

DG Series Globe Valves provide stable and accurate control of both water, 50/50 water Glycol solutions and steam heat exchangers on fan coil units, VAV reheat coils, and air handling units up to 900 GPM. These globe valves feature rangeability of greater than 100:1 to provide precise control.

Two way standard trim valves provide an equal percentage flow characteristic for use on hot water and chilled water.

Two way stainless trim valves - recommended for steam applications, and 3-way mixing valves provide a linear flow characteristic.

All DG series globe valves feature a cartridge style packing, which is easily replaceable while the valve is in line. Constant plug guiding and precision-machined metal to metal seating assures ANSI Class IV shutoff (.01%) which provides low leakage and energy conservation.

### Features and Benefits - Valve

- **Rangeability >100:1**  
*Superior control accuracy*
- **Cartridge Packing**  
*Easily replaceable while valve is in line.*
- **2-Way and 3-Way bodies from 2-1/2" to 6"**  
*Covers all applications from fan coil units to air handling units*
- **Stainless Steel Trim Option**  
*Applicable to steam inlet pressure up to 100 PSI*

### Features and Benefits - GA(S) Series Actuator

- **Multiple control inputs for both spring return and non spring return models.**  
*Meets the requirements of virtually any heat exchanger control application*
- **GA(S) Series automatically adapts to valve stroke**  
*Built-in intelligence matches the actuator to the valve stroke.*
- **GA(S) Series automatically connects spindle after application of control voltage**  
*Easy assembly with valve.*
- **Spring Return Models**  
*Available "fail up" and "fail down"*

### Features and Benefits - VAL Series Actuator

- **High Output Force**  
*Provides high close-off pressure ratings*
- **Direct Mount to Bray DG Series Globe Valves**  
*Eases installation and minimizes space requirements*
- **Spring Return Operation**  
*Returns valve to the open position upon loss of power*
- **User-Selectable Input Signals**  
*Accepts current or voltage inputs*
- **Visual and Electronic Position Indication**  
*Provides position feedback and provides for remote monitoring*



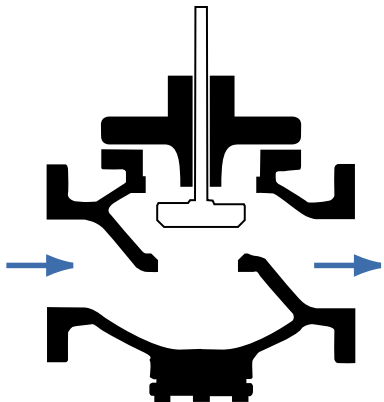
## DG - Specifications

### Technical Specifications - Flanged Globe Valves, 2-1/2" - 6" - 2-Way & 3-Way

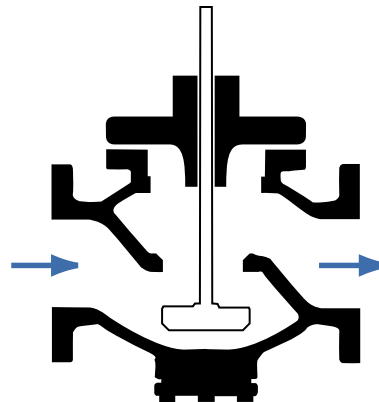
For Chilled/Hot Water, 50/50 Glycol Solutions and Steam Service:	Chilled / Hot Water	Steam (0 to 100 PSI Max Inlet Pressure)
Sizes	2-1/2" to 6" Flanged Valves, 2 & 3-Way	2-1/2" to 6" Flanged Valves, 2-Way
Valve Body - ANSI Class 125	Cast Iron Flanged	Cast Iron Flanged
Valve Trim Required	Bronze	Stainless Steel (noted by SS in the valve P/N)
Maximum Fluid Temperature and Inlet Pressure	°F	PSI
	-20° to 150°	200
	200°	190
	250°	175
Stem Material	Stainless Steel (ASTM A582 Type 303)	Stainless Steel (ASTM A582 Type 303)
Packing	EPDM O-Ring	Teflon V-Ring/EPDM O-Ring
Stem Lift	(3/4" stroke for 2-1/2" & 3" valves)	(3/4" stroke for 2-1/2" & 3" valves)
	(1-1/2" stroke for 4" - 6" valves)	(1-1/2" stroke for 4" - 6" valves)
Maximum Recommended Differential	25 PSI Water	50 PSIG Water or Steam
Flow Characteristic	Equal Percentage for 2-Way valves with standard trim.	
	Linear for 2-Way valves with Stainless Steel trim.	
	3-Way is equal percentage NC port, and linear for NO port.	
Maximum Close-Off Pressure	Refer to Close-Off Charts	Refer to Close-Off Charts
Leakage Rate	Class IV (0.01% of Cv)	Class IV (0.01% of Cv)
Rangeability	>100:1	>100:1

## DG - Piping Setup for 2-Way Valves

2-Way Application:  
Push down to close



2-Way Application:  
Push down to open

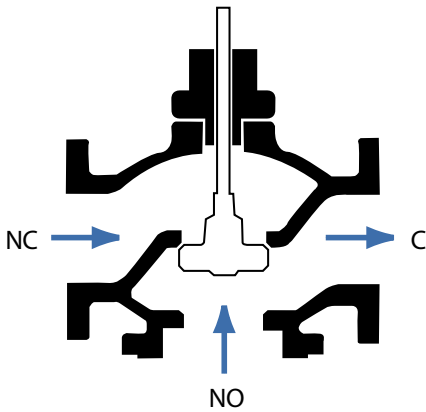


Any configuration of fail open, fail closed, reverse acting or direct acting can be set up upon special request. All diverting globe valves will ship in the above configuration unless otherwise specified.

# DG - Mixing and Diverting Piping Setup for 3-Way Valves

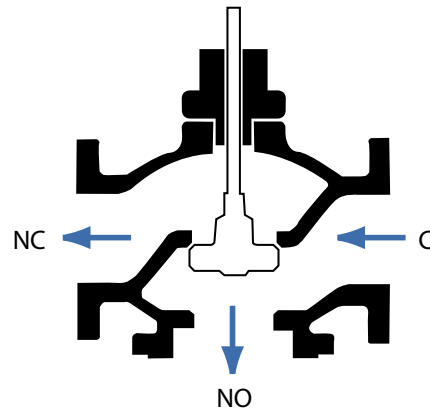
## 3-Way Mixing:

Stem down = Flow from NC to C (Common).  
Stem up = Flow from NO to C (Common).



## 3-Way Diverting:

Stem down = Flow from C (Common) to NC.  
Stem up = Flow from C (Common) to NO.



Any configuration of fail open, fail closed, reverse acting or direct acting can be set up upon special request.  
All diverting globe valves will ship in the above configuration unless otherwise specified.

## DG - Mode of Actuation

### GA(S) Series Linear Actuators:

GA actuators can be wired for three modes of actuation; 2-point on/off, 3-point floating or proportional actuation. When the actuator is used for proportional actuation the unit can be wired such that the shaft will extend or retract with an increasing signal. For wiring instructions reference installation instructions. 0-10 VDC feedback is available for all three modes of actuation.

- 1) For non-spring return model GA24-562, if power is removed the actuator will fail in place. For wiring instructions reference installation instructions.
- 2) Two different spring return models can be selected. The GASEX24-450 is designed such that the shaft will extend when power is removed and the GASRE24-450 is designed such that the shaft will retract when power is removed.

### 2 Way Valve Assemblies:

- 1) For non spring return assemblies a fully extended shaft will close the valve and a fully retracted shaft will open the valve.
- 2) For spring return assemblies the spring extended models are used for normally closed assemblies and the spring retracted models are used for normally open assemblies.

### 3 Way Valve Assemblies:

- 1) For non spring return assemblies a fully extended shaft will make port NC open to C and a fully retracted shaft will make port NO open to C.
- 2) For spring return assemblies the spring extended models are used when the normal position desired is port NC open to C and the spring retracted models are used when the normal position desired is port NO open to C.

### VAL Series Linear Actuators:

VAL actuators are spring return and used for proportional actuation only. The unit is designed such that the shaft will retract when power is removed. The actuator shaft will extend with an increasing signal. 0-10 VDC or 4-20 mA feedback is available.

### 2 Way Valve Assemblies:

Valve assemblies are designed to be normally open since the actuators' spring normally retracts the shaft.

### 3 Way Valve Assemblies:

Valve assemblies are used when the normal position desired is port NO open to C since the actuators' spring normally retracts the shaft.

## DG - 2-Way Actuator Selection and Close-Off Charts

2-Way DG GA(S) Series Actuator Selection/Close-Off (PSI)							
					Non-Spring Return	Spring Return Normally Open	Spring Return Normally Closed
On/Off, Floating or Modulating					0-10VDC 4-20mA 24VAC	0-10VDC 4-20mA 24VAC	0-10VDC 4-20mA 24VAC
Valve Models	Size		Flow Coefficient		GA24-562	GASRE24-450	GASEX24-450
	in.	mm	Cv	Kv			
DG250-2-63X	2-1/2	65	63	54	86	69	69
DG3-2-100X	3	80	100	85	57	45	45
DG4-2-160X	4	100	160	137	37	29	29
DG5-2-250X	5	125	250	214	24	19	19
DG6-2-400X	6	150	400	340	16	13	13

X - indicates "N = Normally Open", Shaft Retracted or  
"C = Normally Closed", Shaft Extended  
No Specification is required for Non-Spring Return Actuators  
-A - add at end of part number for optional Auxillary Switches

2-Way DG VAL <sup>1</sup> Series Actuator Selection/Close-Off (PSI)								
					Spring Return Normally Open		Spring Return Normally Closed	
Modulating					0-10VDC 4-20mA 24VAC	0-10VDC 4-20mA 24VAC	0-10VDC 4-20mA 24VAC	0-10VDC 4-20mA 24VAC
Valve Models	Size		Flow Coefficient		VAL-SRS07P	VAL-SRS15P	VAL-SRS07P	VAL-SRS15P
	in.	mm	Cv	Kv				
DG250-2-63X	2-1/2	65	63	54	153		97	
DG3-2-100X	3	80	100	85	101		63	
DG4-2-160X	4	100	160	137		65		39
DG5-2-250X	5	125	250	214		42		25
DG6-2-400X	6	150	400	340		29		17

<sup>1</sup> - VAL Series Actuators are Spring-Return Shaft Retracted.  
X - indicates "N = Normally Open"  
"C = Normally Closed"

## DG - 3-Way Actuator Selection and Close-Off Charts

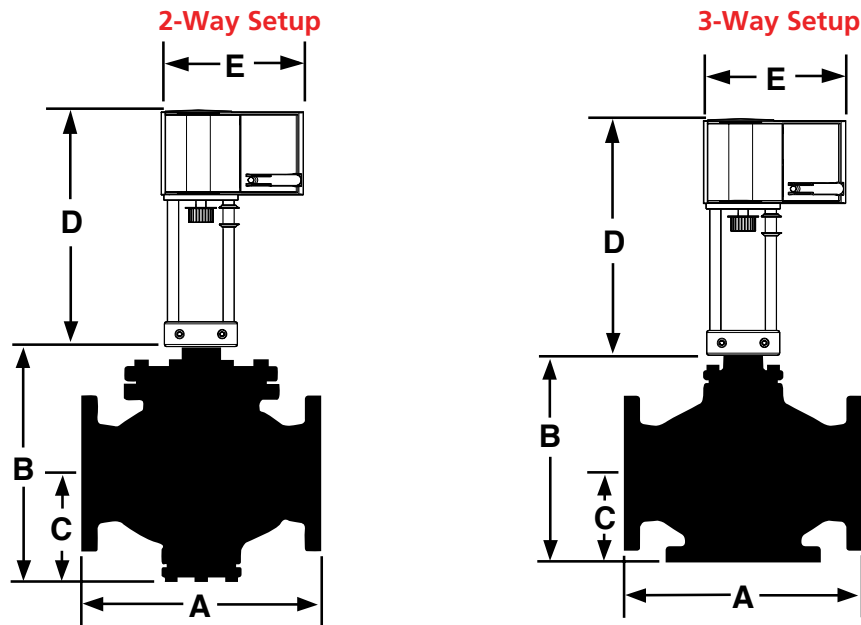
3-Way DG GA(S) Series Actuator Selection/Close-Off (PSI)								
					Non-Spring Return Shaft Retracted <sup>1</sup>	Non-Spring Return Shaft Extended <sup>2</sup>	Spring Return Normally Retracted <sup>3</sup>	Spring Return Normally Extended <sup>4</sup>
<b>On/Off, Floating or Modulating</b>					0-10VDC 4-20mA 24VAC	0-10VDC 4-20mA 24VAC	0-10VDC 4-20mA 24VAC	0-10VDC 4-20mA 24VAC
Valve Models	Size		Flow Coefficient		GA24-562	GA24-562	GASRE24-450	GASEX24-450
	in.	mm	Cv	Kv				
<b>DG250-3-63</b>	2-1/2	65	63	54	<b>85</b>	<b>86</b>	<b>68</b>	<b>69</b>
<b>DG3-3-100</b>	3	80	100	85	<b>55</b>	<b>57</b>	<b>44</b>	<b>45</b>
<b>DG4-3-160</b>	4	100	160	137	<b>34</b>	<b>37</b>	<b>27</b>	<b>29</b>
<b>DG5-3-250</b>	5	125	250	214	<b>22</b>	<b>24</b>	<b>18</b>	<b>19</b>
<b>DG6-3-400</b>	6	150	400	340	<b>15</b>	<b>16</b>	<b>12</b>	<b>13</b>

<sup>1</sup> - Indicates Shaft Retracted. Ports NO to C open  
<sup>2</sup> - Indicates Shaft Extended. Ports NC to C open  
<sup>3</sup> - Valve is shipped ports NO to C open  
<sup>4</sup> - Valve is shipped ports NC to C open  
 -A - add at end of part number for optional Auxillary Switches

3-Way DG VAL <sup>5</sup> Series Actuator Selection/Close-Off (PSI)								
					Spring Return Shaft Retracted <sup>1</sup>		Spring Return Shaft Extended <sup>2</sup>	
<b>Modulating</b>					0-10VDC 4-20mA 24VAC	0-10VDC 4-20mA 24VAC	0-10VDC 4-20mA 24VAC	0-10VDC 4-20mA 24VAC
Valve Models	Size		Flow Coefficient		VAL-SRS07P	VAL-SRS15P	VAL-SRS07P	VAL-SRS15P
	in.	mm	Cv	Kv				
<b>DG250-3-63</b>	2-1/2	65	63	54	<b>97</b>		<b>153</b>	
<b>DG3-3-100</b>	3	80	100	85	<b>63</b>		<b>101</b>	
<b>DG4-3-160</b>	4	100	160	137		<b>39</b>		<b>65</b>
<b>DG5-3-250</b>	5	125	250	214		<b>25</b>		<b>42</b>
<b>DG6-3-400</b>	6	150	400	340		<b>17</b>		<b>29</b>

<sup>1</sup> - Indicates Shaft Retracted. Ports NO to C open  
<sup>2</sup> - Indicates Shaft Extended. Ports NC to C open  
<sup>5</sup> - VAL Series Actuators are Spring Return, Shaft Retracted

# DG - 2 & 3-Way - GA Series Actuator Dimensions



## 2-Way DG Dimensions - For GA Series Actuator

Valve Models	Size in.(mm)	Flow Coefficient		Stroke in.(mm)	A	B	C	D Actuator Height	E Actuator Width	Weight <sup>1</sup>	
		Cv	Kv							lbs.	kg.
DG250-2-63	2-1/2 (65)	63	54	3/4 (20)	10-7/8 (276)	9-3/8 (239)	3-3/4 (95)	11-3/8 (289)	9-1/16 (230)	60	27
DG3-2-100	3 (80)	100	85	3/4 (20)	11-3/4 (299)	10-3/4 (272)	4-3/8 (111)			76	34
DG4-2-160	4 (100)	160	137	1-1/2 (40)	13-7/8 (352)	12-1/2 (318)	5-1/8 (132)	124		56	
DG5-2-250	5 (125)	250	214	1-1/2 (40)	15-3/4 (400)	13-3/4 (349)	5-3/4 (146)	155		70	
DG6-2-400	6 (150)	400	340	1-1/2 (40)	17-3/4 (451)	15-1/2 (393)	6-5/8 (167)	212		96	

<sup>1</sup>- Weights are for Valve Only.

Add 3.94 in. for optional High Media Temperature Height Extender

- Non-Spring Return Actuator Weight 9.1 lb. (4.1 kg)

- Spring Return Actuator Weight 12.3 lb. (5.6 kg)

## 3-Way DG Dimensions - For GA Series Actuator

Valve Models	Size in.(mm)	Flow Coefficient		Stroke in.(mm)	A	B	C	D Actuator Height	E Actuator Width	Weight <sup>1</sup>	
		Cv	Kv							lbs.	kg.
DG250-3-63	2-1/2 (65)	63	54	3/4 (20)	10-7/8 (276)	9-3/8 (239)	3-3/4 (95)	11-3/8 (289)	9-1/16 (230)	50	23
DG3-3-100	3 (80)	100	85	3/4 (20)	11-3/4 (299)	10-3/4 (272)	4-3/8 (111)			65	30
DG4-3-160	4 (100)	160	137	1-1/2 (40)	13-7/8 (352)	12-1/2 (318)	5-1/8 (132)	110		50	
DG5-3-250	5 (125)	250	214	1-1/2 (40)	15-3/4 (400)	13-3/4 (349)	5-3/4 (146)	136		62	
DG6-3-400	6 (150)	400	340	1-1/2 (40)	17-3/4 (451)	15-1/2 (393)	6-5/8 (167)	141		64	

<sup>1</sup>- Weights are for Valve Only.

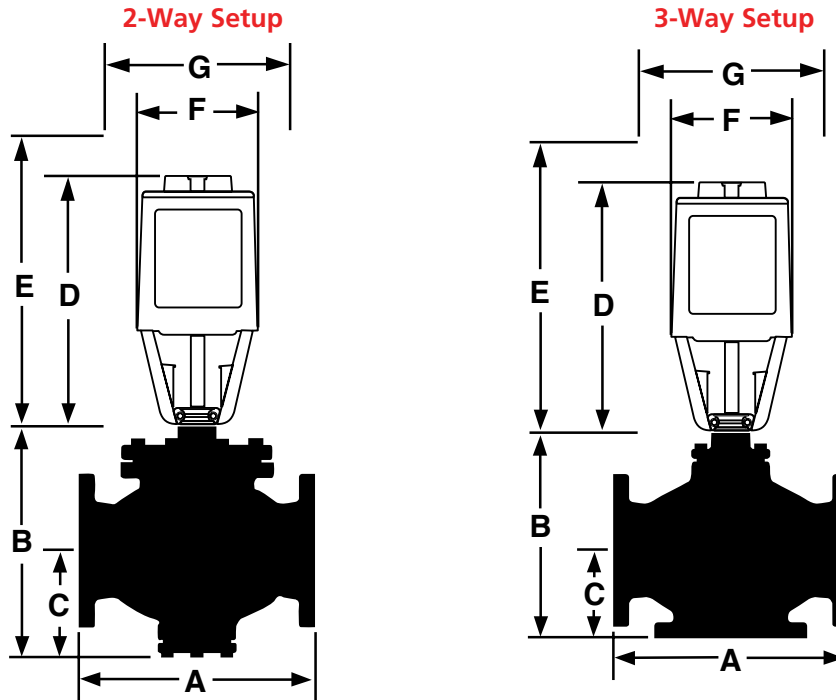
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- Spring Return Actuator Weight 12.3 lb. (5.6 kg)



## DG - 2 & 3-Way - VAL Series Actuator Dimensions



### 2-Way DG Dimensions - For VAL Series Actuator

Valve Models	Size in.(mm)	Flow Coefficient		Stroke in.(mm)	A	B	C	D Actuator Height	E Service Height	F Actuator Width	G Service Width	Weight <sup>1</sup>	
		Cv	Kv									lbs.	kg.
DG250-2-63	2-1/2 (65)	63	54	3/4 (20)	10-7/8 (276)	11 (281)	4-7/8 (123)	14-3/4 (375)	22-3/4 (578)	7 (178)	25 (635)	60	27
DG3-2-100	3 (80)	100	85	3/4 (20)	11-3/4 (299)	12-1/4 (312)	5-5/16 (135)					76	34
DG4-2-160	4 (100)	160	137	1-1/2 (40)	13-7/8 (352)	13-9/16 (345)	6-5/16 (160)					124	56
DG5-2-250	5 (125)	250	214	1-1/2 (40)	15-3/4 (400)	15-3/16 (385)	7 (177)					155	70
DG6-2-400	6 (150)	400	340	1-1/2 (40)	17-3/4 (451)	16-3/4 (426)	7-7/8 (200)					212	96

<sup>1</sup> - Weights are for Valve Only.

- VAL-SRS07P Actuator Weight 18.9 lb. (8.6 kg)

- VAL-SRS15P Actuator Weight 22.0 lb. (10.0 kg)

### 3-Way DG Dimensions - For VAL Series Actuator

Valve Models	Size in.(mm)	Flow Coefficient		Stroke in.(mm)	A	B	C	D Actuator Height	E Service Height	F Actuator Width	G Service Width	Weight <sup>1</sup>	
		Cv	Kv									lbs.	kg.
DG250-3-63	2-1/2 (65)	63	54	3/4 (20)	10-7/8 (276)	9-3/8 (239)	3-3/4 (95)	14-3/4 (375)	22-3/4 (578)	7 (178)	25 (635)	50	23
DG3-3-100	3 (80)	100	85	3/4 (20)	11-3/4 (299)	10-3/4 (272)	4-3/8 (111)					65	30
DG4-3-160	4 (100)	160	137	1-1/2 (40)	13-7/8 (352)	12-1/2 (318)	5-1/8 (132)					110	50
DG5-3-250	5 (125)	250	214	1-1/2 (40)	15-3/4 (400)	13-3/4 (349)	5-3/4 (146)					136	62
DG6-3-400	6 (150)	400	340	1-1/2 (40)	17-3/4 (451)	15-1/2 (393)	6-5/8 (167)					141	64

<sup>1</sup> - Weights are for Valve Only.

- VAL-SRS07P Actuator Weight 18.9 lb. (8.6 kg)

- VAL-SRS15P Actuator Weight 22.0 lb. (10.0 kg)



# DG - Steam Tables

## Steam Sizing Table (Flow Rates lbs./hour)

Cv	Low Pressure Steam Inlet Pressure (PSIG)								Medium Pressure Steam Inlet Pressure (PSIG)						High Pressure Steam Inlet Pressure (PSIG)					
	2		5		10		15		20		25		40		50		75		100	
	ΔP 0.2*	1.6	ΔP 0.5*	4	ΔP 1*	8	ΔP 1.5*	12	ΔP 2*	14	ΔP 2.5*	16	ΔP 4*	23	ΔP 5*	27	ΔP 7.5*	37	ΔP 10*	48
0.4	2.2	5.9	3.7	9.5	5.9	13.9	7.8	17.5	9.7	20.4	11.6	23.4	17.1	32.4	20.7	38.3	29.8	53	38.8	68
0.95	5.2	14	8.8	22.6	13.9	32.9	18.5	41.5	23	48.5	27.5	55.5	40.6	77	49.2	90.9	70.8	126	92.2	161
0.99	5.4	14.6	9.2	23.5	14.5	34.3	19.3	43.3	24	50.6	28.6	57.8	42.3	80.2	51.3	94.8	73.7	131	96.1	168
1.1	6	16.2	10.2	26.2	16.1	38.1	21.5	48.1	26.7	56.2	31.8	64.3	47	89.1	57	105.3	81.9	146	106.8	187
1.3	7.1	19.2	12.2	31	19	45.1	25.4	56.8	31.5	66.4	37.6	75.9	55.5	105.3	67.4	124.4	96.8	172	126.2	221
1.8	9.8	27	18.7	43	26.3	62.4	35.1	78.7	43.7	91.9	52.1	105.2	76.9	145.8	93.3	172.3	134.1	238	174.7	306
2.2	12	32.4	20.4	52	32	76	43	96	53	112	63.6	128.5	94	178	114	210.3	164	291	213.6	373
2.5	13.6	37	23	59	37	87	49	109	61	128	72	146	107	203	130	239	186	331	342	424
3.3	18	49	31	79	48	114	64	144	80	169	95	193	141	267	171	316	246	437	320	560
3.6	19.6	53	34	86	53	125	70	157	87	184	104	210	154	292	187	345	268	477	349	611
3.8	20.7	56	35	90	56	132	74	166	92	194	110	222	162	308	197	364	283	503	369	645
4.0	22	59	37	95	58	139	78	175	97	204	116	234	171	324	207	383	298	530	388	679
5.0	27	74	47	119	73	173	98	219	121	255	145	292	214	405	259	479	372	662	485	848
5.5	30	81	51	131	80	191	107	240	134	281	159	321	235	446	285	526	410	728	534	934
6.0	33	89	56	143	88	208	117	262	146	306	174	351	256	486	311	574	447	795	582	1018
6.2	34	91	58	147	91	215	121	271	150	317	179	362	265	502	321	593	462	821	602	1052
7.4	40	109	69	176	108	257	144	324	180	378	214	432	316	599	384	708	551	980	718	1256
7.5	41	111	70	178	110	260	146	328	182	383	217	438	320	608	389	718	559	994	728	1273
8.2	45	121	76	195	120	284	160	359	199	419	237	479	350	664	425	785	611	1086	796	1392
8.5	46	125	79	202	124	295	166	372	206	434	246	497	363	689	441	814	633	1126	825	1443
9.0	49	133	84	214	131	312	176	393	218	460	260	526	385	729	466	861	670	1192	874	1528
10.5	57	155	98	250	153	364	205	459	255	536	304	613	449	851	544	1005	782	1391	1019	1782
11.0	60	162	102	262	161	381	215	481	267	562	318	643	470	891	570	1053	819	1457	1068	1867
15.0	82	221	139	357	219	520	293	656	304	766	434	876	641	1215	777	1436	1117	1987	1456	2546
16.0	87	236	149	380	234	555	312	700	388	817	463	935	684	1296	829	1531	1192	2120	1553	2716
17.4	95	257	162	414	254	603	340	761	422	889	503	1016	743	1409	902	1665	1296	2305	1689	2954
25.0	136	369	232	594	365	867	488	1093	607	1277	723	1460	1068	2025	1296	2393	1862	3312	2427	4244
35.8	195	528	333	851	523	1241	699	1565	867	1828	1036	2091	1529	2900	1856	3427	2667	4742	3475	6077
40.0	218	590	372	951	584	1387	780	1749	970	2043	1157	2337	1709	3240	2073	3829	2980	5299	3883	6790
45.0	245	664	418	1070	657	1560	878	1967	1092	2298	1302	2629	1923	3645	2332	4307	3352	5961	4368	7639

\* Indicates 2-Position Control Applications. Higher Pressure Drop for Modulating Control Applications.  
 Note: Steam Capacity in Pounds per Hour. Table is Based on Saturated Steam.



Steam Sizing Table (Flow Rates lbs./hour)																				
Cv	Low Pressure Steam Inlet Pressure (PSIG)								Medium Pressure Steam Inlet Pressure (PSIG)						High Pressure Steam Inlet Pressure (PSIG)					
	2		5		10		15		20		25		40		50		75		100	
	ΔP		ΔP		ΔP		ΔP		ΔP		ΔP		ΔP		ΔP		ΔP		ΔP	
	0.2*	1.6	0.5*	4	1*	8	1.5*	12	2*	14	2.5*	16	4*	23	5*	27	7.5*	37	10*	48
56	305	826	521	1331	818	1942	1093	2448	1359	2860	1620	3271	2392	4536	2903	5360	4171	7418	5436	9506
65	354	958	604	1545	949	2254	1268	2842	1577	3320	1881	3797	2777	5265	3369	6221	4842	8611	6310	11034
70	381	1032	651	1664	1022	2427	1366	3061	1698	3575	2025	4089	2991	5670	3628	6670	5214	9273	6795	11882
75	409	1106	697	1783	1095	2601	1463	3279	1820	3830	2170	4381	3204	6075	3887	7179	5587	9935	7280	12731
85	463	1253	790	2021	1241	2947	1658	3716	2062	4341	2459	4966	3631	6885	4406	8136	6332	11260	8251	14429
100	545	1475	930	2377	1460	3468	1951	4372	2426	5107	2893	5842	4272	8101	5183	9571	7449	13247	9707	16975
115	627	1696	1069	2734	1680	3988	2244	5028	2790	5873	3327	6718	4913	9316	5961	11007	8566	15234	11163	19521
145	790	2138	1348	3447	2118	5028	2829	6340	3518	7405	4195	8471	6195	11746	7516	13878	10801	19208	14075	24613
170	926	2507	1580	4042	2483	5895	3177	7433	4124	8682	4918	9931	7263	13771	8811	16271	12663	22519	16502	28857
200	1090	2949	1859	4755	2921	6935	3902	8744	4852	10214	5786	11684	8544	16201	10366	19143	14898	26494	19414	33950
235	1281	3465	2184	5587	3432	8149	4585	10275	5701	12002	6799	13729	10040	19036	12180	22493	17505	31130	22812	39891
275	1499	4055	2556	6538	4016	9536	5366	12024	6672	14044	7956	16065	11749	22277	14254	26321	20484	36429	26695	46681
350	1907	5161	3253	8321	5112	12136	6829	15303	8491	17875	10126	20447	14953	28352	18141	33500	26071	46264	33975	59412
425	2316	6267	3950	10104	6207	14737	8292	18582	10311	21705	12296	24828	18157	34427	22028	40678	31658	56300	41256	72143
440	2398	6488	4090	10461	6426	15257	8585	19238	10675	22471	12730	25704	18798	35642	22806	42114	32775	58287	42712	74689
640	3488	9437	5949	15215	9347	22192	12487	27982	15527	32685	18516	37388	27342	51844	33172	61257	47672	84781	62126	108639
680	3706	10027	6321	16166	9931	23579	13268	29731	16498	34728	19673	39725	29051	55084	35245	65085	50652	90080	66009	115429
1125	6131	16589	10457	26746	16430	39010	21950	49187	27294	57454	32547	65722	48063	91131	58310	107678	83799	149029	109206	190967
1150	6267	16958	10689	27340	16796	39877	22438	50280	27900	58731	33271	67182	49131	93156	59606	110071	85661	152341	111633	195210
1750	9537	25805	16267	41604	25558	60682	34145	76513	42457	89373	50629	102234	74764	141760	90705	167499	130354	231823	169876	297059
1850	10082	27280	17196	43982	27019	64150	36096	80885	44883	94481	53522	108076	79036	149860	95888	177070	137803	245070	179583	314034
2600	14169	38339	24167	61812	37972	90157	50730	113677	63079	132783	75220	151890	111078	210614	134762	248855	193669	344422	252388	441345
2650	14442	39076	24632	63001	38703	91890	51706	115863	64292	135337	76667	154811	113214	214665	137353	253641	197394	351046	257241	449832
3400	18529	50136	31604	80831	49656	117897	66339	148654	82488	173640	98365	198625	145256	275419	176227	325426	253260	450398	330045	577143
4500	24524	66356	41828	---	65722	---	87802	---	109175	---	130189	---	---	---	---	---	---	---	---	---
5400	29429	79628	50194	---	78866	---	105362	---	---	---	---	---	---	---	---	---	---	---	---	---
7000	38148	---	65066	---	102234	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
10000	54498	---	92952	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

\* Indicates 2-Position Control Applications. Higher Pressure Drop for Modulating Control Applications.  
 Note: Steam Capacity in Pounds per Hour. Table is Based on Saturated Steam.

## DG - Cv Pipe Size Correction Tables

### 2-Way DG Piping Geometry Chart (Adjusted Cv)

Valve Models	Valve Size		Flow Coefficient		Pipe Size						
	in.	mm	Cv	Kv	2-1/2"	3"	4"	5"	6"	8"	10"
DG250-2-63	2 1/2	65	63	54	63.0	62.7	61.7	61.1			
DG3-2-100	3	80	100	85		100.0	98.7	97.3	96.3		
DG4-2-160	4	100	160	137			160.0	158.9	157.3	155.2	
DG5-2-250	5	125	250	214				250.0	248.7	245.0	242.5
DG6-2-400	6	150	400	340					400.0	394.8	389.1

### 3-Way DG Piping Geometry Chart (Adjusted Cv)

Valve Models	Valve Size		Flow Coefficient		Pipe Size						
	in.	mm	Cv	Kv	2-1/2"	3"	4"	5"	6"	8"	10"
DG250-3-63	2 1/2	65	63	54	63.0	62.7	61.7	61.1			
DG3-3-100	3	80	100	85		100.0	98.7	97.3	96.3		
DG4-3-160	4	100	160	137			160.0	158.9	157.3	155.2	
DG5-3-250	5	125	250	214				250.0	248.7	245.0	242.5
DG6-3-400	6	150	400	340					400.0	394.8	389.1

## Application

The **GA(S) Series** is a direct mount line of linear motor actuators to be used primarily on globe valves. The patented drive-valve coupling allows the drive to be connected to the valve automatically as soon as the power is applied to the actuator. An external crank handle enables the desired position to be set manually as well. Microprocessor technology enables the actuator to identify the functions required and to adapt itself automatically to the control valve properties.

These actuators operate on 24V AC or DC, and all input signals- 0-10V or 4-20mA modulating output, or On/Off (2-point) or Floating (3-point) control. The actuator automatically detects the control signal applied via a 2 LED display.

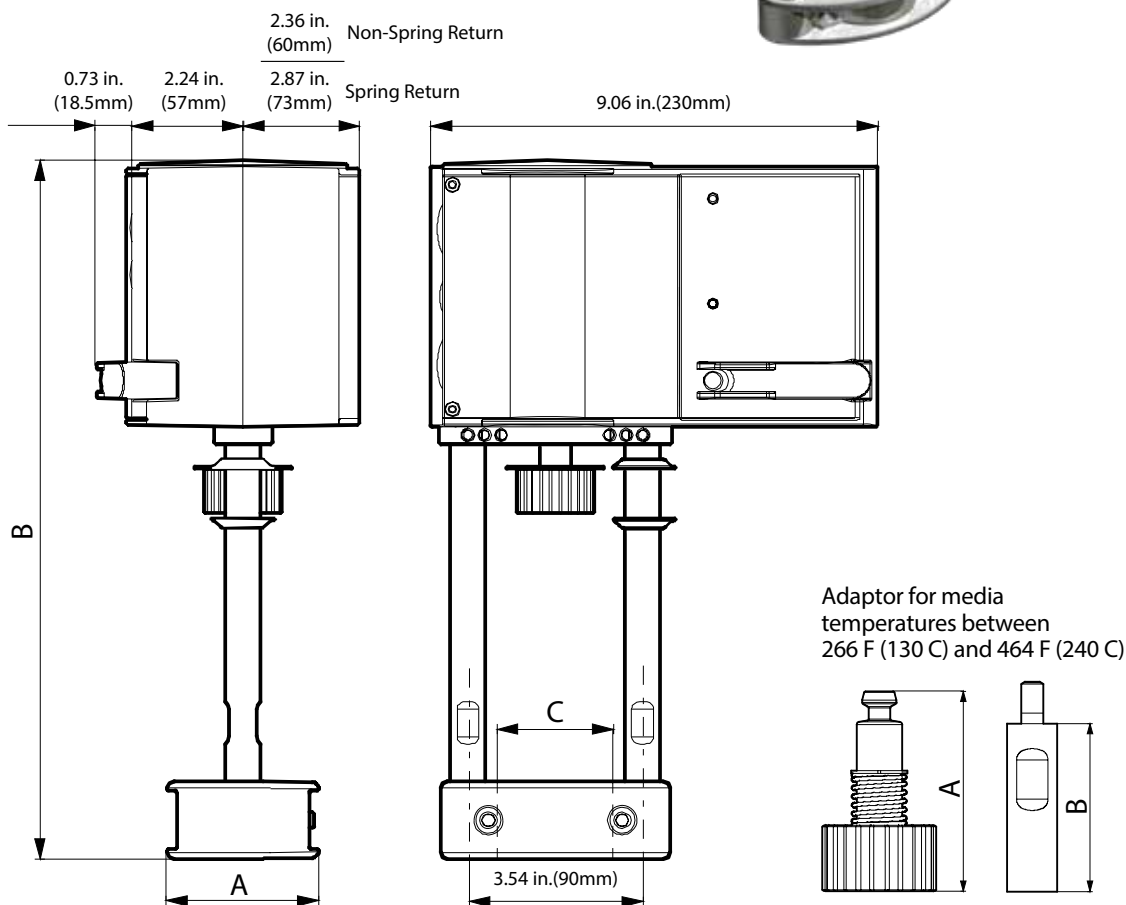
These actuators operate both 2 and 3-way valves and are available in non-spring return and spring return versions. The GA(S) series is bi-directional, selectable via screw terminals.

## GA(S) Series Globe Valve Actuators

- Non-Spring Return - GA24-562
- Spring Return - GASRE24-450
- Spring Return - GASEX24-450



## GA(S) Series - Dimensions



Description	A	B	C
GA(S) Series	2.52 in. (64mm)	11.38 in. (289mm)	1.73 in. (44mm)

Part Number	A	B
0372336 240	4.31 in. (109.4mm)	3.94 in. (100mm)

# GA(S) Series - Actuator Specifications



## Technical Specifications

<b>Non-Spring Return</b>	<b>GA24-562</b>	On/Off, Floating and Modulating
<b>Spring Return</b>	<b>GASRE24-450</b>	On/Off, Floating and Modulating, Shaft Normally Retracted
	<b>GASEX24-450</b>	On/Off, Floating and Modulating, Shaft Normally Extended
<b>Power Requirements</b>	<b>On/Off, Floating and Modulating</b>	24 VAC ( $\pm 20\%$ ) at 50/60 Hz or 24 VDC ( $\pm 15\%$ )
<b>Positioner<sup>1</sup></b>	<b>Control Signal 1</b>	0 to 10 V, $R_i > 100 \text{ k}\Omega$
	<b>Control Signal 2</b>	4 to 20 mA, $R_i = 50 \Omega$
	<b>Position Feedback Signal</b>	0 to 10 V, Load $> 2.5 \text{ k}\Omega$
<b>Action</b>		Direct or Reverse Acting
<b>Switching Range</b>		300 mv
<b>Power Consumption<sup>2</sup></b>	<b>Non-Spring Return</b>	10W, 18VA
	<b>Spring Return</b>	7.5W, 20VA
<b>Force</b>	<b>Non-Spring Return</b>	562 lbs. (2,500 N)
	<b>Spring Return</b>	450 lbs. (2,000 N) Power stroke and spring stroke
<b>Stroke</b>		0" to 1.93" (0-49mm)
<b>Max. Temperature of Medium<sup>3</sup></b>		266°F (130°C)
<b>Ambient Conditions</b>	<b>Temperature</b>	14°F to 131°F (-10° to 55°C)
	<b>Humidity</b>	0 to 95% RH without condensation
<b>Level of Protection</b>		IP 66. Not intended for outdoor use without additional protection.
<b>Enclosure</b>		Self-extinguishing plastic
<b>Gear Materials</b>	<b>Gears &amp; Gearbox Mounting Column Mounting Bracket</b>	Steel Stainless Steel Cast Light Alloy
<b>Electrical Connection</b>		13 AWG (2.5 mm <sup>2</sup> ) with screw terminals. Three knock-out cable entries for M20×1.5 (2×) and M16×1.5
<b>Motor Run Time sec. per in. (mm)</b>		51 (2), 102 (4), 153 (6), Dip Switch Adjustable
<b>Spring Run Time<sup>4</sup></b>		15... 30 seconds
<b>Number of Spring Returns</b>		> 40,000
<b>Response Time - 3-Point</b>		200 ms
<b>Weight</b>	<b>Spring Return</b>	12.3 lbs. (5.6 kg)
	<b>Non-Spring Return</b>	9.1 lbs. (4.1 kg)
<b>UL Listed</b>		Temperature-Indicating and Regulating Equipment, XAPX, XAPX7. File E366456

<sup>1</sup> Also for On/Off (2-point) or Floating (3 point) depending on the connection for 24V~

<sup>2</sup> Design the transformers for this value, otherwise functional faults may occur.

<sup>3</sup> An intermediate piece is required for medium temperatures between 266°F (130°C) and 464°F (240°C)

<sup>4</sup> The return time corresponds to a stroke of 0.55 in. (14 mm) to 1.58 in. (40 mm) and does not depend on the set run time.

*Disclaimer - The performance specifications are nominal and conform to acceptable industry standards. For application at conditions beyond these specifications, consult the local Bray office. Bray, Inc. shall not be liable for damages resulting from misapplication or misuse of its products.*