

## Severe Service Control Valves

### U.S. Type 1711 with Bellows

#### DESCRIPTION

The Type 1711 bellows sealed globe control valve is especially suited to applications where the possibility of packing leakage cannot be tolerated. The bellows forms a flexible static seal that is virtually leak-free as long as the integrity of the bellows remains intact. The unit contains a set of backup packing that, in many cases, allows the valve to continue in service until repairs can be made, should the bellows fail. A purge-port between the bellows and the packing allows a leak to be detected before the media will get contact to the environment. This connection is closed with a bolt.

The bellows is available in the pressure range: The high pressure bellows fits 1/2 in. (DN15) through 1 in. (DN25) valves and is rated PN200 (2900 psi).

**NOTE:** Consult the factory when using this bellows.

#### APPLICATION

The Type 1711 valve with bellows is widely used in industrial applications, research, and process plants on liquids, gases or steam. The statically sealed bonnet makes it especially suited to applications where expensive concentrates are controlled and cannot be allowed to leak. Other applications arise when fugitive emissions must be prevented or when sensitive flow streams must be isolated from the ambient atmosphere. This type seal performs well in high vacuum service where standard packing is not desired.

#### MATERIALS

<b>Body – Bonnet</b>	
Standard	316 SST
Optional	Monel
<b>Bellows</b>	
High Pressure	DIN 2.4856 (Alloy 625)
<b>Innervalue</b>	
Standard	316 SST
Optional	Alloy 20, Alloy C-276, Alloy B2 or ASTM equivalent, Ni-Cu Alloy 400, Stellite SST
Packing	TFE CV rings, Graphite
<b>Actuator</b>	
Standard	Epoxy coated CS
Optional	Nickel coated CS, 304 SST or 316 SST

#### ACTUATOR OPTIONS

<b>Standard</b>	Air-to-open, Type #35sqi Air-to-close, Type #35sqi
<b>Standard Signals</b>	3-15#, 6-30#
<b>Optional Signals</b>	With positioner, 3-9#, 9-15#
<b>Accessories</b>	Filter regulator, gauges, I/P, limit switches, handwheel on standard unit, solenoids



*Type 1711 Valve with Bellows*

#### STANDARD FEATURES

- 1/2 in. (DN15), 3/4 in. (DN20) and 1 in. (DN25) models
- Graphoil or 316 SST Body-Bonnet Gasket
- Interchangeable trim sets
- Trim characteristics: Linear, equal percent, quick open or double taper
- PN 200 Bellows packing
- Purge port 1/8 in. NPT between bellows and backup packing, standardly closed with a lock screw
- TFE CV ring backup packing
- 316 bellows gasket

#### OPTIONAL FEATURES

- Butt and socket weld ends, BSPP, tube connection and others
- Stellite trims
- Tin coating of innervalue stem and seat
- Exotic alloys for trims

## DIMENSIONS



## INNERVALVE CHART

Valve Size in. (mm)	Trim	Nominal Cv	Theoretical Turbulent Cv	Orifice Dia. in. (mm)	Orifice Area in. <sup>2</sup> (mm <sup>2</sup> )	Maximum Rangeability	
						Linear	Equal %
1 (DN25)	6.0	6.0	6.0	0.6250 (15.9)	0.3068 (197.9)	50:1	60:1
	5.0	5.0	5.0	0.6250 (15.9)	0.3068 (197.9)	50:1	60:1
	4.5	4.5	4.5	0.5000 (12.7)	0.1963 (129.6)	50:1	60:1
3/4 (DN20) & 1 (DN25)	4.0	4.0	4.0	0.4375 (11.1)	0.1503 (96.9)	50:1	60:1
	3.5	3.5	3.5	0.4375 (11.1)	0.1503 (96.9)	50:1	60:1
1/2 (DN15), 3/4 (DN20), & 1 (DN25)	A	2.5	2.5	0.3750 (9.5)	0.1104 (71.2)	40:1	50:1
	B	2.0	2.0	0.3750 (9.5)	0.1104 (71.2)	40:1	50:1
	C	1.25	1.25	0.2810 (7.1)	0.0620 (40.0)	40:1	50:1
	D	0.8	0.8	0.2500 (6.4)	0.0491 (31.7)	40:1	50:1
	E	0.5	0.5	0.2500 (6.4)	0.0491 (31.7)	40:1	50:1
	F	0.32	0.32	0.1560 (3.9)	0.0191 (12.3)	30:1	40:1
	G	0.2	0.2	0.1560 (3.9)	0.0191 (12.3)	30:1	40:1
	H	0.13	0.13	0.1560 (3.9)	0.0191 (12.3)	30:1	40:1
	I	0.08	0.08	0.1560 (3.9)	0.0191 (12.3)	30:1	40:1
	J	0.05	0.05	0.1560 (3.9)	0.0191 (12.3)	30:1	40:1

PS	1/2 in. (DN15)	3/4 in. (DN20)	1 in. (DN25)
Body length	2.75 in. (70 mm)	3.37 in. (86 mm)	4.00 in. (102 mm)
High over all	24.6 in. (625 mm)	24.8 in. (630 mm)	25.0 in. (633 mm)
Stroke	0.562 in. (14 mm)	0.562 in. (14 mm)	0.562 in. (14 mm)

## PRESSURE/TEMPERATURE RATING

Temperature		Maximum Pressure	
32° F	0° C	2900 psi/g	200 bar/g
122° F	50° C	2900 psi/g	200 bar/g
212° F	100° C	2900 psi/g	200 bar/g
302° F	150° C	2900 psi/g	200 bar/g
392° F	200° C	2900 psi/g	200 bar/g
482° F	250° C	2900 psi/g	200 bar/g
572° F	300° C	2900 psi/g	200 bar/g
662° F	350° C	2900 psi/g	200 bar/g
752° F	400° C	2900 psi/g	200 bar/g
842° F	450° C	2900 psi/g	200 bar/g
932° F	500° C	—	—

**NOTE:** The pressure ratings above are for valves constructed of 316 SS with the bellows in Alloy 625 (DIN 2.4856).

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