

Technical Brief

1/2", 3/4" AND 1" HEAVY DUTY UNION BONNET VALVE ASSEMBLY

TYPE 1711

Description

The Type 1711 globe control valve is available in 1/2", 3/4" and 1" sizes. It is designed for modulating flow or pressure control in industrial and research applications at temperatures of 1000°F or less (400°F maximum for TFE chevron packing and standard bonnet). The unit features an oversized stem and extra heavy guided innervalue for added strength and longevity. The stem packing is designed for tight sealing, long life and quick, easy maintenance. The union bonnet with a graphite gasket provides excellent sealing without having bonnet threads in contact with the process fluid. The multi-spring, 35 square inch, diaphragm actuator can be either ATO or ATC action. Maximum corrosion protection on all non-stainless actuator components is standard. The spring preload is fully adjustable.

Applications

This RESEARCH® valve is suited for many applications in chemical, petroleum and other industries requiring a rugged, compact, heavy duty valve.

Materials of Construction

Body/Bonnet: 316SST

Body Gasket: Grafoil3 Gr GTA

Innervalue:

Standard - Stellite inlaid seat and plug

Optional - Titanium nitride coated

Packing:

Standard - TFE chevron rings

Optional - Grafoil®, others; consult factory

Actuator:

Pressure Cases and Yoke: Epoxy-coated steel

Springs: 17-7 PH SST

Diaphragm: Buna

Diaphragm Plate: Xylan-coated steel

Minor Fasteners: 300 Series stainless steel

Actuator

Standard: Air to open, fail close

Air to close, fail open

Optional: Side mounted positioner

Standard Signals: 3-15#, 3-27#, 6-30#

Optional Signals: 3-9#, 9-15# with positioner

Accessories - Filter regulator, gauges, I/P converter, limit switches, solenoids

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Standard Features

- Interchangeable innervalue
- Choice of linear or equal percent innervalue
- Stellite inlaid innervalue
- TFE chevron packing
- ANSI Class IV shutoff
- High pressure/temperature rating.
- Encapsulated graphite body gasket
- Epoxy-coated pressure cases inside and out
- Adjustable spring preload and up travel stop
- Dual IEC 534 (NAMUR) accessory mounts

Optional Features

- Graphite and other special packings
- Extended and other special bonnets
- Socket weld or butt-weld ends
- Flanges



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RESEARCH CONTROL® VALVES

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Description of Items

- 1.Body
- 2.Bonnet
- 3.Innervalve set
 - 3a. Stem
 - 3b. Innervalve
- 4.Locknut
- 5.Gasket
- 6.Packing adaptor
- 7.Union nut
- 8.Packing set
- 9.Gland
10. Actuator (shown ATO; refer to CD-951593 & CD-951594 for details) See Note 1.

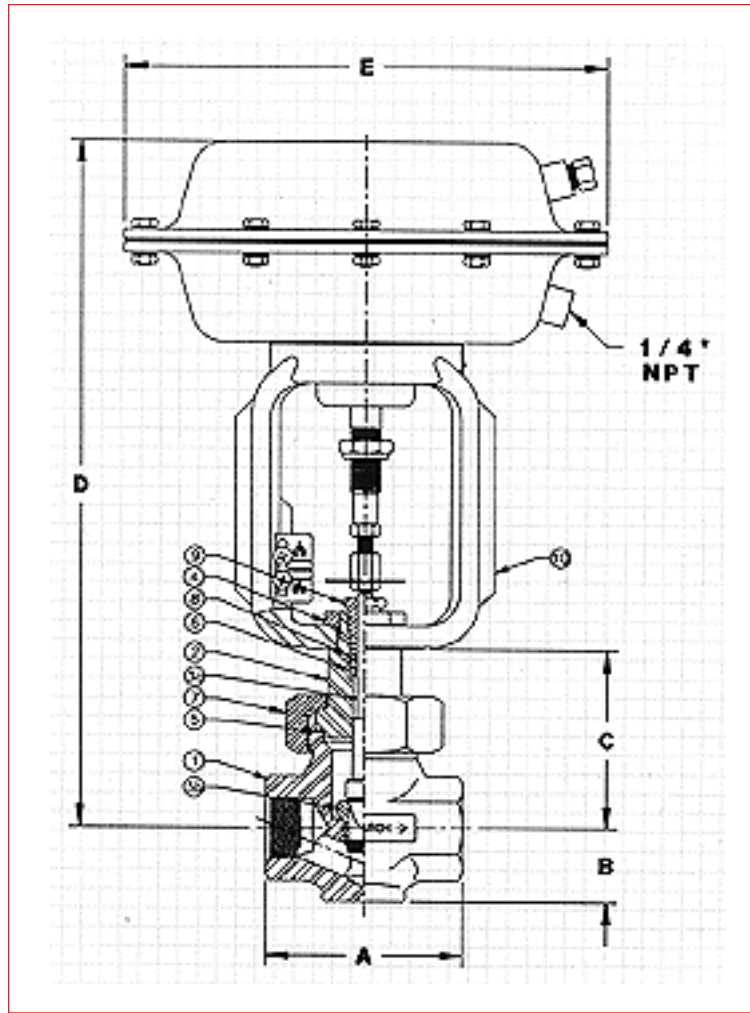
Note 1:

Without positioner 4 springs must be used.
With positioner 3,4, or 6 may be used.

Dimensions (inches)

Ps	A	B	C	D	E
1/2"	2.75	1.00	2.89	13.37	9.81
3/4"	3.38	1.19	3.08	13.56	9.81
1"	4.00	1.50	3.72	14.20	9.81

Removal clearance: 1.75" (45mm)
Valve stem travel: 0.563" (14.3mm)



Pressure versus Temperature

Temp (F)	1/2" (psig)	3/4" (psig)	1" (psig)	Temp (C)	1/2" (bar)	3/4" (bar)	1" (bar)
75	7500	5000	5000	24	517	345	345
100	7475	4980	4980	38	515	343	343
200	6625	4415	4415	93	457	304	304
300	6000	4000	4000	149	414	276	276
400	5375	3580	3580	204	371	247	247
500	5075	3380	3380	260	350	233	233
600	4825	3215	3215	316	333	222	222
700	4600	3065	3065	371	317	211	211
800	4525	3015	3015	427	312	208	208
900	4450	2965	2965	482	307	204	204
1000	4375	2915	2915	538	302	201	201
1100	3970	2645	2645	593	274	182	182
1200	550	620	1605	649	38	43	111
1300			1010	704			70
1400			685	760			47
1500			475	816			33

INNERVALVE CHART

Valve Size	Trim Designation	Cv Coefficient	Maximum Rangeability		Port Dia.	Orifice Area (Sq. In)	Max. Shut-off*	
			Linear	=Percent			1/2" (psig)	3/4", 1" (psig)
1"	6.0	6.0	50:1	60:1	0.625"	0.307		1,700
1"	5.0	5.0	50:1	60:1	0.625"	0.307		1700
1"	4.5	4.5	50:1	60:1	0.500"	0.197		2,650
3/4"-1"	4.0	4.0	50:1	60:1	0.500"	0.197		2,650
3/4"-1"	3.5	3.5	50:1	60:1	0.500"	0.197		2,650
1/2"-1"	A	2.5	50:1	50:1	0.375"	0.1105	4,700	4,700
1/2"-1"	B	2.0	40:1	50:1	0.375"	0.1105	4,700	4,700
1/2"-1"	C	1.25	40:1	50:1	0.281"	0.0621	7,500*	5,000*
1/2"-1"	D	0.8	40:1	50:1	0.250"	0.0491	7,500*	5,000*
1/2"-1"	E	0.5	40:1	50:1	0.250"	0.0491	7,500*	5,000*
1/2"-1"	F	0.32	30:1	40:1	0.156"	0.0191	7,500*	5,000*
1/2"-1"	G	0.2	30:1	40:1	0.156"	0.0191	7,500*	5,000*
1/2"-1"	H	0.13	30:1	40:1	0.156"	0.0191	7,500*	5,000*
1/2"-1"	I	0.08	30:1	40:1	0.156"	0.0191	7,500*	5,000*
1/2"-1"	J	0.05	30:1	40:1	0.156"	0.0191	7,500*	5,000*

*Maximum allowable shut-off is determined by the maximum force that can be preloaded using six springs loaded to 525 lbs. force. Although the unit will close the valve, this is no guarantee that the metal will not erode. Life of the innervalve is related to the fluid, temperature, nature of the media and the pressure.