GTW THREE WAY CONTROL VALVE

GTW 3-WAY CONTROL VALVE

SIZES 1/2" – 12"
ANSI CLASS 125/250, 150/300

- **Rigid Port Guiding** dampens vibration and ensures proper seating
- **High Capacity Body Designs** means valve body flow areas are 140% of normal valve, reducing velocities and pressure loss
- **Balanced Plug Design** of DV provides gradual, stable transition
- **316 SS Valve Plugs & Seat Rings** for corrosion resistance
- **Mixing or Diverting** in Cast Iron, Carbon Steel or Stainless Steel to suit your application
- **Spring Loaded V-ring Packing** is self adjusting

Application Data

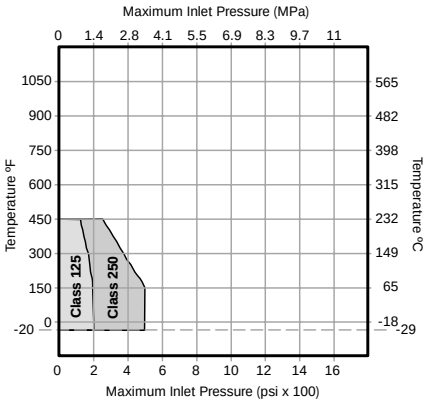
- Process control systems for food, pulp and paper, chemical, petrochemical & other industries
- HVAC systems
- Feed water and fuel system controls in boiler rooms
- Packaged systems (OEM) such as heat exchangers, water purification systems & vaporizer, metal cleaning and plating
- Especially designed for mix or diverting of clean, dirty, viscous and corrosive liquids, gasses and steam

Options

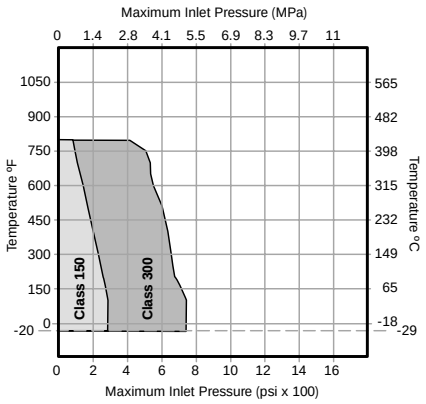
- 40 and 85 sq. in. Reverse and Direct Actuators
- Soft Seat
- Positioners and Other Accessories
- Alternate Packing for Severe Service
- Graphite or High Temperature Packing

Applicable Codes *See Reference Section on page 195*

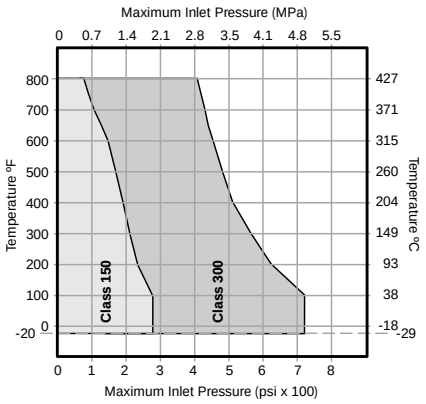
CAST IRON
A126 Class B



CARBON STEEL
A216 Gr. WCB - Standard Class



316 STAINLESS STEEL CF8M
Class A - Standard



MAXIMUM RATED FLOW COEFFICIENTS Cv **AND STROKE** inches (mm)

	VALVE SIZE											
	1/2 (15)	3/4 (20)	1 (25)	1 1/2 (40)	2 (50)	2 1/2 (65)	3 (80)	4 (100)	6 (150)	8 (200)	10 (250)	12 (300)
MX	5	7	12	28	50	70	116	158	352	475	739	1070
DV	5	7	12	28	52	76	108	160	365	475	795	1078
Stroke	15/32 (12)	15/32 (12)	11/16 (17.5)	15/16 (23.8)	1 1/16 (26.6)	1 3/16 (29.8)	1 3/8 (34.5)	1 3/4 (44.1)	2 3/8 (59.5)	2 1/2 (62.7)	3 (80)	3 1/2 (87.7)

GTW Principle of Operation

The Three Way Globe Valve design has been successfully applied for over 50 years in chemical, refining, power, paper, and H.V.A.C. industries worldwide. They are designed for mixing or diverting of clean, dirty, viscous and corrosive liquids, high and low pressure steam, and clean, dirty and corrosive gases.

MIXING SERVICE (Type MX)

The inner valves in type MX seat inside the two seat rings (see illustration A). When these valves are used for mixing service, the forces developed by the two inlet flows oppose each other, creating little, if any, unbalance. Thus, the actuator can control the flow efficiently, with very little power lost in overcoming dynamic unbalance.

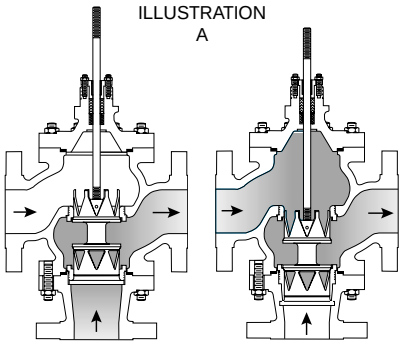
The Type MX valve is also used for diverting service, generally restricted to the smaller sizes (see illustration B).

DIVERTING SERVICE (Type DV)

In contrast to the MX control valve, the inner valve in the type DV seats outside the two seat rings (see illustration C). The flow enters between the two seats and the pressure tends to move the inner valve away from the seats, adding to the stability of operation. Therefore, the Type DV is preferred for diverting service in larger valve sizes and at higher pressure.

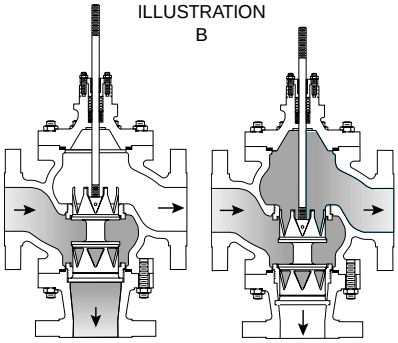
FLOW CONFIGURATIONS

ILLUSTRATION A



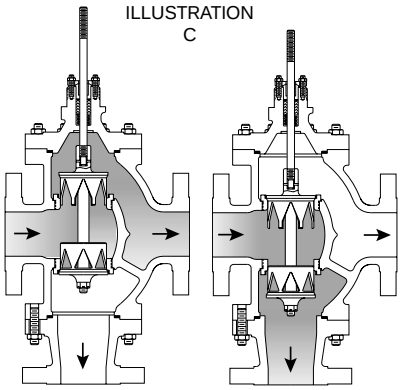
Used for Mixing Service

ILLUSTRATION B



Used for Diverting Service
½"-1½" sizes only

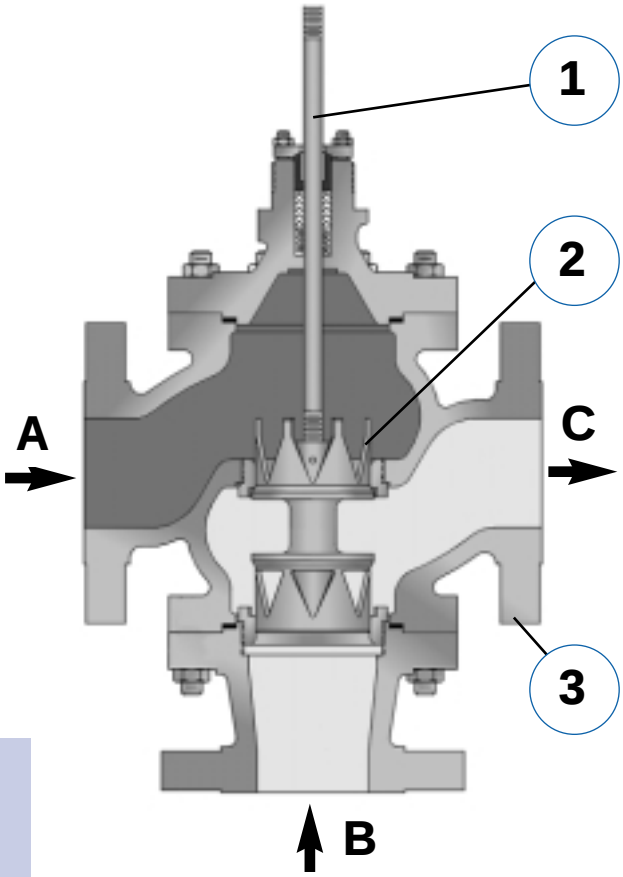
ILLUSTRATION C



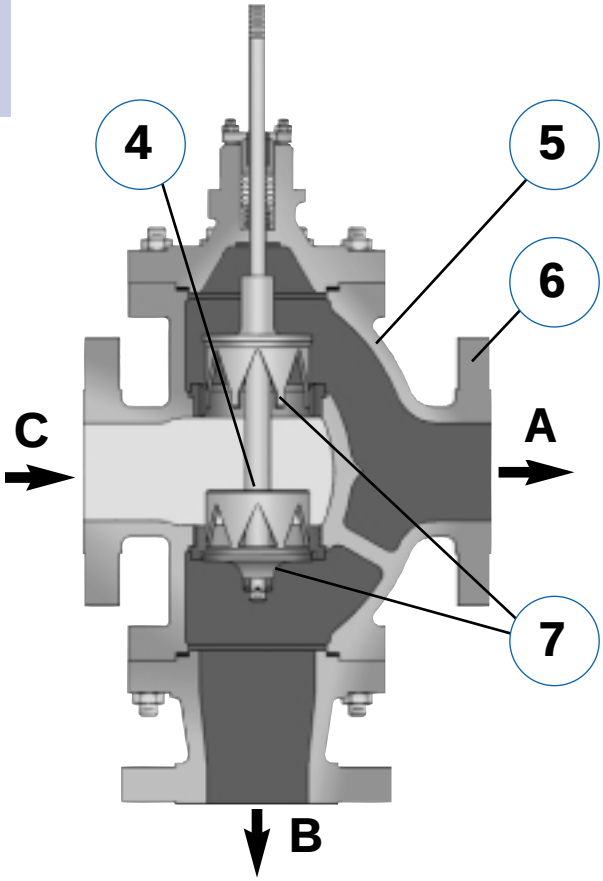
Used for Diverting Service
2"-12" sizes only

Note: When selecting a direct acting actuator, plug is up on air loss. When selecting a reverse acting actuator, plug is down on air loss.

MIXING



DIVERTING



Solution-Engineered Features for Demanding Applications

1. Stem Packing

Teflon® V-Ring Packing-Standard (T)

Live-loaded and pressure-assisted v-rings provide a tight self-adjusting stem seal for process applications from 32-450°F (0-232°C).

Braided Teflon®/Graphite (B)

Graphite impregnated PTFE split rings provide 500°F service temperatures, less stem hysteresis, more "dirt-tolerance", better "memory" and stem sealing than pure PTFE rings.

Laminated Graphite (L)

Precision-cut, laminated graphite rings suitable for process temperatures to 800°F (427°C).

2. Corrosion-Resistant Trim

Valve plugs and seat rings are manufactured from 316 stainless steel providing corrosion resistance and ease of long term maintenance.

3. Size & End Connections

Mixing (Type MX)

The GTW, Type MX is available in ½" - 12" (15-300mm) size, in cast iron and carbon steel bodies (other materials on application). NPT screwed end connections are available in ½" - 2" size. Ring type joint flanges available on request.

Diverting (Type DV)

The GTW, Type DV is available in the same materials as the Type MX in sizes ½" - 12" (15-300mm) sizes.

4. Balanced Plug Design-Diverting

V-notch flow ports and balanced plug design provide stable port switching by preventing valve slamming and pipeline water hammer. Flow entering the valve between the flow ports acts to push both plugs away from the seats providing a stable transition when switching ports.

5. Rigid Port Guiding

Port Guiding provides rigid support and guiding of the plug directly at the point of maximum fluid velocity and pressure drop. This type of plug guiding provides maximum resistance against plug vibration and eliminates plug mis-alignment for proper seating.

6. High Capacity Body Designs

Body configurations incorporate flow areas 140% of normal valve size. These enlarged flow areas minimize fluid velocities and turbulence, maximizing body/trim life and valve efficiency.

7. Stable and True Linear Proportioning

Engineered V-notch flow ports provide true linear proportioning in mixing applications and gradual flow reduction in diverting applications.

GTW 3 Way Valve Actuator Sizing Information

Based on your valve size and service please complete the appropriate questionnaire section below. We require this information to size the smallest actuator possible for your application. We have requested the data this way because the ports may be at different pressures when one or the other port is closed. It is very important that you advise the correct outlet pressures so the actuator is not grossly oversized. If the customer does not have any down stream pressure when the valve is closed the actuator will be extremely large as the valve becomes an unbalanced design.

1/2" through 2" Diverting Service

Upon air failure close Port A_____(direct) or Port B_____(reverse)

Valve Size _____

Type of packing _____

Shutoff Class _____

P1C - Inlet valve pressure _____

Port A closed

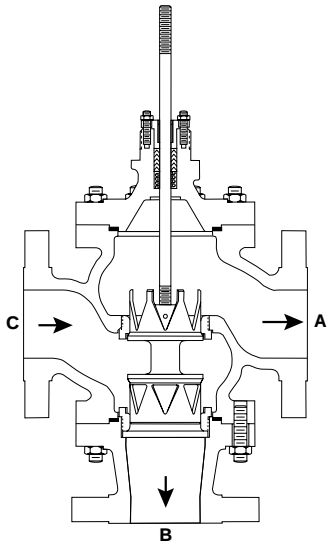
P2A - Outlet valve pressure on Port A _____

P2B - Outlet valve pressure on Port B _____

Port B closed

P2A - Outlet valve pressure on Port A _____

P2B - Outlet valve pressure on Port B _____



2½" through 12" Diverting Service

Upon air failure close Port A_____(reverse) or Port B_____(direct)

Valve Size _____

Type of packing _____

Shutoff Class _____

P1C - Inlet valve pressure _____

Port A closed

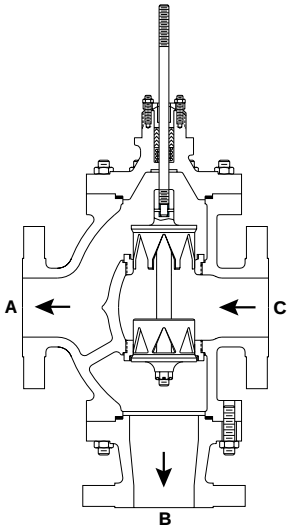
P2A - Outlet valve pressure on Port A _____

P2B - Outlet valve pressure on Port B _____

Port B closed

P2A - Outlet valve pressure on Port A _____

P2B - Outlet valve pressure on Port B _____



1/2" through 12" Mixing Service

Upon air failure close Port A_____(direct) or Port B_____(reverse)

Valve Size _____

Type of packing _____

Shutoff Class _____

P2C - Outlet valve pressure _____

Port A closed

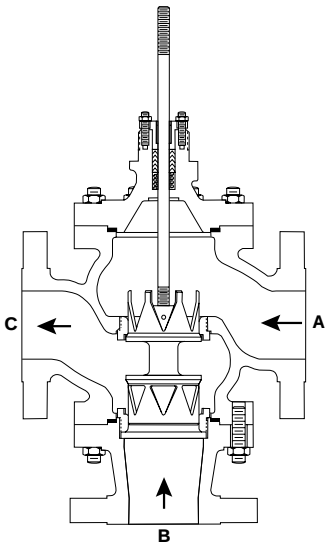
P1A - Inlet valve pressure on Port A _____

P1B - Inlet valve pressure on Port B _____

Port B closed

P1A - Inlet valve pressure on Port A _____

P1B - Inlet valve pressure on Port B _____



GTW Actuator Charts

Actuator	Yoke Used	Valve Size	Valve Stroke	Spring Part Number	Max Comp	Max Spring Force	Up Seating Spring Force (0 psig Air)	Max Upper Bench	Max Lower Bench	Down Seating Force (60 psig Air)
ACT,DL-40-D-C-B1	C	0.5/0.75	0.469	KM1183819	1.95	848.25	644.2	21.2	16.1	1551.7
		1	0.688				549.0		13.7	
		1.5	0.938				440.2		11.0	
		2	1.06				387.2		9.7	
		2.5	1.19				330.6		8.3	
		3	1.38				248.0		6.2	
		4	1.75				87.0		2.2	
ACT,DL-85-D-E-C1	E	0.5/0.75	0.469	KM1193668	2.03	1835	1413.9	21.6	16.6	564.0
		1	0.688				1216.8		14.3	
		1.5	0.938				991.8		11.7	
		2	1.06				882.0		10.4	
		2.5	1.19				765.0		9.0	
		3	1.38				594.0		7.0	
		4	1.75				261.0		3.1	
ACT,DL-85-D-E-C6	E	0.5/0.75	0.469	KM1193673	2.75	1650	1368.6	19.4	16.1	750.0
		1	0.688				1237.2		14.6	
		1.5	0.938				1087.2		12.8	
		2	1.06				1014.0		11.9	
		2.5	1.19				936.0		11.0	
		3	1.38				822.0		9.7	
		4	1.75				600.0		7.1	
ACT,DL-85-D-E-C7[1]	E	0.5/0.75	0.469	KM1193674	8.25	4001.3	3773.8	47.1	44.4	1098.8
		1	0.688				3667.6		43.1	
		1.5	0.938				3546.3		41.7	
		2	1.06				3487.2		41.0	
		2.5	1.19				3424.1		40.3	
		3	1.38				3332.0		39.2	
		4	1.75				3152.5		37.1	
ACT,DL-40-R-C-B1	C	0.5/0.75	0.469	KM1183819	1.95	848.25	644.2	21.2	16.1	1551.7
		1	0.688				549.0		13.7	
		1.5	0.938				440.2		11.0	
		2	1.06				387.2		9.7	
		2.5	1.19				330.6		8.3	
		3	1.38				248.0		6.2	
		4	1.75				87.0		2.2	
ACT,DL-40-R-C-B7[1]	C	0.5/0.75	0.469	KM1179418	4.25	2265.25	2015.3	56.6	50.4	134.8
		1	0.688				1898.5		47.5	
		1.5	0.938				1765.3		44.1	
		2	1.06				1700.3		42.5	
		2.5	1.19				1631.0		40.8	
		3	1.38				1529.7		38.2	
		4	1.75				1332.5		33.3	
ACT,DL-85-R-E-C2	E	0.5/0.75	0.469	KM1193669	1.51	1900.0	1313.7	22.4	15.5	3200.0
		1	0.688				1040.0		12.2	
		1.5	0.938				727.5		8.6	
		2	1.06				575.0		6.8	
		2.5	1.19				412.5		4.9	
		3	1.38				175.0		2.1	
		4	1.75				-287.5		-3.4	
ACT,DL-85-R-E-C7[1]	E	0.5/0.75	0.469	KM1193674	8.25	4001.3	3773.8	47.1	44.4	1098.8
		1	0.688				3667.6		43.1	
		1.5	0.938				3546.3		41.7	
		2	1.06				3487.2		41.0	
		2.5	1.19				3424.1		40.3	
		3	1.38				3332.0		39.2	
		4	1.75				3152.5		37.1	

1. Spring B7, C7, D4 and F7 are not available in direct

GTW Water Capacity Table

(Modified Equal Percent Contour Plug) (G.P.M.)

Pressure (PSI)		Valve Size and Type																		
						2		2.5		3		4		6		8	10		12	
P1	P2	1/2	3/4	1	1.5	MX	DV	MX	DV	MX	DV	MX	DV	MX	DV		MX	DV	MX	DV
10	5	11	16	27	63	112	116	157	170	259	241	353	358	787	816	1062	1652	1778	2393	2410
	2	14	20	34	79	141	147	198	215	328	305	447	453	996	1032	1344	2090	2249	3026	3049
15	10	11	16	27	63	112	116	157	170	259	241	353	358	787	816	1062	1652	1778	2393	2410
	7	14	20	34	79	141	147	198	215	328	305	447	453	996	1032	1344	2090	2249	3026	3049
	3	17	24	42	97	173	180	242	263	402	374	547	554	1219	1264	1645	2560	2754	3707	3734
20	15	11	16	27	63	112	116	157	170	259	241	353	358	787	816	1062	1652	1778	2393	2410
	10	16	22	38	89	158	164	221	240	367	342	500	506	1113	1154	1502	2337	2514	3384	3409
	3	21	29	49	115	206	214	289	313	478	445	651	660	1451	1505	1958	3047	3278	4412	4445
30	25	11	16	27	63	112	116	157	170	259	241	353	358	787	816	1062	1652	1778	2393	2410
	20	16	22	38	89	158	164	221	240	367	342	500	506	1113	1154	1502	2337	2514	3384	3409
	5	25	35	60	140	250	260	350	380	580	540	790	800	1760	1825	2375	3695	3975	5350	5390
40	25	19	27	46	108	194	201	271	294	449	418	612	620	1363	1414	1840	2862	3079	4144	4175
	15	25	35	60	140	250	260	350	380	580	540	790	800	1760	1825	2375	3695	3975	5350	5390
	6	29	41	70	163	292	303	408	443	676	630	921	933	2052	2128	2770	4309	4636	6239	6286
50	35	19	27	46	108	194	201	271	294	449	418	612	620	1363	1414	1840	2862	3079	4144	4175
	30	22	31	54	125	224	233	313	340	519	483	707	716	1574	1632	2124	3305	3555	4785	4821
	25	25	35	60	140	250	260	350	380	580	540	790	800	1760	1825	2375	3695	3975	5350	5390
	7	33	46	79	184	328	341	459	498	761	708	1036	1049	2308	2393	3115	4846	5213	7016	7069
60	45	19	27	46	108	194	201	271	294	449	418	612	620	1363	1414	1840	2862	3079	4144	4175
	40	22	31	54	125	224	233	313	340	519	483	707	716	1574	1632	2124	3305	3555	4785	4821
	25	30	41	71	166	296	308	414	450	686	639	935	947	2082	2159	2810	4372	4703	6330	6378
	9	36	50	86	200	357	371	500	543	828	771	1128	1143	2514	2607	3392	5278	5677	7641	7698
75	55	22	31	54	125	224	233	313	340	519	483	707	716	1574	1632	2124	3305	3555	4785	4821
	50	25	35	60	140	250	260	350	380	580	540	790	800	1760	1825	2375	3695	3975	5350	5390
	25	35	49	85	198	354	368	495	537	820	764	1117	1131	2489	2581	3359	5226	5621	7566	7623
	11	40	56	96	224	400	416	560	608	928	864	1264	1280	2816	2920	3800	5912	6360	8560	8624
100	75	25	35	60	140	250	260	350	380	580	540	790	800	1760	1825	2375	3695	3975	5350	5390
	50	35	49	85	198	354	368	495	537	820	764	1117	1131	2489	2581	3359	5226	5621	7566	7623
	14	46	65	111	260	464	482	649	705	1076	1002	1465	1484	3264	3385	4405	6853	7373	9923	9997
125	100	25	35	60	140	250	260	350	380	580	540	790	800	1760	1825	2375	3695	3975	5350	5390
	50	43	61	104	242	433	450	606	658	1005	935	1368	1386	3048	3161	4114	6400	6885	9266	9336
	18	52	72	124	290	517	538	724	786	1200	1117	1634	1655	3641	3776	4913	7644	8224	11068	11151
150	125	25	35	60	140	250	260	350	380	580	540	790	800	1760	1825	2375	3695	3975	5350	5390
	75	43	61	104	242	433	450	606	658	1005	935	1368	1386	3048	3161	4114	6400	6885	9266	9336
	20	57	80	137	319	570	593	798	867	1323	1231	1801	1824	4013	4162	5416	8426	9064	12200	12291
175	150	25	35	60	140	250	260	350	380	580	540	790	800	1760	1825	2375	3695	3975	5350	5390
	100	43	61	104	242	433	450	606	658	1005	935	1368	1386	3048	3161	4114	6400	6885	9266	9336
	50	56	78	134	313	559	581	783	850	1297	1207	1766	1789	3935	4081	5311	8262	8888	11963	12052
	24	61	86	147	344	614	639	860	934	1425	1327	1942	1966	4325	4485	5837	9081	9769	13148	13247
200	150	35	49	85	198	354	368	495	537	820	764	1117	1131	2489	2581	3359	5226	5621	7566	7623
	100	50	70	120	280	500	520	700	760	1160	1080	1580	1600	3520	3650	4750	7390	7950	10700	10780
	27	66	92	158	368	658	684	921	1000	1526	1421	2078	2104	4630	4801	6248	9720	10457	14074	14179
225	175	35	49	85	198	354	368	495	537	820	764	1117	1131	2489	2581	3359	5226	5621	7566	7623
	100	56	78	134	313	559	581	783	850	1297	1207	1766	1789	3935	4081	5311	8262	8888	11963	12052
	30	70	98	168	391	698	726	977	1061	1620	1508	2206	2234	4915	5097	6633	10320	11102	14942	15053
250	200	35	49	85	198	354	368	495	537	820	764	1117	1131	2489	2581	3359	5226	5621	7566	7623
	175	43	61	104	242	433	450	606	658	1005	935	1368	1386	3048	3161	4114	6400	6885	9266	9336
	100	61	86	147	343	612	637	857	931	1421	1323	1935	1960	4311	4470	5818	9051	9737	13105	13203
	34	73	103	176	412	735	764	1029	1117	1705	1587	2322	2352	5173	5364	6981	10861	11684	15726	15843
300	250	35	49	85	198	354	368	495	537	820	764	1117	1131	2489	2581	3359	5226	5621	7566	7623
	100	71	99	170	396	707	735	990	1075	1640	1527	2234	2263	4978	5162	6718	10451	11243	15132	15245
	40	81	113	193	451	806	838	1129	1225	1870	1741	2548	2580	5676	5885	7659	11916	12819	17253	17382
400	350	35	49	85	198	354	368	495	537	820	764	1117	1131	2489	2581	3359	5226	5621	7566	7623
	200	71	99	170	396	707	735	990	1075	1640	1527	2234	2263	4978	5162	6718	10451	11243	15132	15245
	50	94	131	224	524	935	973	1310	1422	2170	2020	2956	2993	6585	6829	8886	13825	14873	20018	20168

- It is recommended to keep valve outlet velocity below 30,000 ft./min.
- Capacities based on maximum Cv.

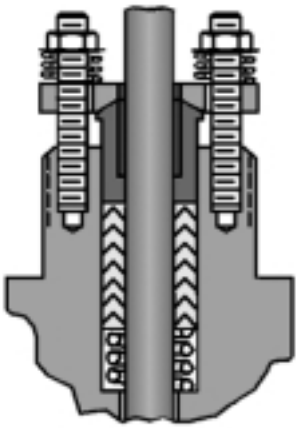
GTW Water Capacity Table

(Modified Equal Percent Contour Plug) (M3/Hr.)

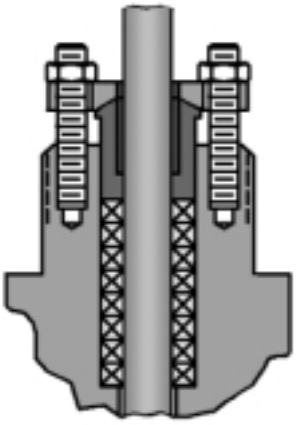
Pressure (M_3/hr)		Valve Size and Type																		
						2		2.5		3		4		6		8	10		12	
P1	P2	1/2	3/4	1	1.5	MX	DV	MX	DV	MX	DV	MX	DV	MX	DV		MX	DV	MX	DV
0.7	0.5	2	3	5	11	19	20	27	29	45	42	61	62	136	141	184	286	307	414	417
	0.2	3	4	7	17	31	32	43	46	71	66	97	98	215	223	290	452	486	654	659
1	0.7	2	3	6	13	24	25	33	36	55	51	75	76	167	173	225	350	377	507	511
	0.5	3	4	7	17	31	32	43	46	71	66	97	98	215	223	290	452	486	654	659
	.2	4	5	9	22	39	40	54	59	90	84	122	124	272	282	367	572	615	828	834
1.5	1	3	4	7	17	31	32	43	46	71	66	97	98	215	223	290	452	486	654	659
	0.7	4	5	9	22	39	40	54	59	90	84	122	124	272	282	367	572	615	828	834
	.2	5	7	12	28	49	51	69	75	114	106	156	158	347	360	468	729	784	1055	1063
2	1.5	3	4	7	17	31	32	43	46	71	66	97	98	215	223	290	452	486	654	659
	1	4	6	10	24	43	45	61	66	100	93	137	138	304	316	411	639	687	925	932
	.3	6	8	14	32	56	59	79	86	131	122	178	180	397	412	536	833	896	1206	1215
3	2	4	6	10	24	43	45	61	66	100	93	137	138	304	316	411	639	687	925	932
	1	6	9	15	34	61	64	86	93	142	132	193	196	430	446	581	904	972	1309	1318
	.5	7	10	16	38	68	71	96	104	159	148	216	219	481	499	649	1010	1087	1463	1474
3.5	3	3	4	7	17	31	32	43	46	71	66	97	98	215	223	290	452	486	654	659
	2	5	7	13	30	53	55	74	80	123	114	167	169	373	387	503	783	842	1133	1142
	1	7	10	16	38	68	71	96	104	159	148	216	219	481	499	649	1010	1087	1463	1474
	.5	7	10	18	42	75	78	105	114	174	162	237	240	527	547	711	1107	1191	1603	1615
4	3	4	6	10	24	43	45	61	66	100	93	137	138	304	316	411	639	687	925	932
	2	6	9	15	34	61	64	86	93	142	132	193	196	430	446	581	904	972	1309	1318
	1	7	10	18	42	75	78	105	114	174	162	237	240	527	547	711	1107	1191	1603	1615
	.6	8	11	19	45	80	83	112	121	185	172	252	255	561	582	757	1178	1268	1706	1719
5	4	4	6	10	24	43	45	61	66	100	93	137	138	304	316	411	639	687	925	932
	3	6	9	15	34	61	64	86	93	142	132	193	196	430	446	581	904	972	1309	1318
	2	7	10	18	42	75	78	105	114	174	162	237	240	527	547	711	1107	1191	1603	1615
	.8	9	12	21	50	89	92	124	135	206	191	280	284	624	647	842	1310	1409	1896	1910
6	5	4	6	10	24	43	45	61	66	100	93	137	138	304	316	411	639	687	925	932
	3	7	10	18	42	75	78	105	114	174	162	237	240	527	547	711	1107	1191	1603	1615
	1	10	14	23	54	97	101	135	147	224	209	306	309	681	706	919	1429	1537	2069	2085
8	6	6	9	15	34	61	64	86	93	142	132	193	196	430	446	581	904	972	1309	1318
	3	10	14	23	54	97	101	135	147	224	209	306	309	681	706	919	1429	1537	2069	2085
	1.1	11	16	27	64	114	118	159	173	264	245	359	363	800	829	1079	1679	1806	2431	2449
10	8	6	9	15	34	61	64	86	93	142	132	193	196	430	446	581	904	972	1309	1318
	5	10	14	23	54	97	101	135	147	224	209	306	309	681	706	919	1429	1537	2069	2085
	1.4	13	18	30	71	127	132	178	193	294	274	401	406	893	926	1205	1874	2016	2714	2734
12	10	6	9	15	34	61	64	86	93	142	132	193	196	430	446	581	904	972	1309	1318
	7	10	14	23	54	97	101	135	147	224	209	306	309	681	706	919	1429	1537	2069	2085
	5	11	16	27	64	114	119	160	174	265	247	361	366	805	835	1087	1691	1819	2448	2466
	1.7	14	19	33	78	139	144	194	211	322	300	439	444	977	1013	1318	2051	2206	2970	2992
14	10	9	12	21	48	86	90	121	131	201	187	273	277	609	631	822	1278	1375	1851	1864
	7	11	16	27	64	114	119	160	174	265	247	361	366	805	835	1087	1691	1819	2448	2466
	2	15	21	36	84	150	156	210	228	347	324	473	479	1054	1093	1423	2214	2382	3205	3229
15	12	7	10	18	42	75	78	105	114	174	162	237	240	527	547	711	1107	1191	1603	1615
	7	12	17	29	68	122	127	171	186	284	264	386	391	861	893	1162	1808	1945	2617	2637
	2	16	22	37	87	156	162	218	237	362	337	493	499	1098	1138	1481	2304	2479	3336	3361
17	14	7	10	18	42	75	78	105	114	174	162	237	240	527	547	711	1107	1191	1603	1615
	10	11	16	27	64	114	119	160	174	265	247	361	366	805	835	1087	1691	1819	2448	2466
	5	15	21	36	84	150	156	210	228	347	324	473	479	1054	1093	1423	2214	2382	3205	3229
	2.4	17	23	40	93	165	172	231	251	383	357	522	529	1163	1206	1570	2442	2627	3536	3562
20	15	10	14	23	54	97	101	135	147	224	209	306	309	681	706	919	1429	1537	2069	2085
	10	14	19	33	77	137	142	191	208	317	295	432	438	963	998	1299	2021	2174	2926	2948
	2.7	18	25	43	101	180	187	252	273	417	388	568	575	1266	1313	1709	2658	2860	3849	3877
27	20	11	16	27	64	114	119	160	174	265	247	361	366	805	835	1087	1691	1819	2448	2466
	15	15	21	36	84	150	156	210	228	347	324	473	479	1054	1093	1423	2214	2382	3205	3229
	3.5	21	29	50	117	210	218	293	319	486	453	662	671	1476	1530	1991	3098	3333	4486	4519

- It is recommended to keep valve outlet velocity below 30,000 ft./min.
- Capacities based on maximum Cv.

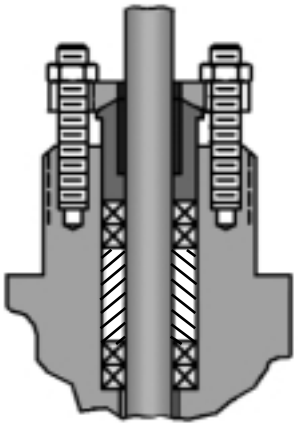
GTW
Three Way Valves



(T) Teflon Chevron



(B) BTG

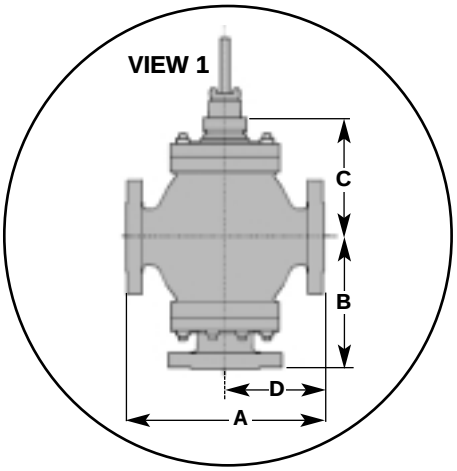


(L) Laminated Graphite

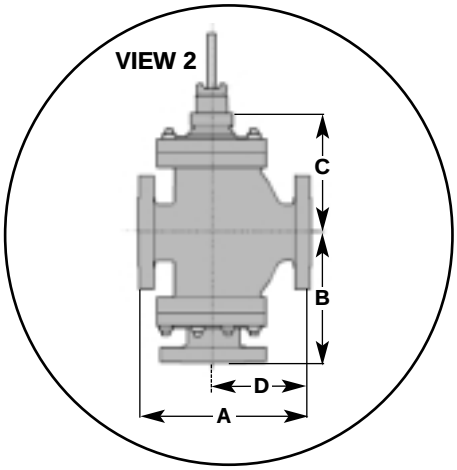
Sizing Coefficients

TYPE	F_L	K_c	X_T
Mixing - MX	.95	.75	.76
Diverting - DV	.93	.71	.73

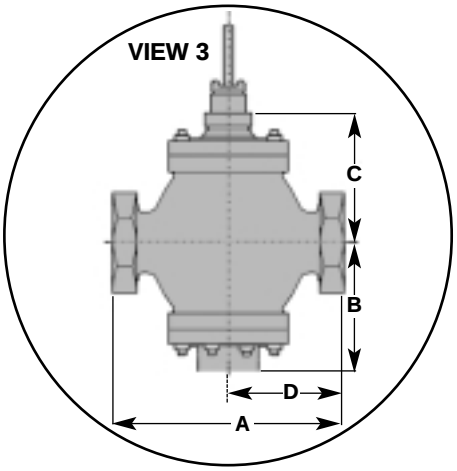
GTW Body Dimensions



Valve Sizes - Flanged Ends
Diverting ½" - 1½"
Mixing ½" - 12"



Valve Sizes - Flanged Ends
Diverting 2" - 12"



Valve Sizes - Threaded Ends
Diverting ½" - 1½"
Mixing ½" - 2"

BODY DIMENSIONS inches (mm)**,**
WEIGHTS pounds (kg) **AND VOLUME** cu.ft. (m^3)

THREE WAY

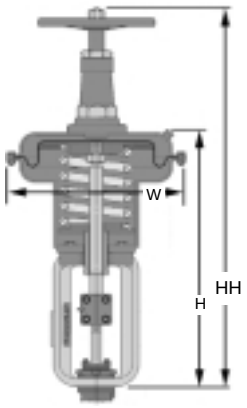
VALVE SIZE	Threaded 250 / 300														WEIGHT	VOLUME
	A				B				C				D			
	Diverting	Diagram View #	Mixing	Diagram View #	Diverting	Diagram View #	Mixing	Diagram View #	Diverting	Diagram View #	Mixing	Diagram View #	Diverting	Diagram View #	Mixing	Diagram View #		
0.5 (15)	5 11/16 (144.5)	3	5 11/16 (144.5)	3	3 5/8 (92.1)	3	3 5/8 (92.1)	3	4 5/8 (117.5)	3	4 5/8 (117.5)	3	*	3	*	3	45 (20)	1 (.03)
.75 (20)	5 11/16 (144.5)	3	5 11/16 (144.5)	3	3 5/8 (92.1)	3	3 5/8 (92.1)	3	4 5/8 (117.5)	3	4 5/8 (117.5)	3	3 1/16 (77.8)	3	3 1/16 (77.8)	3	45 (20)	1 (.03)
1 (25)	6 3/16 (157.2)	3	6 3/16 (157.2)	3	4 7/16 (112.7)	3	44 7/16 (112.7)	3	54 7/16 (138.1)	3	54 7/16 (138.1)	3	3 1/4 (82.6)	3	3 1/4 (82.6)	3	6 (28)	1 (.03)
1.5 (40)	7 3/4 (196.9)	3	7 3/4 (196.9)	3	5 1/2 (139.7)	3	5 1/2 (139.7)	3	6 1/4 (158.8)	3	6 1/4 (158.8)	3	4 3/8 (111.1)	3	4 3/8 (111.1)	3	72 (33)	2 (.06)
2 (50)	—-		9 3/16 (233.4)	3	—-		6 1/4 (158.8)	3	—-		6 7/8 (174.6)		—-		5 (127)	3	94 (43)	2 (.06)

*Consult Factory
NOTE 1. 0.5" Cl 250 Class is 3 1/16" and Steel 300 Class is 4".

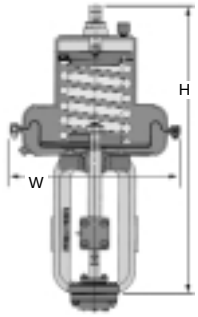
Numbers after dimensions refer to diagram view above.

VALVE SIZE	ANSI Flange 125 / 150														ANSI Flange 250 300														WEIGHT	VOLUME
	A				B				C				D		A				B				C				D					
	Diverting	Diagram View #	Mixing	Diagram View #	Diverting	Diagram View #	Mixing	Diagram View #	Diverting	Diagram View #	Mixing	Diagram View #	Diverting	Diagram View #	Mixing	Diagram View #	Diverting	Diagram View #	Mixing	Diagram View #	Diverting	Diagram View #	Mixing	Diagram View #	Diverting	Diagram View #	Mixing	Diagram View #		
0.5 (15)	7½ (190.5)	1	7½ (190.5)	1	5 5/16 (141.3)	1	5 5/16 (141.3)	1	4 5/8 (117.5)	1	4 5/8 (117.5)	1	3 7/8 (98.4)	1	3 7/8 (98.4)	1	7¼ (184.2)	1	7¼ (184.2)	1	5 11/16 (144.5)	1	5 11/16 (144.5)	1	4 5/8 (117.5)	1	4 5/8 (117.5)	1	Note 1		Note 1		45 (20)	1 (.03)
.75 (20)	7¼ (184.2)	1	7¼ (184.2)	1	5 5/16 (141.3)	1	5 5/16 (141.3)	1	4 5/8 (117.5)	1	4 5/8 (117.5)	1	3 7/8 (98.4)	1	3 7/8 (98.4)	1	7 7/8 (193.7)	1	7 7/8 (193.7)	1	5¾ (146.1)	1	5¾ (146.1)	1	4 5/8 (117.5)	1	4 5/8 (117.5)	1	4 1/16 (103.2)	1	4 1/16 (103.2)	1	45 (20)	1 (.03)
1 (25)	7¼ (184.2)	1	7¼ (184.2)	1	6 3/16 (157.2)	1	6 3/16 (157.2)	1	5 5/16 (138.1)	1	5 5/16 (138.1)	1	3¾ (95.3)	1	3¾ (95.3)	1	7¾ (196.9)	1	7¾ (196.9)	1	6 7/16 (163.5)	1	6 7/16 (163.5)	1	5 5/16 (138.1)	1	5 5/16 (138.1)	1	4 (101.6)	1	4 (101.6)	1	6 (28)	1 (.03)
1.5 (40)	8¾ (222.3)	1	8¾ (222.3)	1	7 7/16 (188.9)	1	7 7/16 (188.9)	1	6¼ (158.8)	1	6¼ (158.8)	1	4 7/16 (112.7)	1	4 7/16 (112.7)	1	9¼ (235)	1	9¼ (235)	1	7 11/16 (195.3)	1	7 11/16 (195.3)	1	6¼ (158.8)	1	6¼ (158.8)	1	4 11/16 (119.1)	1	4 11/16 (119.1)	1	72 (33)	2 (.06)
2 (50)	10 (254.0)	2	10 (254.0)	1	7 13/16 (198.4)	2	7 13/16 (198.4)	1	6 7/8 (174.6	2	6 7/8 (174.6)	1	5 7/16 (138.1)	2	5 7/16 (138.1)	1	10½ (266.7)	2	10½ (266.7)	1	8 1/16 (204.8)	2	8 1/16 (204.8)	1	6 7/8 (174.6)	2	6 7/8 (174.6)	1	5 11/16 (144.5)	2	5 11/16 (144.5)	1	94 (43)	2 (.06)
2.5 (65)	10 7/8 (276.2)	2	10 7/8 (276.2)	1	8¾ (222.3)	2	8¾ (222.3)	1	7 21/32 (194.5)	2	7 21/32 (194.5)	1	6 1/8 (155.6)	2	6 1/8 (155.6)	1	11½ (292.1)	2	11½ (292.1)	1	9 1/16 (230.2)	2	9 1/16 (230.2)	1	7 21/32 (194.5)	2	7 21/32 (194.5)	1	6 7/16 (163.5)	2	6 7/16 (163.5)	1	105 (48)	3 (.08)
3 (80)	11¾ (298.5)	2	11¾ (298.5)	1	9 19/32 (243.7)	2	8 5/16 (208.0)	1	8 23/32 (221.5)	2	7 5/16 (185.7)	1	6 13/16 (173.0)	2	5⅞ (149.2)	1	12½ (317.5)	2	12½ (317.5)	1	9 31/32 (253.2)	2	8 5/16 (217.5)	1	8 23/32 (221.5)	2	7 5/16 (185.7)	1	7 3/16 (182.6)	2	6¼ (158.8)	1	160 (73)	3 (.08)
4 (100)	13⅞ (352.4)	2	13⅞ (352.4)	1	11⅛ (282.6)	2	10 3/16 (258.8)	1	9⅞ (250.8)	2	8 15/16 (227.0)	1	8⅛ (206.4)	2	6 15/16 (176.2)	1	14½ (368.3)	2	14½ (368.3)	1	11 7/16 (290.5)	2	10½ (266.7)	1	9⅞ (250.8)	2	8 15/16 (227.0)	1	8 7/16 (214.3)	2	7¼ (184.2)	1	193 (88)	5 (.14)
6 (150)	17¾ (450.9)	2	17¾ (450.9)	1	14⅝ (371.5)	2	12⅛ (308.0)	1	14 5/16 (363.5)	2	11 13/16 (300.0)	1	10 7/16 (265.1)	2	8⅞ (225.4)	1	18⅝ (473.1)	2	18⅝ (473.1)	1	15 1/16 (382.6)	2	12 9/16 (319.1)	1	14 5/16 (363.5)	2	11 13/16 (300.0)	1	10⅞ (276.2)	2	9 5/16 (236.5)	1	455 (206)	8 (.23)
8 (200)	21⅜ (542.9)	2	21⅜ (542.9)	1	16 29/32 (429.4)	2	14 23/32 (373.9)	1	17 3/16 (436.6)	2	15 (381.0)	1	12 11/16 (322.2)	2	10 11/16 (271.5)	1	22⅜ (568.3)	2	22⅜ (568.3)	1	17 13/32 (442.1)	2	15 5/32 (386.6)	1	17 3/16 (436.6)	2	15 (381.0)	1	13 3/16 (335.0)	2	11 3/16 (284.2)	1	635 (288)	13 (.37)
10 (250)	25½ (647.7)	2	26 (660.4)	1	19 23/32 (500.9)	2	17 17/32 (445.3)	1	19 3/16 (487.4)	2	17 (431.8)	1	15½ (393.7)	2	13 (330.2)	1	26⅞ (682.6)	2	27⅜ (695.3)	1	20⅜ (517.5)	2	18 5/32 (462.8)	1	19 3/16 (487.4)	2	17 (431.8)	1	16 5/16 (411.2)	2	13 11/16 (347.7)	1	1050 (476)	21 (.59)
12 (300)	*	2	29¾ (755.7)	1	*	2	19 13/16 (503.2)	1	*	2	18⅜ (466.7)	1	*	2	14⅞ (377.8)	1	*	2	31¼ (793.8)	1	*	2	20 9/16 (522.3)	1	*	2	18⅜ (466.7)	1	*	2	15⅝ (396.9)	1	1690 (767)	30 (.85)

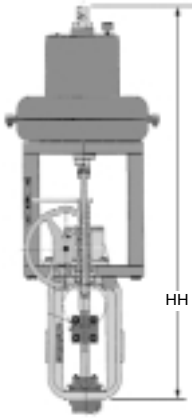
GTW Actuator



Direct
Fig. 1



Reverse
Fig. 2



Reverse
Fig. 2A

ACTUATOR DIMENSIONS inches (mm)
AND WEIGHTS pounds (kg)

MODEL	DIRECT		REVERSE			WGT.	
	H	HH	H	HH[1]	W	DIRECT	REVERSE
40	19.5 (495)	32.7 (831)	25.8 (655)	39.8 (1011)	10.1 (257)	37 (817)	54 (25)
85	20.9 (531)	41.7 (1059)	38.4 (975)	57.4 (1458)	14.8 (375)	84 (38)	125 (57)

1. See Fig. 2A

GTW Specifications

Description		Material Specification	Temp. Range
Trim Modules			
1	Plug	316 Stainless Steel ASTM A351 Grade CF8M	-20 — 800°F (29°C—427°C)
2	Seat Rings	316 Stainless Steel ASTM A351 Grade CF8M	-20 — 800°F (29°C—427°C)
3	Pin	302 Stainless Steel	-20 — 800°F (29°C—427°C)
4	Stem	316 Stainless Steel	-20 — 800°F (29°C—427°C)
Packing Module			
5	Spring (V-Ring Packing)	316 Stainless Steel	-20 — 800°F (29°C—427°C)
6	Packing Set (B)	Braided Teflon Graphite	-40 — 500°F (-40°C—232°C)
6	Packing Set (T)	Teflon-Chevron	-40 — 450°F (-40°C—232°C)
7	Packing Set (L)	Laminated Graphite	-425 — 800°F (-29°C—427°C)
9	Packing Follower	316 Stainless Steel	-20 — 800°F (-29°C—427°C)
10	Packing Flange	Cadmium Plated Steel	-20 — 800°F (-29°C—427°C)
11	Hex Nut	316 Stainless Steel	-20 — 800°F (-29°C—427°C)
12	Studs	316 Stainless Steel	-20 — 800°F (-29°C—427°C)
Body/Bonnet Materials			
13	Nut	ASTM A-194 Gr.2H	-20 — 800°F (29°C—427°C)
13	Nut	ASTM A-194 Gr.7	-20 — 800°F (29°C—427°C)
14	Stud	ASTM A-193 Gr.B7	-20 — 800°F (29°C—427°C)
14	Stud	ASTM A-193 B 16	-20 — 800°F (-29°C—427°C)
15	Gasket	Nitrile Rubber Bonded	32 — 450°F (0ºC—230°C)
15	Gasket	PTFE	-32 — 450°F (-35ºC—230°C)
15	Gasket	Grafoil®	-120 — 800°F (-195°C—427°C)
16	Body/Bonnet/Lower Adapter	Cast Iron ASTM A-126 Class B	-20 — 450°F (-29°C—232°C)
16	Body/Bonnet/Lower Adapter	*Steel ASTM A-216 Gr.WCB	-20 — 800°F (-29°C—427°C)
16	Body/Bonnet/Lower Adapter	*316 Stainless Steel ASTM A-351 Gr.CF8M	-20 — 800°F (-29°C—427°C)

* Consult ANSI B16.1 (cast iron) or ANSI B16.34 (other body materials) for pressure/temperature limits of body/bonnet assembly.

GTW Ordering Code

Class	Size	Ends	Body Material	Packing Bonnet Type	Gasket	Valve Function	Actuator Size & Action	Actuator Yoke	Actuator Spring	Manual Override	Number of Accessories	European Approval
K W	H	B	2	T	1	M	8	E	C	2	N	0	C	E
1 2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

Class - Position 1 & 2
KW = Globe 3-way

Size - Position 3
A = ½"
B = ¾"
C = 1"
E = 1½"
F = 2"
G = 2½"
H = 3"
J = 4"
K = 6"
L = 8"
M = 10"
N = 12"

Ends - Position 4
A = Flg.125/150
B = Flg. 250/300
C = NPT

Body Mat'l - Position 5
1 = Cast Iron
2 = Carbon Steel
3 = Stainless Steel

Packing/Std. Bonnet - Position 6
T = Teflon Chevron
B = Braided Teflon Graphite
L = Laminated Graphite

Gasket - Position 7
1 = Nitrile rubber bonded
2 = PTFE
3 = Grafoil
X = Other

Valve Function - Position 8
M = Mixing
D = Diverting

Actuator Size & Action - Position 9
4 = 40 Direct
5 = 40 Reverse
8 = 85 Direct
9 = 85 Reverse
N = No Actuator
X = Other

Actuator Yoke - Position 10
C = 2.31 Dia Hub (40 Act)
E = 2.31 Dia Hub (85 Act)
N = No Actuator

Actuator Spring - Position 11&12

Order Code	Spring Rate	Max. Comp.
Used w/size 40 actuator		
B1 =	435	1.95
B2 =	590	1.52
B3 =	875	1.95
B4 =	1180	1.52
B5 =	1850	0.92
B6 =	300	2.75
B7[1]=	533	4.25
Used w/size 85 actuator		
C1 =	900	2.04
C2 =	1250	1.52
C3 =	1850	2.04
C4 =	2500	1.52
C5 =	3867	0.92
C6 =	600	2.75
C7[1]=	485	8.25

NN = No Actuator/Bare Stem
XX = Other

Manual Override - Position 13
N = None
M = Manual Override (Handwheel)

Accessories - Position 14
0 = No Accessories Mounted
1-8 = Actual Number of Accessories Mounted[2]

European Approval
- Position 15 & 16
CE

THREE WAY

1. Reverse acting actuators only.
2. Does not include spring or mounting kit.

GTW SPECIFICATION FORM

LESLIE CONTROLS, INC.
A division of CIRCOR International, Inc.
12501 Telecom Drive · Tampa, Florida 33637
(813) 978-1000 · FAX: (813)-978-0984

CONTROL VALVE SPEC SHEET

Project/Job _____
Unit/Customer _____
P.O./LCO File # _____
Item _____
Contract _____
MFR Serial# _____

Data Sheet_____of_____
Spec _____
Tag _____
Dwg _____
Service _____

Fluid ❑ Steam ❑ Other

Crit Pres PC

Service Conditions

Flow ❑ #/hr ❑ gpm ❑ scfh ❑ _____
Inlet Pressure ❑ psig ❑ psia ❑ _____
Outlet Pressure ❑ psig ❑ psia ❑ _____
Temperature ❑ °C ❑ °F _____
Max Press/Temperature:_____ /_____
Density/MW/SG _____ / _____ / _____
Viscosity _____ CP
Vapor Pressure ❑ psia ❑ _____
Required C_V _____
Noise (dBA) Allowable_____

Max. Flow	Norm. Flow	Min. Flow

Line Info Pipe Size In_____/Sch_____ Pipe Size Out_____/Sch_____

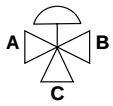
Valve, Body & Bonnet

Body Size in. ❑ ½ ❑ ¾ ❑ 1 ❑ 1½ ❑ 2 ❑ 2½ ❑ 3 ❑ 4 ❑ 6 ❑ 8 ❑ 10 ❑ 12
ANSI Class ❑ 125 ❑ 150 ❑ 250 ❑ 300
Body/Bonnet Material: ❑ Cast Iron ❑ Cast Steel ❑ 316SS ❑ Other_____
End Conn. Inlet/Outlet: ❑ NPT ❑ Int. Flanges ❑ Other_____
Packing Material: ❑ Teflon Chevron ❑ BTG ❑ Laminated Graphite

Trim Size ❑ 100%

Flow Path

❑ Mixing (Converging) (choose one outlet port)
❑ Diverting (Diverging) (choose two outlet ports)



	A	B	C
Outlet Port	❑	❑	❑
Close Port on Air Loss	❑	❑	❑

Actuator

Spring Action: ❑ Air to Open ❑ Air to Close ❑ Last Position
Available Air Supply Pressure: Max._____ Min._____
Manual Override: ❑ Yes ❑ No ❑ Type_____

Solenoid ❑ Yes ❑ No ❑ Type_____ ❑ Voltage_____

Positioner ❑ Yes ❑ No ❑ Type_____ ❑ Pneu ❑ I/P

Switch ❑ Yes ❑ No ❑ Type_____

Air Set ❑ Yes ❑ No ❑ Type:_____ ❑ Range:_____

Other Accessories ❑ Yes ❑ No ❑ Type_____

Test ANSI/FCI Leakage Class: ❑ IV

THREE WAY

QUESTIONS? CALL LESLIE CONTROLS @ (813) 978-1000 PLEASE FAX COMPLETED FORM TO: (813) 977-0174