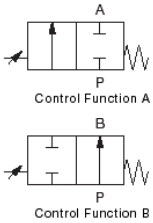
2/2-Way Globe Control valve for cryogenic applications, Pneumatically operated, Cast Stainless Steel Body, Threaded Ports

2712



DN 10 - 65

- **Fully integrated in Bürkert's Easy Process Control Systems**
- **New generation with interchangeable trims, all in stainless steel**
- **Integrated, cascade process controller with PID algorithm**
- **Automatic self-adjustment of basic parameters means autotune for the valve and PID**
- **Quality certifications available**

Control valve 2712 consists of a globe valve body with a pneumatic piston actuator. The trim is in the form of a parabolic plug/seat system. Specific this version has an extended bonnet for cryogenic applications (process conditions see below). This results in a favourable characteristic for continuous variation of the flow as a function of the parabolic plug position. Type 2712 cryogenic can be actuated by the Continuous TOP Control type 8630 or SIDE Control Type 1067 and 8635. TOP Control/SIDE Control thus forms a mechanical and functional unit with the pneumatic actuator as a complete control valve system. With this control valve system, every need in the continuous control of fluids can be solved.

Process specification

Materials	
Body	• Cast stainless steel 316L
Extended bonnet	• Cast stainless steel 316L
Actuator	• PA
Sealing	• SS or PTFE/SS
Process media	• For neutral gases, water, alcohols, oils, fuels, hydraulic liquids, salt solutions, lyes, organic solvents, steam (10 bar / +180 d. C.), liquid oxygen, argon, nitrogen (fluid temp. min. –196 d. C.)
Viscosity	• Max. 600 mm2/s
Packing glad	• PTFE V-rings (silicone grease) with spring compensation
Nominal pressure	• PN25 (body)
Temperatures	
Fluid	• Min. –196 d. C. / Max. +180 d. C.
Ambient	• Min. –10 d. C. / Max. +60 d. C.
Control media	• Instrument air class 3 DIN ISO8573-1
Pilot pressure	• 5,5 … 7 Bar
Threads	• G 1/4" stainless steel
Flow direction	• Below seat
Interchangeable seats	• Different Kvs-values per port size
Valve characteristics	• See flow-rate characteristics on page 2
Control ratio	• Kvs/KvO 50:1
Seat leakage IEC 534-4/ EN 1349	• Shut-off class IV for SS/SS, or Shut-off class VI for PTFE/SS
Port connections	
Threaded ports to :	
G	• DIN ISO 228 T1
NPT	• ASA B2.1
Rc	• ISO 7

Applications include :

- Cryogenic applications at 16 Bar / -196 d. C.
- Steam applications up to 10 Bar / 180 d. C.
- Aggressive fluids
- Systems engineering
- Food processing
- Liquified gases
- Dewars and tanks
- Road tankers
- Transferlines

bürkert
Fluid Control Systems

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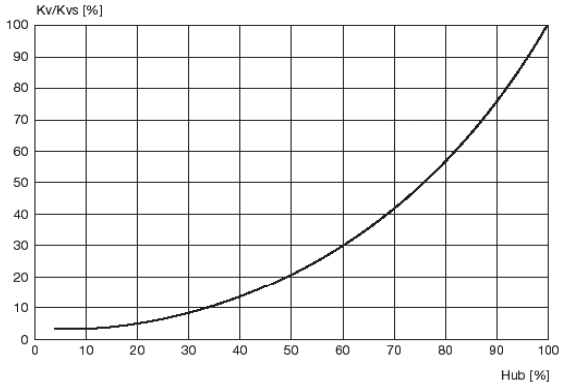
Flow curve and description



Remarks on characteristics

- Equiprencentile parabolic plug;linear plug can also be supplied.
- Flow characteristic runs witin DIN/IEC 534-2-4.
- Theoretical control ration Kvs/Kvo = 50 : 1 other control ratios can also been realized.
- Kvr value at 5% of stroke at DN > 10 mm Kvr value at 10% of stroke for DN < 10 mm (Kvr value = smallest Kv value at which the gradient tolerance to DIN/IEC 534-2-4 is still complied with)

Kv values [m3/h]

Port size (tube)		Orifice (seat)		Stroke [%]										
[mm]	[inch]	[mm]	[inch]	5	10	20	30	40	50	60	70	80	90	100
10	3/8"	4	1/8"	0.04	0.05	0.10	0.16	0.22	0.27	0.32	0.36	0.40	0.44	0.50
10	3/8"	6	3/16"	0.05	0.12	0.32	0.48	0.62	0.76	0.88	0.98	1.07	1.13	1.20
10	3/8"	8	¼"	0.06	0.07	0.09	0.12	0.18	0.26	0.42	0.61	0.92	1.50	2.00
10	3/8"	10	3/8"	0.09	0.11	0.13	0.19	0.30	0.48	0.73	1.00	1.60	2.30	2.70
15	½"	4	1/8"	0.04	0.05	0.10	0.16	0.22	0.27	0.32	0.36	0.40	0.44	0.50
15	½"	6	3/16"	0.05	0.12	0.32	0.48	0.62	0.76	0.88	0.98	1.07	1.13	1.20
15	½"	8	¼"	0.07	0.08	0.11	0.13	0.19	0.27	0.43	0.63	0.95	1.60	2.10
15	½"	10	3/8"	0.09	0.11	0.15	0.19	0.31	0.49	0.75	1.10	1.70	2.50	3.10
15	½"	15	½"	0.14	0.17	0.22	0.35	0.52	0.80	1.20	1.80	2.70	3.70	4.30
20	¾"	10	3/8"	0.11	0.12	0.16	0.20	0.33	0.52	0.77	1.20	1.80	2.60	3.20
20	¾"	15	½"	0.14	0.17	0.22	0.35	0.52	0.80	1.20	1.80	2.90	4.00	5.20
20	¾"	20	¾"	0.20	0.25	0.30	0.45	0.70	1.10	1.60	2.40	3.50	5.20	7.10
25	1"	15	½"	0.14	0.17	0.22	0.35	0.52	0.80	1.20	1.80	2.90	4.10	5.30
25	1"	20	¾"	0.20	0.25	0.30	0.45	0.70	1.10	1.60	2.50	3.80	5.40	7.20
25	1"	25	1"	0.35	0.38	0.65	1.00	1.50	2.20	3.40	5.10	7.00	9.40	12.00
32	1 ¼"	20	¾"	0.22	0.25	0.35	0.50	0.75	1.10	1.60	2.50	3.80	5.80	8.00
32	1 ¼"	25	1"	0.40	0.47	0.73	1.10	1.60	2.50	3.70	5.40	7.50	10.30	13.00
32	1 ¼"	32	1 ¼"	0.48	0.60	0.85	1.30	2.10	3.10	4.50	6.80	10.20	14.00	17.80
40	1 ½"	25	1"	0.40	0.50	0.75	1.10	1.70	2.60	3.80	5.60	8.00	10.70	13.60
40	1 ½"	32	1 ¼"	0.48	0.60	0.85	1.30	2.10	3.20	4.60	6.90	11.00	15.00	20.20
40	1 ½"	40	1 ½"	0.60	0.70	1.10	1.70	2.70	4.00	6.00	9.20	13.80	18.20	23.80
50	2"	32	1 ¼"	0.48	0.60	0.90	1.30	2.10	3.20	4.60	6.90	11.60	16.00	21.00
50	2"	40	1 ½"	0.60	0.70	1.00	1.70	2.60	4.00	5.90	9.20	14.00	18.90	24.60
50	2"	50	2"	0.90	1.10	1.90	2.90	4.50	6.80	10.50	15.50	22.00	29.30	37.00
65	2 ½"	40	1 ½"	0.45	0.55	0.85	1.30	2.00	3.10	4.60	6.80	10.70	17.20	25.50
65	2 ½"	50	2"	0.75	0.90	1.50	2.30	3.50	4.90	7.10	11.00	17.50	26.00	39.50

Port size (tube)		Calculated Kvs-values for water										
[mm]	[inch]	[mm]	[m3/h]	[mm]	[m3/h]	[mm]	[m3/h]	[mm]	[m3/h]	[mm]	[m3/h]	Kg
10	3/8"	4	0.5	6	1.2	8	2.0	10	2.7			2.9
15	½"	4	0.5	6	1.2	8	2.1	10	3.1	15	4.3	2.9
20	¾"	10	3.2	15	5.2	20	7.1					3.0
25	1"	15	5.3	20	7.2	25	12.0					3.6
32	1 ¼"	20	8.0	25	13.0	32	17.8					6.4
40	1 ½"	25	13.6	32	20.2	40	23.8					7.0
50	2"	32	21.0	40	24.6	50	37.0					10.8
65	2 ½"	40	25.5	50	39.5	65	62.0					19.7

** weight excludes the extended bonnet

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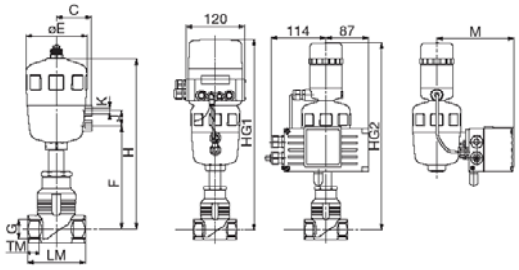
Actuator sizes / working pressures (normally open and normally closed)

Port size (tube) [mm]	[inch]	Orifice (seat) [mm]	[inch]	Actuator (size) [mm]	Op. pressure < 180 d. C. [bar]
10	3/8"	4	1/8"	F-80	16.0
10	3/8"	6	3/16"	F-80	16.0
10	3/8"	8	¼"	F-80	16.0
10	3/8"	10	3/8"	F-80	16.0
15	½"	4	1/8"	F-80	16.0
15	½"	6	3/16"	F-80	16.0
15	½"	8	¼"	F-80	16.0
15	½"	10	3/8"	F-80	16.0
15	½"	15	½"	F-80	16.0
20	¾"	10	3/8"	F-80	16.0
20	¾"	15	½"	F-80	16.0
20	¾"	20	¾"	F-80	16.0
25	1"	15	½"	F-80	16.0
25	1"	20	¾"	F-80	16.0
25	1"	25	1"	F-80	16.0
32	1 ¼"	20	¾"	G-100	16.0
32	1 ¼"	25	1"	G-100	16.0
32	1 ¼"	32	1 ¼"	G-100	16.0
40	1 ½"	25	1"	G-100	16.0
40	1 ½"	32	1 ¼"	G-100	16.0
40	1 ½"	40	1 ½"	G-100	16.0
50	2"	32	1 ¼"	H-125	16.0
50	2"	40	1 ½"	H-125	16.0
50	2"	50	2"	H-125	16.0
65	2 ½"	40	1 ½"	H-125	12.0
65	2 ½"	40	1 ½"	K-175	16.0
65	2 ½"	50	2"	H-125	12.0
65	2 ½"	50	2"	K-175	16.0
65	2 ½"	65	2 ½"	H-125	12.0
65	2 ½"	65	2 ½"	K-175	16.0

Picture showing a complete Bürkert system using the type 2712 control valve with TOP control type 8630 – length of the extended bonnet may be specified by customer's request.

Dimensions [mm]



Port size (tube) [mm]	[inch]	8630 HG1	1067 HG2	1067 M	8635 HG2	8635 M
10	3/8"	569	562	145	562	159
15	½"	569	562	145	562	159
20	¾"	584	577	145	577	159
25	1"	605	598	145	598	159
32	1 ¼"	773	789	158	789	172
40	1 ½"	796	789	158	789	172
50	2"	852	845	171	845	185
65	2 ½"	966	958	220	958	234

** Length HG1 and HG2 is excluding the extended bonnet (to be specified by customer)

Port size (tube) [mm]	[inch]	Dimensions Actuator [size]	C [mm]	E [mm]	F [mm]	H [mm]	K [mm]	J [mm]	LM [mm]	Threaded connectios TM G	TM NPT	TM Rc
10	3/8"	F-80	60	101	166	264	G ¼"	24	65	12.0	10.3	10.1
15	½"	F-80	60	101	166	264	G ¼"	24	65	14.0	13.7	13.2
20	¾"	F-80	60	101	180	259	G ¼"	24	75	16.0	14.0	14.5
25	1"	F-80	60	101	164	262	G ¼"	24	90	18.0	16.8	16.8
32	1 ¼"	G-100	73	127	208	346	G ¼"	30	110	20.0	17.3	19.1
40	1 ½"	G-100	73	127	213	351	G ¼"	30	120	22.0	17.3	19.1
50	2"	H-125	86	153	225	388	G ¼"	30	150	24.0	17.6	23.4
65	2 ½"	K-175	130	211	289	491	G ¼"	24	185	26.0	23.7	26.7

** Length H and F is excluding the extended bonnet (to be specified by customer)

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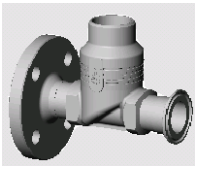
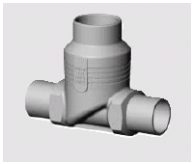
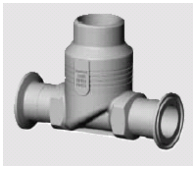
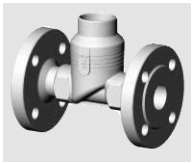
Further possible connections are :

Customized	Weld ends	Tri-Clamp	Flanges
			

** Customized : e.g. one side with flanges, other side with Tri-Clamp

Valve actuation system : TOP Control – type 8630

TOP Control Continuous type 8630 forms a mechanical and functional unit with the pneumatic actuator. Main functional groups op the TOP Control Continuous are:

- Postioner and process controller in one device, integrated PID.
- Positioning measuring system for continuous feedback of the actual position of the pneumatic actuator and the valve.
- Microprocessor controlled electronics for signal processing, setpoint / process value comparision.
- Pneumatic positioning system for single and double-acting actuators whose integrated pilot valves are driven by pulse-width modulation.

TOP Control continuous can be used in a variety of different applications in fluid control solutions.

Valve actuation system : SIDE Control 3-wire – type 1067

SIDE Control type 1067 is a 3-wire process controller and positioner composed of the main functional groups position measuring system, electropneumatic actuator system and microprocessor electronics. Main functional groups op the SIDE Control Continuous are:

- Postioner and process controller in one device, integrated PID.
- Positioning measuring system for continuous feedback of the actual position of the pneumatic actuator and the valve.
- Microprocessor controlled electronics for signal processing, setpoint / process value comparision.Pneumatic positioning system for single and double-acting actuators whose integrated pilot valves are driven by pulse-width modulation.

Valve actuation system : SIDE Control 2-wire – type 8635

SIDE Control S type 8635 is a 2-wire electropneumatic process controller and positioner for pneumatically operated process valves. The input signal of 4-20 mA serves to transmit the setpoint signal and to supply the device with power at the same time. As an alternative, communication can be effedted via the HART protocol.

- The HART protocol is mondulated onto the current signal using the FSk procedure (Frequency Shift Keying).
- Signal processing, control and drive of the internal positioning system are carried out by microprocessor controlled electronics.
- The software function autotune implemented eneables automatic adaptation of the positioner to control the valve used.
- Parametrization and operation are performed comfortably via three keys and a display with plain text, or via the HART protocol (optional).
- To build up a decentralizid control system, SIDE Control is equipped with a process controller with PID behaviour. In this case, a process control loop is superimposed on the positioning loop in a cascade structure.
- The compact, robust design, the housing is suitable for use in chemical and process engineering.

2/2-Way Globe Control valve for cryogenic applications, Pneumatically operated, Cast Stainless Steel Body, Threaded Ports

Globe valve systems

A continuous globe valve system consists of a continuous globe valve type 2712 and a valve actuation system TOP Control type 8630, SIDE Control 1067 or SIDE Control 8635. Bürkert offers a wide range of valve actuation systems suitable for the new continuous globe valve. A show below, following variations are possible in selecting a complete system :

Globe valve	+	Valve actuation	=	Complete continuous Globe valve system		
2712 Globe valve with required process connection		Valve actuation with all its needs TOP Control or SIDE Control		2712 + 8630 Globe Valve TOP Control system	2712 + 1067 Globe valve SIDE Control system	2712 + 8635 Globe valve SIDE Control system

In case of special application requirements, please consult for advice