DATA SHEET

Type 6024

bürkert
FLUID CONTROL SYSTEMS

Direct-acting 2-way low differential pressure solenoid control valve

- For high flow rates with low inlet pressure
- Direct-acting, normally closed
- Operating pressure 0 ... 0.7 bar
- Orifice sizes 8 ... 12 mm
- Port connection 1/2” and 3/4”

Product variants described in the data sheet may differ from the product presentation and description.

Can be combined with

Type 8605 ▸
PWM control electronics for electromagnetic proportional valves

Type 2518 ▸
Cable Plug DIN EN 175301-803 - Form A

Type 8611 ▸
eCONTROL - Universal controller

Type description

The direct-acting proportional valve Type 6024 works as an electromagnetically actuated control valve with relatively high flow rates at low operating pressures. The valve is normally closed.

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Visit product website ▸

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1. General Technical Data

Product properties	
Dimensions	Detailed information can be found in chapter "4. Dimensions" on page 4.
Material	
Body	Brass, stainless steel
Seal	FKM, others on request
Performance data	
Typical values of positioning behaviour[1.]	
Hysteresis	< 7%
Reproducibility	< 0.5% of end value[2.]
Response sensitivity	< 0.5% of end value[2.]
Setting range	1:25
K_V value[3.]	1.4…2.8 m^3/h
Maximum operating pressure[4.]	0.1…0.7 bar (depending on DN)
Nominal operating mode	100 % continuous operation
Electrical data	
Operating voltage	24 V DC (12 V on request)
Power consumption	18 W
Maximum coil current[5.]	620 mA
PWM frequency[6.]	280 Hz
Medium data	
Operating medium	Neutral gases, liquids
Medium temperature	-10 °C… +90 °C
Viscosity	Maximum 21 mm^2/s (21 cSt)
Process/Port connection & communication	
Port connection size	G ½, G ¾ (NPT ½ and NPT ¾ on request)
Electrical connection	Cable plug Type 2518 acc. to DIN EN 175301-803 form A Detailed information can be found in chapter "Cable plug Type 2518, Form A according to DIN EN 175301-803" on page 10.
Approvals and certificates	
Degree of protection	IP65
Environment and installation	
Installation position	Any, preferably actuator face up
Ambient temperature	Maximum +55 °C

1.) Characteristic data of control behaviour depends on process conditions.

2.) By flow measurement

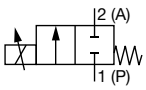
3.) K_{VS} value: Flow rate value for water

4.) Pressure data: Overpressure with respect to atmospheric pressure, depending on nominal diameter, tightness seal or nominal pressure

5.) Maximum value: value depends on operating pressure

6.) PWM: pulse width modulation

2. Circuit functions

Circuit functions	Description
	**Type: A, proportional control valve** 2/2 way Direct-acting Normally closed

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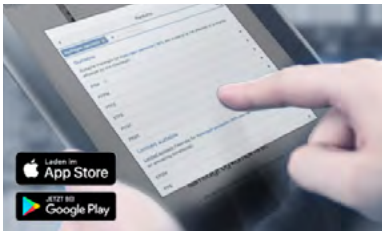
3. Materials

3.1. Chemical Resistance Chart – Bürkert resistApp



Bürkert resistApp – Chemical Resistance Chart

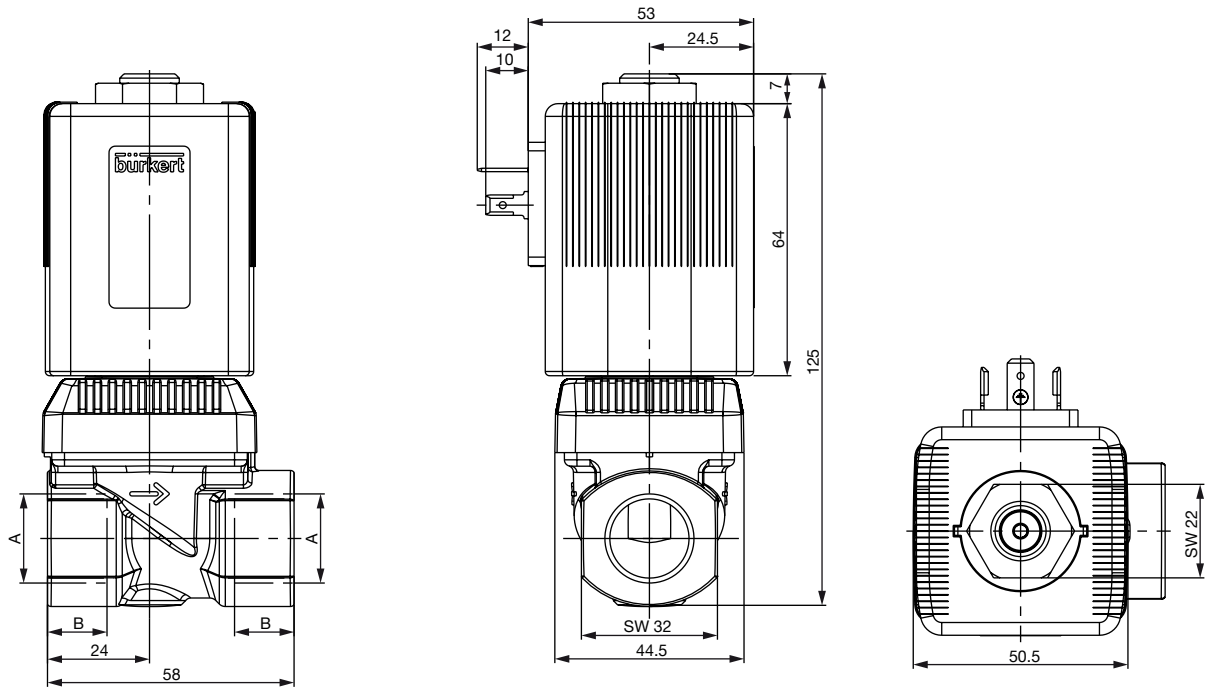
You want to ensure the reliability and durability of the materials in your individual application case? Verify your combination of media and materials on our website or in our resistApp.

Start Chemical Resistance Check

4. Dimensions

4.1. Brass version with coil size 8

Note:
Dimensions in mm



Port connection	A	B
G ½	G ½	14
NPT ½ (on request)	NPT ½	14
G ¾	G ¾	16
NPT ¾ (on request)	NPT ¾	16

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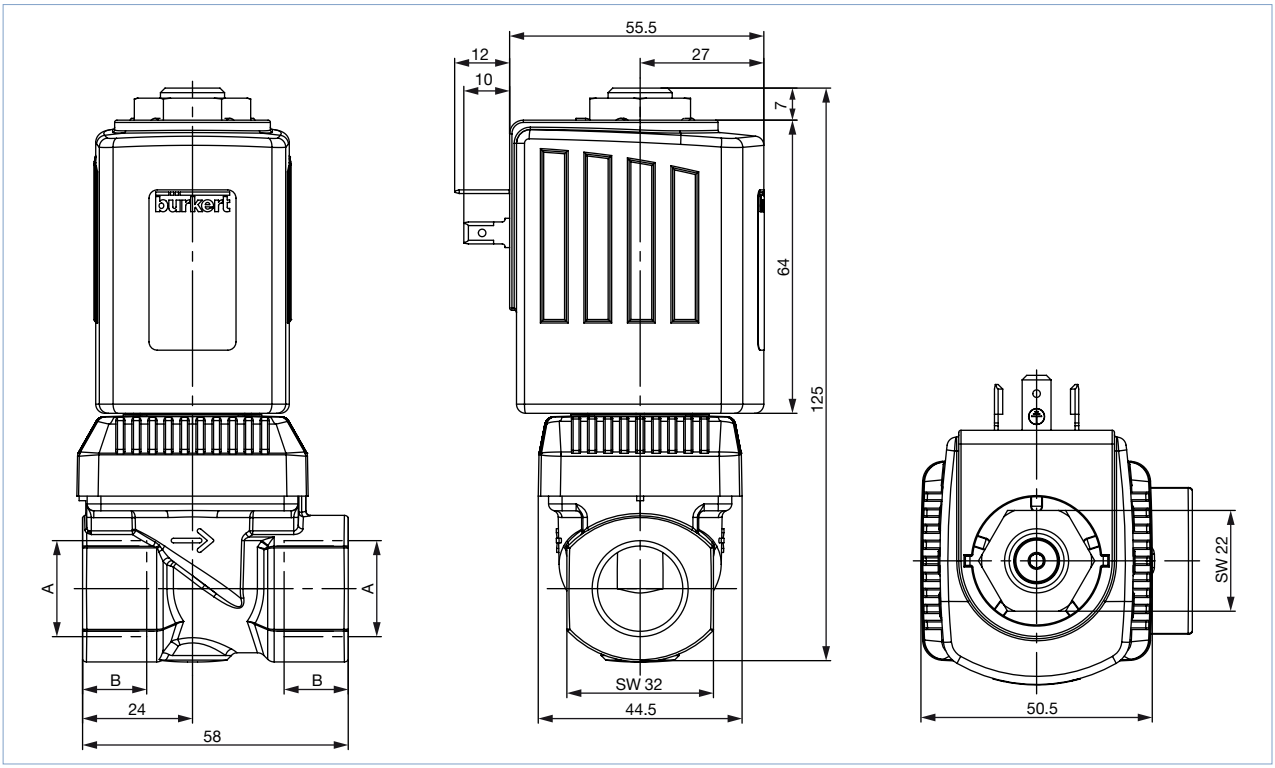
4.2. Brass version with coil size K

Note:
Dimensions in mm



Port connection	A	B
G ½	G ½	14
NPT ½ (on request)	NPT ½	14
G ¾	G ¾	16
NPT ¾ (on request)	NPT ¾	16

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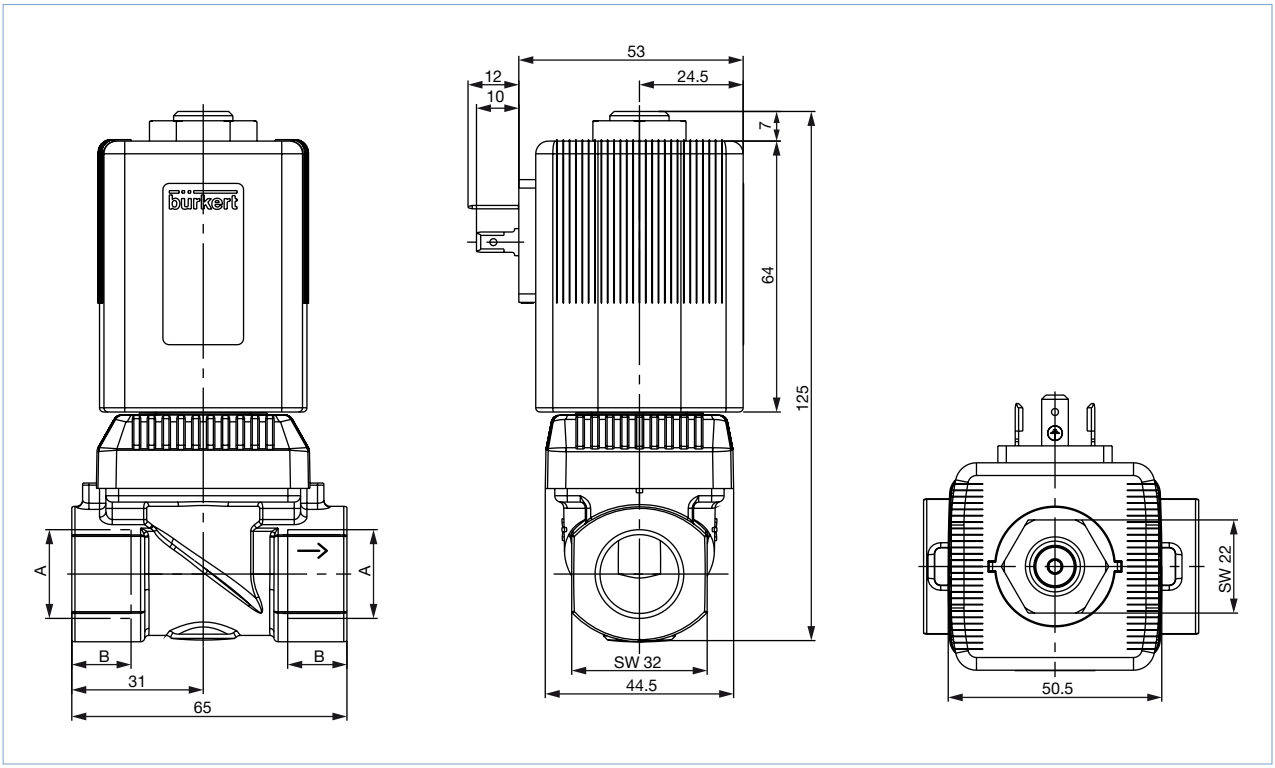
4.3. Stainless steel version with coil size 8

Note:
Dimensions in mm



Port connection	A	B
G ½	G ½	14
NPT ½ (on request)	NPT ½	14
G ¾	G ¾	16
NPT ¾ (on request)	NPT ¾	16

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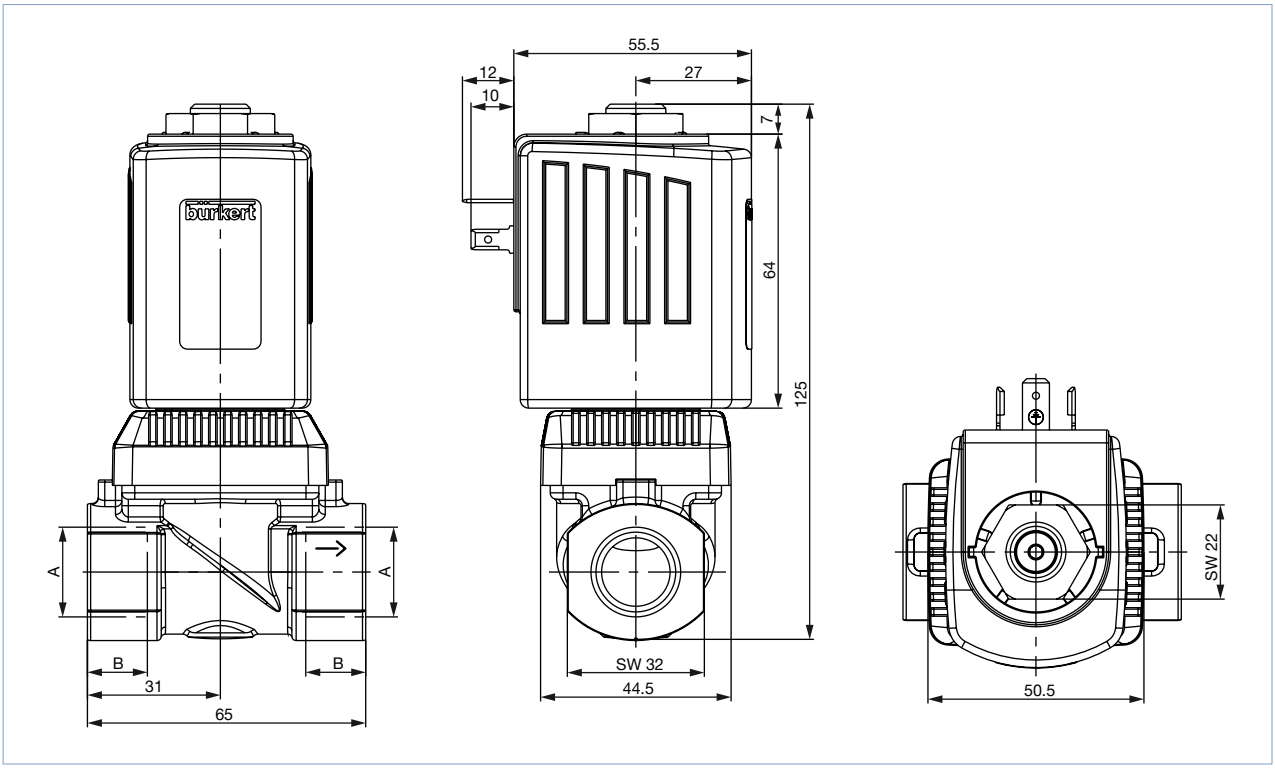
4.4. Stainless steel version with coil size K

Note:
Dimensions in mm



Port connection	A	B
G ½	G ½	14
NPT ½ (on request)	NPT ½	14
G ¾	G ¾	16
NPT ¾ (on request)	NPT ¾	16

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5. Performance specifications

5.1. Flow characteristic

Determination of the K_V value

Pressure drop	K_V value for liquids [m^3/h]	K_V value for gases [m^3/h]
Sub-critical $p_2 > \frac{p_1}{2}$	$= Q\sqrt{\frac{\rho}{1000\,\Delta p}}$	$= \frac{Q_N}{514}\sqrt{\frac{T_1\,\rho_N}{p_2\,\Delta p}}$
Supercritical $p_2 < \frac{p_1}{2}$	$= Q\sqrt{\frac{\rho}{1000\,\Delta p}}$	$= \frac{Q_N}{257\,p_1}\sqrt{T_1\,\rho_N}$

K_V	Flow coefficient	[m^3/h][1.)]
Q_N	Standard flow rate	[m_N^3/h][2.)]
p_1	Inlet pressure	[bar][3.)]
p_2	Outlet pressure	[bar][3.)]
Δp	Differential pressure p_1-p_2	[bar]
ρ	Density	[kg/m^3]
ρ_N	Standard density	[kg/m^3]
T_1	Medium temperature	[(273+t)K]

1.) Measured for water, Δp = 1 bar, over the value

2.) At reference conditions 1.013 bar and 0 °C (273 K)

3.) Absolute pressure

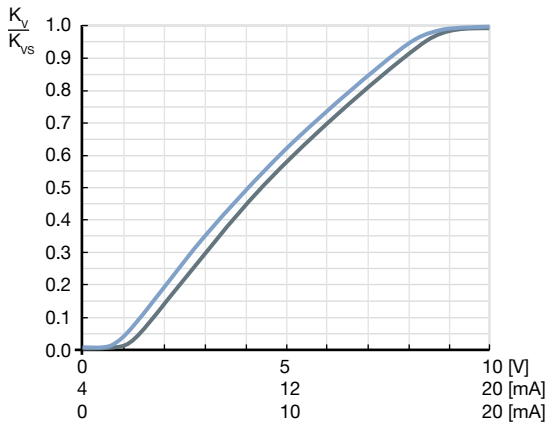
5.2. Exemplary characteristic curve of a proportional valve

Note:
In continuous flow applications, the choice of an appropriate valve size is much more important than with on/off valves. The optimum size should be selected such that the resulting flow in the system is not unnecessarily reduced by the valve. However, a sufficient part of the pressure drop should be taken across the valve even when it is fully opened.

Recommended value: $\Delta p_{valve} > 25\,\%$ of total pressure drop within the system

Otherwise, an ideal, linear valve characteristic is deformed into a curved system characteristic.

If the differential pressure (difference between inlet and outlet pressure) exceeds half the value of the nominal pressure discontinuities may occur.
For that reason take advantage of Bürkert competent engineering services during the planning phase!



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6. Ordering information

6.1. Bürkert eShop – Easy ordering and quick delivery

Bürkert eShop – Easy ordering and fast delivery

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Order online now

6.2. Recommendation regarding product selection

Note:

- Please use the **"Product Inquiry Form"** at the end of this data sheet for the specifications of the device configuration and send us a copy of the inquiry with information about the application.
- Please note the chapter **"5.2. Exemplary characteristic curve of a proportional valve" on page 8** of product selection.

6.3. Bürkert product filter

Bürkert product filter – Get quickly to the right product

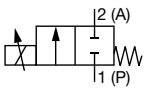
You want to select products comfortably based on your technical requirements? Use the Bürkert product filter and find suitable articles for your application quickly and easily.

Try out our product filter

6.4. Ordering chart

Note:

- All valves with FKM seal
- Please note that the cable plug must be ordered separately, see **"Cable plug Type 2518, Form A according to DIN EN 175301-803" on page 10** or separate data sheet for **Type 2518** ▶.

Circuit function	Orifice	Port connection	K_{VS} value water[1.)]	Maximum pressure[2.)]	Coil power	Maximum coil current	Article no. brass body	Article no. stainless steel body
	[mm]		[m³/h]	[bar]	[W]	[mA]		
A, proportional control valve 2/2 way Direct-acting Normally closed 	8	G ½	1.4	0.7	18	620	150401	–
		G ¾	1.4	0.7	18	620	150427	–
	10	G ½	2.0	0.4	18	620	150402	150404
		G ¾	2.0	0.4	18	620	150428	150429
	12	G ½	2.8	0.2	18	620	–	150426
		G ¾	2.8	0.2	18	620	150406	150408

1.) Flow rate value for water, measured at +20 °C and 1 bar pressure differential over a fully opened valve

2.) Pressure data: Overpressure with respect to atmospheric pressure

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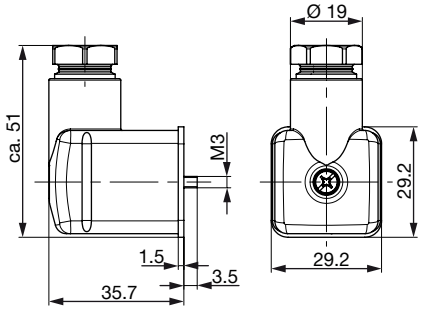
6.5. Ordering chart accessories

Cable plug Type 2518, Form A according to DIN EN 175301-803

Note:
Further versions see data sheet **Type 2518** ▸.

Cable plug	Dimensions	Version	Voltage	Article no.
		Without circuitry (AC/DC)	0…250 V AC/DC	314802

Control unit Type 8605

Note:
Further versions see data sheet **Type 8605** ▸.

Control unit	Version	Max. coil current range	Type 6024	Type 6024	Article no.
		[mA]	24 V DC	12 V DC	
	Cable plug with PG cable gland	200…1000	x	–	316530
	Cable plug with M12 connection	200…1000	x	–	316528
	Cable plug with PG cable gland	500…2000	x	x	316529
	Cable plug with M12 connection	500…2000	x	x	316526
	Cable plug with PG cable gland without operating element	200…1000	x	–	316521
	Cable plug with M12 connection without operating element	200…1000	x	–	316522
	Cable plug with PG cable gland without operating element	500…2000	x	x	316523
	Cable plug with M12 connection without operating element	500…2000	x	x	316525
	Standard rail	200…1000	x	–	316532
	Standard rail	500…2000	x	x	316533

x: on request

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Product Enquiry Form - Proportional valve

Thank you for your interest in our products! In order to provide you with optimum advice, please fill out the following form and send it to your **Bürkert representative** or e-mail address: info@burkert.com. All information submitted will of course be kept strictly confidential.

Please fill in the **required fields**! *

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Personal Information			
Company		**Contact person**	
Customer no.		**Department**	
Street		**Postcode / Town**	
Telephone no.		**Email**	

Delivery

Quantity Required delivery date

Operating data	
Function (Function of the control valve in the process / process description)	
Operating medium	
Type of medium	○ Fluid ○ Steam ○ Gas
Supply voltage	V
Ambient temperature (max.)	$t_{u\,max}$ = ○ °C / ○ °F

Fluidic data					
Flow range Q_{Nom}	min.	max.	unit		
Inlet pressure at Q_{Nom}	p_1 =	barg[1.)]			
Outlet pressure at Q_{Nom}	p_2 =	barg[1.)]			
Max. inlet pressure	p_{1max} =	barg[1.)]			
Medium temperature (min./ max.)	$t_{m\,min}$ =	$t_{m\,max}$ =	○ °C / ○ °F		
Port connection	○ G (DIN ISO 228/1) ○ Flange		○ NPT (ANSI B1.2) ○ Other		

1.) Please indicate all pressure values as overpressure to atmospheric pressure [barg] (g = relative pressure)

Material specifications			
Body	○ Stainless steel	○ Brass	○ Other
Seals	○ FKM	○ EPDM	○ Other

Approvals / Conformities

e. g. UL/UR, KTW W270, DVGW Gas, ATEX/IECEx, EAC, etc.

Additional Requirements / Comment

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