



### 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, form A according to DIN EN 175301-803



**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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## 1. General technical data

Product properties	
Dimensions	Further information can be found in chapter "5. Dimensions" on page 5.
Material	
Seal	FKM, others on request
Body	Brass, stainless steel
Circuit functions	A Further information can be found in chapter "2. Circuit functions" on page 3.
Performance data	
Typical values of positioning behaviour <sup>1.)</sup>	
Hysteresis	< 7 %
Repeat accuracy	< 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
Pressure range <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	16 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	Max. 21 mm <sup>2</sup> /s (21 cSt)
Process/Port connection & communication	
Electrical connection	Plug contacts according to DIN EN 175301 - 803 form A for cable plug <b>Type 2518</b> ▶. Further information can be found in chapter "Cable plug Type 2518, form A according to DIN EN 175301 - 803" on page 9.
Port connection size	G ½, G ¾ (NPT ½ and NPT ¾ on request)
Approvals and conformities	
Degree of protection	IP65
Environment and installation	
Installation position	As required, preferably with actuator upright
Ambient temperature	Max. + 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

Symbol	Description
	<b>Circuit function A (CF A)</b> 2/2-way solenoid proportional control valve Direct-acting Normally closed

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### 3. Approvals and conformities

#### 3.1. General notes

- The approvals and conformities listed below must be stated when making enquiries. This is the only way to ensure that the product complies with all required specifications.
- Not all available versions can be supplied with the below mentioned approvals or conformities.

#### 3.2. Conformity

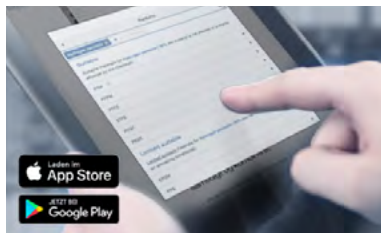
In accordance with the Declaration of Conformity, the product is compliant with the EU Directives.

#### 3.3. Standards

The applied standards which are used to demonstrate compliance with the EU Directives are listed in the EU-Type Examination Certificate and/or the EU Declaration of Conformity.

### 4. Materials

#### 4.1. 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.

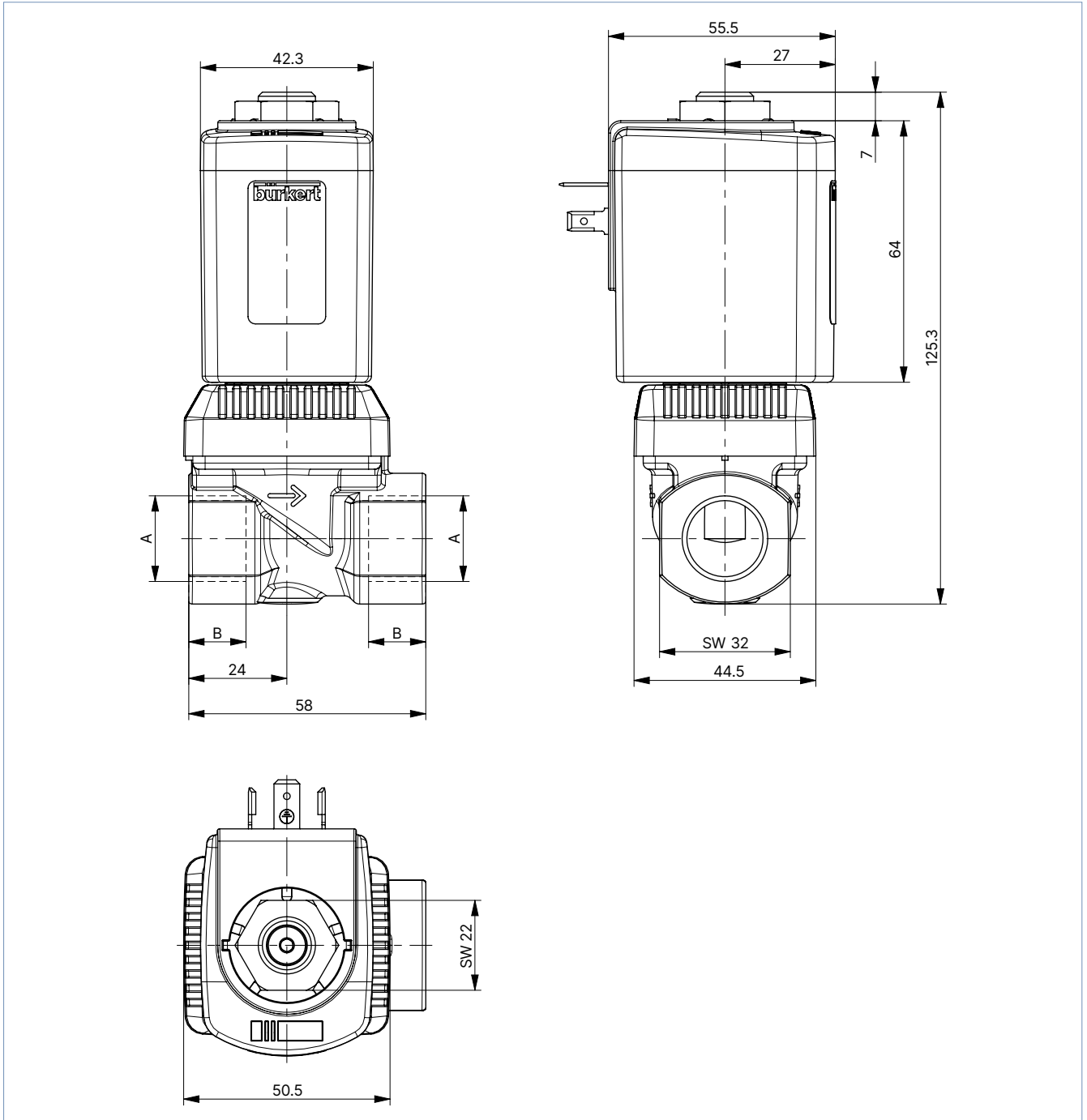
[Start chemical resistance check](#)

## 5. Dimensions

### 5.1. Brass version with coil size K

**Note:**

Dimensions in mm



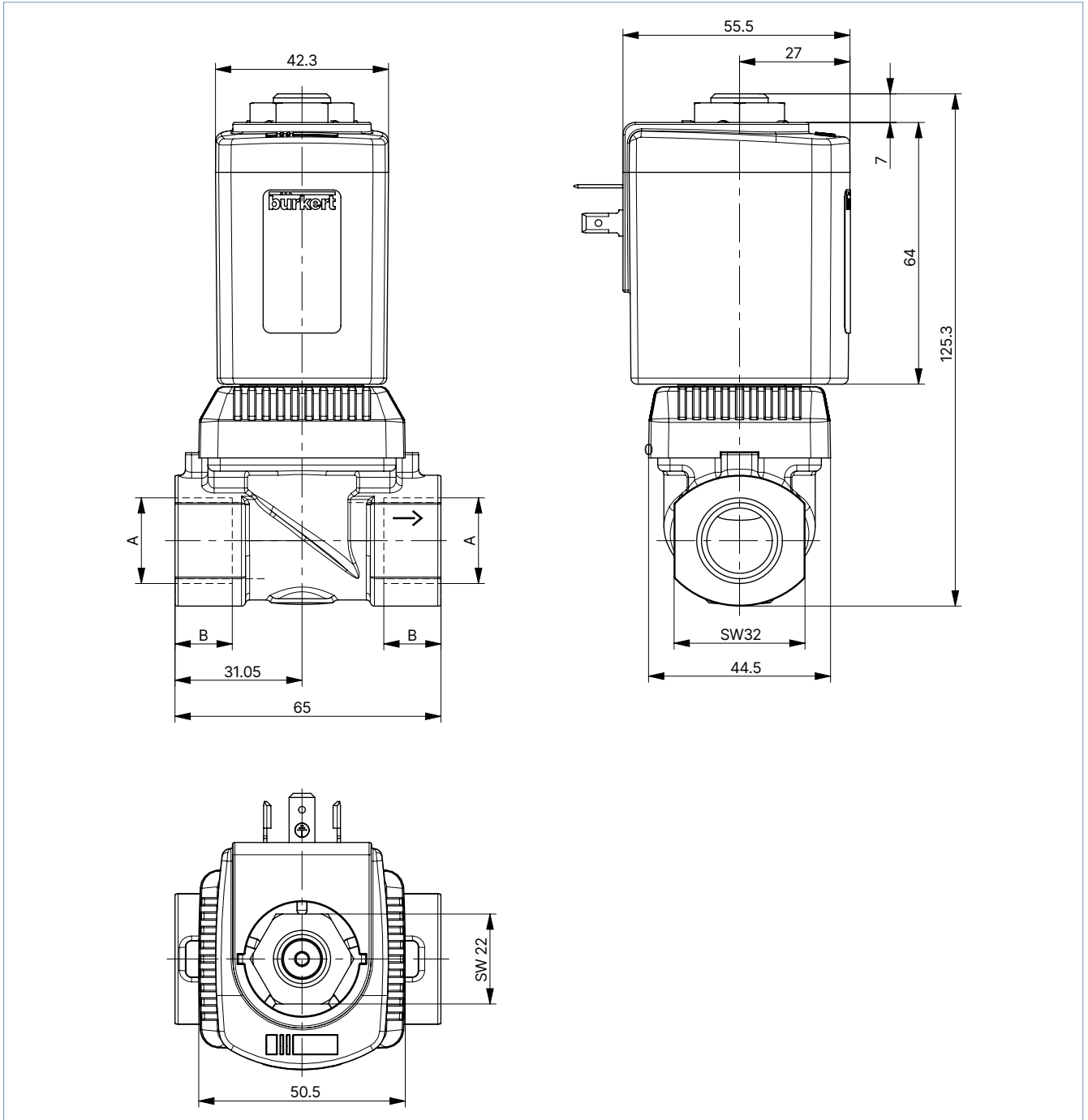
Port connection	A	B
G 1/2	G 1/2	14
NPT 1/2 (on request)	NPT 1/2	14
G 3/4	G 3/4	16
NPT 3/4 (on request)	NPT 3/4	16

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5.2. 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

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## 6. Performance specifications

### 6.1. Flow characteristic

#### Determination of the $K_v$ value

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

Value	Description	Unit
$K_v$	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 $p_1 \dots p_2$	[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 value
- 2.) At reference conditions 1.013 bar and 0 °C (273 K)
- 3.) Absolute pressure

### 6.2. Exemplary characteristic curve of a proportional valve

#### Note:

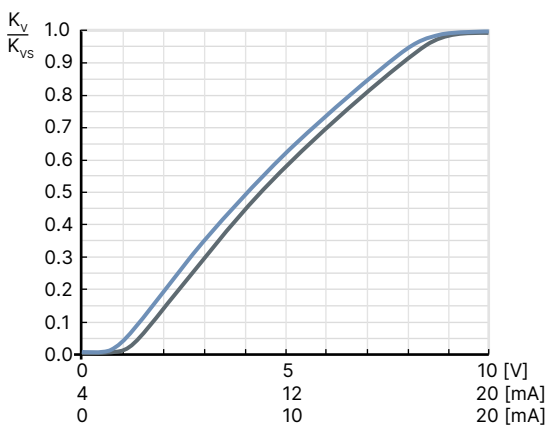
In continuous flow applications, the choice of an appropriate valve size is much more important than with on/off valves. The optimum size should be selected such that the resulting flow in the system is not unnecessarily reduced by the valve. However, a sufficient part of the pressure drop should be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

Reference value:  $\Delta p_{\text{valve}} > 25\%$  of the total pressure drop

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.



## 7. Ordering information

### 7.1. Bürkert eShop



#### Bürkert eShop – Easy ordering and quick delivery

You want to find your desired Bürkert product or spare part quickly and order directly? Our online shop is available for you 24/7. Sign up and enjoy all the benefits.

[Order online now](#)

### 7.2. Recommendation regarding product selection

**Note:**

- Use the product enquiry form (see “7.4. Bürkert Product Enquiry Form” on page 8) for information about the device layout and send it to us after completion.
- Please note the chapter “6.2. Exemplary characteristic curve of a proportional valve” on page 7 on product selection.

### 7.3. Bürkert product filter

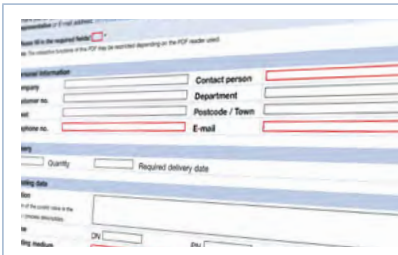


#### Bürkert product filter – Get quickly to the right product

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](#)

### 7.4. Bürkert Product Enquiry Form



#### Bürkert Product Enquiry Form – Your enquiry quickly and compactly

Would you like to make a specific product enquiry based on your technical requirements? Use our Product Enquiry Form for this purpose. There you will find all the relevant information for your Bürkert contact. This will enable us to provide you with the best possible advice.

[Fill out the form now](#)

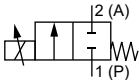
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### 7.5. Ordering chart

**Note:**

- All valves are delivered 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 9** or separate data sheet for **Type 2518** ▶.

Circuit function	Port connection	Orifice	K <sub>vs</sub> value water <sup>1.)</sup>	Coil power	Maximum coil current	Maximum pressure <sup>2.)</sup>	Article no. Brass body	Article no. Stainless steel body
		[mm]	[m <sup>3</sup> /h]	[W]	[mA]	[bar]		
<b>CF A</b> 2/2-way solenoid proportional control valve Direct-acting Normally closed 	G 1/2	8	1.4	16	620	0.7	o. r.	o. r.
	G 3/4		1.4	16	620	0.7	o. r.	o. r.
	G 1/2	10	2.0	16	620	0.4	o. r.	o. r.
	G 3/4		2.0	16	620	0.4	o. r.	o. r.
	G 1/2	12	2.8	16	620	0.2	o. r.	o. r.
	G 3/4		2.8	16	620	0.2	o. r.	o. r.

o. r. = on request

1.) Measurement at +20 °C, 1 bar pressure differential over a fully opened valve


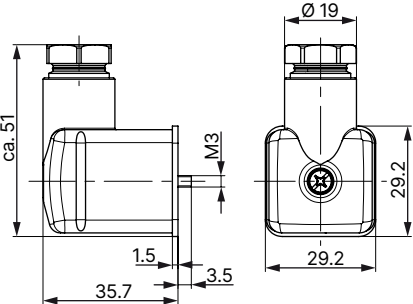
2.) Pressure data: overpressure with respect to atmospheric pressure

### 7.6. Ordering chart accessories

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

**Note:**

- Dimensions in mm
- For further versions see data sheet **Type 2518** ▶.














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

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**Control electronics Type 8605 for proportional valves**

**Note:**

Refer to data sheet **Type 8605** ▶ for more information about the control electronics.

Control electronics	Version	Max. coil current range	Voltage		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 = available  
 – = not available

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