

Victaulic® Vic-300 MasterSeal™ Stainless Steel Butterfly Valves

Series 461 and Series E461



17.40



Series 461



Series E461

1.0 PRODUCT DESCRIPTION

Available Sizes

- 2 – 12"/DN50 – DN300

Maximum Working Pressure

- Accommodates pressures ranging from full vacuum (29.9 in Hg/760 mm Hg) up to 300 psi/2100 kPa/21 bar
- Full working pressure for bi-directional, dead end services

NOTE

- Before start up, the test pressure may be increased to 1 ½ times the maximum working pressure. This is for a one-time system test and must be performed at ambient conditions.

Operating Temperature

- Dependent on seat selection from section 3.0

End Preparation (specify choice)

- ☐ Original Groove System (OGS) (Series 461)
- ☐ StrengThin™ 100 Groove System (Series E461)

Application

- Typically used in potable water, HVAC and other systems where full stainless steel wetted construction is required

NOTE

- Applications that require NSF-61 approved products should specify the Victaulic Stainless Steel Butterfly Valve Series 861 ([publication 17.45](#)).

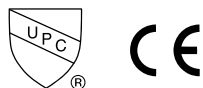
Actuation Options

- Standard ISO 5211 mounting flange
- ISO 5211 mounting flange with ISO 5211 diagonal square head drive (2 – 12"/DN50 – DN300)
- 10-position handle (2 – 6"/DN50 – DN150)
 - Infinitely variable service with memory stop; Padlockable
- Lever lock handle (8"/DN200)
 - Infinitely variable service with memory stop; Padlockable
- Gear operator (2 – 12"/DN50 – DN300)
- Additional 2"/50 mm neck extension available when more than 2"/50 mm of insulation is needed
- 4 ½"/120 mm-long handle wheel input shaft extension (2 – 8"/DN50 – DN200)
- 3 ½"/90 mm-long handle wheel input shaft extension (10 – 12"/DN250 – DN300)

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



2.0 CERTIFICATION/LISTINGS



Valve construction and performance meet or exceed MSS-SP-67 requirements.

Compliant with Closure/Seat Leakage Rate A per EN 12266-1, EN 1074-1, EN 1074-2 and ISO 5208.

3.0 SPECIFICATIONS - MATERIAL

Series 461/E461 Vic-300 MasterSeal™ Stainless Steel Butterfly Valve

Body: Stainless steel conforming to ASTM A351 Grade CF8M.

End Face, 2 – 6"/DN50 – DN150: Stainless steel conforming to ASTM A351 Grade CF8M.

Seal Retainer, 8 – 12"/DN200 – DN300: Stainless steel conforming to ASTM A351 Grade CF8M.

Disc: Stainless steel conforming to ASTM A351 Grade CF8M.

Seat: (specify choice)

☐ **Victaulic EPDM**

EPDM (Green and silver color code). Temperature range –30°F to +230°F/–34°C to +110°C. NOT COMPATIBLE FOR USE WITH PETROLEUM SERVICES OR STEAM SERVICES.

☐ **Victaulic Nitrile**

Nitrile (Orange color code). Temperature range +10°F to +150°F/–12°C to +65°C. Not compatible for hot water services over +150°F/+66°C or for hot dry air over +140°F/60°C. NOT COMPATIBLE FOR USE WITH HOT WATER SERVICES OR STEAM SERVICES.

☐ **Victaulic Fluoroelastomer**

Fluoroelastomer (Blue/Copper color code). Temperature range +20°F to +300°F/–7°C to +149°C. NOT COMPATIBLE FOR USE WITH HOT WATER SERVICES OR STEAM SERVICES.

Stem: 17-4PH stainless steel conforming to ASTM A564.

Stem Seal Cartridge: 17-4PH stainless steel conforming to ASTM A564.

Bearings: Fiberglass and 316 stainless steel with TFE lining.

Stem Seal: Furnished in same materials as seat.

Stem Retaining Ring: Stainless steel.

Handle: 10 Position – For sizes 2 – 6"/DN50 – DN150 (specify choice):

- ☐ Zinc-plated carbon steel handle with zinc-plated carbon steel latch plate and zinc-plated carbon steel fasteners, infinitely variable, padlockable and includes memory stop. Optionally available with tamper-resistant hardware.
- ☐ Stainless steel handle with Grade 304 stainless steel latch plate and stainless steel fasteners, infinitely variable, padlockable and includes memory stop. Optionally available with tamper-resistant hardware.

Handle: Lever Lock - For size 8"/DN200 (specify choice):

- ☐ Painted ductile iron conforming to ASTM A536, Grade 65-45-12, with carbon steel latch plate and zinc-plated carbon steel fasteners.
- ☐ Stainless steel conforming to ASTM A564, with Grade 304 stainless steel latch plate and stainless steel fasteners.
- ☐ Infinitely variable, padlockable and includes memory stop. Optionally available with tamper-resistant hardware.

Gear Operator with options below (specify choice):

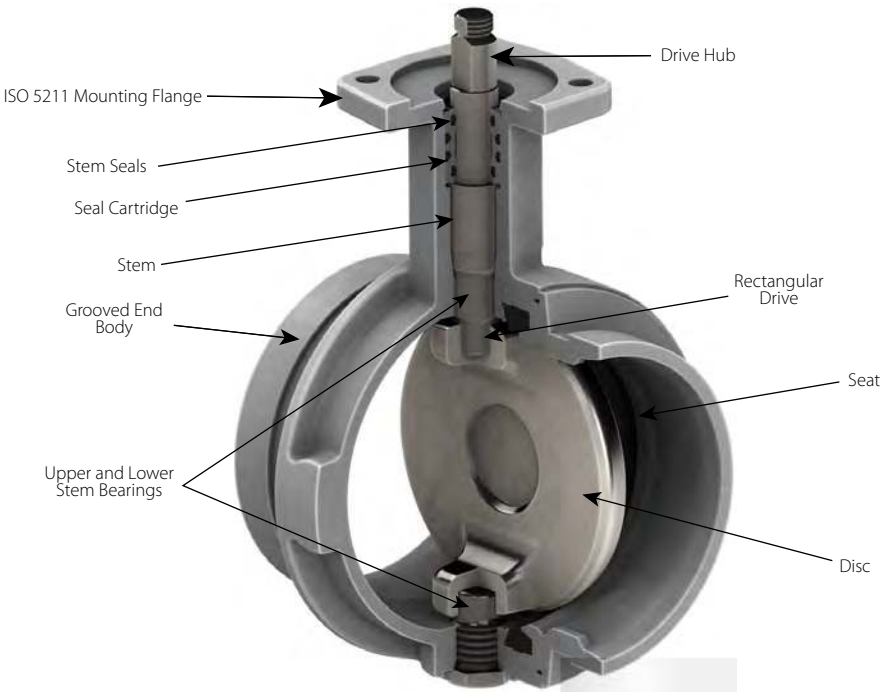
- ☐ Handwheel with memory stop
- ☐ Handwheel with chainwheel
- ☐ 2" square nut

NOTES

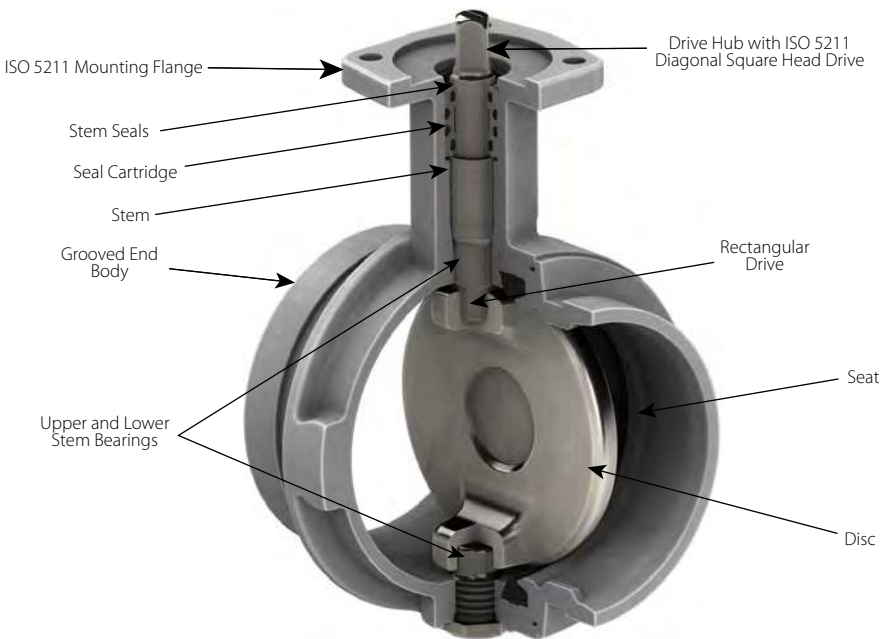
- A padlockable valve refers to those valves which can be padlocked to lockout equipment for preventing inadvertent valve operation. When used in conjunction with an appropriate lockout/tagout system, multiple padlocks may be used. The valve may be padlocked either fully open or fully closed.
- A tamper-resistant option is also available, which is meant to deter theft, vandalism or other malicious activity. The handles and associated components are assembled with tamper-resistant fasteners which are designed for one-time assembly. Attempts to defeat the padlock by partial disassembly of the valve will likely result in evidence of such activity. The valve may be padlocked either fully open or fully closed.
- Hand wheel input shaft extensions are not for use with chain wheels.

3.0 SPECIFICATIONS - MATERIAL (CONTINUED)

Series 461/E461 Vic-300 MasterSeal™ Stainless Steel Butterfly Valve



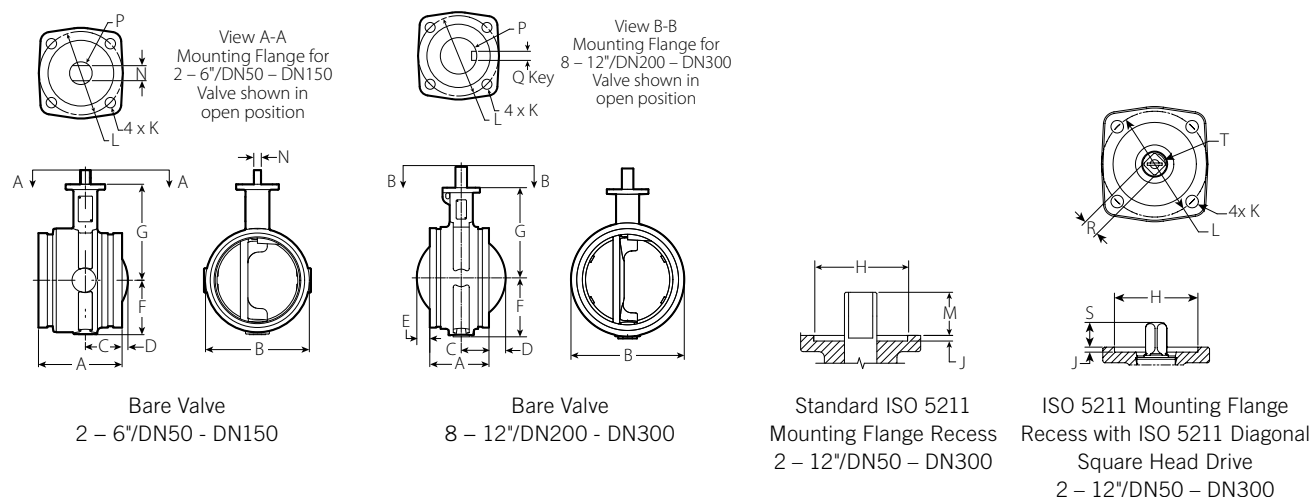
Standard ISO 5211 Mounting Flange



With ISO 5211 Diagonal Square Head Drive

4.0 DIMENSIONS

Series 461 Vic-300 MasterSeal™ Stainless Steel Butterfly Valve - Bare Valve

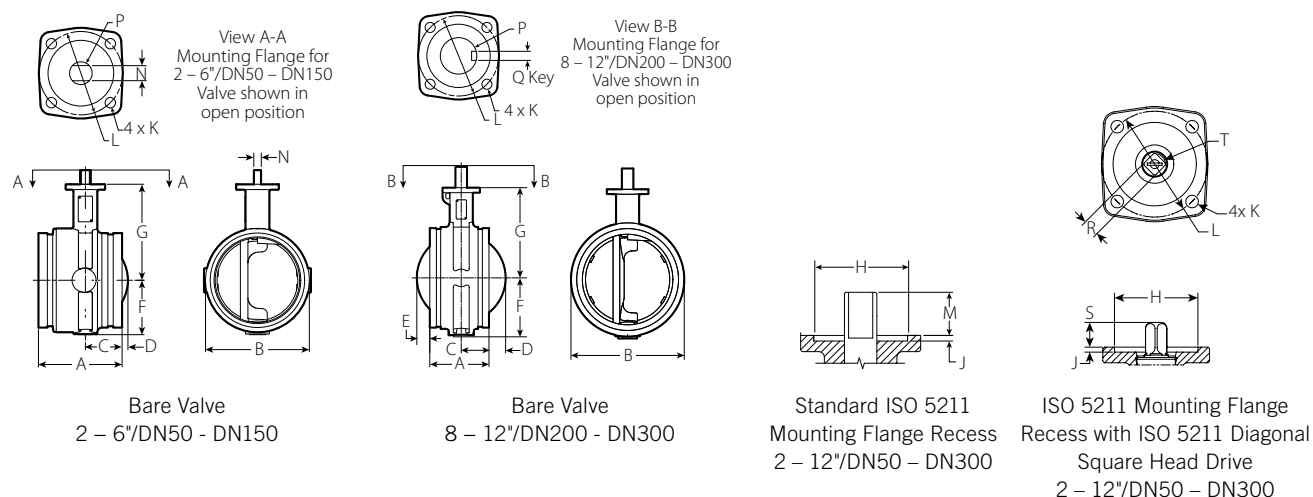


Size		Dimensions									Weight	ISO 5211 Flange Designation
Nominal inches DN	Actual Outside Diameter inches mm	A End to End inches mm	B inches mm	C inches mm	D inches mm	E inches mm	F inches mm	G inches mm	H inches mm	Q-Key inches mm	Approx. (Each) lb kg	
2 DN50	2.375 60.3	3.25 83	3.25 83	1.50 38	– –	– –	1.88 48	3.75 95	2.13 54	– –	3.8 1.7	F07
2½	2.875 73.0	3.75 95	4.13 105	1.75 44	– –	– –	2.13 54	4.25 108	2.13 54	– –	5.8 2.6	F07
DN65	3.000 76.1	3.75 95	4.13 105	1.75 44	– –	– –	2.13 54	4.25 108	2.13 54	– –	6.0 2.7	F07
3 DN80	3.500 88.9	3.75 95	4.63 117	1.75 44	– –	– –	2.38 60	4.5 114	2.13 54	– –	6.9 3.1	F07
4 DN100	4.500 114.3	4.63 117	5.50 140	2.13 54	– –	– –	2.88 73	5.25 133	2.13 54	– –	11.1 5.0	F07
DN125	5.500 139.7	5.88 149	6.25 159	2.63 67	– –	– –	3.38 86	6.25 159	2.13 54	– –	18.4 8.4	F07
5	5.563 141.3	5.88 149	6.25 159	2.63 67	– –	– –	3.38 86	6.25 159	2.13 54	– –	22.3 10.0	F07
	6.500 165.1	5.88 149	7.25 184	2.63 67	0.38 10	– –	3.88 98	6.75 171	2.13 54	– –	22.3 10.1	F07
6 DN150	6.625 168.3	5.88 149	7.25 184	2.63 67	0.38 10	– –	3.88 98	6.75 171	2.13 54	– –	22.8 10.3	F07
200A ¹	216.3	5.38 137	9.25 235	2.38 60	1.50 38	0.88 22	5.13 130	8.00 203	2.13 54	0.188 x 0.88 4.78 x 22.35	38.4 17.4	F07
8 DN200	8.625 219.1	5.38 137	9.25 235	2.38 60	1.50 38	0.75 19	5.13 130	8.00 203	2.13 54	0.188 x 0.88 4.78 x 22.35	38.4 17.4	F07
250A ¹	267.4	7.88 200	11.25 286	3.00 76	1.88 48	0.00 0	6.40 163	9.75 248	2.75 70	0.312 x 1.88 7.92 x 47.75	76.6 34.7	F10
10 DN250	10.750 273.0	6.40 163	11.22 285	3.00 76	1.81 46	1.41 36	6.37 162	9.75 248	2.76 70	0.312 x 1.88 7.92 x 47.75	66.9 30.3	F10
300A ¹	318.5	8.00 203	13.38 340	3.00 76	2.88 73	0.88 22	7.39 188	10.75 273	2.75 70	0.312 x 1.88 7.92 x 47.75	95 43.1	F10
12 DN300	12.750 323.9	6.50 165	13.33 339	3.00 76	2.80 71	2.30 58	7.36 187	10.75 273	2.76 70	0.312 x 1.88 7.92 x 47.75	85.3 38.7	F10

¹ Japanese Industrial Standard (JIS) size

4.0 DIMENSIONS (CONTINUED)

Series 461 Vic-300 MasterSeal™ Stainless Steel Butterfly Valve - Bare Valve



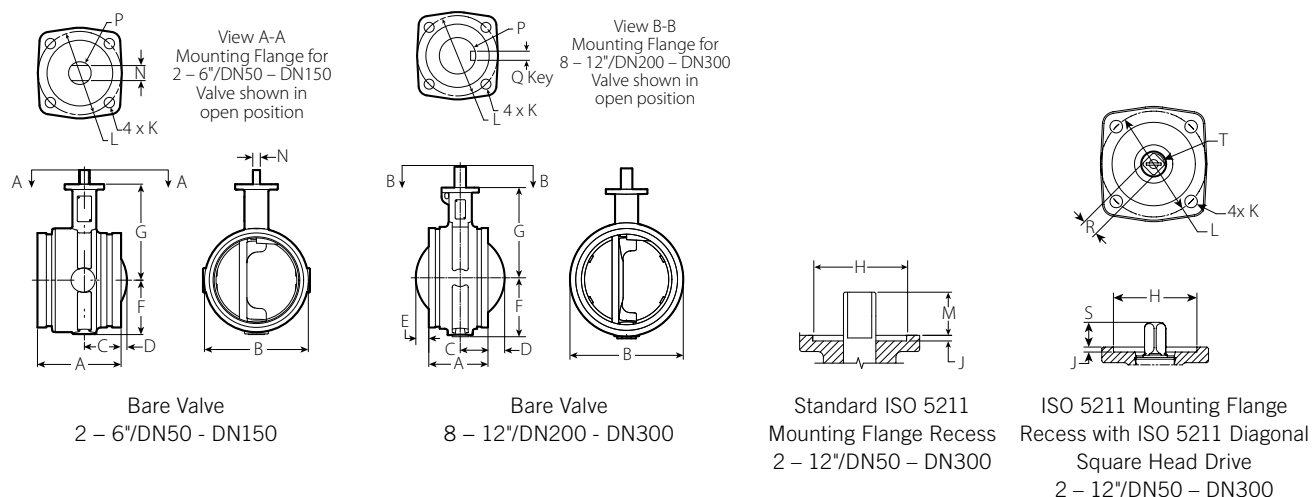
Size		Dimensions									Weight	ISO 5211 Flange Designation
Nominal inches DN	Actual Outside Diameter inches mm	J inches mm	K inches mm	L inches mm	M inches mm	N inches mm	T inches mm	R ² inches mm	S inches mm	Q-Key inches mm	Approx. (Each) lb kg	
2 DN50	2.375 60.3	0.13 3	0.38 10	2.75 70	0.88 22	0.32 8	0.43 11	0.35 9	0.48 12.2	– –	3.8 1.7	F07
2½	2.875 73.0	0.13 3	0.38 10	2.75 70	0.88 22	0.32 8	0.43 11	0.35 9	0.48 12.2	– –	5.8 2.6	F07
DN65	3.000 76.1	0.13 3	0.38 10	2.75 70	0.88 22	0.32 8	0.43 11	0.35 9	0.48 12.2	– –	6.0 2.7	F07
3 DN80	3.500 88.9	0.13 3	0.38 10	2.75 70	0.88 22	0.32 8	0.43 11	0.35 9	0.48 12.2	– –	6.9 3.1	F07
4 DN100	4.500 114.3	0.13 3	0.38 10	2.75 70	0.88 22	0.43 11	0.59 15	0.43 11	0.61 15.5	– –	11.1 5.0	F07
DN125	5.500 139.7	0.13 3	0.38 10	2.75 70	1.00 25	0.50 13	0.75 19	0.55 14	0.89 22.6	– –	18.4 8.4	F07
	5	5.563 141.3	0.13 3	0.38 10	2.75 70	1.00 25	0.50 13	0.75 19	0.55 14	0.89 22.6	– –	22.3 10.1
	6.500 165.1	0.13 3	0.38 10	2.75 70	1.00 25	0.50 13	0.75 19	0.55 14	0.89 22.6	– –	22.3 10.1	F07
	6 DN150	6.625 168.3	0.13 3	0.38 10	2.75 70	1.00 25	0.50 13	0.75 19	0.55 14	0.89 22.6	– –	22.8 10.3
200A ¹	216.3	0.13 3	0.38 10	2.75 70	1.13 29	– –	0.88 22	– –	– –	0.188 x 0.88 4.78 x 22.35	38.4 17.4	F07
8 DN200	8.625 219.1	0.13 3	0.38 10	2.75 70	1.13 29	– –	0.88 22	0.67 17	1.15 29.2	0.188 x 0.88 4.78 x 22.35	38.4 17.4	F07
250A ¹	267.4	0.13 3	0.50 13	4.00 102	2.25 57	– –	1.25 32	– –	– –	0.312 x 1.88 7.92 x 47.75	76.6 34.7	F10
10 DN250	10.750 273.0	0.13 3	0.50 13	4.00 102	2.25 57	– –	1.25 32	0.87 22	1.32 33.5	0.312 x 1.88 7.92 x 47.75	66.9 30.3	F10
300A ¹	318.5	0.13 3	0.50 13	4.00 102	2.25 57	– –	1.25 32	– –	– –	0.312 x 1.88 7.92 x 47.75	95 43.1	F10
12 DN300	12.750 323.9	0.13 3	0.43 11	4.02 102	2.25 57	– –	1.25 32	0.87 22	1.31 33.3	0.312 x 1.88 7.92 x 47.75	85.3 38.7	F10

¹ Japanese Industrial Standard (JIS) size

² Diagonal square head drive follows a C11 clearance fit

4.1 DIMENSIONS

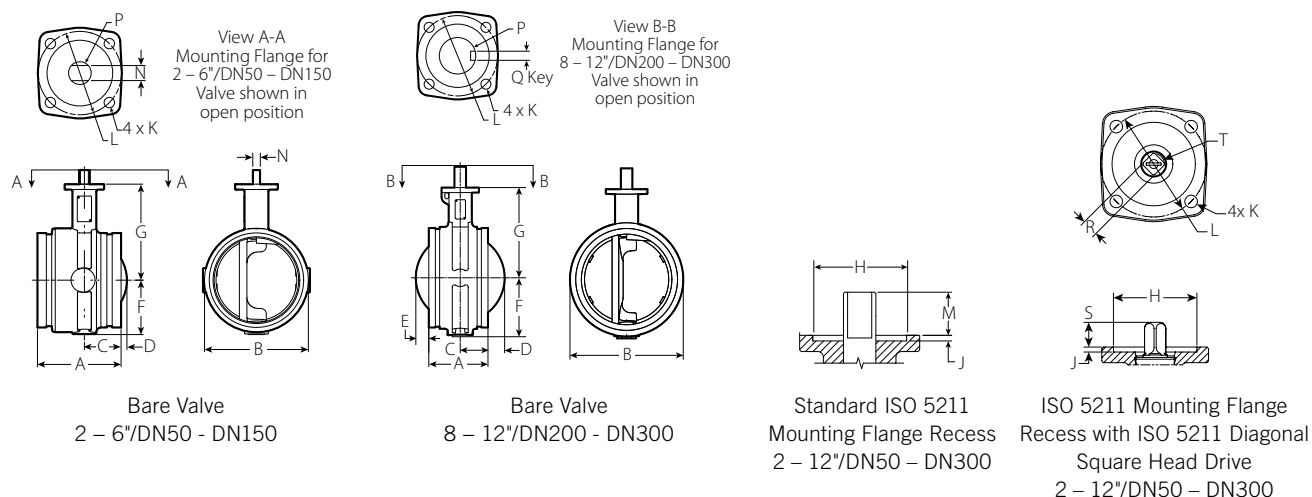
Series E461 Vic-300 MasterSeal™ Stainless Steel Butterfly Valve - Bare Valve



Size		Dimensions									Weight	ISO 5211 Flange Designation
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	G inches mm	H inches mm	Q-Key inches mm	Approx. (Each) lb kg	
2 DN50	2.375 60.3	3.63 92	3.25 83	1.63 41	– –	– –	1.88 48	3.75 95	2.13 54	– –	3.7 1.7	F07
2½	2.875 73.0	4.25 108	4.13 105	2.00 51	– –	– –	2.13 54	4.25 108	2.13 54	– –	5.9 2.7	F07
DN65	3.000 76.1	4.13 105	4.13 105	1.88 48	– –	– –	2.13 54	4.25 108	2.13 54	– –	6.0 2.7	F07
3 DN80	3.500 88.9	4.00 102	4.63 117	1.75 44	– –	– –	2.38 60	4.50 114	2.13 54	– –	6.7 3.0	F07
4 DN100	4.500 114.3	4.75 121	5.50 140	2.13 54	– –	– –	2.88 73	5.25 133	2.13 54	– –	11.3 5.1	F07
DN125	5.500 139.7	5.88 149	6.25 159	2.63 67	– –	– –	3.38 86	6.25 159	2.13 54	– –	18.0 8.2	F07
6 DN150	6.625 168.3	6.00 152	7.25 184	2.63 67	0.38 10	– –	3.88 98	6.75 171	2.13 54	– –	23.0 10.4	F07
8 DN200	8.625 219.1	5.38 137	9.25 235	2.38 60	1.50 38	0.75 19	5.13 130	8.00 203	2.13 54	0.188 x 0.88 4.78 x 22.35	38.4 17.4	F07
10 DN250	10.750 273.0	6.38 162	11.25 286	3.00 76	1.75 45	1.38 35	6.38 162	9.75 248	2.75 70	0.312 x 1.88 7.92 x 47.75	66.9 30.3	F10
12 DN300	12.750 323.9	6.50 165	13.38 340	3.00 76	2.75 70	2.25 57	7.38 187	10.75 273	2.75 70	0.312 x 1.88 7.92 x 47.75	85.3 38.7	F10

4.1 DIMENSIONS (CONTINUED)

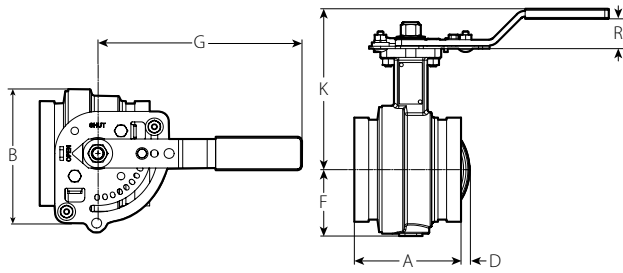
Series E461 Vic-300 MasterSeal™ Stainless Steel Butterfly Valve - Bare Valve



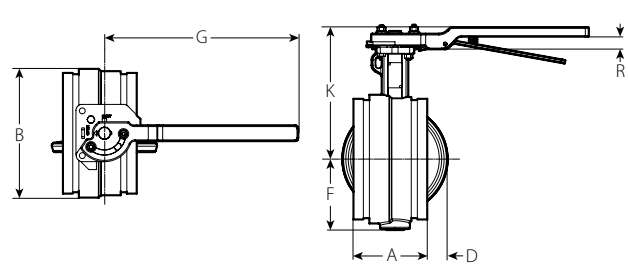
Size		Dimensions									Weight	ISO 5211 Flange Designation
Nominal inches DN	Actual Outside Diameter inches mm	J inches mm	K inches mm	L inches mm	M inches mm	N inches mm	T inches mm	R inches mm	S inches mm	Q-Key inches mm	Approx. (Each) lb kg	
2 DN50	2.375 60.3	0.13 3	0.38 10	2.75 70	0.88 22	0.32 8	0.43 11	0.35 9	0.48 12.2	- -	3.7 1.7	F07
2½ DN65	2.875 73.0	0.13 3	0.38 10	2.75 70	0.88 22	0.32 8	0.43 11	0.35 9	0.48 12.2	- -	5.9 2.7	F07
3 DN80	3.000 76.1	0.13 3	0.38 10	2.75 70	0.88 22	0.32 8	0.43 11	0.35 9	0.48 12.2	- -	6.0 2.7	F07
4 DN100	3.500 88.9	0.13 3	0.38 10	2.75 70	0.88 22	0.32 8	0.43 11	0.35 9	0.48 12.2	- -	6.7 3.0	F07
5 DN125	4.500 114.3	0.13 3	0.38 10	2.75 70	0.88 22	0.43 11	0.59 15	0.43 11	0.61 15.5	- -	11.3 5.1	F07
6 DN150	5.500 139.7	0.13 3	0.38 10	2.75 70	1.00 25	0.50 13	0.75 19	0.55 14	0.89 22.6	- -	18.0 8.2	F07
8 DN200	6.625 168.3	0.13 3	0.38 10	2.75 70	1.00 25	0.50 13	0.75 19	0.55 14	0.89 22.6	- -	23.0 10.4	F07
10 DN250	8.625 219.1	0.13 3	0.38 10	2.75 70	1.13 29	- -	0.88 22	0.67 17	1.15 29.2	0.188 x 0.88 4.78 x 22.35	38.4 17.4	F07
12 DN300	10.750 273.0	0.13 3	0.38 10	4.00 102	2.25 57	- -	1.25 32	0.87 22	1.32 33.5	0.312 x 1.88 7.92 x 47.75	66.9 30.3	F10
											85.3 38.7	F10

4.2 DIMENSIONS

Series 461 Vic-300 MasterSeal™ Stainless Steel Butterfly Valve - With Handle



10 Position Lever Handle
2 – 6"/DN50 – DN150



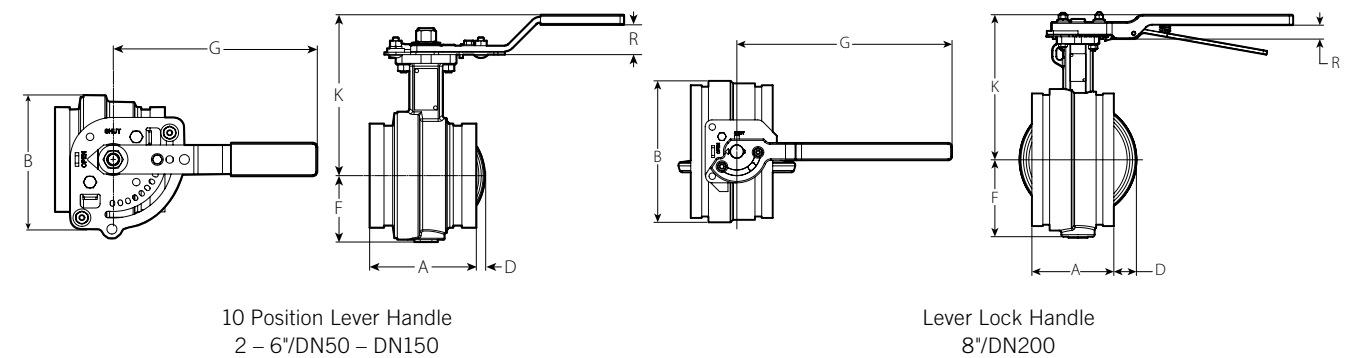
Lever Lock Handle
8"/DN200

Size		Dimensions							Weight
Nominal inches DN	Actual Outside Diameter inches mm	A inches mm	B inches mm	D inches mm	F inches mm	G inches mm	K inches mm	R inches mm	Approximate (Each) lb kg
2	2.375	3.25	3.25	–	1.88	7.00	5.38	1.63	5.0
DN50	60.3	83	83	–	48	178	137	41	2.3
2½	2.875	3.75	4.13	–	2.13	7.00	5.88	1.63	7.0
	73.0	95	105	–	54	178	149	41	3.2
DN65	3.000	3.75	4.13	–	2.13	7.00	5.88	1.63	7.2
	76.1	95	105	–	54	178	149	41	3.3
3	3.500	3.75	4.63	–	2.38	7.00	6.13	1.63	8.1
DN80	88.9	95	117	–	60	178	156	41	3.7
4	4.500	4.63	5.50	–	2.88	8.50	6.75	1.63	12.8
DN100	114.3	117	140	–	73	216	171	41	5.8
DN125	5.500	5.88	6.25	–	3.38	12.00	7.88	1.63	21.5
	139.7	149	159	–	86	305	200	41	9.8
5	5.563	5.88	6.25	–	3.38	12.00	7.88	1.63	22.3
	141.3	149	159	–	86	305	200	41	10.1
	6.500	5.88	7.25	0.38	3.88	12.00	8.38	1.63	25.4
	165.1	149	184	10	98	305	213	41	11.5
6	6.625	5.88	7.25	0.38	3.88	12.00	8.38	1.63	25.9
DN150	168.3	149	184	10	98	305	213	41	11.7
200A ¹	216.3	5.38	9.25	1.50	5.13	14.00	9.50	0.75	47.5
		137	235	38	130	356	241	19	21.5
8	8.625	5.38	9.25	1.50	5.13	14.00	9.5	0.75	47.5
DN200	219.1	137	235	38	130	356	241	19	21.5

¹ Japanese Industrial Standard (JIS) size

4.3 DIMENSIONS

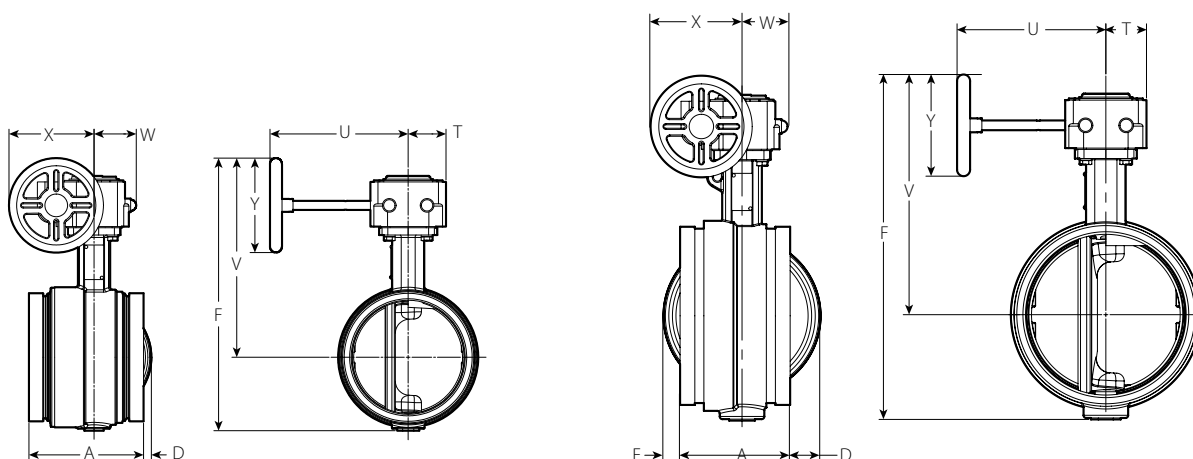
Series E461 Vic-300 MasterSeal™ Stainless Steel Butterfly Valve - With Handle



Size		Dimensions							Weight
Nominal	Actual Outside Diameter	A	B	D	F	G	K	R	Approximate (Each)
inches	inches	inches	inches	inches	inches	inches	inches	inches	lb
DN	mm	mm	mm	mm	mm	mm	mm	mm	kg
2	2.375	3.63	3.25	–	1.88	7.00	5.38	1.63	4.9
DN50	60.3	92	83	–	48	178	137	41	2.2
2½	2.875	4.25	1.13	–	2.13	7.00	5.88	1.63	7.1
	73.0	108	105	–	54	178	149	41	3.2
DN65	3.000	4.13	4.13	–	2.13	7.00	5.88	1.63	7.2
	76.1	105	105	–	54	178	149	41	3.3
3	3.500	4.00	4.63	–	2.38	7.00	6.13	1.63	7.9
DN80	88.9	102	117	–	60	178	156	41	3.6
4	4.500	4.75	5.50	–	2.88	8.50	6.75	1.63	13.0
DN100	114.3	121	140	–	73	216	171	41	5.9
DN125	5.500	5.88	6.25	–	3.38	12.00	7.88	1.63	21.1
	139.7	149	159	–	86	305	200	41	9.6
6	6.625	6.00	7.25	0.38	3.88	12.00	8.38	1.63	26.1
DN150	168.3	152	184	10	98	305	213	41	11.8
8	8.625	5.38	9.25	1.50	5.13	14.00	9.50	0.75	47.5
DN200	219.1	137	235	38	130	356	241	19	21.5

4.4 DIMENSIONS

Series 461 Vic-300 MasterSeal™ Stainless Steel Butterfly Valve - With Gear Operator



Gear Operator
2 – 6"/DN50 – DN150

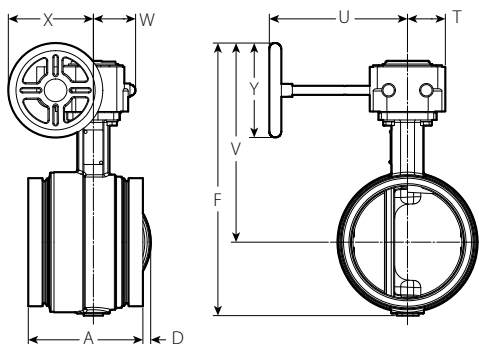
Gear Operator
8 – 12"/DN200 – DN300

Size		Dimensions										Weight
Nominal inches DN	Actual Outside Diameter inches mm	A End to End inches mm	D inches mm	E inches mm	F inches mm	T inches mm	U inches mm	V inches mm	W inches mm	X inches mm	Y inches mm	Approximate (Each) lb kg
2 DN50	2.375 60.3	3.25 83	– –	– –	8.63 219	1.63 41	4.75 121	6.88 175	1.88 48	3.63 92	4.00 102	6.3 2.9
2½	2.875 73.0	3.75 95	– –	– –	9.50 241	1.63 41	4.75 121	7.25 184	1.88 48	3.63 92	4.00 102	8.3 3.8
DN65	3.000 76.1	3.75 95	– –	– –	9.50 241	1.63 41	4.75 121	7.25 184	1.88 48	3.63 92	4.00 102	8.5 3.9
3 DN80	3.500 88.9	3.75 95	– –	– –	9.88 251	1.63 41	4.75 121	7.50 191	1.88 48	3.63 92	4.00 102	9.4 4.3
4 DN100	4.500 114.3	4.63 117	– –	– –	11.25 286	1.63 41	4.75 121	8.25 210	1.88 48	3.63 92	4.00 102	13.6 6.2
DN125	5.500 139.7	5.88 149	– –	– –	13.25 337	2.00 51	7.25 184	9.75 248	2.25 57	4.38 111	4.88 124	22.4 10.2
5	5.563 141.3	5.88 149	– –	– –	13.25 337	2.00 51	7.25 184	9.75 248	2.25 57	4.38 111	4.88 124	22.4 10.2
	6.500 165.1	5.88 149	0.38 10	– –	14.13 359	2.00 51	7.25 184	10.25 260	2.25 57	4.38 111	4.88 124	26.3 11.9
6 DN150	6.625 168.3	5.88 149	0.38 10	– –	14.13 359	2.00 51	7.25 184	10.25 260	2.25 57	4.38 111	4.88 124	26.8 12.2
200A ¹	216.3	5.38 137	1.50 38	0.75 19	16.75 425	2.00 51	7.25 184	11.63 295	2.25 57	4.38 111	4.88 124	39.7 18
8 DN200	8.625 219.1	5.38 137	1.50 38	0.75 19	16.63 422	2.00 51	7.25 184	11.50 292	2.25 57	4.38 111	4.88 124	42.4 19.2
250A ¹	267.4	7.88 200	1.88 48	0.00 0	21.63 549	2.88 73	9.00 229	15.25 387	3.13 80	6.25 159	7.88 200	83.8 38
10 DN250	10.750 273.0	6.40 163	1.81 46	1.41 36	21.62 549	2.87 73	8.98 228	15.25 387	3.11 79	6.30 160	7.88 200	76.5 34.7
300A ¹	318.5	8.00 203	2.75 70	0.88 22	23.63 600	2.88 73	9.00 229	16.25 413	3.13 80	6.25 159	7.88 200	103.6 47
12 DN300	12.750 323.9	6.50 165	2.80 71	2.30 58	23.60 599	2.87 73	8.98 228	16.25 413	3.11 79	6.30 160	7.88 200	88.7 40.2

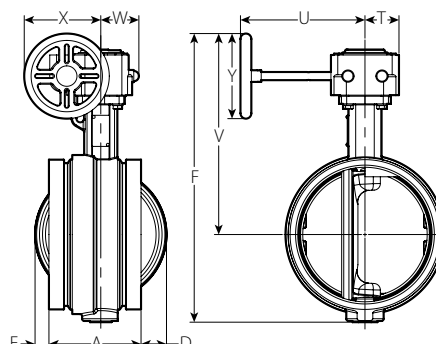
¹ Japanese Industrial Standard (JIS) size

4.5 DIMENSIONS

Series E461 Vic-300 MasterSeal™ Stainless Steel Butterfly Valve - With Gear Operator



Gear Operator
2 – 6"/DN50 – DN150



Gear Operator
8 – 12"/DN200 - DN300

Size		Dimensions										Weight
Nominal inches DN	Actual Outside Diameter inches mm	A End to End inches mm	D inches mm	E inches mm	F inches mm	T inches mm	U inches mm	V inches mm	W inches mm	X inches mm	Y inches mm	Approx. (Each) lb kg
2	2.375	3.63	–	–	8.63	1.63	4.75	6.88	1.88	3.63	4.00	6.2
DN50	60.3	92	–	–	219	41	121	175	48	92	102	2.8
2½	2.875	4.25	–	–	9.50	1.60	4.75	7.25	1.88	3.63	4.00	8.4
	73.0	108	–	–	241	41	121	184	48	92	102	3.8
DN65	3.000	4.13	–	–	9.50	1.63	4.75	7.25	1.88	3.63	4.00	8.5
	76.1	105	–	–	241	41	121	184	48	92	102	3.9
3	3.500	4.00	–	–	9.88	1.63	4.75	7.5	1.88	3.63	4.00	9.2
DN80	88.9	102	–	–	251	41	121	191	48	92	102	4.2
4	4.500	4.75	–	–	11.25	1.63	4.75	8.25	1.88	3.63	4.00	13.8
DN100	114.3	121	–	–	286	41	121	210	48	92	102	6.3
	5.500	5.88	–	–	13.25	2.00	7.25	9.75	2.25	4.38	4.88	22.0
DN125	139.7	149	–	–	337	51	184	248	57	111	124	10.0
6	6.625	6.00	0.38	–	14.13	2.00	7.25	10.25	2.25	4.38	4.88	27.0
DN150	168.3	152	10	–	359	51	184	260	57	111	124	12.2
8	8.625	5.38	1.50	0.75	16.63	2.00	7.25	11.50	2.25	4.38	4.88	42.4
DN200	219.1	137	38	19	423	51	184	292	57	111	124	19.2
10	10.750	6.38	1.75	1.38	21.63	2.88	9.00	15.25	3.13	6.25	7.88	76.5
DN250	273.0	162	45	35	549	73	229	387	80	159	200	34.7
12	12.750	6.50	2.75	2.25	23.63	2.88	9.00	16.25	3.13	6.25	7.88	88.7
DN300	323.9	165	70	57	600	73	229	413	80	159	200	40.2

4.6 DIMENSIONS

Series 461/E461 Vic-300 MasterSeal™ Stainless Steel Butterfly Valve

Accessories

Chainwheels

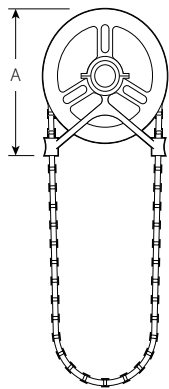
Chainwheels are mounted to the gear operator handwheels. Sprocket rim and guide arms are made of cast aluminum. Chain is galvanized steel.

HOW TO ORDER:

Specify type valve and operator by valve numbering system shown on page 15.

Always specify length of chain required.

For insulation and locking device, contact Victaulic for details. Handwheel input shaft extensions are not for use with chainwheels.



Chainwheel and Guide
with Safety Cable Kit

Size	Sprocket	Chain Trade Size	Chainwheel (Diameter) inches mm	Dimensions	Weight
Nominal inches				A inches mm	Approximate (Each) lb kg
2 – 4	0	2	4.00 102	4.63 118	2.0 0.9
5 – 8	1	1/0	5.75 146	6.38 162	4.0 1.8
10 – 12	2	1/0	9.00 229	10.50 267	10.0 4.5

5.0 PERFORMANCE

Series 461/E461 Vic-300 MasterSeal™ Stainless Steel Butterfly Valve

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

Formulas for C_v/K_v 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		C _v	K _v
Nominal inches DN	Actual Outside Diameter inches mm	(Full Open)	(Full Open)
2 DN50	2.375 60.3	115	99
2½	2.875 73.0	260	224
DN65	3.000 76.1	260	224
3 DN80	3.500 88.9	440	379
4 DN100	4.500 114.3	820	707
DN125	5.500 139.7	1200	1034
5	5.563 141.3	1200	1034
	6.500 165.1	1800	1552
6 DN150	6.625 168.3	1800	1552
200A ¹	216.3	3400	2931
8 DN200	8.625 219.1	3400	2931
250A ¹	267.4	5800	5000
10 DN250	10.750 273.0	5800	5000
300A ¹	318.5	9000	7758
12 DN300	12.750 323.9	9000	7758

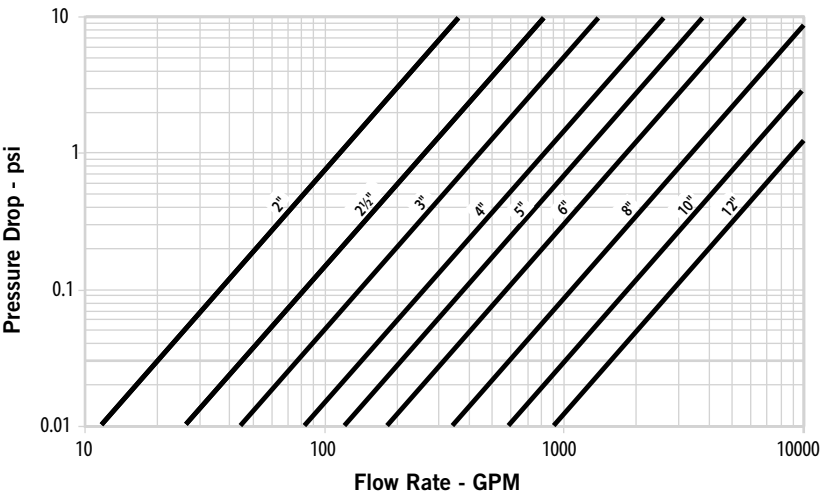
¹ Japanese Industrial Standard (JIS) size

5.0 PERFORMANCE (CONTINUED)

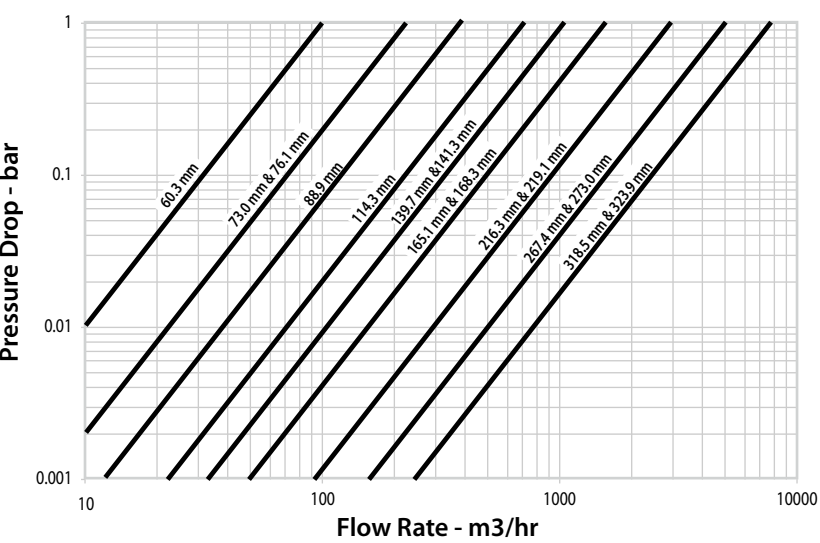
Series 461/E461 Vic-300 MasterSeal™ Stainless Steel Butterfly Valve

Flow Characteristics

Flowchart



Flowchart



5.0 PERFORMANCE (CONTINUED)

Series 461/E461 Vic-300 MasterSeal™ Stainless Steel Butterfly Valve

Size		Flow Coefficients – C _v /K _v											
		Disc Position (Degrees Open)											
Nominal inches DN	Actual Outside Diameter inches mm	90 		70 		60 		50 		40 		30 	
		C _v	K _v	C _v	K _v	C _v	K _v	C _v	K _v	C _v	K _v	C _v	K _v
2 DN50	2.375 60.3	115	99	60	52	36	31	23	20	14	12	7	6
2½	2.875 73.0	260	224	140	121	80	69	50	43	30	26	16	14
DN65	3.000 76.1	260	224	140	121	80	69	50	43	30	26	16	14
3 DN80	3.500 88.9	440	379	230	198	140	121	90	78	50	43	26	22
4 DN100	4.500 114.3	820	707	430	321	250	216	160	138	100	86	50	43
DN125	5.500 139.7	1200	1034	620	534	370	319	240	207	140	121	70	60
5	5.563 141.3	1200	1034	620	534	370	319	240	207	140	121	70	60
	6.500 165.1	1800	1552	940	810	560	483	360	310	220	190	110	95
6 DN150	6.625 168.3	1800	1552	940	810	560	483	360	310	220	190	110	95
200A ¹	216.3	3400	2931	1770	1526	1050	905	670	578	410	353	200	172
8 DN200	8.625 219.1	3400	2931	1770	1526	1050	905	670	578	410	353	200	172
250A ¹	267.4	5800	5000	3020	2603	1800	1552	1150	991	700	603	350	302
10 DN250	10.750 273.0	5800	5000	3020	2603	1800	1552	1150	991	700	603	350	302
300A ¹	318.5	9000	7758	4680	4034	2790	2405	1780	1534	1080	931	540	465
12 DN300	12.750 323.9	9000	7758	4680	4034	2790	2405	1780	1534	1080	931	540	465

¹ Japanese Industrial Standard (JIS) size

5.1 PERFORMANCE

Series 461/E461 Vic-300 MasterSeal™ Stainless Steel Butterfly Valve

Valve Torque Requirements

Size		Torque – Inch Pounds/Newton Meters					
Nominal inches DN	Actual Outside Diameter inches mm	Differential Pressure – psi/bar					
		50/3	100/7	150/10	200/14	232/16	300/21
2	2.375	53	65	78	90	100	115
DN50	60.3	6	7	9	10	11	13
2 ½	2.875	100	120	140	160	170	200
	73.0	11	14	16	18	19	23
DN65	3.000	100	120	140	160	170	200
	76.1	11	14	16	18	19	23
3	3.500	150	170	190	210	230	260
DN80	88.9	17	19	22	24	26	29
4	4.500	220	250	280	310	330	370
DN100	114.3	25	28	32	35	37	42
DN125	5.500	340	390	450	500	530	600
	139.7	38	44	51	57	60	68
5	5.563	340	390	450	500	530	600
	141.3	38	44	51	57	60	68
	6.500	410	470	540	600	640	730
	165.1	46	53	61	68	72	83
6	6.625	410	470	540	600	640	730
DN150	168.3	46	53	61	68	72	83
200A ¹	216.3	540	680	820	950	1040	1230
		61	77	93	107	118	139
8	8.625	540	680	820	950	1040	1230
DN200	219.1	61	77	93	107	118	139
250A ¹	267.4	1610	1920	2230	2530	2730	3150
		182	217	252	286	308	356
10	10.750	1610	1920	2230	2530	2730	3150
DN250	273	182	217	252	286	308	356
300A ¹	318.5	2720	2880	3040	3190	3290	3510
		307	325	344	360	372	397
12	12.750	2720	2880	3040	3190	3290	3510
DN300	323.9	307	325	344	360	372	397

¹ Japanese Industrial Standard (JIS) size

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; Lubricated service: 0.8; Dry gases: Lubricated nitrile “T” seat seals may be specified for dry gases wherever chemically appropriate. See material torque factor below.

Material Torque Factors:

EPDM = 1.0; Fluoroelastomer = 1.2; Nitrile = 0.8

Cycling Factor:

Valve torque will typically increase and actuator output decrease as the valve is cycled. A factor of 1.5 should be applied for when total valve cycles are expected to exceed 5,000.

Actuation Factor:

A factor should be added to account for potential drift in the output of the actuator due to actuator performance, misalignment or external inputs (i.e., air or power supply). For this, a factor of up to 1.25 may be used.

5.1 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.
- Contact Victaulic for other services.

5.2 PERFORMANCE

Series 461/E461 Vic-300 MasterSeal™ Stainless Steel Butterfly Valve

Typical Specifications

Butterfly valves 2 – 12"/DN50 – DN300 shall be rated to 300 psi/2100 kPa/21 bar and be suitable for bi-directional and dead-end service to full-rated pressure. Original Groove System (OGS) (Series 461) or StrengThin™ 100 (ST100) Groove System (Series E461) grooved end stainless steel body and disc, grade CF8M, conforming to ASTM A351, with blow-out proof 17-4PH stainless steel stems to ASTM A564 (NOTE: Job specification must specify the specific groove type - OGS or ST100). Disc shall be connected to the stem without the use of fasteners or pins, and be offset from the disc centerline to provide a full 360° continuous contact with the seating surface when closed. Seat shall be pressure responsive, EPDM or lubricated nitrile. Stem seals shall be of the same material as the seats. Valve shall have standard ISO flange mounting for ease of actuation. Valve provided with lever handle or gear operator as required. The handle shall be zinc-plated carbon steel or fully stainless steel, latch lock type with infinitely variable and memory stop features. Manufacturer - Victaulic Series 461 or Series E461 Vic-300 MasterSeal™ Valves.

Numbering System

V - 030 461 X E - 0						
Type	Actual OD in/mm	Size Code	Series	Disc/Stem	Seat	Operator
V	2.375/60.3	020	461	X - 316SS/17-4PH	E - EPDM	0 - Bare
	2.875/73.0	024	E461	(461 only)	T - Nitrile	2 - 10-Position Handle with Memory Stop
	3.000/76.1	761		E - 316SS/17-4PH	O - Fluoroelastomer	3 - Gear Operator
	3.500/88.9	030		(E461 only)		4 - Lever Lock with Tamper-Resistant Device (8"/200 mm)
	4.500/114.3	040				5 - Gear Operator with Memory Stop
	5.500/139.7	139				6 - Gear Operator with Chain Wheel
	5.563/141.3	050				7 - Gear Operator with Memory Stop and Chain Wheel
	6.500/165.1	165				8 - Gear Operator with AWWA 2" Square Oper. Nut
	6.625/168.3	060				S - Bare Valve with ISO 5211 Diagonal Square Head Drive
	8.500/216.3	216				X - Stainless Steel 10-Position Handle with Memory Stop
	8.625/219.1	080				
	10.500/267.4	267				
	10.750/273.0	100				
	12.500/318.5	318				
	12.750/323.9	120				

5.3 PERFORMANCE

Series 461/E461 Vic-300 MasterSeal™ Stainless Steel Butterfly Valve

Important Installation Considerations

When installing a Victaulic butterfly valve into a piping system, follow the instructions supplied with the coupling. Refer to the notes below for applications/limitations.

When using butterfly valves for throttling service, Victaulic recommends the disc be positioned no less than 30 degrees open. For best results, the disc should be between 30 and 70 degrees open. High pipeline velocities and/or throttling with the disc less than 30 degrees open may result in noise, vibration, cavitation, severe line erosion, and/or loss of control. For details regarding throttling services, contact Victaulic.

Victaulic recommends that flow velocities for water service are limited to 20 ft. per sec/6.0 m per sec. When higher flow velocities are necessary, contact Victaulic. When dealing with flow media other than water, contact Victaulic.

Victaulic recommends good piping practices and installing the valve five pipe diameters downstream of sources of irregular flow, such as pumps, elbows and control valves. If not practical due to space constraints, the system should be designed to locate and orient the valve to minimize the impact of dynamic torque and valve life.

Victaulic butterfly valves are designed with grooved ends for use with grooved pipe couplings. If flange connections are required, refer to the following notes regarding Vic-Flange® Adapter restrictions.

- Style 441 Vic-Flange® Adapters can be used on 2-6" sizes of the Series 461 Vic-300 MasterSeal™ Butterfly Valves.
- Style 741 Vic-Flange® Adapters can be used on all sizes of the Series 461 Vic-300 MasterSeal™ Butterfly Valves.
- Style 743 Vic-Flange® Adapters cannot be used with the Series 461 Vic-300 MasterSeal™ Butterfly Valves.
A No. 46 ANSI 300 stainless steel groove x flange adapter is required.
- Style E498 Vic-Flange® Adapters can be used on all sizes of the Series E461 Vic-300 MasterSeal™ Butterfly Valves.



DO NOT INSTALL BUTTERFLY VALVES INTO THE SYSTEM
WITH THE DISC IN THE FULLY OPEN POSITION.

6.0 NOTIFICATIONS

⚠️ WARNING



- Read and understand all instructions before attempting to install any Victaulic products.
- Always verify that the piping system has been completely depressurized and drained immediately prior to installation, removal, adjustment, or maintenance of any Victaulic products.
- Confirm that any equipment, branch lines, or sections of piping that may have been isolated for/during testing or due to valve closures/positioning are identified, depressurized, and drained immediately prior to installation, removal, adjustment, or maintenance of any Victaulic products.
- Wear safety glasses, hardhat, foot protection, and hearing protection.

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

7.0 REFERENCE MATERIALS

- [17.16: Victaulic Stainless Steel Fittings](#)
- [17.41: Victaulic Stainless Steel Check Valves Series 416 and Series E416](#)
- [17.45: Victaulic Stainless Steel Butterfly Valve for Potable Water Applications Series 861](#)
- [25.13: Victaulic StrengThin™ 100 Roll Groove Specifications](#)
- [31.02: Victaulic StrengThin™ 100 System Style E497 Rigid Coupling for Stainless Steel Pipe](#)
- [31.04: Victaulic StrengThin™ 100 Fittings for Stainless Steel](#)
- [I-100: Victaulic Field Installation Handbook](#)
- [I-ENDCAP: Victaulic End Cap Installation Safety Instructions](#)
- [I-VIC300MS: Installation and Maintenance Instructions - Series 461 VIC-300 MasterSeal™ Stainless Steel Butterfly Valve](#)

User Responsibility for Product Selection and Suitability

Each user bears final responsibility for determining the suitability of Victaulic products for their end-use application, in accordance with industry standards, project specifications, and Victaulic's published performance, maintenance, and safety data, as well as all warnings and installation 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, warranty, installation instructions, or this disclaimer.

Installation

Always refer to and follow the [Victaulic Installation Handbook](#) or installation instructions for 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 [victaulic.com](#).

Warranty

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

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