






## 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

	<b>Type 8605</b> ▶ PWM control electronics for electromagnetic proportional valves
	<b>Type 2518</b> ▶ Cable Plug DIN EN 175301-803 - Form A
	<b>Type 8611</b> ▶ 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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## 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 <sup>1.)</sup>	
Hysteresis	< 7%
Reproducibility	< 0.5% of end value <sup>2.)</sup>
Response sensitivity	< 0.5% of end value <sup>2.)</sup>
Setting range	1:25
K <sub>v</sub> value <sup>3.)</sup>	1.4...2.8 m <sup>3</sup> /h
Maximum operating pressure <sup>4.)</sup>	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 <sup>5.)</sup>	620 mA
PWM frequency <sup>6.)</sup>	280 Hz
Medium data	
Operating medium	Neutral gases, liquids
Medium temperature	- 10 °C... + 90 °C
Viscosity	Maximum 21 mm <sup>2</sup> /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<sub>vs</sub> 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

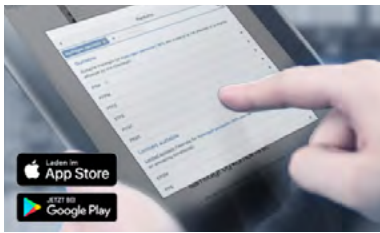
6.) PWM: pulse width modulation

## 2. Circuit functions

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

### 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.

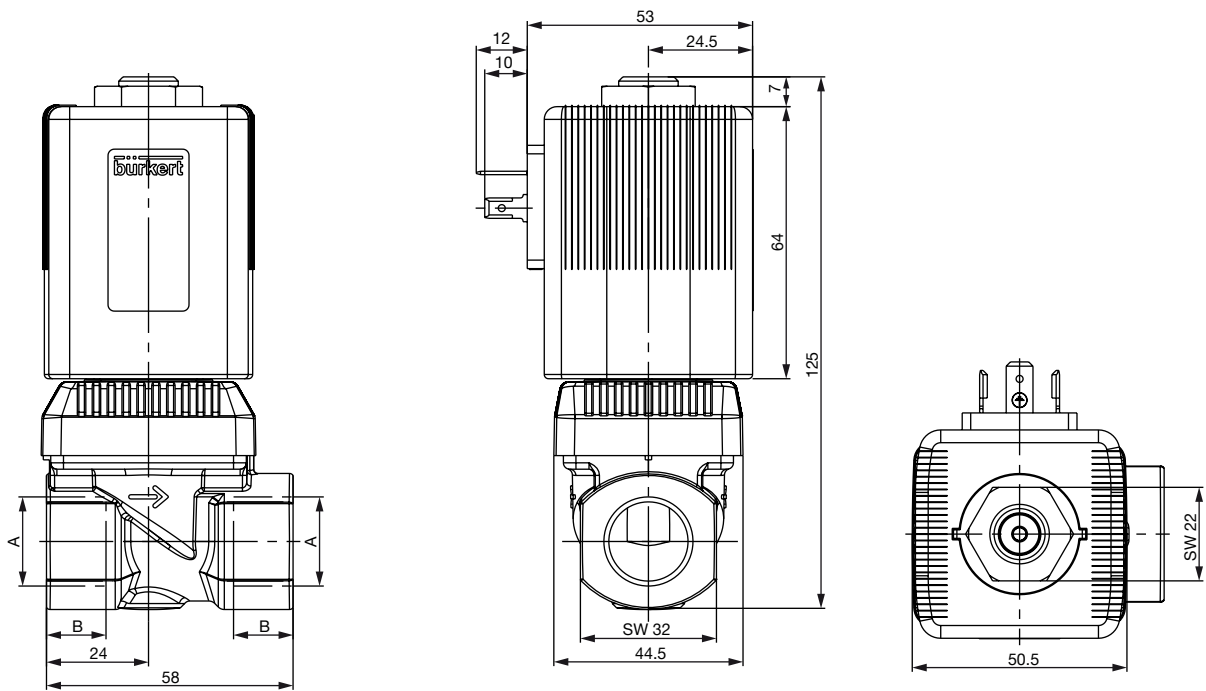
[Start Chemical Resistance Check](#)

### 4. Dimensions

#### 4.1. Brass version with coil size 8

**Note:**

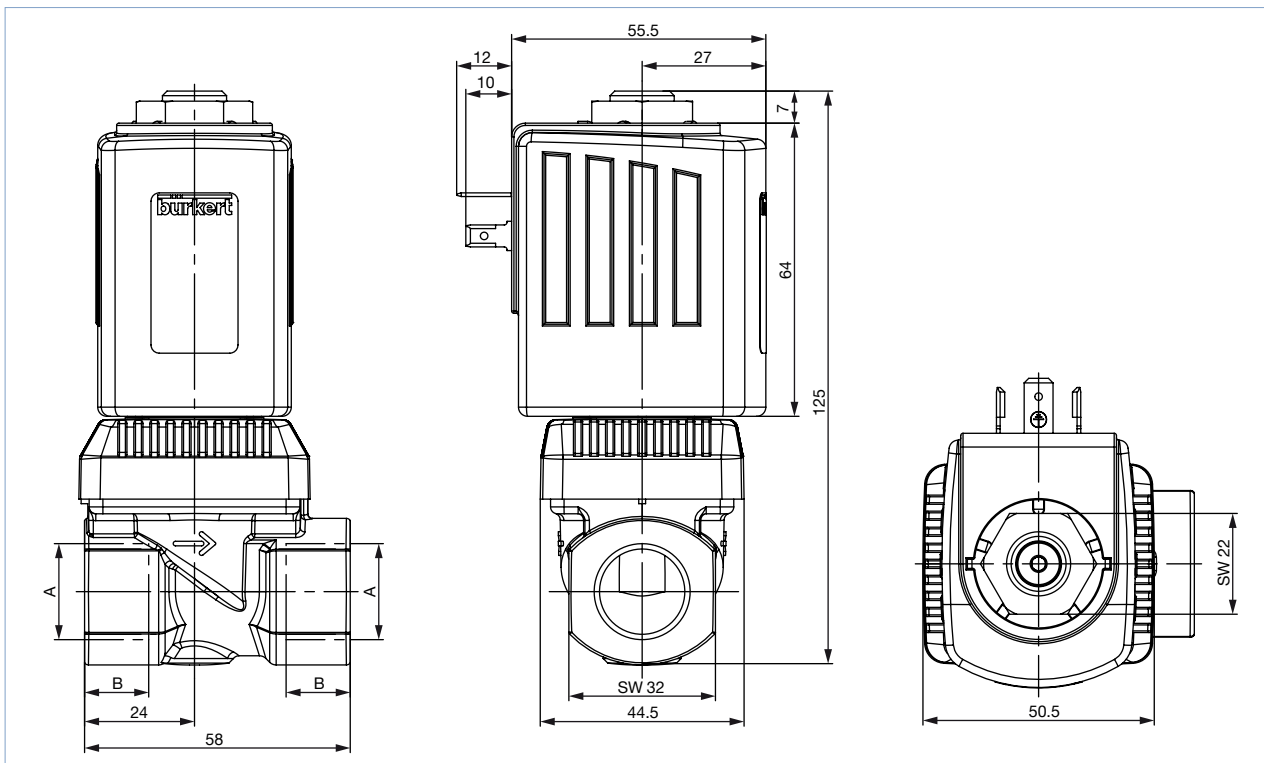
Dimensions in mm



Port connection	A	B
G 1/2	G 1/2	14
NPT 1/2 (on request)	NPT 1/2	14
G 3/4	G 3/4	16
NPT 3/4 (on request)	NPT 3/4	16

4.2. Brass version with coil size K

**Note:**  
Dimensions in mm



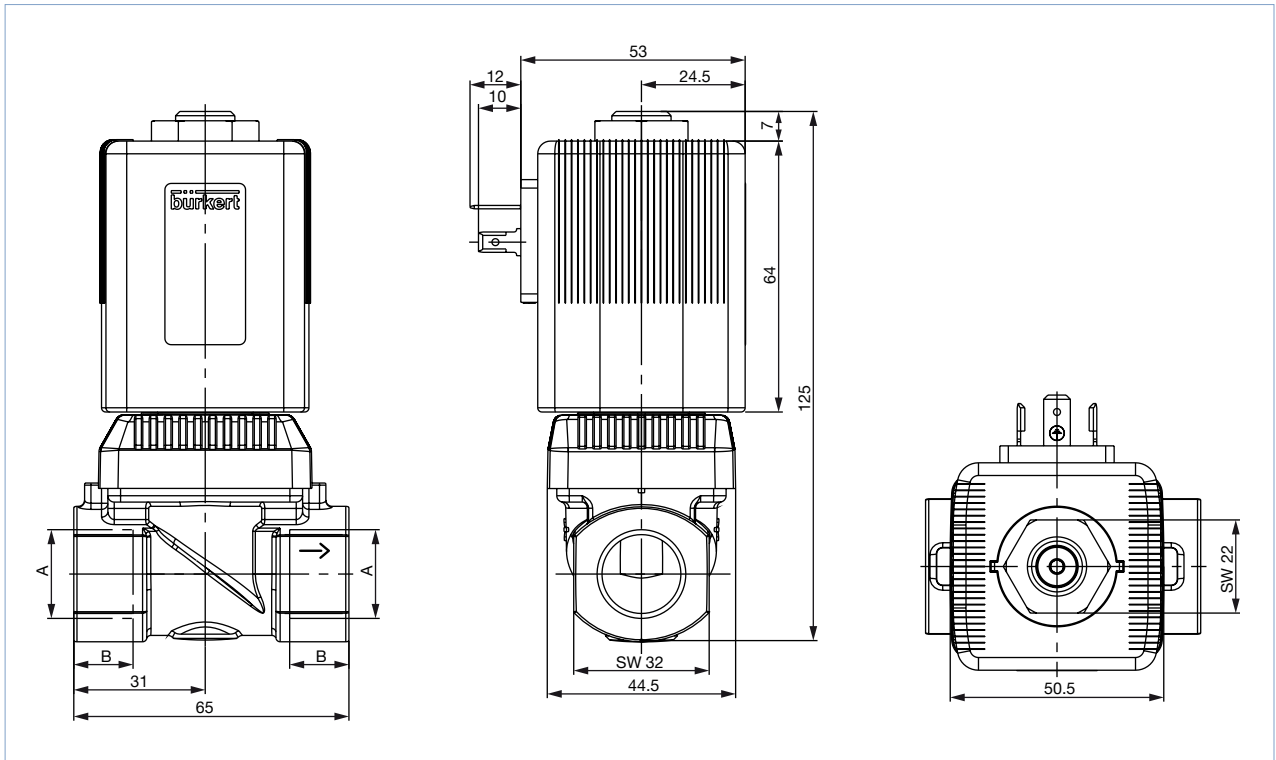
Port connection	A	B
G 1/2	G 1/2	14
NPT 1/2 (on request)	NPT 1/2	14
G 3/4	G 3/4	16
NPT 3/4 (on request)	NPT 3/4	16

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4.3. Stainless steel version with coil size 8

**Note:**

Dimensions in mm

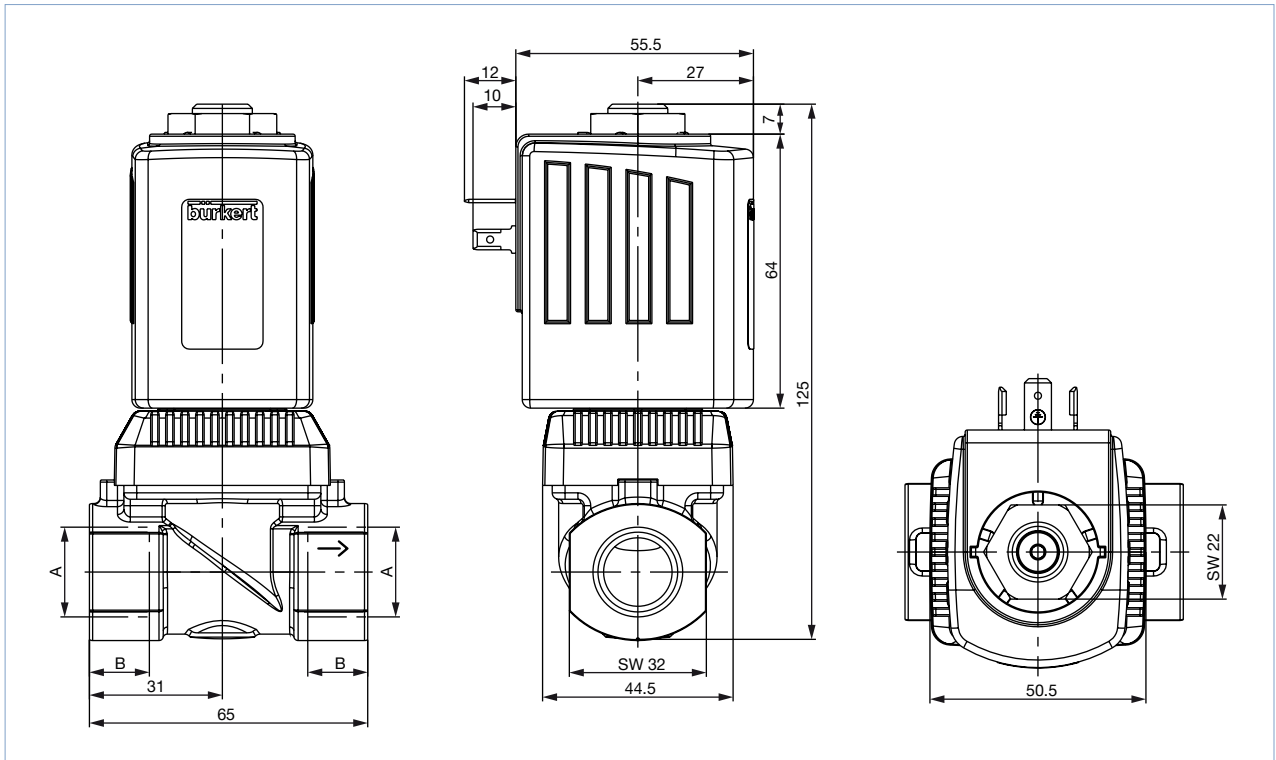


Port connection	A	B
G 1/2	G 1/2	14
NPT 1/2 (on request)	NPT 1/2	14
G 3/4	G 3/4	16
NPT 3/4 (on request)	NPT 3/4	16

**4.4. Stainless steel version with coil size K**

**Note:**

Dimensions in mm



Port connection	A	B
G 1/2	G 1/2	14
NPT 1/2 (on request)	NPT 1/2	14
G 3/4	G 3/4	16
NPT 3/4 (on request)	NPT 3/4	16

## 5. Performance specifications

### 5.1. Flow characteristic

#### Determination of the $K_V$ value

Pressure drop	$K_V$ value for liquids	$K_V$ value for gases
	[m <sup>3</sup> /h]	[m <sup>3</sup> /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 <sup>3</sup> /h] <sup>1)</sup>
$Q_N$ Standard flow rate	[m <sup>3</sup> /h] <sup>2)</sup>
$p_1$ Inlet pressure	[bar] <sup>3)</sup>
$p_2$ Outlet pressure	[bar] <sup>3)</sup>
$\Delta p$ Differential pressure $p_1 - p_2$	[bar]
$\rho$ Density	[kg/m <sup>3</sup> ]
$\rho_N$ Standard density	[kg/m <sup>3</sup> ]
$T_1$ Medium temperature	[(273+t)K]

- 1.) Measured for water,  $\Delta p = 1$  bar, over the valve
- 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:  $\Delta p_{\text{valve}} > 25\%$  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!

