

2/2-Way Proportional Valve Low- Δp



- Direct-acting, normally closed
- 0 - 0.7 bar¹⁾
- DN 8 - 12 mm
- 1/2" or 3/4"

Type 6024 can be combined with...



Type 8605
Control electronics
Cable plug version



Type 8605
Digital control electronics
DIN-rail version



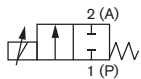
Type 2508
Cable plug



Type 8611
Universal controller

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.

Valve operation A



Direct acting 2-way
proportional valve,
normally closed

It is controlled by Control Electronics Type 8605.

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

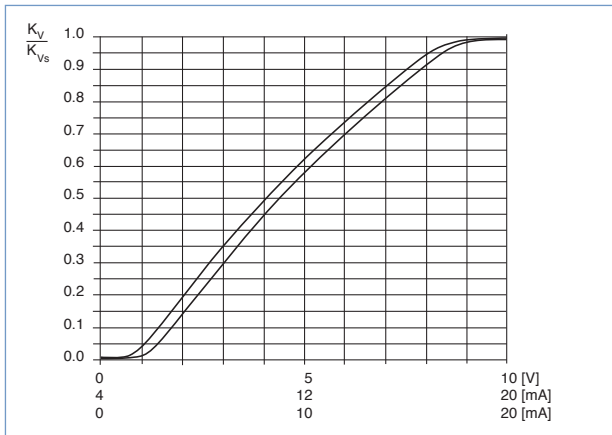
Body material	Brass, stainless steel
Sealing material	FKM, others on request
Media technical vacuum	Neutral gasses, liquids
Medium temperature	-10 to +90 °C
Ambient temperature	Max. +55 °C
Viscosity	Max. 21 mm ² /s
Operating voltage	24 V DC
Power consumption	Max. 18 W
Duty cycle	100% continuously rated
Port connection	G 1/2, G 3/4 (NPT 1/2 and NPT 3/4 on request)
Electrical connection	Cable plug Type 2508 (DIN EN 175301-803 Form A)
Mounting position	Any, preferably with drive at top
Typical control data³⁾	
Hysteresis	< 7 %
Repeatability	< 0.5 % of F.S.
Sensitivity	< 0.5 % of F.S.
Turn-down ratio	1:25
k_{vs} value ²⁾	1.4 to 2.8 m ³ /h
Max. operating pressure ¹⁾	0.1 to 0.7 bar (depending on DN)
Protection class - valve	IP65 with plug-in module or cable plug on valve

¹⁾ Pressure data [bar]: Overpressure with respect to atmospheric pressure

²⁾ K_{vs} value [m³/h]: max. flow capacity for water

³⁾ Characteristic data of control behaviour depends on process conditions

Characteristic 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: $p_{\text{valve}} > 30\%$ 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 [m ³ /h]	kv value for gases [m ³ /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 $p_2 < \frac{p_1}{2}$	$= Q \sqrt{\frac{\rho}{1000 \Delta p}}$	$= \frac{Q_N}{257 p_1} \sqrt{T_1 \rho_N}$

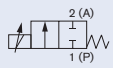
k_v	Flow coefficient	[m ³ /h] ¹⁾
Q_N	Standard flow rate	[m ³ /h] ²⁾
p_1	Inlet pressure	[bar] ³⁾
p_2	Outlet pressure	[bar] ³⁾
Δp	Differential pressure $p_1 - p_2$	[bar]
ρ	Density	[kg/m ³]
ρ_N	Standard density	[kg/m ³]
T_1	Temperature if fluid medium	[(273+t)K]

¹⁾ measured for water, $\Delta p = 1$ bar, via the device

²⁾ Standard conditions at 1.013 bar³⁾ and 0 °C (273K)

³⁾ Absolute pressure

Ordering chart for valves

Valve operation	Orifice [mm]	Port connection	k_v value for water [m ³ /h] ¹⁾	Q_N value [l/min] ²⁾	Maximum operating pressure [bar] ³⁾	Power consumption [W]	Maximum coil current [mA]	Item no. Brass body	Item no. Stainless steel body
 Direct-acting 2-way proportional valve, closed by spring action without current	8	G 1/2	1.4	1500	0.7	18	580	150 401	–
		G 3/4	1.4	1500	0.7	18	580	150 427	–
	10	G 1/2	2.0	2150	0.4	18	580	150 402	150 404
		G 3/4	2.0	2150	0.4	18	580	150 428	150 429
	12	G 1/2	2.8	3020	0.2	18	580	–	150 426
		G 3/4	2.8	3020	0.2	18	580	150 406	150 408

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_N value: Flow rate value for air with inlet pressure of 6 bar¹⁾, 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).

Devices also suitable for technical vacuum.



Further versions on request



Analytical

Oil and fat-free version

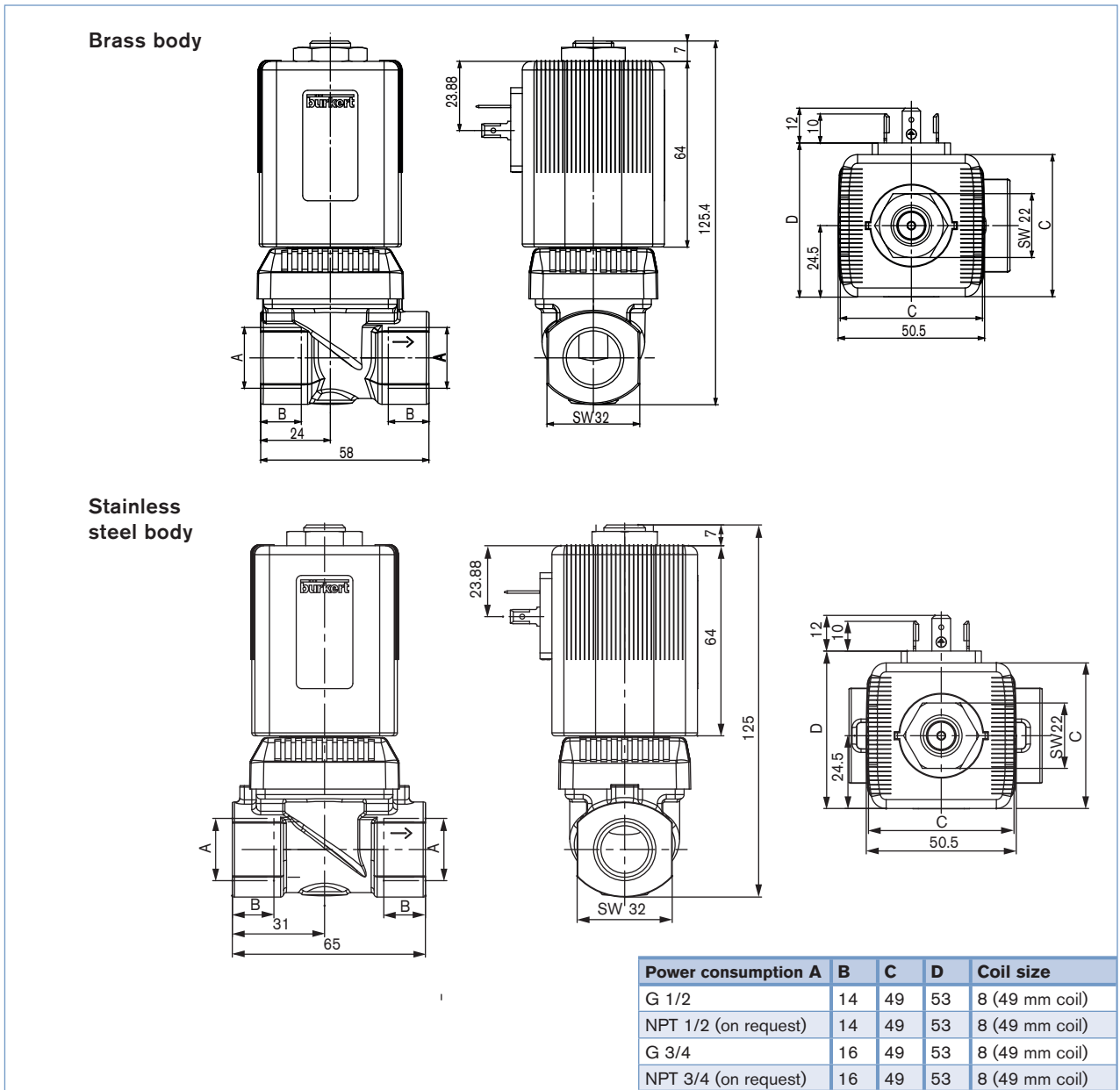


Port connection

NPT 1/2, NPT 3/4

Please also use the "request for quotation" form on last page [go to page](#)

Dimensions [mm]



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 separate datasheet. Click on the box "More info."... you will come to our website for this product where you can download the datasheet.



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

Proportional valves – request for quotation

▶ 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

= Mandatory fields Quantity Desired delivery date

Process data	
<input checked="" type="checkbox"/> Medium	<input type="text"/>
<input checked="" type="checkbox"/> State of medium	<input type="checkbox"/> liquid <input type="checkbox"/> gaseous
Medium temperature	<input type="text"/> °C
<input checked="" type="checkbox"/> Maximum flow rate	$Q_{nom} =$ <input type="text"/> Unit: <input type="text"/>
<input checked="" type="checkbox"/> Minimum flow rate	$Q_{min} =$ <input type="text"/> Unit: <input type="text"/>
<input checked="" type="checkbox"/> Inlet pressure at nominal operation	$p_1 =$ <input type="text"/> barg
<input checked="" type="checkbox"/> Outlet pressure at nominal operation	$p_2 =$ <input type="text"/> barg
Maximum inlet pressure	$p_{1max} =$ <input type="text"/> barg
Ambient temperature	<input type="text"/> °C
Additional specifications	
Body material	<input type="checkbox"/> Brass <input type="checkbox"/> Stainless steel
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].

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

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