bürkert
FLUID CONTROL SYSTEMS

2/2 way Proportional Valve Low-Δp

- Direct-acting, normally closed
- 0 - 0.7 bar[1)]
- DN8 - 12 mm
- ½" or ¾"

Type 6024 can be combined with...

Type 8605
Control electronics
Cable plug version

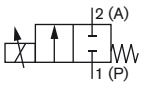
Type 8605
Digital control electronics
DIN-rail version

Type 2508
Cable plug

Type 8611
Uniersal 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



2/2 way direct-acting, solenoid proportional control valve

It is controlled by Control Electronics Type 8605.

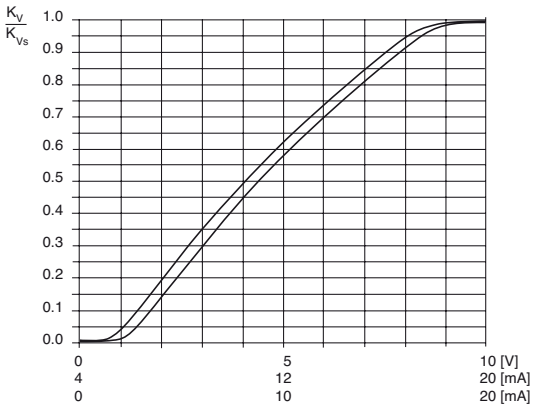
Further functional features of the Type 8605 electronic control unit:
- Temperature compensation for coil heating by internal current regulation
- Simple zero and span settings
- Ramp function to dampen fast status changes

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 mm²/s
Operating voltage	24 V DC
Power consumption	Max. 18 W
Duty cycle	100% continuously rated
Port connection	G ½, G ¾ (NPT ½ and NPT ¾ on request)
Electrical connection	Cable plug Type 2508 (DIN EN 175301-803 Form A)
Mounting position	Any, preferably with drive at top
Typical control data[3)] Hysteresis Repeatability Sensitivity Turn-down ratio k_{VS} value[2)] Max. operating pressure[1)]	 < 7% < 0.5% of F.S. < 0.5% of F.S. 1:25 1.4 to 2.8 m³/h 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

DTS 1000017535 EN Version: N Status: RL (released | freigegeben | validé) printed: 05.02.2020

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: Δp_{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 k_V value

Pressure drop	k_V value for liquids [m³/h]	k_V value for gases [m³/h]
Subcritical $p_2 > \frac{p_1}{2}$	$= Q\sqrt{\frac{\rho}{1000\ p}}$	$= \frac{Q_N}{514}\sqrt{\frac{T_1\ \rho_N}{p_2\ p}}$
Supercritical $p_2 < \frac{p_1}{2}$	$= Q\sqrt{\frac{\rho}{1000\ p}}$	$= \frac{Q_N}{257\ p_1}\sqrt{T_1\ \rho_N}$

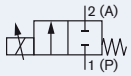
k_V	Flow coefficient	[m³/h] [1]
Q_N	Standard flow rate	[m_N^3/h] [2]
p_1	Inlet pressure	[bar][3]
p_2	Outlet pressure	[bar][3]
Δp	Differential pressure p_1-p_2	[bar]
ρ	Density	[kg/m³]
ρ_N	Standard density	[kg/m³]
T_1	Temperature if fluid medium	[(273+t)K]

[1] measured for water, Δp = 1 bar, via the device

[2] Standard conditions at 1.013 bar[3] and 0 °C (273K)

[3] Absolute pressure

Ordering chart for valves

Valve operation	Orifice [mm]	Port connection	k_{VS} value for water [m³/h] [1]	Q_{Nn} value [l/min] [2]	Maximum operating pressure [bar] [3]	Power consumption [W]	Maximum coil current [mA]	Article no. Brass body	Article no. Stainless steel body
A  2/2 way direct-acting, solenoid proportional control valve	8	G ½	1.4	1500	0.7	18	580	150401	–
		G ¾	1.4	1500	0.7	18	580	150427	–
	10	G ½	2.0	2150	0.4	18	580	150402	150404
		G ¾	2.0	2150	0.4	18	580	150428	150429
	12	G ½	2.8	3020	0.2	18	580	–	150426
		G ¾	2.8	3020	0.2	18	580	150406	150408

1) k_{VS} 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[1], 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

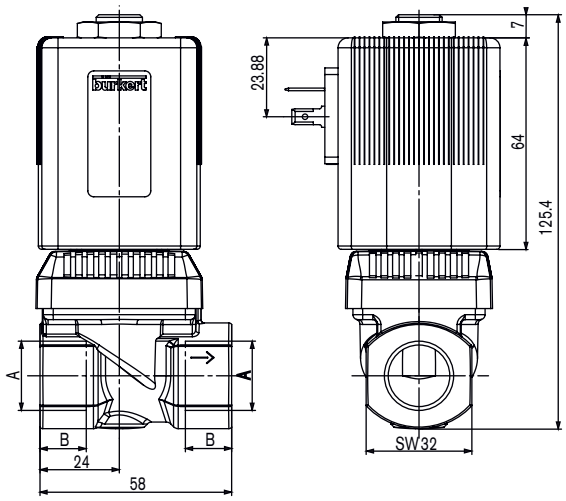
Port connection
NPT ½, NPT ¾

Please also use the "request for quotation" form on last page

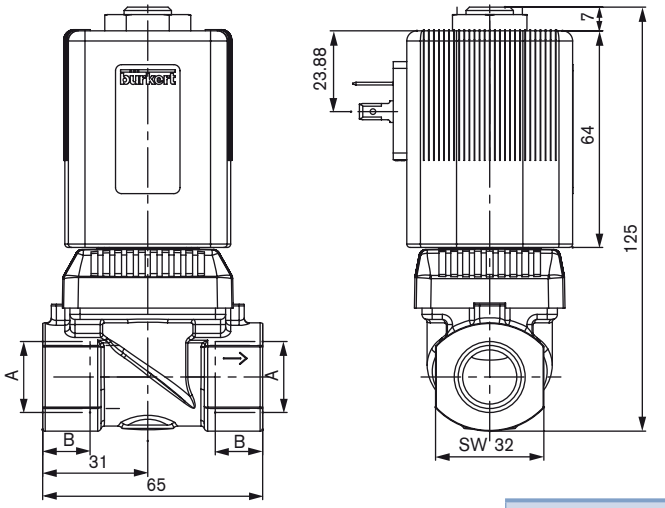
DTS 1000017535 EN Version: N Status: RL (released | freigegeben | validé) printed: 05.02.2020

Dimensions [mm]

Brass body



Stainless steel body



Power consumption A	B	C	D	Coil size
G ½	14	49	53	8 (49 mm coil)
NPT ½ (on request)	14	49	53	8 (49 mm coil)
G ¾	16	49	53	8 (49 mm coil)
NPT ¾ (on request)	16	49	53	8 (49 mm coil)

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	Article no.
None	0 - 250 V AC/DC	008376
None, with 3 m cable	0 - 250 V AC/DC	783573

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.

More info.

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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

■ Medium			
■ State of medium		☐ liquid ☐ gaseous	
Medium temperature			°C
■ Maximum flow rate	Q_{nom} =		Unit:
■ Minimum flow rate	Q_{min} =		Unit:
■ Inlet pressure at nominal operation	p_1 =		barg
■ Outlet pressure at nominal operation	p_2 =		barg
Maximum inlet pressure	p_{1max} =		barg
Ambient temperature			°C

Additional specifications

Body material	☐ Brass	☐ Stainless steel
Seal material	☐ FKM	☐ other

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

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