

2/2-Way; direct-acting; G 1/8"; 0-6 bar



Advantages / Benefits

- ▶ Optimization of process and product quality through continuous regulation
- ▶ Increase of efficiency
- ▶ Extremely high control accuracy:
 - low hysteresis
 - high repeatability
 - high responsivity
- ▶ Fail safe (self-closing in case of power failure)
- ▶ A complete control system "all from one" with Burkert sensors and controllers

Design / Function

Type 6021 is a direct-acting mini-solenoid control valve for K_{Vs} flow rates up to 0.05 m³/h.

The proportional characteristic curve is practically linear. Regulation deviations (hysteresis, repeatability) are in between small tolerance limits. The responsivity is particularly high.

The mini-solenoid control valve system consists of the basic components armature, push-over coil, cable plug and electronic control unit. For this very small sized mini-solenoid control valve the electronic control unit cannot be plugged on.

A standard DIN-rail mounting version is available for such applications. With a higher frequent pulse-width modulation it ensures a continuous opening cross section of the valve proportional to the standard input signal. It guarantees a particular high regulation accuracy.

- Adjustable ramp function from 0-10s cushions set-point jumps
- Standard input signals 4-20 mA, 0-10V
- Monitor signal to assist set-up and indication of coil current
- Tight shut-off due to zero-point suppression
- Compensation of the coil heating
- Start of opening and max. opening adjustable
- Simple ordering procedure with one order number for valve and control electronics

Applications

Fluids

- Neutral gases and liquids

Applications

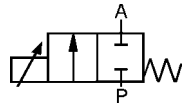
- Analytical appliances
- Oxy-acetylene cutters
- Pressure control of gases in medical technology
- Medical equipment for speed control, water supply and artificial respiration
- Pharmaceutical and cosmetic industry

Easy Flow Mini-Solenoid Control Valve - General Purpose Typ 6021

Technical data

Valve function

A 2/2-way flow valve, normally closed, direct-acting



Function of control electronics

- Temperature compensation for coil heating by internal current control
- Ramp function to dampen fast status changes
- Simple adaptation of the start of opening and of the reaching of maximum flow rate to the pressure conditions of the respective application by means of two potentiometers.
- Monitor function with LED display

Operational data (Armature)

Pressure range	0 - 6 bar, techn. vacuum
Port connection	G 1/8" (M5, flange on request)
Body material	Brass
Sealing material	FPM (Viton)
Medium	Neutral gases and liquids
Temperat. range of medium	-10 ... +90°C
Max. ambient temperature	+55°C
Max. Viscosity	21 cSt
Installation position	Any, no limitation on function

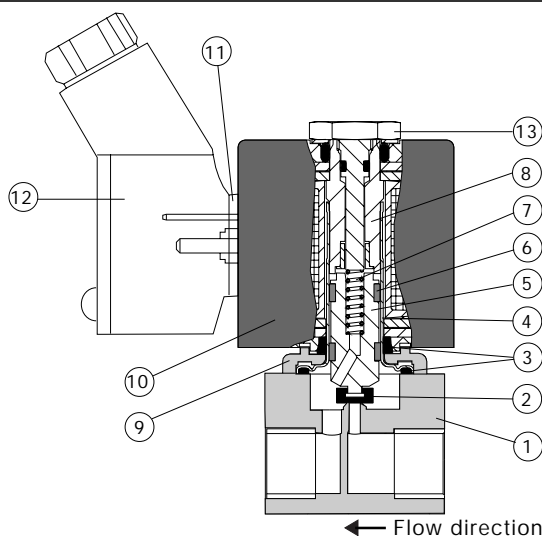
Operational data for Control Electronics

Design version H	DIN-rail mounting version
Operational voltage	DC 24 V/±, (max. 28V/±)
Ripple	±10% (We recommend our power supply type 1610)
Input signal	4-20 mA, 0-10V (0 - 20mA on request)
Control signal for valve	PWM (Pulse Width Modul.)
Max. current consumption	1.1A
Power	max. 0.5 W
Monitoring signal	Directly proportional to coil current 1 mV = 1 mA as set-up aid, or for external display.
Ramp time	0 - 10s (adjustable)
Protection class	IP 00
Electrical connection	Cable for plug type 2506, to be plugged on to the valve

Operational data (Solenoid)

Operational voltage	DC 24 V/±
Nominal power	See characteristics
Duty cycle	100% continuously rated
Protection class with cable plug type 2506	IP 65

Materials



1	Valve body:	Brass
2	Plunger seal:	FPM (Viton)
3	O-rings:	FPM (Viton)
4	Armature guide tube:	1.4303
5	Plunger:	1.4105
6	Slip-rings:	PTFE-Compound
7	Spring:	1.4310
8	Stopper:	1.4105
9	Flange:	Zn3gI cC (surface)
10	Coil:	PA (Polyamide)
11	Flat-seal:	NBR
12	Cable plug:	PA (Polyamide)
13	Locknut:	9SMnPb28K (surface-finish Zn5gIcA)

Characteristic Values with ordering information (other versions on request)

(with cable plug type 2506 and DIN-rail mounting electronic control)

Brass body; Sealing FPM

Port-connection [inch]	Orifice [mm]	K_{Vs} -Value (Water) [m ³ /h]	Q_{Nn} -Value (Air) [l/min]	Pressure-range ¹⁾ [bar]	Power-consumption [W]	max. Coil-current [mA]	Input-signal ²⁾	Weight [kg]	Order-No.
G 1/8	1,6	0,05	54	0 - 6	4	165	4...20 mA	0,132	702 531 W
G 1/8	1,6	0,05	54	0 - 6	4	165	0...10 V	0,132	702 531 W

1) All pressures quoted are gauge pressures with respect to the prevailing atmospheric pressure.

2) Input signal 0-20 mA on request.

Regulation data - Characteristics

Characteristic	see diagram
Hysteresis	< 5%
Repeatability	< 0.5% F.S.
Responsivity	< 0.5% F.S.
Setting time (90%)	< 20 ms
Turn down ratio	1 : 10

Advice for selection of valve sizing

In fluid plants including continuous valves, the choice of the appropriate valve size is much more important than with on/off valves. The optimum orifice should be selected such that, on the one hand, the resulting flow in the fluid system is not unnecessarily reduced by the valve, and, on the other hand, a sufficient part of the pressure drop takes place over the valve even if it is fully opened:

recommended value: $\Delta p_{\text{valve}} > 30\%$ of total Δp within the system

Otherwise, even a perfectly linear valve characteristic will be deformed to a heavily convex shape. For that reason, Burkert offers a competent guide service from the early planning phases of a fluid plant.

