

CLARK SOLUTIONS

2-Way & 3-Way 1/2" to 3" Electronic Ball Valves

On/Off, Tri-State, & Modulating

DESCRIPTION

Clark electrically actuated ball valves are supplied with bronze or 316 stainless steel body and 316 stainless steel ball (with TFE reinforced seats) and stem. The valve stem seal is high performance graphite impregnated Teflon™. The stem seal is rated four times the modulation life of RTFE making the valve ideal for modulating or tri-state applications.

The valves have a blowout proof stem design and are individually leak tested with air under water at each end of travel. The stem packing gland nut is adjustable to compensate for wear. The valve design allows disassembly of valve top, inspection, and replacement of packing without system shutdown or valve body removal.

A High/Low temperature option provides MTFE ball seats for excellent wear on low pressure steam (≤ 15 PSI) and other applications where the temperature varies.

The valve actuator brackets are metallic, not plastic, and allow free air movement between the actuator and the valve to minimize heat transfer and condensation. The high temperature seal option adds dimension between the valve and actuator.

SPECIFICATIONS

VALVES

Sizes: 1/2", 3/4", 1", 1 1/4", 1 1/2", 2", 3"

Operating Pressure & Temperature Rating: See Tables B & C

Operating Vacuum: to 29 inches Hg

C_v & Close off Rating: See Tables D & E, consult factory for

higher differential pressure ratings than listed

Valve Body: Bronze or 316 stainless steel

Ball & Stem: 316 stainless steel

Stem Seal: High performance graphite impregnated Teflon™

Thrust Seal: Reinforced TFE

Ball Seats: Reinforced TFE or optional MTFE for high or low temperatures

Leak Testing: All valves tested to MSS-SP-72, 100 PSI air under water, in the open and closed positions

ACTUATORS

See separate actuator specification bulletins

VALVE & ACTUATOR SELECTION

- 1) Review our Motor Actuated Valve Application Guide and select the valve type, size & materials. Refer to Clark bulletins on Globe valves or Butterfly valves if these valve types are better suited to the application.
- 2) Review valve C_v and close-off rating chart (Tables D&E) and select base valve model and actuator model
- 3) Review selected actuator specification bulletin and determine specific actuator model number
- 4) Review valve and actuator dimensions (tables F to H)
- 5) Assemble final model number using model number guidelines

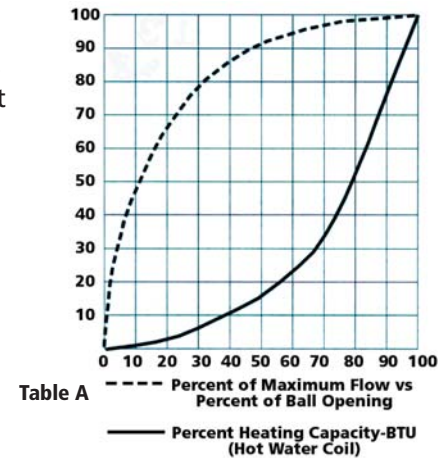


Table A --- Percent of Maximum Flow vs Percent of Ball Opening
— Percent Heating Capacity-BTU (Hot Water Coil)

Table B Two-Way Bronze Body Temperature/Pressure Rating

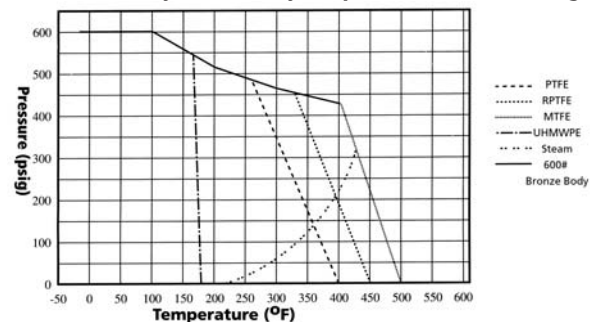


Table C Three-Way Bronze Body Temperature/Pressure Rating

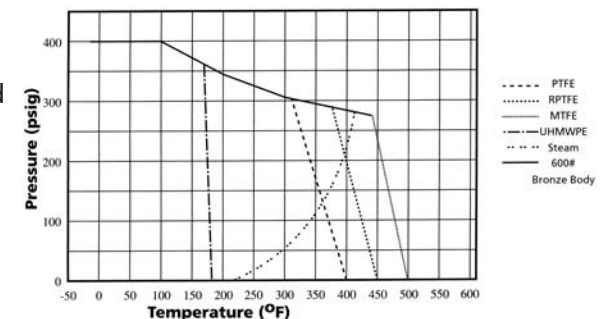


Table D Two-Way Valves			Close-Off Rating (PSI Differential Pressure)									
			Actuator Base Model Number Non-Spring Return Motors						Actuator Base Model Number Spring Return Motors			
NPT	C _v	Valve Model#	EN44	EN88	EN132	EN177	EN310	EN310(Dual)	ES62	ES75	ES142	ES142(dual)
1/2"	*	2-050-Cv	123	212	373	500	600	-	169	212	401	600
1/2"	9.8	2-050-9.8	123	212	373	500	600	-	169	212	401	600
3/4"	25	2-075-020	-	212	373	500	600	-	169	212	401	600
3/4"	33	2-073-033	-	143	283	380	600	-	-	143	305	600
1"	35	2-100-035	-	117	232	311	545	600	-	117	250	500
1"	47	2-100-047	-	-	118	159	280	559	-	-	128	351
1 1/4"	47	2-125-047	-	-	99	133	233	466	-	-	107	320
1 1/4"	81	2-125-081	-	-	-	79	139	278	-	-	64	128
1 1/2"	81	2-150-081	-	-	-	106	186	336	-	-	85	170
1 1/2"	105	2-150-105	-	-	-	-	104	208	-	-	-	95
2"	105	2-200-105	-	-	-	99	174	348	-	-	80	160
2"	360	2-200-360	-	-	-	-	90	180	-	-	-	80
2 1/2"	440	2-250-440	-	-	-	-	-	139	-	-	-	-
3"	390	2-300-390	-	-	-	-	-	139	-	-	-	-

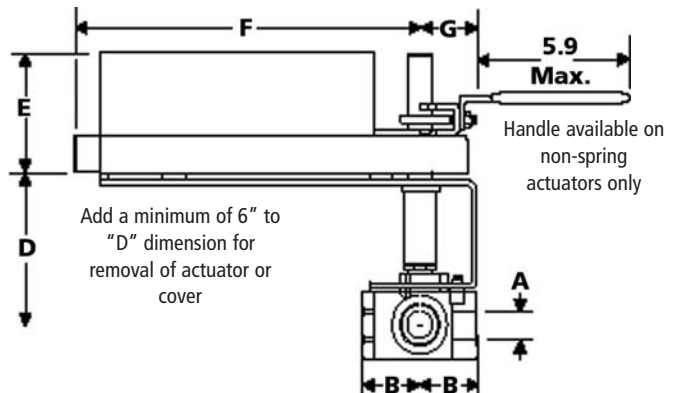
Table E Three-Way Valves			Close-Off Rating (PSI Differential Pressure)									
			Actuator Base Model Number Non-Spring Return Motors						Actuator Base Model Number Spring Return Motors			
NPT	C _v	Valve Model#	EN44	EN88	EN132	EN177	EN310	EN310(Dual)	ES62	ES75	ES142	ES142(dual)
1/2"	*	3-050-Cv	123	212	298	400	-	-	169	212	400	-
1/2"	6	3-050-006	123	212	298	400	-	-	169	212	400	-
3/4"	12	3-075-012	-	212	298	400	-	-	169	212	400	-
1"	14	3-100-014	-	117	232	311	400	-	-	117	250	400
1 1/4"	22	3-125-022	-	-	99	133	233	400	-	-	107	320
1 1/2"	30	3-150-030	-	-	79	106	186	348	-	-	85	170
2"	50	3-200-050	-	-	-	-	81	163	-	-	-	74
2"	91	3-200-091	-	-	-	-	81	163	-	-	-	74

* Specify Cv in closest number when ordering a special reduced size Cv (i.e., 0.5, 1, 2, 3...up to 5 for three-way and 9 for two-way)

Note: Weather Proof housings or Type RE Actuator are available for NEMA 4 application requirements and/or where higher close-off is required, please consult us

Table F Dimensions		Two-Way Valve, 1/2" through 1"				
Size	C _v	Model	Dimensions (inches)			
			A	B	C†	D**
1/2"	***	2-050-Cv	0.5	1.1	NA	3.1
1/2"	9.8	2-050-9.8	0.5	1.1	NA	3.1
3/4"	25	2-075-025	0.7	1.5	NA	3.3
3/4"	33	2-075-033	0.8	1.6	NA	3.3
1"	35	2-100-035	0.9	1.7	NA	3.4
Three-Way Valve, 1/2" through 1"						
1/2"	***	3-050-Cv	0.5	1.1	1.2	3.1
1/2"	6	3-050-006	0.5	1.1	1.2	3.1
3/4"	12	3-075-012	0.7	1.5	1.6	3.3
1"	14	3-100-014	1.0	2.0	1.7	3.4

Actuator Dimensions				
Actuator	Dimensions (inches)			
	E	F	G	H‡
Spring Return				
ES62	2.5	6.4	1.7	3.2
ES75/142	2.9	8.8	2.3	4.0
Non-Spring Return				
EN44/88	2.4	3.8	1.7	2.8
EN132	2.5	6.4	1.7	3.2
EN177	2.9	8.8	2.3	4.0



** Add 2.3 inches for "HT" applications

*** Cv per customer spec

† "C" dimension from center line of valve to face of port (three-way valves only)

‡ "H" dimension is width of motor

Table G Dimensions Two-Way Valve, 1" through 2"						
Size	Cv	Model	Dimensions (inches)			
			A	B	C†	D*
1"	47	2-100-047	1	1.8	NA	3.4
1 1/4"	47	2-125-047	1	2	NA	4.1
1 1/4"	81	2-125-081	1.3	2.1	NA	4.1
1 1/2"	81	2-150-081	1.3	2.2	NA	4.1
2"	105	2-200-105	1.5	2.4	NA	5.9

Three-Way Valve, 1" through 2"						
Size	Cv	Model	Dimensions (inches)			
			A	B	C†	D*
1 1/4"	22	3-125-022	1	2	2.4	4.1
1 1/2"	30	3-150-030	1.3	2.2	2.4	4.4
2"	50	3-200-050	1.5	2.4	2.5	5.9
2"	91	3-200-091	2	2.7	2.7	7.7

Actuator Dimensions				
Actuator	Dimensions (inches)			
	E**	F	G	H‡
Spring Return				
ES142	2.9	8.8	2.3	4.0
Non-Spring Return				
EN132	2.5	6.4	1.7	3.2
EN177/310	2.9	8.8	2.3	4.0

* Add 4.0 inches for "HT" applications
 ** Add 4.0" for dual actuator applications
 † "C" dimension from center line of valve to face of port (three-way valves only)
 ‡ "H" dimension is width of motor

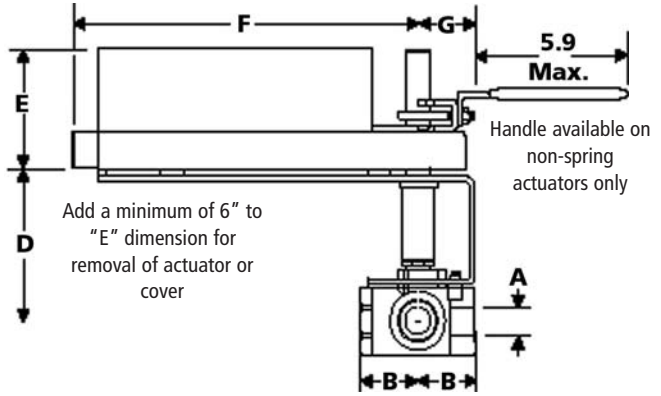
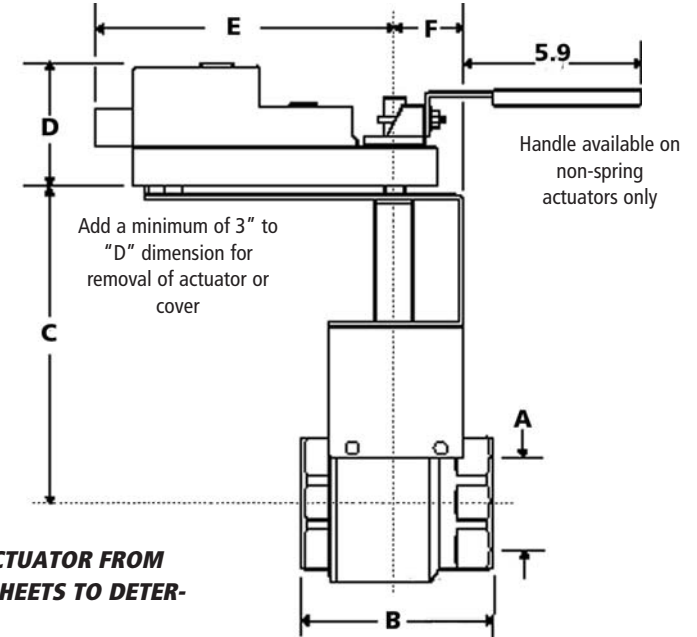


Table H Dimensions, Two-Way Valve, 1 1/2" through 3"						
Size	Cv	Model	Dimensions (inches)			
			A	B	C*	D
1 1/2"	105	2-150-105	1.5	4.8	8.2	
2"	360	2-200-360	2	5.4	8.5	
2 1/2"	440	2-250-440	2.5	6.5	8.9	
3"	390	2-300-390	2.5	6.8	8.9	

Actuator Dimensions				
Actuator	Dimensions (inches)			
	D**	E	F	G†
Spring Return				
ES142	2.9	8.8	2.3	4.0
Non-Spring Return				
EN310	2.9	8.8	2.3	4.0

* Dimensions are valid for both standard and "HT" versions
 ** Add 4.0" for dual actuator applications
 † "G" dimension is width of motor



ORDERING INFORMATION

1) SPECIFY ACTUATOR MODEL NUMBER: FIRST SELECT BASE ACTUATOR FROM TABLES D & E, THEN SEE SPECIFIC ACTUATOR SPECIFICATION SHEETS TO DETERMINE COMPLETE MODEL NUMBER

Non-Spring Return Actuators

EN44 & EN88: *Pages xx-xx

EN132, EN177 & EN310: *Pages xx-xx

Spring Return Actuators

ES62, ES75 & ES142: *Pages xx-xx

* From www.clarksol.com use hyperlinks

2) SPECIFY VALVE MODEL NUMBER (A-B-C-D), SEE TABLES BELOW

EXAMPLE: EN88C2 - 2-075-020-N-SBS
 ACTUATOR VALVE

Valve Model Selection			
A= Base Model	B= Valve Body Material	C= Options	D= Valve Trim Materials
See Tables D & E	- = Bronze (standard) SS= Stainless Steel	N= None WP= NEMA 4/4x actuator enclosure HT= Steam Service (MTFE packing & seat seals)	SBS= Stainless Ball & Stem (standard)