rotated by the output shaft of gearing that is free from backlash to guarantee a reproducible control characteristic. 2 separate, floating microswitches detect the closed and fully open limits of the valve. The low power consumption of between 1.5 and 5W means the electronic regulator can drive certain types of motor directly.

Various motorised valve regulators and electronic components are offered to complement the valve in solving control problems of varying complexity, eg flow and temperature regulation kits, and electronic control cards such as a servo amplifier and stepper motor controller.

One of the two control discs opens two opposite triangular flow apertures in the other continuously, over an angle of rotation of 90°. The matching geometry of the pair of discs achieves a virtually linear flow characteristic. The particular throttling cross-section adopted is retained if the control voltage is switched off. The overlap in the closed position provides a sufficiently tight seal to prevent dripping.



Motorised Valves and Associated Electronic Components

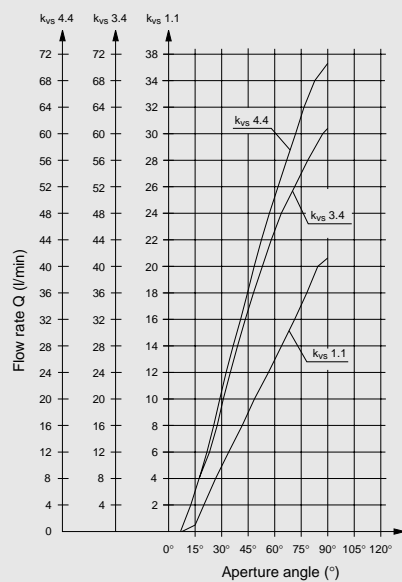
Motorised Valves and Associated Electronic Components

Material	Connection	Pressure	Temperature	Series	Page
Brass	G ½ - G 1	-0.9 - 10	+90	82880	189
Polymer	ND 16	-0.5 - 2.5	+90	8496852	193
Temperature regulation kit				8495220	197
Flow regulation kit				8495056	199

TECHNICAL INFORMATION

PROPORTIONAL VALVE CHARACTERISTIC

The linear characteristic of the 82 880 series of motorised valves is a sound basis for control and regulation.



Characteristic
Fluid: water
 Δp : 1 bar

2/2-way valves G ½ - G 1

Motorised valves
not requiring differential pressure
threaded connection

DESCRIPTION

Type	motorised proportional valve
Switching function	throttle position with overlap when closed
Pressure range	see table of characteristic data
Differential pressure	not required
Process fluid	neutral liquids and gases
Fluid temperature	-10 to maximum of +90°C
Ambient temperature	-10 to maximum of +40°C
Viscosity	up to 80mm²/s
Flow direction	determined
Mounting position	preferably with actuator upright, but maximum permissible inclination 45°

MATERIALS

Body	brass
Cover	brass
Internal parts	brass, stainless steel
Seals	NBR
Valve seat	oxide ceramic control discs

FEATURES

- Low power consumption
- Choice of compact actuators
- Resists dirt
- Failset
- Wear-resistant control discs
- Solenoid hermetically sealed from fluid
- Suitable for vacuum

CHARACTERISTIC DATA

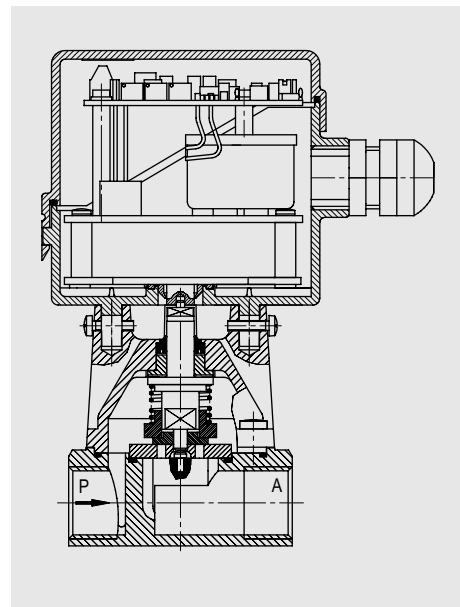
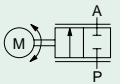
Standard valves

Connection	ND	k _V -Value	Operating Pressure		Weight	Part Number
G	mm	m³/h	min.	bar	kg	
½	15	1.1	-0.9	10.0	0.9	8288200.96XX
¾	20	4.4	-0.9	6.0	1.6	8288300.96XX
1	20	4.4	-0.9	6.0	1.6	8288400.96XX

Cartridge						
-	15	1.1	-0.9	10.0	0.7	8288500.96XX



82880



ELECTRICAL DATA FOR MOTOR ACTUATORS

Motor type	Voltage V	Frequency Hz	Power consumption W	Torque Ncm	Operating time s	Wiring	Motor Part Number
DC motor	24	-	1.9	120	10 - 14	01	9614.02400
DC motor with feedback potentiometer	24	-	1.9	120	10 - 14	02	9615.02400
DC motor with positioner	24	-	1.5	120	10 - 16	03	9650.02400
Synchronous motor	24	50	3.0	120	10	04	9636.02450
Stepper motor	24	-	5.0	120	10	05	9638.02400
DC motor	24	-	2.0	200	13	01	9623.02400
DC motor with feedback potentiometer	24	-	2.0	200	13	02	9624.02400
DC motor with positioner	24	-	2.5	200	13 - 16	03	9651.02400

WIRING

01 DC motor
Wiring:
 + to 1 CLOSING direction
 - to 2 OPENING direction
 Limit microswitches

02 DC motor
Wiring:
 + to 1 CLOSING direction
 - to 2 OPENING direction
 Limit microswitches
 Resistance between 3 and 4:
 minimum when valve closed
 maximum when valve open

03 DC motor
Wiring:
 1 and 2 Power supply
 3 and 4 Input control voltage
 5 Output/auxiliary

04 Synchronous motor
Wiring:
 AC an 1 and 3 CLOSING direction
 2 unused
 AC to 2 and 3 OPENING direction
 1 unused
 Limit microswitches

05 Stepper motor
Wiring:
 1 Motor frame
 2 Reference potential for contacts
 3 Limit feedback signal (OPEN)
 4 Limit feedback signal (CLOSED)
 5 and 6 Connections for phase 1
 7 and 8 Connections for phase 2

NOTES

- Not gastight in closed position
- Pmax 10 bar for G 3/4 to G1 available on request
- Operating time depends on working pressure
- IP54 protection achieved when mounted with actuator upright, maximum permissible inclination 45°

OPTIONAL FEATURES

xxxxx 60.96xx FPM seals
 xxxxx 61.96xx EPDM seals

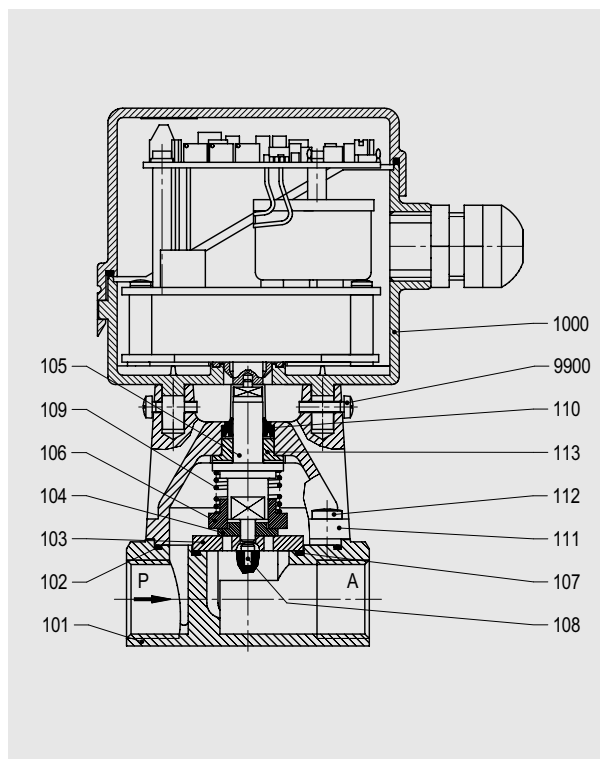
8288262.96xx Control discs achieving Kv of 3.5 at Pmax of 6 bar
 8288562.96xx Control discs achieving Kv of 3.4 at Pmax of 6 bar

SECTIONAL DRAWING

Parts list and identification

- 101 Valve body
- *102 O-ring
- 103 Ceramic disc
- 104 Round plate
- 105 Valve stem
- 106 Holder
- *107 O-ring
- 108 Pin
- *109 Compression spring
- *110 Seal wiper ring
- 111 Body cover
- 112 Cheese head screw
- *113 Shouldered bush
- 1000 Motor actuator
- 9900 Cheese head screw

*These individual parts form a complete wearing unit.

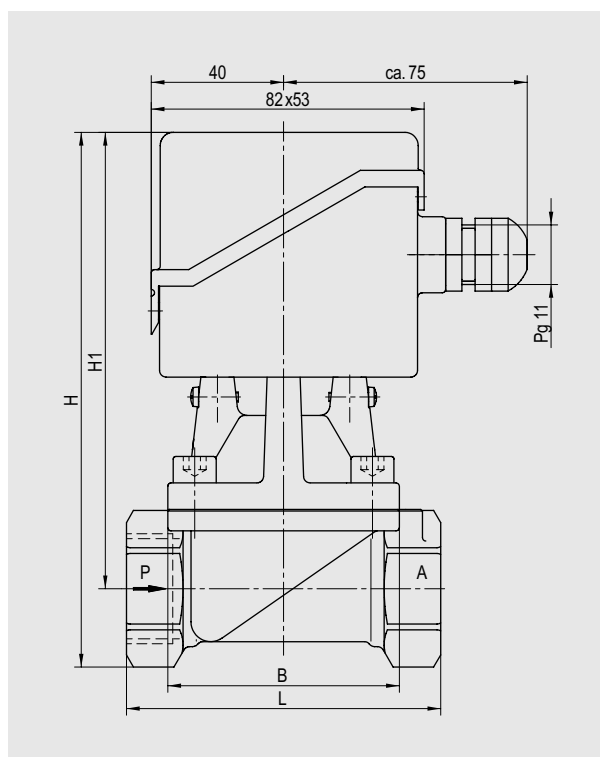


82880

DIMENSIONAL DRAWING

B = max. depth

Connection	L	B	H	H1
G	mm	mm	mm	mm
1/2	65	55	147	134
3/4	95	70	164	140
1	95	70	164	140



TECHNICAL INFORMATION
SERVO AMPLIFIER

for 82 880 motorised valve

Electronic card for positioning valves with DC motor actuators.

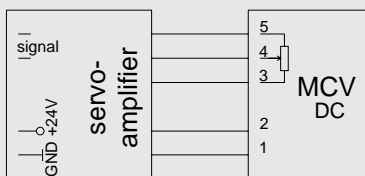
An electronically programmed set point of either 0 to 20mA or 0 to 10V can be used to adjust the aperture angle and hence the flow cross-section. A potentiometer in the actuator provides position feedback. Actual value and set point are compared in the amplifier.

A 0 to 20mA output is available for actual value feedback.

Models	Valve opening
	0 to full

Catalogue No

8278102.0000	0 to 10V, 0 to 20mA
8278103.0000	4 to 20mA
8278104.0000	10 to 0V, 20 to 0mA



We will gladly provide you with any further information required.

2/2 valves ND 16

Motorised valves
not requiring differential pressure
Tube connection

DESCRIPTION

Type	motorised proportional valve
Switching function	Throttle setting with bypass
Pressure range	-0.5 to 2.5 bar
Differential pressure	not required
Process fluid	neutral liquids
Fluid temperature	-30 to maximum of +90°C
Ambient temperature	-30 to maximum of +80°C
Viscosity	up to 80mm²/s
Flow direction	fixed
Mounting position	preferably with actuator upright

MATERIALS

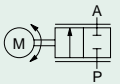
Body	plastic PA 66
Cover	plastic PA 66
Internal parts	stainless steel, brass
Seals	NBR, EPDM
Valve seat	oxide ceramic control discs

FEATURES

- Low power consumption
- Compact
- Resists dirt
- Failset
- Wear-resistant control discs
- Solenoid hermetically sealed from fluid
- Suitable for vacuum
- Manual override knob
- Feedback potentiometer
- Optional 3/2 model



8496852



CHARACTERISTIC DATA

Tube connection DIN 71 550	ND mm	k _v -Value m³/h	Operating pressure			Weight kg	Part Number
			min.	bar	max.		
22 mm	16	4.0	-0.5		2.5	0.3	8496852.9655.02400

ELECTRICAL DATA

Actuator:

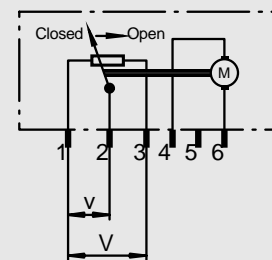
Part Number	9655.02400
Motor type	DC geared motor feedback potentiometer 4.7 k Ω
Operating time	to 90° aperture angle: 1.8 to 3.1s
Standard voltage	24V DC
Permissible voltage range	-20%/+16%
Power consumption	inrush 2.4W holding 2.4W
Duty cycle	100%
Protection	IP 54 to DIN VDE 0470 Part 1
Electrical connection	AMP socket

WIRING

Nominal potentiometer settings
for aperture angle of 90°

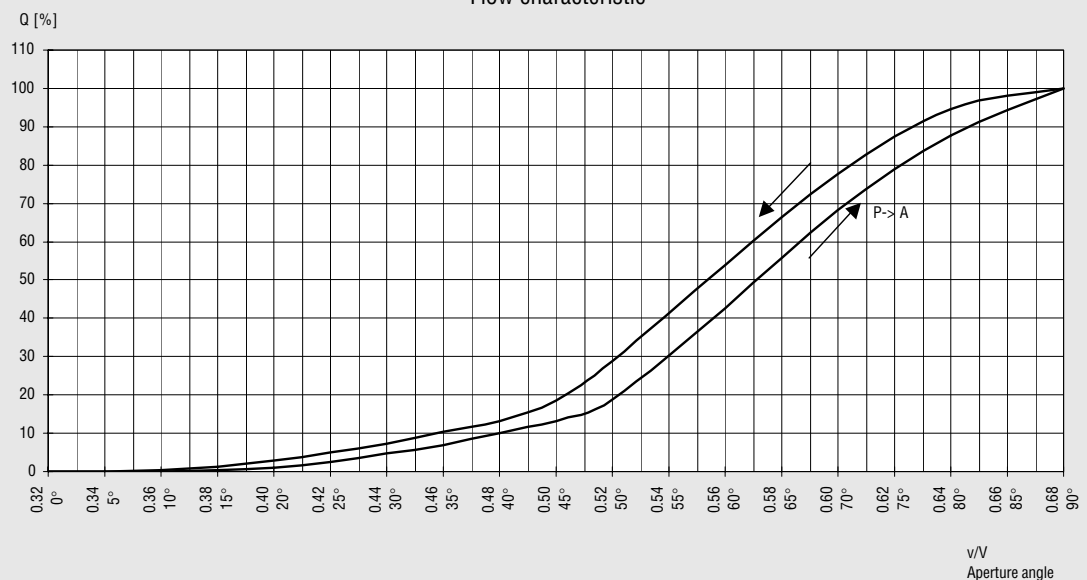
Valve closed: $\frac{V}{V} = 0.32$

Valve open: $\frac{V}{V} = 0.68$

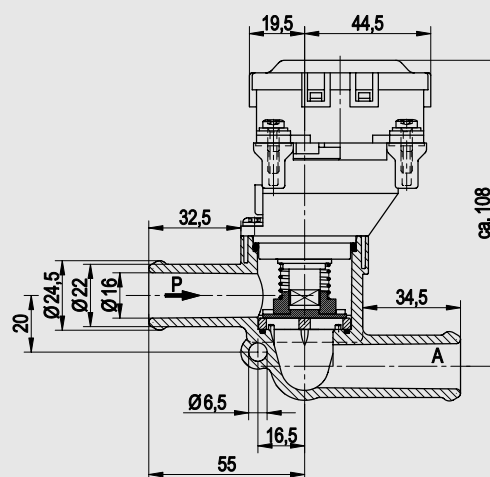


Opening direction: + to 4, - to 6
Closing direction: + to 6, - to 4

Flow characteristic

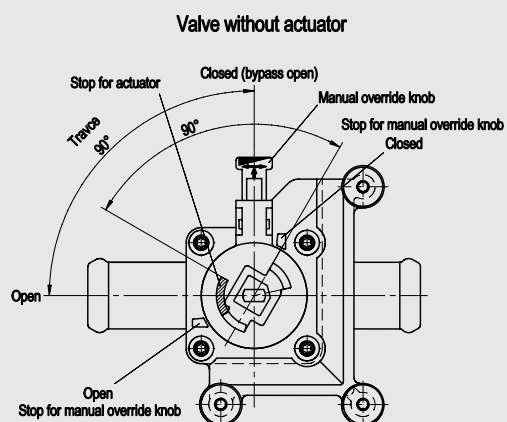


DIMENSIONAL DRAWING 01



8496852

DIMENSIONAL DRAWING 02



TECHNICAL INFORMATION

TEMPERATURE REGULATION KIT

Kit for setting up a regulation loop consisting of:

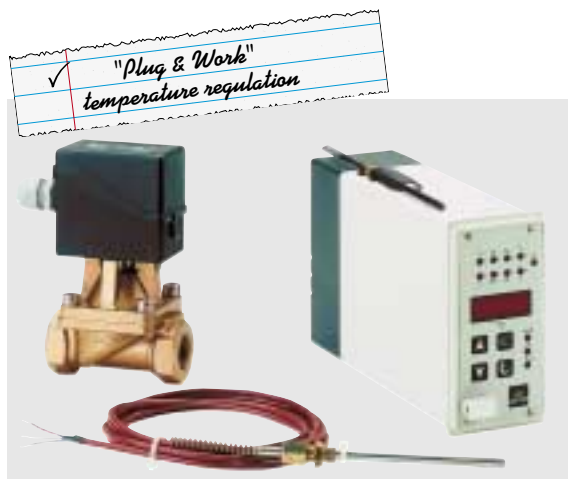
- Motorised valve
- PID three-point stepper regulator
- Temperature sensor

Features

- Painless setup procedure
- High resolution stepper motor
- Temperature range 0 to 130°C
- Power supply 230V 50Hz
- Aperture angle limits
- For heating and cooling circuits

The kit allows a heat exchanger to regulate system temperatures. The regulator adjusts the motorised valve in response to deviations from the set point, which are picked up from the sensor.

The regulation parameters can be displayed and modified as necessary.



See page 197 for further information.

Temperature regulation kit

consisting of regulator, sensor and motorised valve

DESCRIPTION

Temperature regulator

Regulation characteristic PID three-point stepper regulator
Regulation range 0 to 130°C
Outputs for motorised valve fault signal/
limit detection
actual temperature
Standard power supply 230V 50-60Hz / 110V 50-60Hz
Type panel mounting

TEMPERATURE SENSOR

Type screw-in
2.5 m lead
Output digital, pulse duration modulated

MOTORISED VALVE

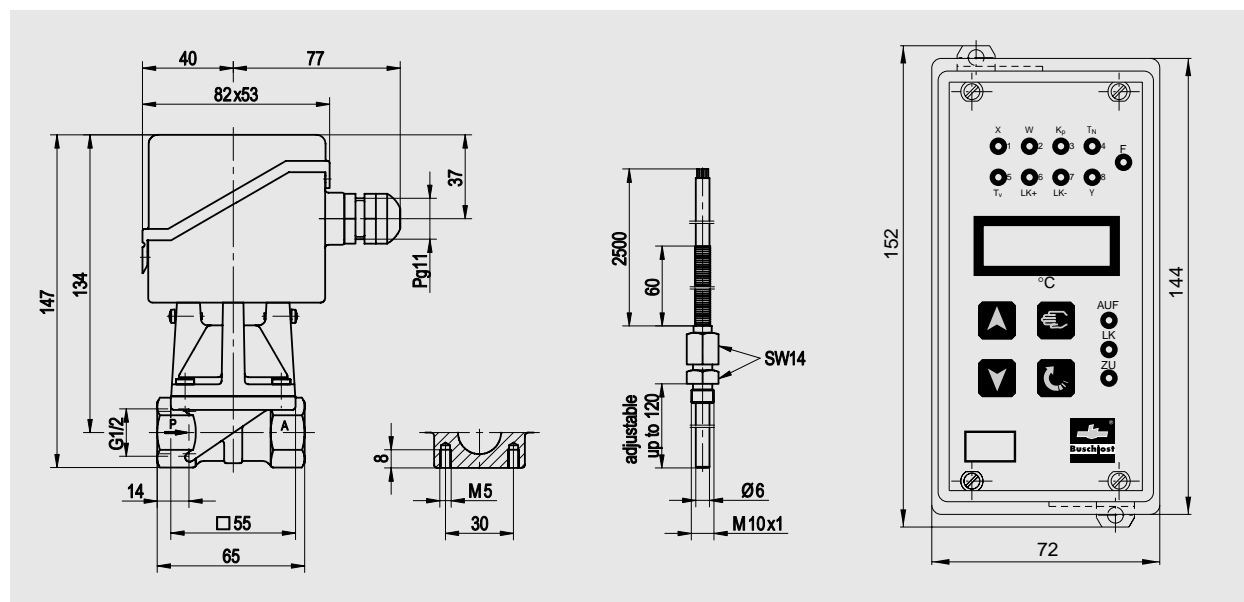
Type motorised proportional valve
Pressure range 0 to 10 bar
Body brass
Seals NBR
Seat seals oxide ceramic control discs



8495220

CHARACTERISTIC DATA

Connection G	k _V -Value m³/h	Pressure range min. bar max.		Regulation range °C	Part Number kit
½	1.1	0	10	0 - 130°C	8495220.0000
¾	4.4	0	6	0 - 130°C	8495221.0000
1	4.4	0	6	0 - 130°C	8495222.0000



TECHNICAL INFORMATION

FLOW REGULATION KIT

Kit for setting up a regulation loop consisting of:

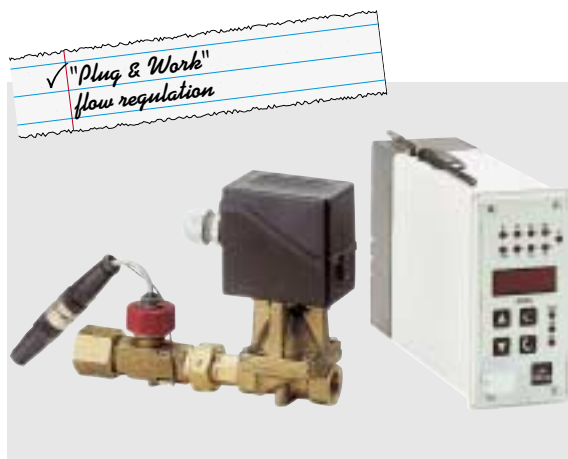
- Motorised valve
- Flow regulator
- Flowmeter

Features

- Painless setup procedure
- High resolution stepper motor
- Flow range 1 to 40 l/min
- Power supply 230V 50Hz
- Indicators for direction of operation of valve

The kit is used to keep the flow rate constant with changing inlet and outlet pressures. The electronic regulator evaluates the sensor's frequency-proportional output signal to detect any increase or decrease in pressure, which it counteracts by adjusting the motorised valve until the set point is reached again.

The set point, actual value, loop gain, alarm limits and sensor constant (pulses per litre) can be displayed and modified as necessary.



See page 199 for further information.

Flow regulation kit

consisting of regulator, flowmeter and motorised valve

DESCRIPTION

REGULATOR

Regulation characteristic PID three-point stepper regulator
Regulation range 1 to 40 l/min
Outputs for motorised valve fault signal/
limit detection
actual flow rate
Standard power supply 230V 50-60Hz / 110V 50-60Hz
Type panel mounting

FLOWMETER

Type rotor
plug-in connection

MOTORISED VALVE

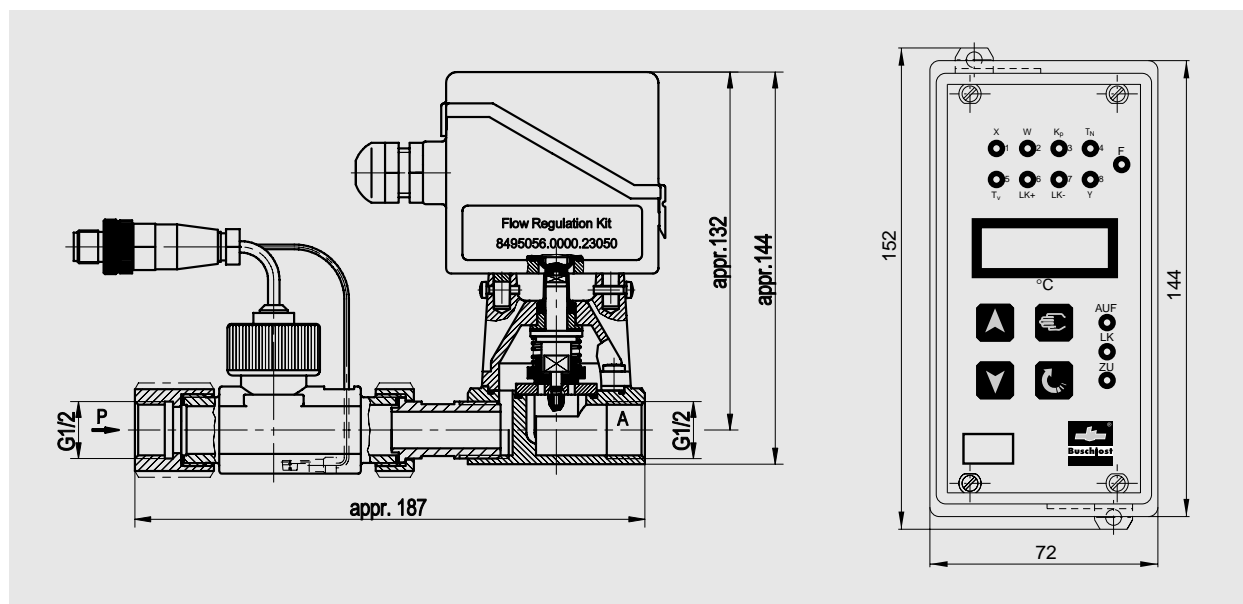
Type motorised proportional valve
Pressure range see table of characteristic data
Body brass
Seals NBR
Seat seals oxide ceramic control discs



8495056

CHARACTERISTIC DATA

Connection	k_v -Value	Pressure range		Regulation range	Part Number
G	m^3/h	min.	bar max.	l/min	kit
$\frac{1}{2}$	0.90	0	10	1 - 40	8495056.0000
$\frac{1}{2}$	1.44	0	6	1 - 40	8496082.0000



INFORMATION

INTERNET

Online selection of valves

Please contact us on: ++49 5731 791282
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- Selecting valves
- Ordering valves with the click of a mouse
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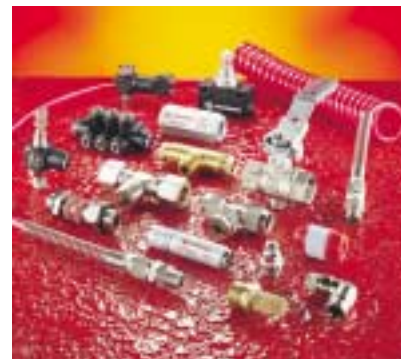
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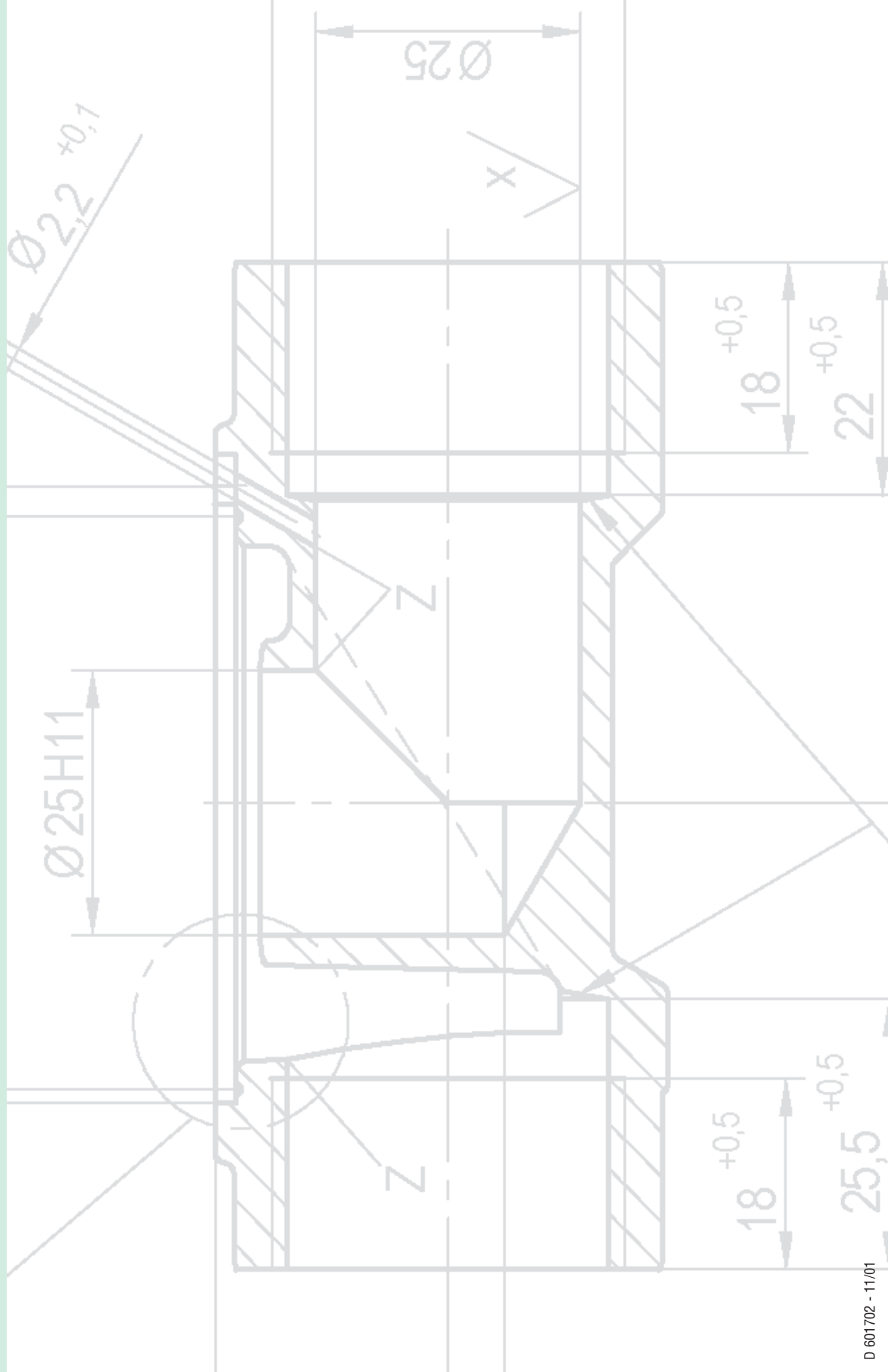
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