



## 2/2-way Proportional Valve

- For high flow rates
- Direct-acting, normally closed
- 0 ... 25 bar<sup>1)</sup>
- DN 3.0 ... 12 mm
- 1/2" and 3/4"

Type 2836 can be combined with...



**Type 8605**

Control electronics  
Cable plug version



**Type 8605**

Digital control electronics  
DIN-rail version

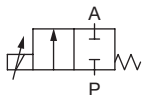


**Type 2508**

Cable plug

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

### Valve operation A



Direct-acting,  
2-way proportional valve,  
normally closed

Valve control takes place through the control electronics of Type 8605, which converts an analogue input signal into a PWM (pulse-width modulation) signal.

Further, functional features of the Type 8605 electronic control unit:

- Temperature compensation for coil heating by internal current regulation
- Simple zero and span settings
- Ramp function to dampen fast status changes

Technical data - valve	
<b>Body material</b>	Brass, stainless steel
<b>Sealing material</b>	FKM, others available on request
<b>Media</b>	neutral gases, liquids, steam on request
<b>Medium temperature</b>	-10 ... +90 °C (14 °F to 194 °F); steam to +140 °C
<b>Ambient temperature</b>	max. +55 °C (max. 131 °F)
<b>Viscosity</b>	max. 21 mm <sup>2</sup> /s (max. 21 cSt)
<b>Operating voltage</b>	24 V DC
<b>Power consumption</b>	max. 30 W
<b>Duty cycle</b>	100 % continuously rated
<b>Port connection</b>	G 1/2, G 3/4, NPT 1/2 and NPT 3/4, others on request
<b>Electrical connection</b>	Cable plug Type 2508 acc. to DIN EN 175301-803* form A
<b>Mounting position</b>	any, preferably with drive at top
<b>Typical control data<sup>2)</sup></b>	
Hysteresis	< 5 %
Repeatability	< 1 % of F.S.
Sensitivity	< 0.5 % of F.S.
Turn-down ratio	1:25
<b>Protection class - valve</b>	IP65

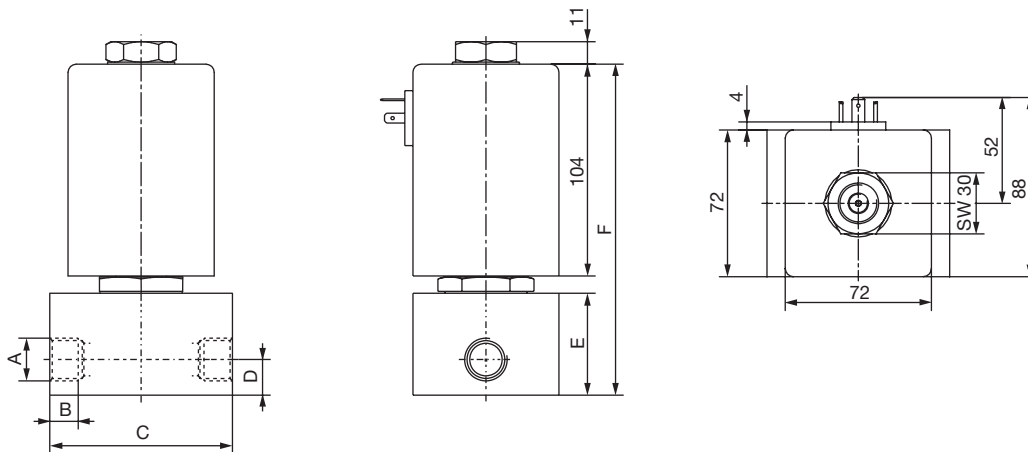
### Technical data - Control electronics unit Type 8605 (see separate datasheet)

<sup>1)</sup> Pressure data [bar]: Overpressure with respect to atmospheric pressure

<sup>2)</sup> PWM pulse-width modulation

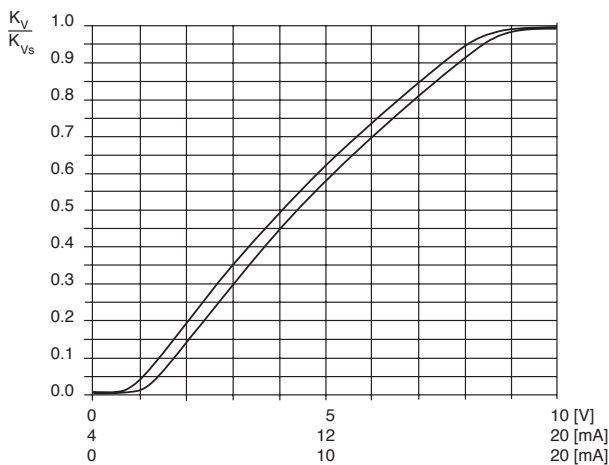
<sup>3)</sup> Characteristic data of control behaviour depends on process conditions

## Dimensions [mm]



Line 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)

## Characteristics of a proportional valve



## Advice for valve sizing

In continuous flow applications, the choice of 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:  $\Delta p_{\text{valve}} > 30\%$  of total pressure drop within the system**

For that reason take advantage of Bürkert competent engineering services during the planning phase!

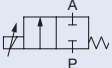
## Determination of the kv value

Pressure drop	kv value for liquids [m³/h]	kv value for gases [m³/h]
Subcritical $p_2 > \frac{p_1}{2}$	$= Q \sqrt{\frac{\rho}{1000 \Delta p}}$	$= \frac{Q_N}{514} \sqrt{\frac{T_1 \rho_N}{p_2 \Delta p}}$
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	[m³/h] <sup>1)</sup>
$Q_N$	Standard flow rate	[m³/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/m³]
$\rho_N$	Standard density	[kg/m³]
$T_1$	Temperature of fluid medium	[(273+t)K]

## Characteristic Values with Ordering chart (other versions on request)

### All valves with FKM seal

Valve operation	Orifice [mm]	Port connection	$k_v$ value water [m³/h] <sup>1)</sup>	$Q_{Nn}$ value [l/min] <sup>2)</sup>	Maximum operating pressure [bar] <sup>3)</sup>	Item no. brass body	Item no. stainless steel body
	3	G 1/2	0.25	270	25	154 541	154 542
		NPT 1/2	0.25	270	25	164 592	-
	4	G 1/2	0.40	430	16	154 543	154 544
		NPT 1/2	0.40	430	16	164 593	-
	6	G 1/2	0.90	970	8	145 654	154 545
		NPT 1/2	0.90	970	8	164 594	-
		G 3/4	0.90	970	8	154 546	154 547
	8	NPT 3/4	0.90	970	8	164 595	-
		G 1/2	1.5	1615	5	154 548	154 549
		NPT 1/2	1.5	1615	5	164 596	-
		G 3/4	1.5	1615	5	154 550	154 551
		NPT 3/4	1.5	1615	5	164 597	-
	10	G 3/4	2.0	2150	3	154 552	154 553
		NPT 3/4	2.0	2150	3	164 598	-
	12	G 3/4	2.5	2700	2	154 554	154 555
		NPT 3/4	2.5	2700	2	164 599	-

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

2)  $Q_{Nn}$  value: Flow rate value for air with inlet pressure of 6 bar<sup>1)</sup>, 1 bar pressure differential and +20 °C.

3) Pressure data [bar]: Overpressure with respect to atmospheric pressure

**Please note** that the valves are delivered without control electronics unit and cable plug (see accessories below).

### Ordering chart for accessories

#### Cable plug Type 2508 according to DIN EN 175301-803 Form A

The delivery of a cable plug includes the flat seal and fixing screw

Circuitry	Voltage / frequency	Item no.
None	0 - 250 V AC/DC	008 376
None, with 3 m cable	0 - 250 V AC/DC	783 573

#### Electronic Control Type 8605

Please see datasheet

**For product inquiries, use the specification sheet for proportional valves!**

**Note**

You can fill out the fields directly in the PDF file before printing out the form.

**Design data for proportional valves**

▶ Please fill out this form and send to your local Bürkert Sales Centre\* with your inquiry or order

Company	Contact person
Customer no.	Dept.
Address	Tel./Fax
Town / Postcode	E-Mail

<input type="checkbox"/> = Mandatory fields	<input type="text"/> Quantity	<input type="text"/> Desired delivery date
<b>Process data</b>		
<input type="checkbox"/> Medium	<input type="text"/>	
<input type="checkbox"/> State of medium	<input type="checkbox"/> liquid	<input type="checkbox"/> gaseous <input type="checkbox"/> vaporous
<input type="checkbox"/> Medium temperature	<input type="text"/> °C	
<input type="checkbox"/> Maximum flow rate	$Q_{nom} =$ <input type="text"/>	Unit: <input type="text"/>
<input type="checkbox"/> Minimum flow rate	$Q_{min} =$ <input type="text"/>	Unit: <input type="text"/>
<input type="checkbox"/> Inlet pressure at nominal operation	$p_1 =$ <input type="text"/>	barg
<input type="checkbox"/> Outlet pressure at nominal operation	$p_2 =$ <input type="text"/>	barg
<input type="checkbox"/> Maximum inlet pressure	$p_{1max} =$ <input type="text"/>	barg
<input type="checkbox"/> Ambient temperature	<input type="text"/> °C	
<b>Additional specifications</b>		
<input type="checkbox"/> Body material	<input type="checkbox"/> Brass	<input type="checkbox"/> Stainless steel
<input type="checkbox"/> Seal material	<input type="checkbox"/> FKM	<input type="checkbox"/> other <input type="text"/>

**Note** Please state all pressure values as **overpressures with** respect to atmospheric [barg].

\* To find your nearest Bürkert facility, click on the orange box →

[www.burkert.com](http://www.burkert.com)

In case of special application conditions, please consult for advice.

We reserve the right to make technical changes without notice.

0703/3\_EU-en\_00891885