

Small Control Valve

U.S. Type 1499 (Includes RC210)

DESCRIPTION

The U.S. Type 1499 globe control valve is designed to fit directly into pipelines of the same flange size and rating. Its compact size and light weight make it especially suited to modulating control of medium to low flow rates within the pressure range of the flanges. Its welded construction makes it readily available in a variety of materials and in other types of flanges. Special face-to-face dimensions, as well as mixing of flange size and body size, are also available on request.

APPLICATIONS

Type 1499 valves are widely used in industrial applications where flanged-type ends are desired to facilitate removal of the unit from the line or to comply with specific piping standards. In low flow applications, the unit occupies much less space than its larger counterparts.

MATERIALS

Body and Bonnet	
Standard	316 SST, carbon steel
Optional	Monel®, Alloy 20, Hastelloy® C and B or ASTM equivalent
Innervalue	
Standard	316 SST
Optional	Stellite®, Monel, Alloy 20, Hastelloy C and Bor ASTM equivalent
Packing	
Standard	TFE CV rings, Graphite
Optional	Graphite
Actuator (uses 1/2 in. size)	
Standard	Die cast aluminum
Optional	316L SST on standard models

ACTUATOR CHOICES

Standard	Air to open, fail close Air to close, fail open
Optional	With integral top-mounted positioner
Standard Signals	3-15#, 3-27#, 6-30#
Optional Signals	With positioner, 3-9#, 9-15#
Accessories	Filter regulator, gauges, I/P converter, limit switches, handwheel, solenoids



Shown with Type 766 Actuator

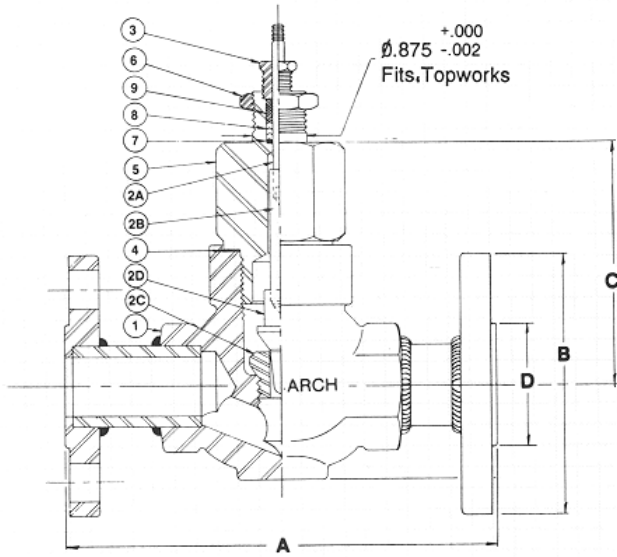
STANDARD FEATURES

- 3/4 in. (19.1 mm) and 1 in. (25.4 mm) models
- Interchangeable trim sets
- Class 150 or Class 300 raised face flanges
- Trim characteristics: Linear, equal percent, quick open or double taper
- TFE chevron packing
- ANSI Class IV shutoff (size J trim and larger)
- Threaded bonnet for quick disassembly

OPTIONAL FEATURES

- Special face-to-face dimensions
- Oversized flanges
- Ring type joint, tongue and groove, flat face or raised face smooth flanges
- Bellows packing solutions
- Reduced Emissions Kalrez® (REK), graphite, spring-loaded chevron and others
- Bonnet extensions for temperature extremes
- Angle pattern body
- Exotic alloys for complete valves or trims
- Stellite trims & soft seats (PTFE & Kel-F)
- TiN coating of innervalue stem and seat

DIMENSIONS



1. Valve body
2. Inner valve (trim) set
 - a. Stem: 3/16 in. (4.7 mm) diameter
 - b. Intermediate/guide stem: 3/18 in. (4.2 mm) diameter
 - c. Seat: 3/4 in. (19.1 mm) hex, 1-5/16 in. (33.3 mm) hex
3. Packing gland: 1/2 in. (12.7 mm) hex (Some exotic material bonnets are round with wrench flats.)
4. Body-bonnet gasket (not supplied on exotic materials)
5. Bonnet: 3/4 in. (19.1 mm) valve: 1-1/2 in. (38.1 mm) hex.
1 in. (25.4 mm) valve: 1-3/4 in. (44.5 mm) hex.
6. Yoke lock nut: 1-1/8 in. (28.6 mm) hex
7. Packing adapter
8. Packing
9. Packing follower

PS	Class	A	B	C	D	Stroke
0.75 in. (19.1 mm)	150#	7.25 in. (184 mm)	3.88 in. (98 mm)	3.90 in. (99 mm)	1.63 in. (41 mm)	0.562 in. (14 mm)
	300#	7.625 in. (194 mm)	4.63 in. (118 mm)			
1 in. (25.4 mm)	150#	7.25 in. (184 mm)	4.25 in. (108 mm)	3.95 in. (100 mm)	2.00 in. (51 mm)	
	300#	7.25 in. (184 mm)	4.88 in. (124 mm)			

PRESSURE VS TEMPERATURE RATING

3/4 in. (19.1 mm) Valve				
Temp ° F (° C)	316 SS		Carbon Steel	
	Class 150 psig (barg)	Class 300 psig (barg)	Class 150 psig (barg)	Class 300 psig (barg)
100 (38)	275 (19)	720 (50)	285 (20)	740 (51)
200 (93)	240 (16.6)	620 (43)	260 (18)	675 (47)
300 (149)	215 (15)	560 (39)	230 (16)	655 (45)
400 (204)	195 (13)	515 (36)	200 (14)	635 (44)
500 (260)	170 (12)	480 (33)	170 (12)	600 (41)
600 (316)	140 (97)	450 (31)	140 (97)	550 (38)
700 (371)	110 (8)	430 (30)	110 (8)	535 (37)
800 (427)	80 (5)	415 (29)	—	—

Rec. Bonnet Torque = 290 ft-lb (393 Nm)

1 in. (25.4 mm) Valve				
Temp ° F (° C)	316 SS		Carbon Steel	
	Class 150 psig (barg)	Class 300 psig (barg)	Class 150 psig (barg)	Class 300 psig (barg)
100 (38)	275 (19)	720 (50)	285 (20)	740 (51)
200 (93)	240 (16.6)	620 (43)	260 (18)	675 (47)
300 (149)	215 (15)	560 (39)	230 (16)	655 (45)
400 (204)	195 (13)	515 (36)	200 (14)	635 (44)
500 (260)	170 (12)	480 (33)	170 (12)	600 (41)
600 (316)	140 (97)	450 (31)	140 (97)	550 (38)
700 (371)	110 (8)	255 (17.6)	110 (8)	535 (37)
800 (427)	—	—	—	—

Rec. Bonnet Torque = 345 ft-lb (468 Nm)

NOTE: TFE chevron ring packing temperature limit is 400° F (204° C). Consult the factory for higher temperatures. The charts are a combination of ANSI B16.34 and Badger Meter ratings for the valve superstructure.

INNERVALVE CHART

Valve Size	Trim Size	Nominal Cv	Theoretical Turbulent Cv	Orifice Dia. in. (mm)	Orifice Area in. ² (mm ²)	Nominal Rangeability	
						Linear	Equal %
1 in. (25.4 mm)	6.0	6.0	6.0	0.625 (15.9)	0.307 (197.9)	50:1	60:1
	5.0	5.0	5.0	0.625 (15.9)	0.307 (197.9)	50:1	60:1
	4.5	4.5	4.5	0.500 (12.7)	0.197 (127.0)	50:1	60:1
3/4 in. (19.1 mm) and 1 in. (25.4 mm)	4.0	4.0	4.0	0.500 (12.7)	0.197 (127.0)	50:1	60:1
	3.5	3.5	3.5	0.500 (12.7)	0.197 (127.0)	50:1	60:1
	A	2.5	2.5	0.3750 (9.5)	0.1105 (71.3)	40:1	50:1
	B	2.0	2.0	0.3750 (9.5)	0.1105 (71.3)	40:1	50:1
	C	1.25	1.25	0.2810 (7.1)	0.0621 (40.0)	40:1	50:1
	D	0.80	0.8	0.2500 (6.4)	0.0491 (31.7)	40:1	50:1
	E	0.50	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	0.20	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
	K	0.03	4.8E-02	0.0860 (2.2)	0.0058 (3.7)	25:1	—
	L	0.02	3.4E-02	0.0860 (2.2)	0.0058 (3.7)	25:1	—
	M	0.01	1.6E-02	0.0860 (2.2)	0.0058 (3.7)	25:1	—
N	0.006	1.0E-02	0.0860 (2.2)	0.0058 (3.7)	25:1	—	
O	0.003	5.3E-03	0.0860 (2.2)	0.0058 (3.7)	25:1	—	

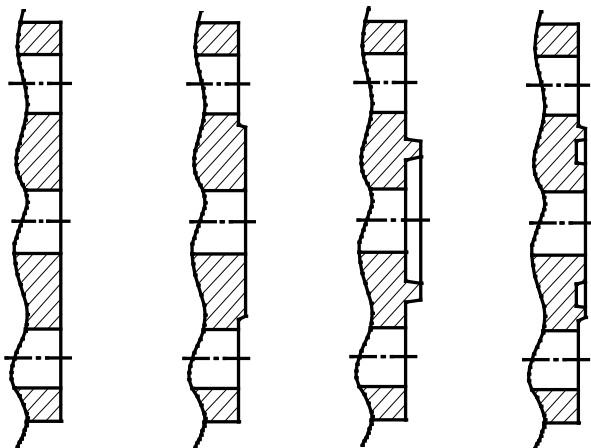
NOTE: K...O trims and the P-series trims are considered reduced trims.

Information Specific to RC210 Flanged Control Valves with DIN

DESCRIPTION

- Control valve in sizes 1 in., 3/4 in. and 1/2 in.
- Globe cast body with welded on flanges or cast housing
- Suitable for control of medium and low flow
- Many variations not listed here

FLANGES



EN 1092-1			
Form A	Form B1, B2	Form C	Form D
DIN 2526	DIN 2526	DIN 2526	DIN 2522
Form A-B	Form C-E	Form F	Form N

EN 1092-1	DIN 2526	ANSI B16-5	
Form A	RA 12.5 mm	Form B	
RFSF (Raised Face Smooth Finish)	—	RF (Raised Face) RFSF (Raised Face Smooth Finish)	
Not applicable	Form C	FF (Flat Face) FFSF (Flat Face Smooth Finish)	
FFSF (Flat Face Smooth Finish)	—		
Form B1	RA 3.2 mm to PN40	Form D	
Form B2	RA 0.8 mm to PN63	Form E	
Form C	Tongue	Form F	
Form D	Groove	Form N	
			T G, RTJ

ACTUATOR CHOICES

Pneumatic Actuator

Standard Type	Air to open, fail close Air to close, fail open
Optional Type	With integral top-mounted positioner
Standard Material	Die cast Aluminium with Epoxy paint
Optional Material	316L S/S (For 1/2 in. valves only)

Electric Actuator

Optional Special Types Available	Explosion-proof: Air to open, fail close Air to close, fail open
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PRESSURE VS TEMPERATURE RATING ACC. DIN

Max. pressure in bar.

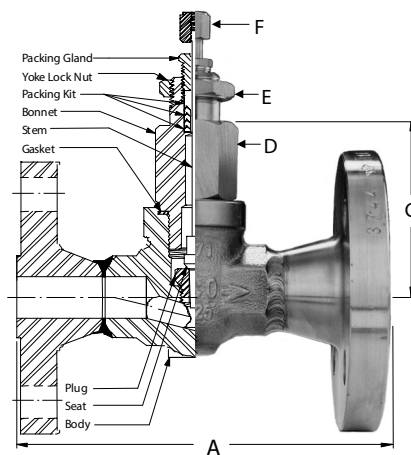
°C	PN16	PN40	PN100	PN160	PN320
20	16	40	100	160	320
100	14	34	85	136	271
200	11	29	72	115	2229
300	10	25	64	102	203
400	9	24	60	195	191
500	8	22	54	87	174

PRESSURE VS TEMPERATURE RATING ACC. ANSI

Max. pressure in bar.

°C	150#	300#	600#	900#	2500#
20	19	50	99	149	340
100	16	42	84	127	320
200	14	36	71	107	269
300	10	32	63	95	242
400	7	29	59	89	226
500	3	27	54	82	190

DIMENSIONS



Dim.	C	D	E	F
RC 1 in.	100	1-3/4 in.	1-1/8 in.	1/2 in.
RC 3/4 in.	99	1-1/2 in.	1-1/8 in.	1/2 in.
RC 1/2 in.	72	1-1/4 in.	1-1/8 in.	1/2 in.

Dim. A	DN15	DN20	DN25	DN32	DN40	DIN 3202
PN 16/40	130	150	160	180	200	
PN 100/160	210	230	230	260	260	
PN 320	230	260	260	300	300	

	1/2 in.	3/4 in.	1 in.	1-1/2 in.	2 in.	ANSI B16.10-1973
150#	108	184	184	222	254	
300#	152	194	197	235	267	
600#	165	206	210	251	286	
900#/1500#	216	229	254	305	368	
2500#	264	273	308	384	451	

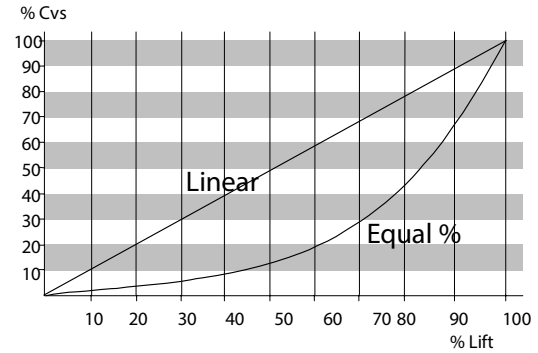
INNERVALVE CHART

Valve Size	Trim Size	Nominal Cvs	Theoretical Turbulent Cv
1 in.	V	6.0	6.0
	U	5.0	5.0
	T	4.5	4.5
3/4 in. and 1 in.	S	3.0	4.0
	R	3.5	3.5
1/2 in. and 3/4 in.	A	2.5	2.5/2.2
	B	2.0	2.0
	C	1.25	1.25
	D	0.80	0.80
	E	0.50	0.50
	F	0.32	0.32
	G	0.20	0.20
	H	0.13	0.13
	I	0.08	0.08
	J	0.05	0.05
	K	0.03	4.8E-02
	L	0.02	3.4E-02
	M	0.01	1.6E-02
	N	0.006	1.0E-02
	O	0.003	5.3E-03
1/2 in.	P1	2.0 E-03	3.6E-03
	P2	1.3 E-03	2.5E-03
	P3	1.0 E-03	2.0E-03
	P4	6.0 E-04	1.4E-03
	P5	4.0 E-04	1.0E-03
	P6	2.7 E-04	8.3E-04
	P7	1.8 E-04	6.8E-04
	P8	1.2 E-04	5.6E-04
	P9	8.0 E-05	4.6E-04

Seat Leakage

0.01% of Cvs for "O" and larger ANSI Class IV
 0.1% of Cvs for "P1" and smaller ANSI Class III
 Optional: Metallic or soft seated (PTFE or Kel-F).

Innervalue Characteristics



Control. Manage. Optimize.

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