

## 2/2-way Solenoid Control Valve



- Direct-acting, normally closed
- DN 3 to 12 mm
- Port Connection 1/2" or 3/4"

Type 2836 can be combined with...



**Type 8605**

Control electronics  
Cable plug version



**Type 8605**

Digital control electronics  
DIN-rail version

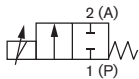


**Type 2508**

Cable plug

The direct-acting solenoid control 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 solenoid control  
valve, normally closed

Valve control takes place through the control electronics of Type 8605, which converts an analogue input signal into a PWM<sup>2)</sup> (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

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

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

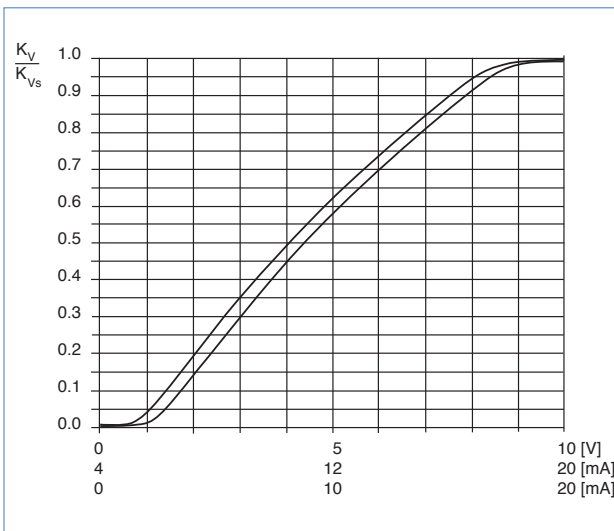
<sup>3)</sup> Characteristic data of control behaviour depends on process conditions

Technical data - valve	
<b>Body material</b>	Brass, stainless steel
<b>Seal material</b>	FKM, others on request
<b>Fluids</b>	Neutral gases and liquids
<b>Pressure range</b>	0 to 25 bar <sup>1)</sup>
<b>Fluid temperature</b>	-10 to +90 °C (14 °F to 194 °F)
<b>Ambient temperature</b>	max. +55 °C (max. 131 °F)
<b>Viscosity</b>	max. 21 mm <sup>2</sup> /s (max. 21 cSt)
<b>Power supply</b>	24 V DC
<b>PWM frequency</b>	150-180 Hz
<b>Power consumption</b>	max. 24 W
<b>Max. coil current</b>	1100 mA
<b>Duty cycle</b>	100 % continuously rated
<b>Port connection</b>	G 1/2, G 3/4, NPT 1/2, NPT 3/4, others on request
<b>Electrical connection</b>	Cable plug Type 2508 acc. to DIN EN 175301-803 form A
<b>Installation</b>	As required, preferably with actuator in upright position
<b>Typical control data<sup>3)</sup></b>	
Hysteresis	< 5 %
Repeatability	< 1 % of F.S.
Sensitivity	< 0.5 % of F.S.
Span	1:25
<b>Protection class - valve</b>	IP65

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 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, 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, the characteristics may change.

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

Determination of the  $k_v$  value

Pressure drop	$k_v$ value for liquids [m³/h]	$k_v$ 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>4)</sup>
- $Q_N$  Standard flow rate [m³/h]<sup>5)</sup>
- $p_1$  Inlet pressure [bar]<sup>6)</sup>
- $p_2$  Outlet pressure [bar]<sup>6)</sup>
- $\Delta p$  Differential pressure  $p_1 - p_2$  [bar]
- $\rho$  Density [kg/m³]
- $\rho_N$  Standard density [kg/m³]
- $T_1$  Temperature if fluid medium [(273+t)K]

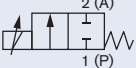
<sup>4)</sup> Measured with water,  $\Delta p = 1$  bar, differential pressure over the valve

<sup>5)</sup> Standard conditions at 1,013 bar<sup>3)</sup> and 0 °C (273K)

<sup>6)</sup> Absolute pressure

## Characteristic values with ordering chart (other versions on request)

### All valves with FKM seal

Valve operation	Orifice [mm]	Port connection	$k_{vs}$ value water [m <sup>3</sup> /h] <sup>7)</sup>	$Q_{N_2}$ value [l/min] <sup>8)</sup>	Maximum operating pressure [bar] <sup>9)</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	-
	10	G 3/4	1.5	1615	5	154 550	154 551
		NPT 3/4	1.5	1615	5	164 597	-
		G 3/4	2.0	2150	3	154 552	154 553
	12	NPT 3/4	2.0	2150	3	164 598	-
		G 3/4	2.5	2700	2	154 554	154 555
		NPT 3/4	2.5	2700	2	164 599	-

<sup>7)</sup>  $k_{vs}$  value: Flow rate value for water, measured at +20 °C and 1 bar pressure differential over a fully opened valve.

<sup>8)</sup>  $Q_{N_2}$  value: Flow rate value for air with inlet pressure of 6 bar<sup>1)</sup>, 1 bar pressure differential and +20 °C.

<sup>9)</sup> 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

**Control Electronics, Type 8605** - please see datasheet

For product inquiries, use the specification sheet for solenoid control valves!

**Note**

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

**Design data for solenoid control 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"/> Requested delivery date
<b>Process data</b>		
<b>Fluid</b>	<input type="text"/>	
<b>State of fluid</b>	<input type="checkbox"/> liquid	<input type="checkbox"/> gaseous
<b>Fluid temperature</b>	<input type="text"/> °C	
<b>Maximum flow rate</b>	$Q_{nom} =$ <input type="text"/>	Unit: <input type="text"/>
<b>Minimum flow rate</b>	$Q_{min} =$ <input type="text"/>	Unit: <input type="text"/>
<b>Inlet pressure at nominal operation</b>	$p_1 =$ <input type="text"/>	barg
<b>Outlet pressure at nominal operation</b>	$p_2 =$ <input type="text"/>	barg
<b>Maximum inlet pressure</b>	$p_{1max} =$ <input type="text"/>	barg
<b>Ambient temperature</b>	<input type="text"/> °C	
<b>Additional specifications</b>		
<b>Body material</b>	<input type="checkbox"/> Brass	<input type="checkbox"/> Stainless steel
<b>Seal material</b>	<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 →

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

We reserve the right to make technical changes without notice.

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