

AGS Double Eccentric Butterfly Valve Series W710 (Asia Pacific Only)



1.0 PRODUCT DESCRIPTION

Available Sizes

- 14 – 24"/DN350 – DN600

Pipe Material

- Carbon Steel

Pressure Class

- 232 psi/1600 kPa

Operating Temperature

- +14°F to +176°F/-10°C to +80°C

Function

- Used to isolate or regulate flow. Typically used on water services.
- Valve is designed for pressures ranging from full vacuum to 232psi/1600kPa and for bi-directional, dead end services to full working pressure.

Pipe Preparation

- Exclusively for use with pipe and Victaulic products which feature ends formed with the Advanced Groove System (AGS), Cut Groove or Roll Groove (see section 7.0 for Reference Materials).

2.0 CERTIFICATION/LISTINGS

- Valve design, materials and testing conform to requirements of EN593 and EN12266.
- Product designed and manufactured under Victaulic's Quality Management System, as certified by LPCB in accordance with ISO 9001:2015.

ALWAYS REFER TO ANY NOTIFICATIONS AT THE END OF THIS DOCUMENT REGARDING PRODUCT INSTALLATION, MAINTENANCE OR SUPPORT.

3.0 SPECIFICATIONS – MATERIAL

Body: Ductile iron conforming to ASTM A536, grade 65-45-12, fusion bonded epoxy coated.

Disc: Ductile iron conforming to ASTM A536, grade 65-45-12, fusion bonded epoxy coated.

Disc/Seal: EPDM

Temperature range +14°F to +176°F/-10°C to +80°C. Recommended for cold and hot water service within the specified temperature range. NOT RECOMMENDED FOR PETROLEUM SERVICES.

Bearing: Aluminum bronze

Stem Seals: EPDM

Seal Retaining Screw: Stainless Steel conforming to ASTM A276, Type 304

Shaft: Stainless Steel conforming to ASTM A276, Type 420

Body Seal: Stainless Steel conforming to ASTM A276, Type 304

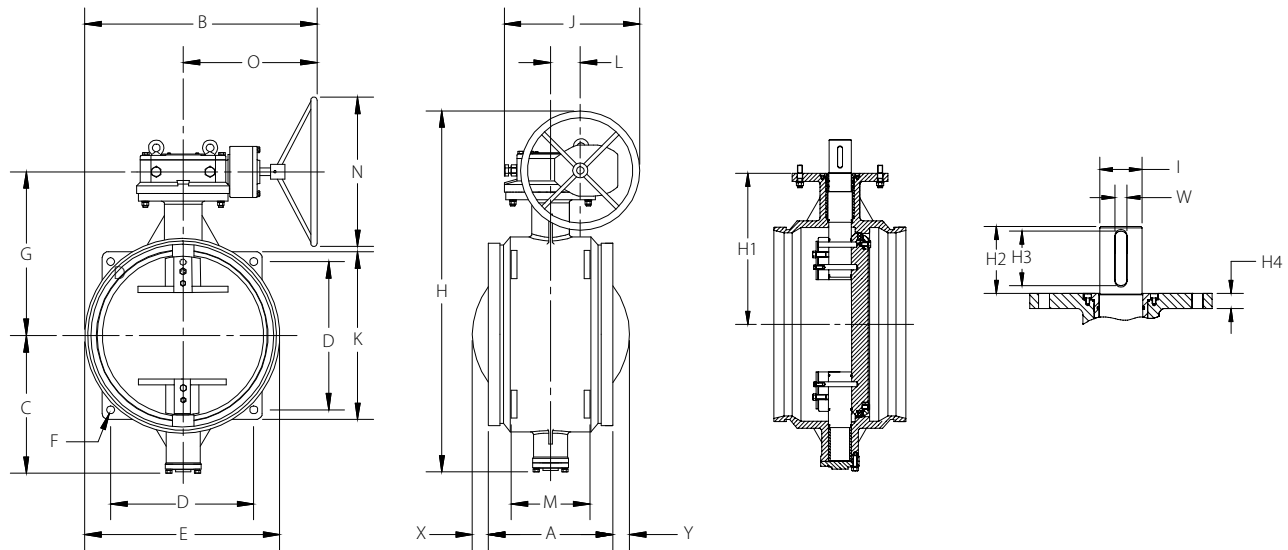
Retainer: Stainless Steel conforming to ASTM A276, Type 304

O-Ring: EPDM

Bolt: Stainless Steel conforming to ASTM A276, Type 304

4.0 DIMENSIONS

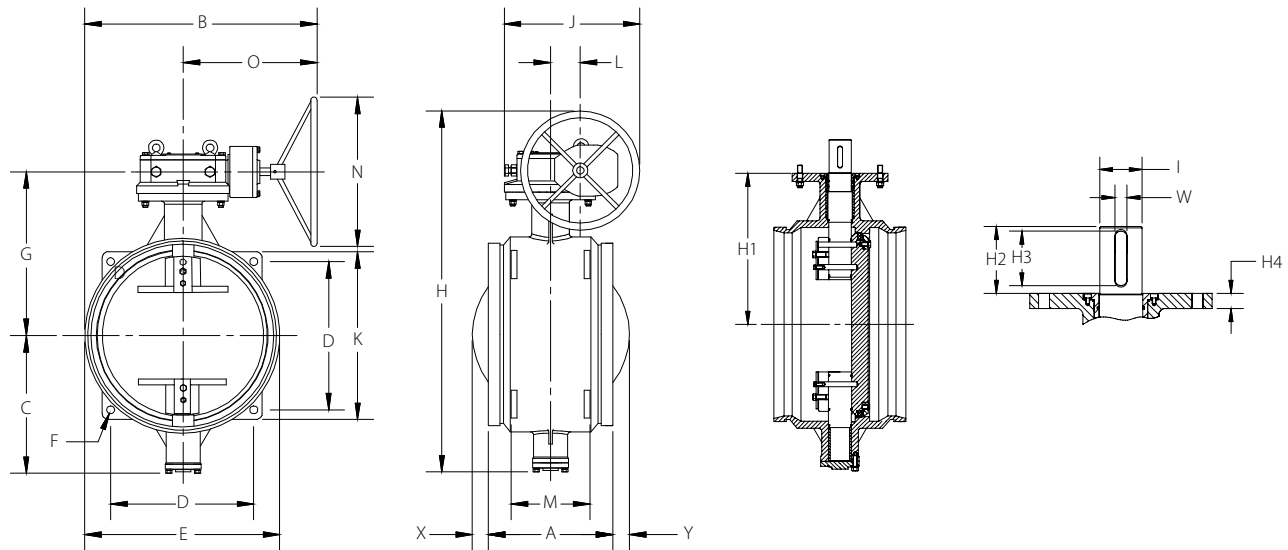
Series W710



Size		Pressure psi kPa	Dimensions										Weight	ISO 5211 Flange Designation for Actuation Mounting
Nominal inches DN	Actual Outside Diameter inches mm		A End to End inches mm	B inches mm	C inches mm	D inches mm	E inches mm	F inches mm	M inches mm	K inches mm	X inches mm	Y inches mm	Approx. (Each) lb kg	
14 DN350	14.00	232	11.50	18.88	11.50	11.50	15.13	0.88	5.63	13.00	0.75	0.75	213.0	F14
	356	1600	291	479	293	290	383	21	140	330	18	18	96.6	
16 DN400	14.843	232	11.50	18.88	11.50	11.50	15.13	0.88	6.38	13.50	0.75	0.75	216.0	F14
	377.0	1600	291	479	293	290	383	21	161	340	18	18	98.0	
16 DN400	16.000	232	12.25	23.63	12.88	13.50	17.13	0.88	6.00	15.38	1.38	1.38	326.0	F14
	406.4	1600	310	599	326	340	434	21	151	390	33	33	147.9	
18 DN450	16.772	232	12.25	23.63	12.88	13.00	17.13	0.88	6.75	15.38	1.38	1.38	330.0	F14
	426.0	1600	310	599	326	330	434	21	170	390	33	33	149.7	
18 DN450	18.000	232	13.00	27.25	14.00	14.63	19.13	0.88	6.38	17.13	2.00	2.00	440.0	F14
	457.2	1600	330	691	356	370	484	21	161	435	49	49	199.6	
20 DN500	18.898	232	13.00	27.25	14.00	14.63	19.13	0.88	7.13	17.13	2.00	2.00	444.0	F14
	480.0	1600	330	691	356	370	484	21	181	435	49	49	201.4	
20 DN500	20.000	232	13.88	28.25	15.50	16.25	21.25	0.88	7.13	19.00	2.50	2.50	539.0	F16
	508.0	1600	351	717	394	410	538	21	181	480	63	63	244.5	
22 DN550	20.866	232	13.88	28.25	15.50	16.25	21.25	0.88	7.13	19.00	2.50	2.50	542.0	F16
	530.0	1600	351	717	394	410	538	21	181	480	63	63	245.8	
22 DN550	22.000	232	13.88	29.25	16.50	17.75	23.25	0.88	7.13	19.75	3.50	3.50	639.0	F16
	558.8	1600	351	743	417	451	590	21	181	501	88	88	289.8	
24 DN600	24.000	232	15.38	30.25	18.00	19.00	25.13	1.00	9.13	22.13	3.75	3.75	722.0	F25
	609.6	1600	390	766	458	480	637	24	231	560	93	93	327.5	
24 DN600	24.803	232	15.38	30.25	18.00	19.00	25.13	1.00	9.13	22.13	3.75	3.75	725.0	F25
	630.0	1600	390	766	458	480	637	24	231	560	93	93	328.9	

4.0 DIMENSIONS (CONTINUED)

Series W710



Size		Pressure psi kPa	Dimension – Bare valve							Dimensions with Gear operator					Weight		ISO 5211 Flange Designation for Actuation Mounting
Nominal inches DN	Actual Outside Diameter inches mm		H1 inches mm	H2 inches mm	H3 inches mm	H4 inches mm	Ø1 inches mm	W inches mm	G inches mm	H inches mm	J inches mm	L inches mm	N inches mm	O inches mm	Approx. (Each) lb kg		
14 DN350	14.00	232	12.13	2.63	2.00	0.88	1.63	0.50	14.00	33.50	16.13	4.00	15.75	11.38	213.0	F14	
	356	1600	308	66	51	21	40	12	356	850	409	101	401	288	96.6		
16 DN400	14.843	232	12.13	2.63	2.00	0.88	1.63	0.50	14.00	33.50	16.13	4.00	15.75	11.38	216.0	F14	
	377.0	1600	308	66	51	21	40	12	356	850	409	101	401	288	98.0		
16 DN400	16.000	232	13.50	3.25	2.63	0.88	1.88	0.63	15.38	38.00	22.13	6.13	19.75	15.13	326.0	F14	
	406.4	1600	341	81	66	21	45	14	390	965	561	153	500	383	147.9		
18 DN450	16.772	232	13.50	3.25	2.63	0.88	1.88	0.63	15.38	38.00	22.13	6.13	19.75	15.13	330.0	F14	
	426.0	1600	341	81	66	21	45	14	390	965	561	153	500	383	149.7		
18 DN450	18.000	232	14.63	3.25	2.63	0.88	1.88	0.63	17.38	41.38	19.75	2.00	19.75	17.75	440.0	F14	
	457.2	1600	369	81	66	21	45	14	440	1050	501	50	500	449	199.6		
20 DN500	18.898	232	14.63	3.25	2.63	0.88	1.88	0.63	17.38	41.38	19.75	2.00	19.75	17.75	444.0	F14	
	480.0	1600	369	81	66	21	45	14	440	1050	501	50	500	449	201.4		
20 DN500	20.000	232	16.38	3.63	3.00	0.88	2.38	0.75	19.13	44.50	19.75	2.00	19.75	17.75	539.0	F16	
	508.0	1600	414	90	75	23	60	19	486	1130	501	50	500	449	244.5		
22 DN550	20.866	232	16.38	3.63	3.00	0.88	2.38	0.75	19.13	44.50	19.75	2.00	19.75	17.75	542.0	F16	
	530.0	1600	414	90	75	23	60	19	486	1130	501	50	500	449	245.8		
22 DN550	22.000	232	17.25	3.63	3.00	0.88	2.38	0.75	20.13	46.38	19.75	2.00	19.75	17.75	639.0	F16	
	558.8	1600	437	90	75	23	60	19	510	1176	501	50	500	449	289.8		
24 DN600	24.000	232	18.75	4.38	3.63	1.00	2.88	0.88	21.63	49.50	19.75	2.00	19.75	17.75	722.0	F25	
	609.6	1600	476	110	90	24	71	21	548	1255	501	50	500	449	327.5		
24 DN600	24.803	232	18.75	4.38	3.63	1.00	2.88	0.88	21.63	49.50	19.75	2.00	19.75	17.75	725.0	F25	
	630.0	1600	476	110	90	24	71	21	548	1255	501	50	500	449	328.9		

5.0 PERFORMANCE

Series W710

Cv/Kv values for flow of water at +60°F/+16°C with various disc positions are shown in the table below.

Formulas for Cv/Kv values:

$$\Delta P = \frac{Q^2}{C_v^2}$$

$$Q = C_v \times \sqrt{\Delta P}$$

Where:

Q = Flow (GPM)

ΔP = Pressure Drop (psi)

C_v = Flow Coefficient

$$\Delta P = \frac{Q^2}{K_v^2}$$








$$Q = K_v \times \sqrt{\Delta P}$$

Where:

Q = Flow (m³/hr)

ΔP = Pressure Drop (Bar)

K_v = Flow Coefficient

Size		Flow Coefficients – Cv/Kv Disc Position (Degree Open)						
Nominal inches DN	Actual Outside Diameter inches mm	90 (full open) 	80 	70 	60 	50 	40 	30 
		Cv Kv	Cv Kv	Cv Kv	Cv Kv	Cv Kv	Cv Kv	Cv Kv
14 DN350	14.000	9112	7440	5494	3384	2178	1398	879
	356.0	7882	6436	4752	2927	1884	1209	760
	14.843	9613	7849	5789	3566	2295	1473	926
	377.0	8315	6789	5007	3085	1985	1274	801
16 DN400	16.000	11901	9718	7176	4420	2845	1826	1148
	406.4	10294	8406	6207	3823	2461	1579	993
	16.772	12402	10126	7468	4600	2960	1900	1194
	426.0	10728	8759	6460	3979	2560	1644	1033
18 DN450	18.000	15062	12298	9082	5594	3600	2311	1453
	457.2	13029	10638	7856	4839	3114	1999	1257
	18.898	16116	13159	9704	5978	3847	2469	1552
	480.0	13940	11383	8394	5171	3328	2136	1342
20 DN500	20.000	18595	15184	11231	6906	4445	2853	1793
	508.0	16085	13134	9715	5974	3845	2468	1551
	20.866	19524	15941	11757	7242	4660	2991	1880
	530.0	16888	13789	10170	6264	4031	2587	1626
22 DN550	22.000	23895	19811	14967	9235	5942	3813	2396
	558.8	20669	17137	12946	7988	5140	3298	2073
24 DN600	24.000	29938	22835	16147	9945	6401	4107	2582
	609.6	25896	19752	13967	8602	5537	3553	2233
	24.803	31343	25591	18874	11626	7481	4802	3018
	630.0	27112	22136	16326	10056	6471	4154	2611

5.0 PERFORMANCE (CONTINUED)

Torque Values

Size		Breakaway Torque with Valve Seat Downstream of Pressure (ft. lb./N.m.)					
Nominal inches DN	Actual Outside Diameter inches mm	Differential Pressure					
		0 psi	50 psi	100 psi	150 psi	200 psi	232 psi
14 DN350	14.000	100	337	454	606	755	836
	356.0	135	455	615	820	1025	1135
	14.843	100	412	584	742	899	1007
	377.0	135	560	790	1005	1220	1365
16 DN400	16.000	156	558	809	1079	1349	1499
	406.4	210	755	1095	1465	1830	2035
	16.772	156	635	907	1210	1507	1674
	426.0	210	860	1230	1640	2045	2270
18 DN450	18.000	255	715	1023	1351	1687	1874
	457.2	345	970	1385	1830	2290	2540
	18.898	255	746	1067	1422	1777	1975
	480.0	345	1010	1445	1930	2410	2680
20 DN500	20.000	294	890	1272	1696	2117	2351
	508.0	400	1205	1725	2300	2870	3190
	20.866	294	966	1379	1840	2300	2556
	530.0	400	1310	1870	2495	3120	3465
22 DN550	22.000	344	1223	1803	2404	3005	3339
	558.8	465	1660	2445	3260	4075	4525
24 DN600	24.000	559	1712	2551	3401	4344	5111
	609.6	760	2320	3460	4610	5890	6930
	24.803	559	2189	3128	4170	5214	6133
	630.0	760	2970	4240	5655	7070	8315

Size		Breakaway Torque with Valve Seat Upstream of Pressure (ft. lb./N.m.)					
Nominal inches DN	Actual Outside Diameter inches mm	Differential Pressure					
		0 psi	50 psi	100 psi	150 psi	200 psi	232 psi
14 DN350	14.000	70	269	341	430	521	561
	356.0	95	365	460	585	705	760
	14.843	70	329	438	527	620	695
	377.0	95	445	595	715	840	940
16 DN400	16.000	102	446	607	766	931	1005
	406.4	140	605	825	1040	1260	1360
	16.772	102	508	681	859	1040	1122
	426.0	140	690	925	1165	1410	1520
18 DN450	18.000	153	572	767	959	1165	1256
	457.2	205	775	1040	1300	1580	1705
	18.898	153	597	800	1010	1227	1324
	480.0	205	810	1085	1370	1665	1795
20 DN500	20.000	223	712	954	1204	1460	1575
	508.0	300	965	1295	1635	1980	2135
	20.866	223	773	1033	1306	1587	1713
	530.0	300	1050	1400	1770	2150	2320
22 DN550	22.000	261	978	1350	1706	2074	2509
	558.8	355	1325	1830	2315	2810	3400
24 DN600	24.000	479	1370	1964	2551	3258	3841
	609.6	650	1855	2665	3460	4420	5210
	24.803	479	1752	2345	3127	3910	4600
	630.0	650	2375	3180	4240	5300	6235

NOTE

- The torque values shown shall be used for sizing actuators on valves with a bare stem

Valve Torque Requirements

Source:

These torque values were derived from test data with non-lubricated valves in water at ambient temperatures with EPDM seals. For other material and service conditions, apply a suitable service factor.

Torque Factors:

All torque values are for normal conditions (i.e., the valve is operated at least once a quarter, disc corrosion is expected to be minor, the media is clean and nonabrasive, and the chemical effects upon the elastomer are minor).

Typical Fluid Torque Factors Commonly Used in the Industry:

Water: 1.0

Material Torque Factors:

“E” = 1.0

Cycling Factor:

Torque will typically increase as the valve is cycled. A factor of 1.5 should be applied for the first 5,000 cycles and another 1.5 applied for all additional cycles. The higher number should be used if there is more than one cycle per hour.

Actuation Factor:

There are no actuation safety factors applied. A factor consistent with the consequences of not actuating should be applied. A minimum factor of 1.2 is recommended for directly actuated valves and 1.5 for 3-way assemblies.

- Contact Victaulic for other services.

5.0 PERFORMANCE (CONTINUED)

Combining Torque Factors:

When multiple torque factors apply, they are combined by multiplying them. Example: For an EPDM seal and a 5,000-cycle factor, the combined factor would be $1.0 \times (1.5) = 1.5$.

NOTES

- Under certain high flow conditions, the hydrodynamic torque can exceed the seating torque. Large butterfly valves are not recommended for use in a free discharge condition, such as filling an empty line with fluid at the full-rated pressure.

6.0 NOTIFICATIONS

WARNING



- Read and understand all instructions before attempting to install, remove, adjust, or maintain any Victaulic piping products.
- Depressurize and drain the piping system before attempting to install, remove, adjust, or maintain any Victaulic piping products.
- Wear safety glasses, hardhat, and foot protection.

Failure to follow these instructions could result in death or serious personal injury and property damage.

NOTICE

- DO NOT install valves with the disc in the full-open position. Make sure no part of the disc protrudes beyond the end of the valve body.
- Use ONLY grooved-end, NPS carbon steel pipe with Victaulic Butterfly Valves. DO NOT use plain-end NPS pipe or grooved cast ductile iron pipe.
- To prevent valves from rotating in the system, Victaulic recommends installing butterfly valves with at least one Victaulic rigid coupling. If two Victaulic flexible couplings are used, additional support may be required to prevent the valve from rotating. Refer to the instructions, supplied with the couplings and butterfly valves, for proper installation.

7.0 REFERENCE MATERIALS

[16.11: AGS Vic-Ring® Systems](#)

[20.02: AGS Rigid Coupling](#)

[20.05: AGS Fittings](#)

[25.09: AGS Roll Groove Data](#)

[26.01: Victaulic Design Data](#)

[I-100: Victaulic Field Installation Handbook](#)

[I-W100: Victaulic AGS Field Installation Hand Book](#)

User Responsibility for Product Selection and Suitability

Each user bears final responsibility for making a determination as to the suitability of Victaulic products for a particular end-use application, in accordance with industry standards and project specifications, and the applicable building codes and related regulations as well as Victaulic performance, maintenance, safety, and warning instructions. Nothing in this or any other document, nor any verbal recommendation, advice, or opinion from any Victaulic employee, shall be deemed to alter, vary, supersede, or waive any provision of Victaulic Company's standard conditions of sale, installation guide, or this disclaimer.

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Note

This product shall be manufactured by Victaulic or to Victaulic specifications. All products to be installed in accordance with current Victaulic installation/assembly instructions. Victaulic reserves the right to change product specifications, designs and standard equipment without notice and without incurring obligations.

Installation

Reference should always be made to the Victaulic installation handbook or installation instructions of the product you are installing. Handbooks are included with each shipment of Victaulic products, providing complete installation and assembly data, and are available in PDF format on our website at www.victaulic.com.

Warranty

Refer to the Warranty section of the current Price List or contact Victaulic for details.

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