

High Pressure and Severe Service Valve

Type HP-15

DESCRIPTION

The Type HP-15 is a high-pressure control valve using a 17-4ph stainless steel body along with a solid Stellite® innervalue assembly.

APPLICATIONS

The Type HP-15 valve is used in industrial applications research, and process pilot plants on liquids and gases. The main use is in high-pressure chemical injection used in offshore oil production rigs.

MATERIALS

Body	17-4 PH
Innervalue	Stellite 6B (plug and seat)
Packing	Standard is teflon CV rings
Actuator	
Standard	Painted carbon steel
Optional	Stainless steel

ACTUATOR CHOICES

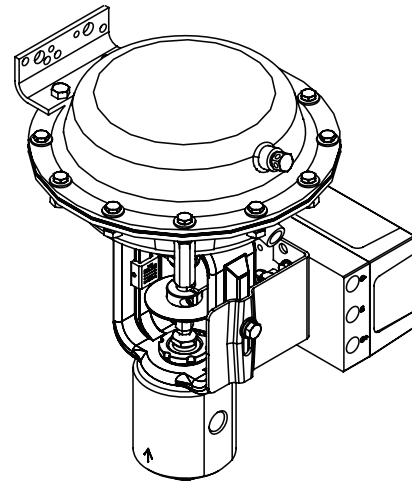
Standard	Air-to-open, fail close Air-to-close, fail open
Effective Area	35 square inches
Standard Signals	3-15#, 3-27#, 6-30#
Optional Signals	With positioner, 3-9#, 9-15#
Accessories	Filter regulator, gauges, I/P, limit switches, handwheel on standard unit, solenoids

STANDARD FEATURES

- 1/4 in. (6 mm) and 1/2 in. (12 mm) sizes
- Wide range of interchangeable trims
- Choice of linear or quick opening trims
- ANSI Class III shutoff for sizes P-1...P-9
- ANSI Class IV shutoff for sizes K...O
- Solid Stellite innervalue
- High pressure Autoclave fittings
- Pressure rating of 15,000 psi (1034 bar) @ 100° F (38° C)

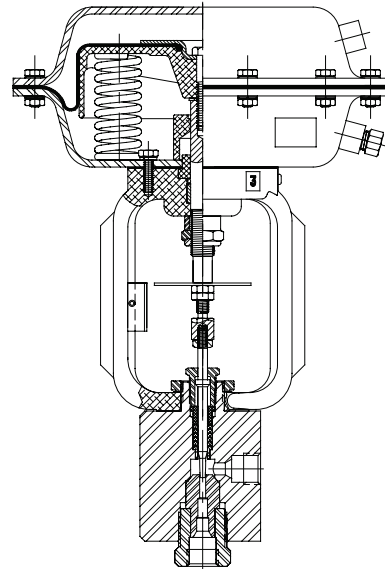
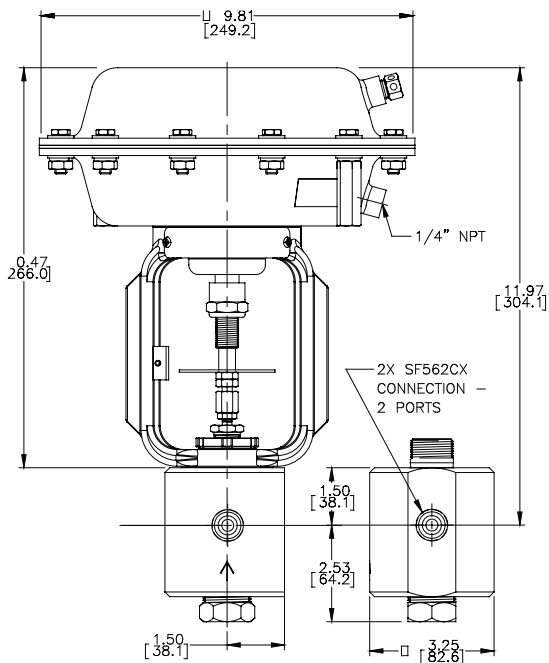


Shown with optional stainless steel actuator



Shown with optional side-mounted positioner

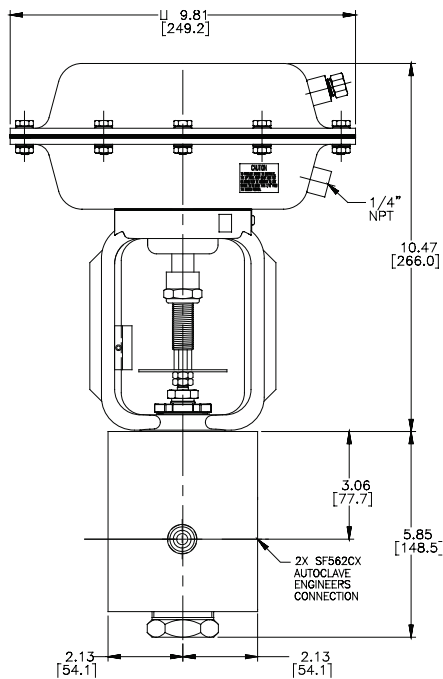
DIMENSIONS FOR 1/4 IN. (6 MM) VALVE



TRIM CHART

Valve Size	Trim Size	Max. Cv	Stem Dia. in. (mm)	Orifice Dia. in. (mm)	Orifice Area in. ² (mm ²)	Nominal Rangeability	
						Linear	Equal %
1/2 in. (12.7 mm)	A	2.5	0.312 (7.9)	0.375 (9.5)	0.110 (71.0)	40:1	50:1
	B	2.0	0.312 (7.9)	0.375 (9.5)	0.110 (71.0)	40:1	50:1
	C	1.25	0.312 (7.9)	0.281 (7.1)	0.062 (40.0)	40:1	50:1
	D	0.80	0.312 (7.9)	0.250 (6.4)	0.049 (31.6)	40:1	50:1
	E	0.50	0.312 (7.9)	0.250 (6.4)	0.049 (31.6)	40:1	50:1
1/4 in. (6.5 mm)	F	0.32	0.188 (4.8)	0.156 (4.0)	0.019 (12.3)	30:1	40:1
	G	0.20	0.188 (4.8)	0.156 (4.0)	0.019 (12.3)	30:1	40:1
	H	0.13	0.188 (4.8)	0.156 (4.0)	0.019 (12.3)	30:1	40:1
	I	0.08	0.188 (4.8)	0.156 (4.0)	0.019 (12.3)	30:1	40:1
	J	0.05	0.188 (4.8)	0.156 (4.0)	0.019 (12.3)	30:1	40:1
	K	0.03	0.188 (4.8)	0.086 (2.2)	0.005 (3.2)	25:1	—
	L	0.02	0.188 (4.8)	0.086 (2.2)	0.005 (3.2)	25:1	—
	M	0.01	0.188 (4.8)	0.086 (2.2)	0.005 (3.2)	25:1	—
	N	0.006	0.188 (4.8)	0.086 (2.2)	0.005 (3.2)	25:1	—
	O	0.003	0.188 (4.8)	0.086 (2.2)	0.005 (3.2)	25:1	—
	P-1	0.002	0.188 (4.8)	0.063 (1.6)	0.003 (1.9)	15:1	—
	P-2	0.0013	0.188 (4.8)	0.063 (1.6)	0.003 (1.9)	15:1	—
	P-3	0.001	0.188 (4.8)	0.063 (1.6)	0.003 (1.9)	15:1	—
	P-4	0.0006	0.188 (4.8)	0.063 (1.6)	0.003 (1.9)	15:1	—
	P-5	0.0004	0.188 (4.8)	0.063 (1.6)	0.003 (1.9)	15:1	—
	P-6	0.00027	0.188 (4.8)	0.063 (1.6)	0.003 (1.9)	15:1	—
	P-7	0.00018	0.188 (4.8)	0.063 (1.6)	0.003 (1.9)	15:1	—
	P-8	0.00012	0.188 (4.8)	0.063 (1.6)	0.003 (1.9)	15:1	—
	P-9	0.00008	0.188 (4.8)	0.063 (1.6)	0.003 (1.9)	15:1	—

DIMENSIONS FOR 1/2 IN. (12 MM) VALVE



Control. Manage. Optimize.

Research Control is a registered trademark of Badger Meter, Inc. Other trademarks appearing in this document are the property of their respective entities. Due to continuous research, product improvements and enhancements, Badger Meter reserves the right to change product or system specifications without notice, except to the extent an outstanding contractual obligation exists. © 2021 Badger Meter, Inc. All rights reserved.

DESCRIPTION

The Type NRMA Non-Rotating Manual Actuation design is used in applications where either our low-flow trims, cooling fins or bellows are needed and when applications demand human interaction. The manual actuator can be mounted on all RC series valves, including all "P" Trims and all Bonnets. Exchanging between electrical, pneumatic and manual actuators is therefore possible at any time with simple additions. The actuator is encapsulated and completely maintenance-free—designed for fine control.

APPLICATIONS

When you turn the hand wheel, the valve interior moves in a linear motion. This linear movement, from the hand wheel to the internal coupling, prevents damage to the trim and seat, distinguishing this design from conventional manual control valves.

FEATURES

- Hand drive, linear
- Suitable for Badger Meter® modular construction

MATERIALS

Case	1.4404 (316L)
Yoke	1.4404 (316L)
Hand Wheel	Duroplast

SPECIFICATIONS

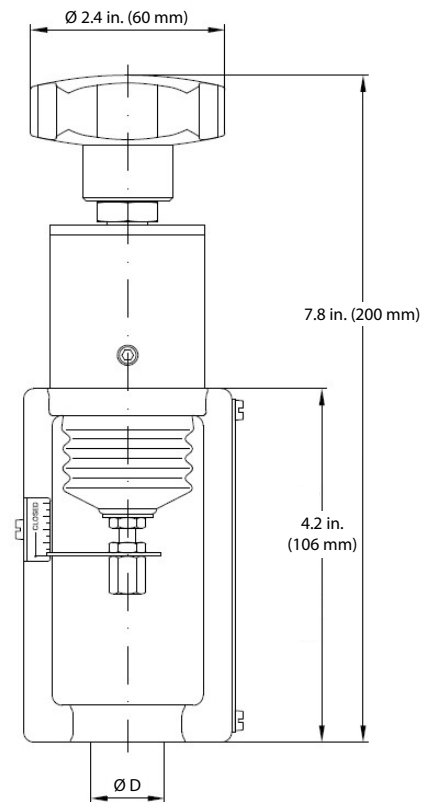
Weight	Approximately 3.3 lb (1.5 kg)
Temperature	-40...176° F (-40...80° C)
Valve Lift	0.04 in. (1 mm) / 360° turn

SIZES FOR RESEARCH CONTROL VALVES

Sizes	Ø Average	Stroke
1/4 in. standard	0.625 in.	11.1 mm
1/2 in., 3/4 in., 1 in. standard	0.875 in.	14.3 mm
1/2 in., 3/4 in., 1 in. heavy duty guiding	0.875 in.	14.3 mm



DIMENSIONS



RCV Valves		Trim Sizes Equal %															
% Lift	% Cv	6.0	5	4.5	4	3.5	A	B	C	D	E	F	G	H	I	J	% Lift
0%	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
5%	1.0%	0.06	0.05	0.04	0.04	0.03	0.02	0.02	0.01	0.008	0.005	0.003	0.002	0.001	0.001	0.000	5%
10%	1.9%	0.11	0.10	0.09	0.08	0.07	0.05	0.04	0.02	0.015	0.010	0.006	0.004	0.002	0.002	0.001	10%
20%	3.8%	0.23	0.19	0.17	0.15	0.13	0.10	0.08	0.05	0.031	0.019	0.012	0.008	0.005	0.003	0.002	20%
25%	4.8%	0.29	0.24	0.22	0.19	0.17	0.12	0.10	0.06	0.038	0.024	0.015	0.010	0.006	0.004	0.002	25%
30%	5.9%	0.35	0.29	0.26	0.23	0.20	0.15	0.12	0.07	0.047	0.029	0.019	0.012	0.008	0.005	0.003	30%
40%	8.8%	0.53	0.44	0.40	0.35	0.31	0.22	0.18	0.11	0.070	0.044	0.028	0.018	0.011	0.007	0.004	40%
50%	13.2%	0.79	0.66	0.59	0.53	0.46	0.33	0.26	0.16	0.105	0.066	0.042	0.026	0.017	0.011	0.007	50%
60%	19.8%	1.19	0.99	0.89	0.79	0.69	0.49	0.40	0.25	0.158	0.099	0.063	0.040	0.026	0.016	0.010	60%
70%	29.6%	1.78	1.48	1.33	1.19	1.04	0.74	0.59	0.37	0.237	0.148	0.095	0.059	0.039	0.024	0.015	70%
75%	36.3%	2.18	1.81	1.63	1.45	1.27	0.91	0.73	0.45	0.290	0.181	0.116	0.073	0.047	0.029	0.018	75%
80%	44.4%	2.67	2.22	2.00	1.78	1.56	1.11	0.89	0.56	0.356	0.222	0.142	0.089	0.058	0.036	0.022	80%
90%	66.7%	4.00	3.33	3.00	2.67	2.33	1.67	1.33	0.83	0.533	0.333	0.213	0.133	0.087	0.053	0.033	90%
100%	100%	6.00	5.00	4.50	4.00	3.50	2.50	2.00	1.25	0.800	0.500	0.320	0.200	0.130	0.080	0.050	100%
Valve Sizes		1"	1"	1"	1", 3/4"	1", 3/4"	1-1/2"	1-1/2"	1-1/2"	1-1/2"	1-1/2"	1-1/4"	1-1/4"	1-1/4"	1-1/4"	1-1/4"	

Trim Sizes O through P-18 are available only in linear characteristic. See Product Data Sheets for maximum Cvs.

RCV Valves		Trim Sizes Equal %															
% Lift	% Cv	6.0	5	4.5	4	3.5	A	B	C	D	E	F	G	H	I	J	% Lift
0%	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
5%	1.0%	0.30	0.25	0.23	0.20	0.18	0.13	0.10	0.06	0.040	0.025	0.016	0.010	0.007	0.004	0.003	5%
10%	1.9%	0.60	0.50	0.45	0.40	0.35	0.25	0.20	0.13	0.080	0.050	0.032	0.020	0.013	0.008	0.005	10%
20%	3.8%	1.20	1.00	0.90	0.80	0.70	0.50	0.40	0.25	0.160	0.100	0.064	0.040	0.026	0.016	0.010	20%
25%	4.8%	1.50	1.25	1.13	1.00	0.88	0.63	0.50	0.31	0.200	0.125	0.080	0.050	0.033	0.020	0.013	25%
30%	5.9%	1.80	1.50	1.35	1.20	1.05	0.75	0.60	0.38	0.240	0.150	0.096	0.060	0.039	0.024	0.015	30%
40%	8.8%	2.40	2.00	1.80	1.60	1.40	1.00	0.80	0.50	0.320	0.200	0.128	0.080	0.052	0.032	0.020	40%
50%	13.2%	3.00	2.50	2.25	2.00	1.75	1.25	1.00	0.63	0.400	0.250	0.160	0.100	0.065	0.040	0.025	50%
60%	19.8%	3.60	3.00	2.70	2.40	2.10	1.50	1.20	0.75	0.480	0.300	0.192	0.120	0.078	0.048	0.030	60%
70%	29.6%	4.20	3.50	3.15	2.80	2.45	1.75	1.40	0.88	0.560	0.350	0.224	0.140	0.091	0.056	0.035	70%
75%	36.3%	4.50	3.75	3.38	3.00	2.63	1.88	1.50	0.94	0.600	0.375	0.240	0.150	0.098	0.060	0.038	75%
80%	44.4%	4.80	4.00	3.60	3.20	2.80	2.00	1.60	1.00	0.640	0.400	0.256	0.160	0.104	0.064	0.040	80%
90%	66.7%	5.40	4.50	4.05	3.60	3.15	2.25	1.80	1.13	0.720	0.450	0.288	0.180	0.117	0.072	0.045	90%
100%	100%	6.00	5.00	4.50	4.00	3.50	2.50	2.00	1.25	0.800	0.500	0.320	0.200	0.130	0.080	0.050	100%
Valve Sizes		1"	1"	1"	1", 3/4"	1", 3/4"	1-1/2"	1-1/2"	1-1/2"	1-1/2"	1-1/2"	1-1/4"	1-1/4"	1-1/4"	1-1/4"	1-1/4"	

Numbers are for reference or comparison only.

% Lift	% Maximum Cv	
	Linear	Equal %
0%	0%	0%
5%	5%	1%
10%	10%	2%
20%	20%	4%
25%	25%	5%
30%	30%	6%
40%	40%	9%
50%	50%	13%
60%	60%	20%
70%	70%	30%
75%	75%	36%
80%	80%	44%
90%	90%	67%
100%	100%	100%

