



## Direct-acting 2-way Solenoid Control Valve

- For high flow rates
- Direct-acting, normally closed
- Operating pressure 0...25 bar
- Orifice sizes 3.0...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 2518</b> Cable Plug DIN EN 175301-803 - Form A	▶
	<b>Type 8605</b> PWM Control Electronics for Solenoid Control Valves	▶
	<b>Type 8611</b> eCONTROL - Universal controller	▶

### Type description

The direct-acting proportional valve Type 2836 works as an electromagnetically actuated control valve in applications with relatively highflow rates. The valve is normally closed.

## Table of contents

<b>1. General Technical Data</b>	<b>3</b>
<b>2. Circuit functions</b>	<b>3</b>
<b>3. Materials</b>	<b>4</b>
3.1. Chemical Resistance Chart – Bürkert resistApp.....	4
<b>4. Dimensions</b>	<b>4</b>
<b>5. Performance specifications</b>	<b>5</b>
5.1. Flow characteristic.....	5
Determination of the $K_v$ value.....	5
5.2. Exemplary characteristic curve of a proportional valve.....	5
<b>6. Product operation</b>	<b>6</b>
6.1. Control unit.....	6
<b>7. Ordering information</b>	<b>6</b>
7.1. Bürkert eShop – Easy ordering and quick delivery.....	6
7.2. Recommendation regarding product selection.....	6
7.3. Bürkert product filter.....	6
7.4. Ordering chart.....	7
7.5. Ordering chart accessories.....	7
Cable plug Type 2518, Form A according to DIN EN 175301 - 803.....	7
Control unit Type 8605.....	8

## 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, EPDM
Performance data	
Typical values of positioning behaviour <sup>1.)</sup>	
Hysteresis	< 5 % of end value <sup>2.)</sup>
Reproducibility	< 1 % of end value <sup>2.)</sup>
Response sensitivity	< 0.5 % of end value
Setting range	1:25
Pressure range <sup>3.)</sup>	0...25 bar
Nominal operating mode	100 % continuous operation
Electrical data	
Operating voltage	24 V DC
Power consumption	24 W
Maximum coil current <sup>4.)</sup>	1100 mA
PWM frequency <sup>5.)</sup>	180 Hz
Medium data	
Operating medium	Neutral gases and liquids
Medium temperature	- 10 °C...+ 90 °C (with FKM) - 30 °C...+ 90 °C (with EPDM)
Viscosity	Maximum 21 mm <sup>2</sup> /s (21 cSt)
Process/Port connection & communication	
Port connection size	G 1/2, G 3/4, NPT 1/2, NPT 3/4
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 7.
Approvals and certificates	
Degree of protection	IP65
Environment and installation	
Installation position	Any, preferably actuator face up
Ambient temperature	Maximum +55 °C (131 °F)

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

2.) By flow measurement

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

4.) Maximum value: value depends on operating pressure


5.) 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**

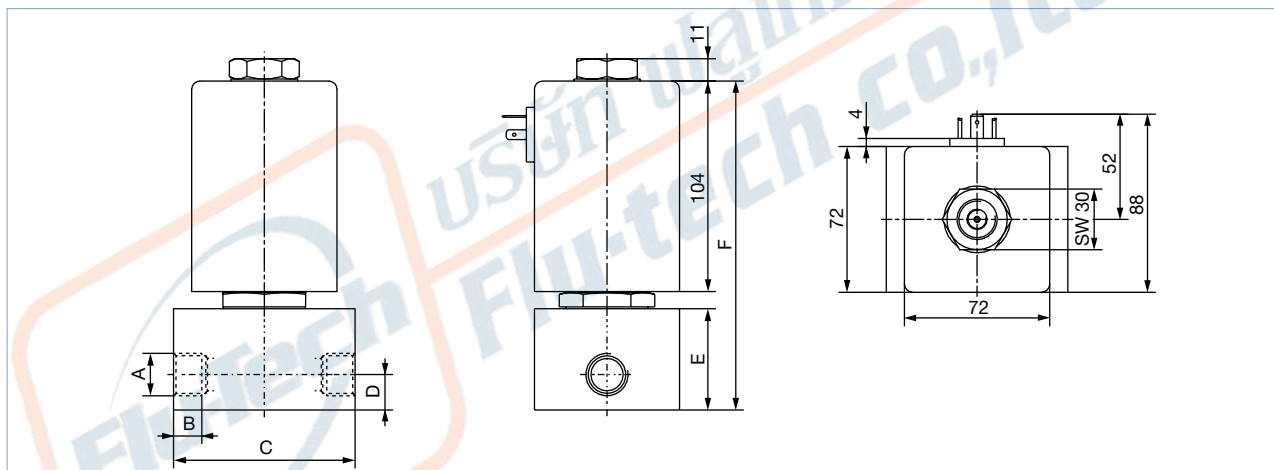
You want to ensure the reliability and durability of the materials in your individual application case? Verify your combination of media and materials on our website or in our resistApp.

[Start Chemical Resistance Check](#)

### 4. Dimensions

**Note:**

Dimensions in mm



Port connection A	B	C	D	E	F	Mass [g]
G 1/2; NPT 1/2	14	90	17.5	50	162.5	4000 (brass)
G 3/4; NPT 3/4	16	90	17.5	50	162.5	4600 (stainless steel)

DTS 1000023640 EN Version: P Status: RL (released | freigegeben | validé) printed: 19.05.2020

## 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 $p_1 \dots p_2$	[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

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

#### Note:

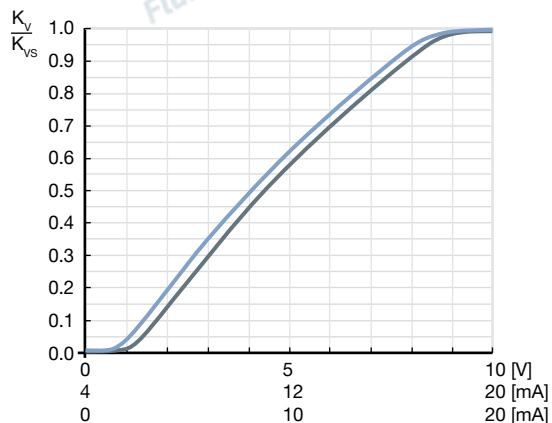
In continuous flow applications, the choice of an appropriate valve size is much more important than with on/off valves. The optimum size should be selected such that the resulting flow in the system is not unnecessarily reduced by the valve. However, a sufficient part of the pressure drop should be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

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

Otherwise, the ideal, linear valve curve characteristic is changed.

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!



## 6. Product operation

### 6.1. Control unit


Valve control takes place through a PWM signal (pulse-width modulation). The duty cycle of the PWM signal determines the coil current and hence the position of the plunger.

The Bürkert control electronics Type 8605 (see relevant data sheet **Type 8605** ▶) converts an analogue signal to a reference value corresponding to the valve type PWM signal and provides additional functions such as temperature compensation (coil heating), ramp function and the adjustment of min. and max. duty cycle/coil current for the control range.

Please note the sizing comments for such a control valve in chapter **"5.2. Exemplary characteristic curve of a proportional valve"** on page 5.

## 7. Ordering information

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



**Bürkert eShop – Easy ordering and fast 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:

- 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 5 on product selection.

### 7.3. Bürkert product filter



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

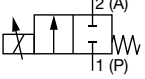
You want to select products comfortably based on your technical requirements? Use the Bürkert product filter and find suitable articles for your application quickly and easily.

[Try out our product filter](#)

## 7.4. 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 7 or separate data sheet for Type 2518 ▶.

Circuit function	Orifice	Port connection	K <sub>vs</sub> value water <sup>1.)</sup> [m <sup>3</sup> /h]	Maximum pressure <sup>3.)</sup> [bar]	Article no. brass body	Article no. stainless steel body	
	[mm]						
<b>A, proportional control valve</b> 2/2 way Direct-acting Normally closed 	3	G ½	0.25	25	154541 ☒	154542 ☒	
		NPT ½	0.25	25	164592 ☒	–	
	4	G ½	0.40	16	154543 ☒	154544 ☒	
		NPT ½	0.40	16	164593 ☒	–	
	6	G ½	G ½	0.90	8	145654 ☒	154545 ☒
			NPT ½	0.90	8	164594 ☒	–
		G ¾	G ¾	0.90	8	154546 ☒	154547 ☒
			NPT ¾	0.90	8	164595 ☒	–
	8	G ½	G ½	1.5	5	154548 ☒	154549 ☒
			NPT ½	1.5	5	164596 ☒	–
		G ¾	G ¾	1.5	5	154550 ☒	154551 ☒
			NPT ¾	1.5	5	164597 ☒	–
10	G ¾	G ¾	2.0	3	154552 ☒	154553 ☒	
		NPT ¾	2.0	3	164598 ☒	–	
12	G ¾	G ¾	2.5	2	154554 ☒	154555 ☒	
		NPT ¾	2.5	2	164599 ☒	–	

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


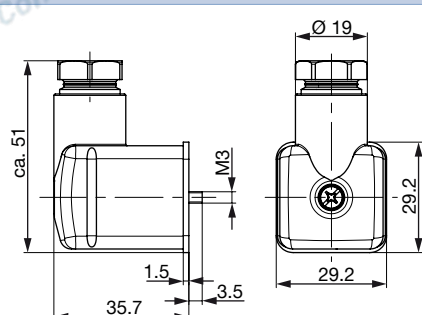
2.) Pressure data: Overpressure with respect to atmospheric pressure.

## 7.5. 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 ☒

Visit product website ▶

7 | 9

## Control unit Type 8605

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

	Version	Max. coil current range	Type 2836	Article no.
		[mA]	24 V DC	
	Cable plug with PG cable gland	500...2000	x	316529 
	Cable plug with M12 connection	500...2000	x	316526 
	Cable plug with PG cable gland without operating element	500...2000	x	316523 
	Cable plug with M12 connection without operating element	500...2000	x	316525 
	Standard rail	500...2000	x	316533 