



RESILIENT SEATED BUTTERFLY VALVES



Howell Valve & Automation

Toll Free: 1-888-469-3557

Howellvalve.com



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Howell Butterfly Valves meet the rigorous requirements of industrial applications requiring positive shut off or throttling of liquids, gases, and slurries.

- Zero leakage performance and are 70% less expensive than traditional flanged gate and ball valves. They also weigh less and are easier to install.
- Epoxy-coated, one piece body in sizes 2" – 24" that can be installed in any preferred position.
- Instead of bolts the Howell Butterfly Valve has a pinless stem to disc connection, which makes it excellent for applications with vibration.
- Available with manual lever or gear operators and can be easily automated with a Howell actuator.



RESILIENT STANDARD FEATURES

Quality is designed into every Howell Butterfly Valve to ensure years of operation.

Ductile Iron, Epoxy Coated, 1-Piece Body

Available in sizes 2"-24", tapped lug body, or wafer design with locating holes. Both designs are for use with ANSI 125/150lb flanges. Basic design complies with API 609, ISO 5752, and MSS SP-67.

ISO 5211 Direct Mounting Pad

Universally recognized standard for adaptation to pneumatic and electric actuators, mechanical position transmitters, and gear operators.

Stem to Disc Connection

The pinless design offers a high strength stem to disc connection. Other designs that use taper pins or disc screws often fail prematurely through abrasion, corrosion, or fatigue

Teflon Stem Bushings (2)

Teflon stem bushings reduce operating torque as well as provide maximum shaft support and alignment while isolating the stem from the valve body, preventing corrosion in the stem journal and ultimately stem seizure.

Seat

Resilient seat with moulded o-ring eliminates the need for flange gaskets. The completely encapsulated phenolic backed elastomer offers advanced performance while maintaining low torque.

Square Stem

For automated assemblies the square stem provides direct mount capabilities which eliminates the extra cost of mounting kits and ensures accurate stem to actuator alignment.

Secure Stem Retainer Plate

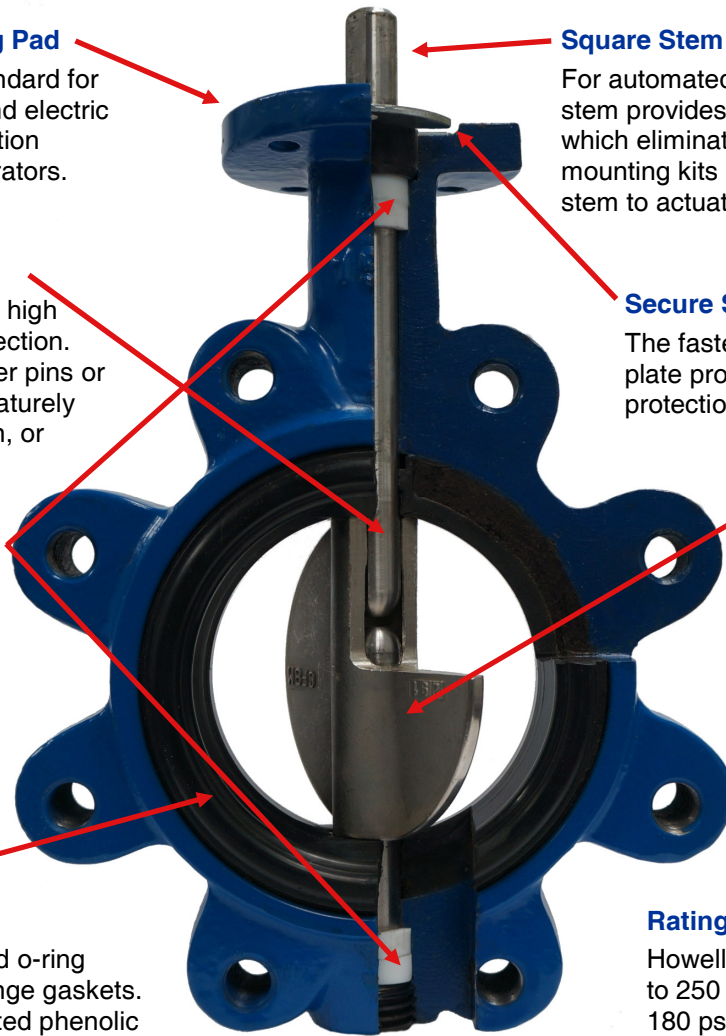
The fastened-down stem retainer plate provides blowout-proof protection.

316 SS Disc

The standard stainless steel disc provides exceptional durability and corrosion resistance. All Howell disc castings are spherically machined and polished for extended seat life and bubble tight shut off.

Rating and Testing

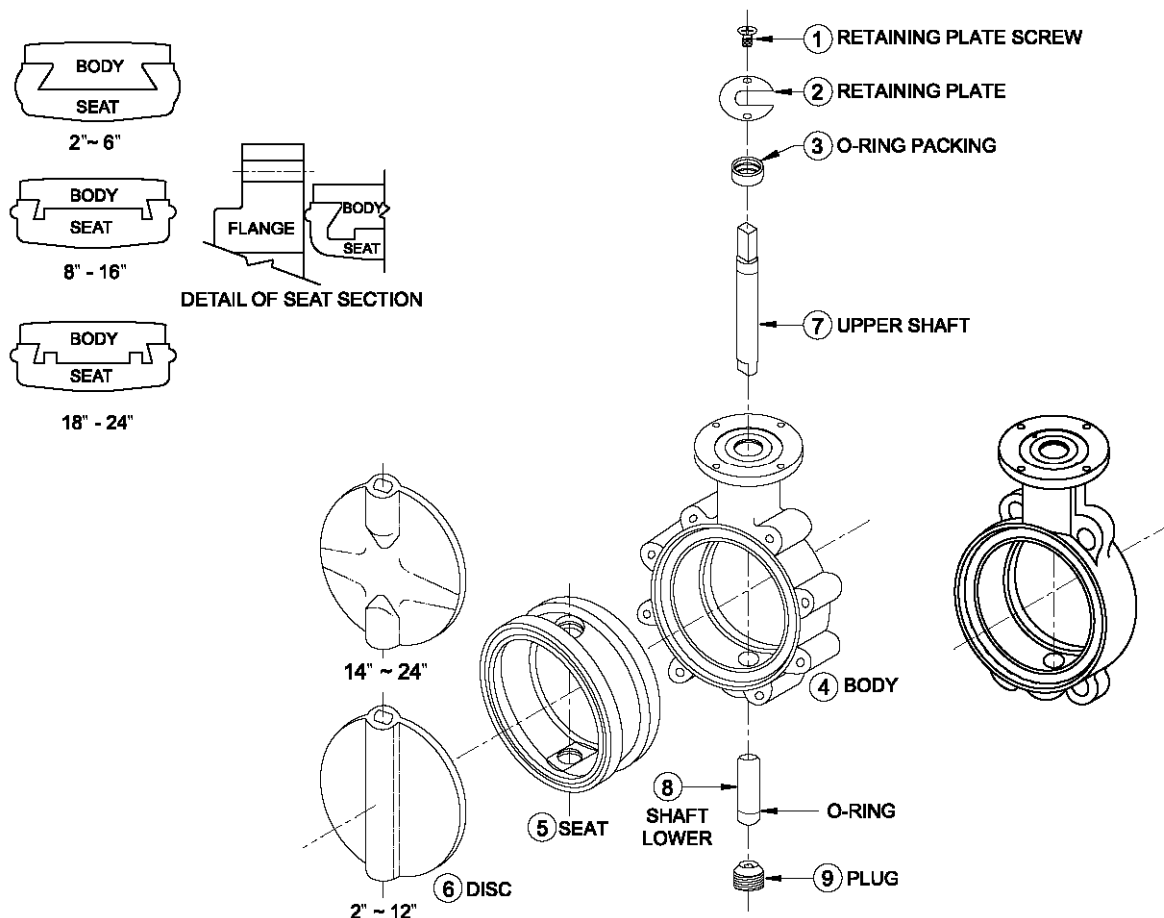
Howell Butterfly Valves are rated to 250 psi for sizes 2" to 12" and 180 psi for sizes 14" to 24". Valves are tested to API 598 and MSS-SP-61.



Howell Butterfly Valves meet the rigorous requirements of industrial applications requiring positive shut off / zero leakage in handling of liquids, gases, and slurries.

Howell reserves the right to alter material or design specifications without notice. Please contact Howell to verify any information that is critical to your application.

BUNA-N and High Temperature EPDM Seats

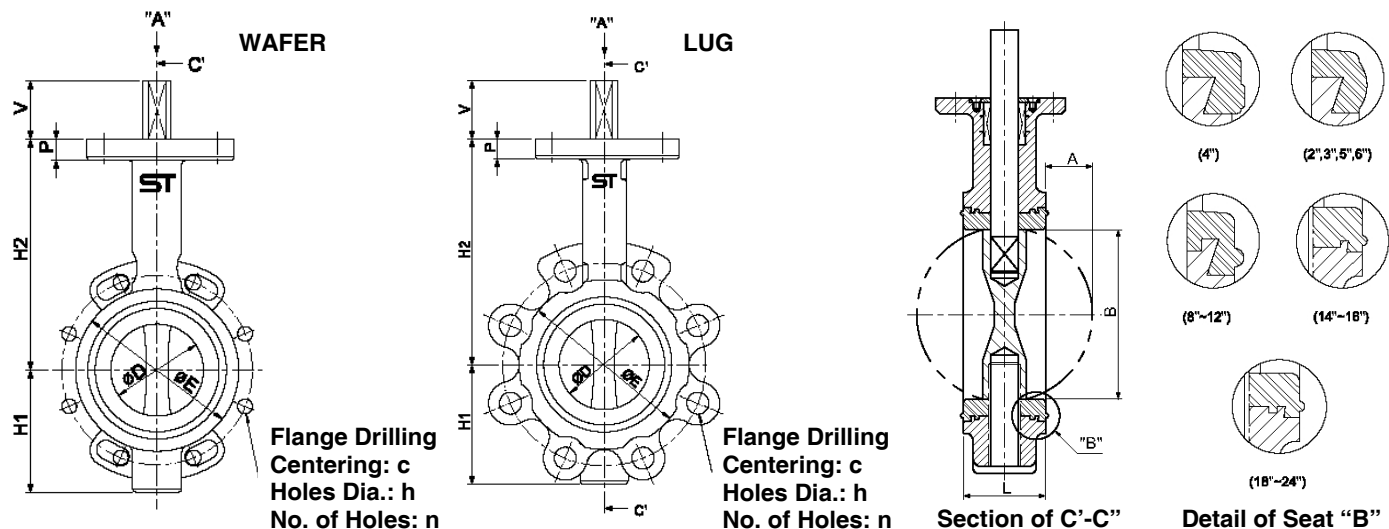


MATERIALS LIST:

Item	Part	Material	Code No.	Standard	Remarks
1	Retaining Plate Screw	Carbon Steel		ASTM A283D-A36	Galvanized
2	Retaining Plate	Carbon Steel		ASTM A283D-A36	Galvanized
3	O-Ring Packing	Same as Seat		ASTM D2000	
4	Body	Cast Iron	EN-GJL-250	ASTM A126	
		Ductile Iron	GGG40	ASTM A536	
5	Seat	BUNA-N (NBR)		ASTM D2000	-20-90°C / -4-190°F
		High Temp. EPDM		ASTM D2000	-30-130°C / -22-265°F
		White EPDM		ASTM D2000	-30-110°C / -22-230°F
		Viton		ASTM D2000	-10-160°C / 0-320°F
		Teflon (PTFE)		PTFE	-40-130°C / -40-265°F
6	Disc	Ductile Iron	GGG40	ASTM A536	Chrome / Nickel; Plated
		Stainless Steel	CF8	ASTM A351	
			CF8M	ASTM A351	
		Aluminum Bronze	ALBC	JIS H 5114	
7	Upper Stem	Stainless Steel	410 SS	ASTM A276	
8	Lower Stem		316 SS	ASTM A276	
			304 SS	ASTM A276	
9	Plug	Carbon Steel		ASTM A283D-A36	

Alternative material available upon request

BUNA-N and High Temperature EPDM Seats



DIMENSIONS:

WAFLER

SIZE	H1		H2		Ø D		Ø E	
IN	IN	MM	IN	MM	IN	MM	IN	MM
2"	3.0	75	5.2	133	2.1	52	3.7	94
2-1/2"	3.2	80	5.6	141	2.6	67	4.3	109
3"	3.3	84	5.7	145	3.2	80	4.8	123
4"	3.7	95	6.6	167	3.9	100	5.8	147
5"	4.3	110	7.5	191	4.9	125	6.8	173
6"	5.6	143	8.1	207	5.9	151	8.0	202
8"	6.6	168	9.4	240	7.7	197	9.9	251
10"	8.0	203	11.3	286	9.7	247	12.5	318
12"	9.5	242	12.3	313	11.6	296	14.3	362
14"	10.4	265	13.6	346	13.0	330	16.3	415
16"	12.0	306	13.8	350	14.9	379	18.2	462
18"	13.8	350	15.8	400	17.2	437	20.8	527
20"	15.0	380	17.3	440	19.3	490	22.8	578
24"	17.3	440	20.1	510	22.6	575	26.8	680

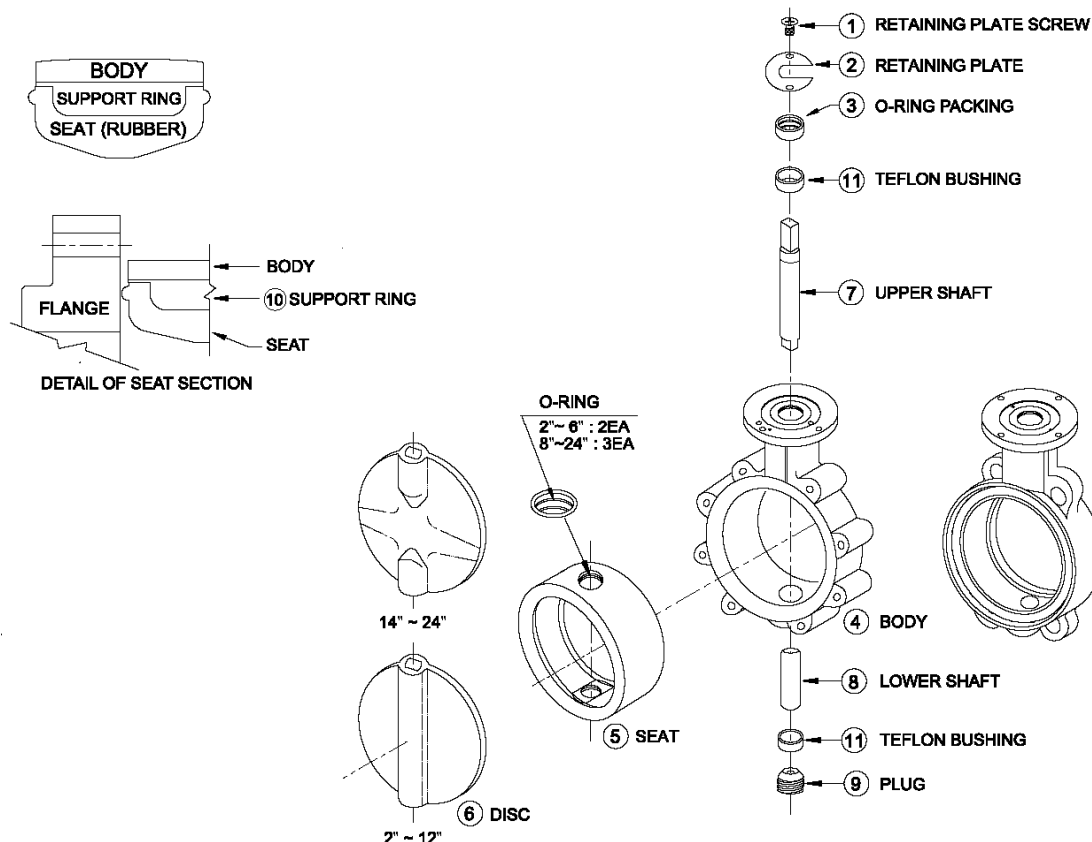
LUG

SIZE	H1		H2		Ø D		Ø E	
IN	IN	MM	IN	MM	IN	MM	IN	MM
2"	3.0	75	5.1	130	2.0	52	3.7	93
2-1/2"	3.2	80	5.4	137	2.6	67	4.3	108
3"	3.7	95	6.1	156	3.2	80	4.8	122
4"	4.3	110	6.7	170	3.9	100	5.9	150
5"	4.8	123	7.3	185	4.9	125	7.1	180
6"	5.6	143	8.0	203	5.9	151	8.2	208
8"	6.6	168	9.4	238	7.7	197	10.2	259
10"	8.0	203	10.6	270	9.7	247	12.5	318
12"	9.5	242	12.2	310	11.6	296	14.6	370
14"	10.4	265	13.6	346	13.0	330	16.1	410
16"	11.8	299	13.8	350	14.9	379	18.4	468
18"	13.8	350	15.7	400	17.2	437	20.8	527
20"	15.0	380	17.3	440	19.3	490	22.8	578
24"	17.3	440	20.1	510	22.6	575	26.8	680

SIZE	P		V		L		B		A		c		n	WAFLER - h		LUG - h
IN	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM		IN	MM	
2"	0.6	14	0.6	15	1.7	43	1.9	49	0.2	5	4.8	121	4	0.8	19	5/8"
2-1/2"	0.6	14	0.6	15	1.8	46	2.5	64	0.4	11	5.5	140	4	0.8	19	5/8"
3"	0.6	14	0.6	15	1.8	46	3.0	77	0.7	17	6.0	152	4	0.8	19	5/8"
4"	0.6	16	0.7	18	2.0	52	3.8	97	0.9	24	7.5	191	8	0.8	19	5/8"
5"	0.6	16	0.7	18	2.2	56	4.8	122	1.4	35	8.5	216	8	0.9	22	3/4"
6"	0.6	16	0.7	18	2.2	56	5.8	148	1.9	47	9.5	241	8	0.9	22	3/4"
8"	0.7	17	0.8	21	2.4	60	7.6	194	2.7	68	11.8	299	8	0.9	22	3/4"
10"	0.8	20	0.8	21	2.7	68	9.6	244	3.5	90	14.3	362	12	1.0	25	7/8"
12"	0.8	20	1.0	24	3.1	78	11.5	293	4.3	109	17.0	432	12	1.0	25	7/8"
14"	0.8	20	2.8	70	3.1	78	12.8	326	5.0	126	18.8	476	12	1.1	29	1"
16"	0.9	23	3.2	80	4.0	102	14.8	377	5.5	139	21.3	540	16	1.1	29	1"
18"	0.9	23	3.2	80	4.5	114	17.1	434	6.4	162	22.8	578	16	1.3	32	1-1/8"
20"	0.9	23	3.5	90	5.0	127	19.1	486	7.1	182	25.0	635	20	1.3	32	1-1/8"
24"	0.9	23	3.7	95	6.1	154	22.5	571	8.3	210	29.5	749	20	1.4	35	1-1/4"

ST CARTRIDGE SERIES

Teflon and Viton Seats

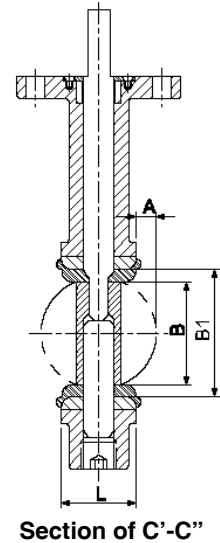
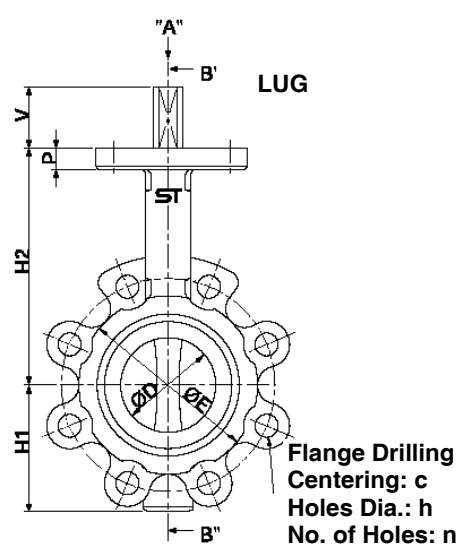
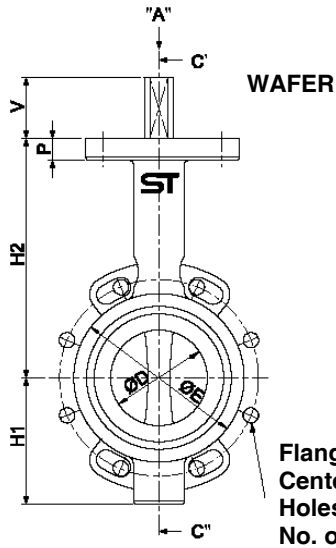


MATERIALS LIST

Item	Part	Material	Code No.	Standard	Remarks
1	Retaining Plate Screw	Carbon / SS 304		ASTM A283D-A36	Galvanized
2	Retaining Plate	Carbon / SS 316		ASTM A283D-A36	Galvanized
3	O-Ring Packing	Same as Seat		ASTM D2000	
4	Body	Cast Iron	EN-GJL-250	ASTM A126	
		Ductile Iron	GGG40	ASTM A536	
		Stainless Steel	CF8M	ASTM A351	
5	Seat	BUNA-N (NBR)		ASTM D2000	-20-90°C / -4-190°F
		High Temp. EPDM		ASTM D2000	-30-130°C / -22-265°F
		White EPDM		ASTM D2000	-30-110°C / -22-230°F
		Viton		ASTM D2000	-10-160°C / 0-320°F
		Teflon (PTFE)		PTFE	-40-130°C / -40-265°F
6	Disc	Ductile Iron	GGG40	ASTM A536	Chrome / Nickel; Plated
		Stainless Steel	CF8	ASTM A351	
			CF8M	ASTM A351	
		Aluminum Bronze	ALBC	JIS H 5114	
7	Upper Stem	Stainless Steel	410 SS	ASTM A276	
8	Lower Stem		316 SS	ASTM A276	
			304 SS	ASTM A276	
9	Plug	Carbon / SS 316		ASTM A283D-A36	
10	Support Ring	Phenol		ASTM D2000	2" - 14"
		Aluminum		ASTM B275	16" - 24"
11	Teflon Bushing	Teflon		PTFE	

ST CARTRIDGE SERIES

Teflon and Viton Seats



DIMENSIONS:

WAFLER

SIZE	H1		H2		Ø D		Ø E	
IN	IN	MM	IN	MM	IN	MM	IN	MM
2"	2.8	70	5.1	128	2.0	52	3.7	93
2-1/2"	3.0	75	5.4	136	2.6	67	4.3	108
3"	3.7	93	5.6	143	3.1	80	5.0	126
4"	4.2	106	6.4	163	3.9	100	5.9	150
5"	4.7	119	7.3	187	4.9	125	7.0	177
6"	5.5	139	8.0	203	5.9	151	8.2	208
8"	6.5	165	9.3	237	7.7	197	10.2	259
10"	7.9	200	11.1	283	9.7	247	12.5	317
12"	9.5	241	12.3	312	11.6	296	14.6	371
14"	10.4	265	13.6	346	13.0	330	16.3	415
16"	11.8	299	13.8	350	14.9	379	18.7	475
18"	13.8	350	15.7	400	17.2	437	20.7	527
20"	15.0	380	17.3	440	19.3	490	23.2	589
24"	17.3	440	20.1	510	22.6	575	27.8	706

LUG

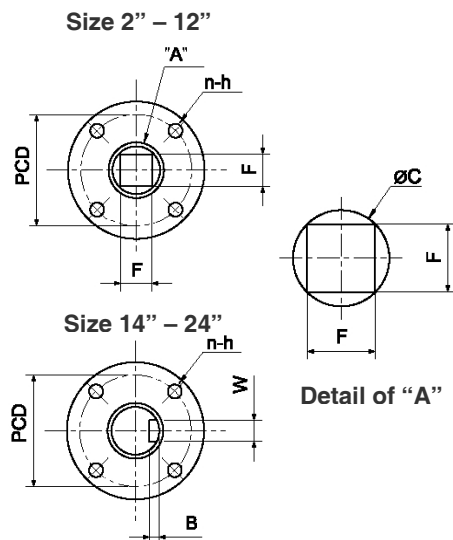
SIZE	H1		H2		Ø D		Ø E	
IN	IN	MM	IN	MM	IN	MM	IN	MM
2"	2.8	70	4.9	125	2.0	52	3.7	93
2-1/2"	3.0	75	5.2	132	2.6	67	4.3	108
3"	3.7	93	6.1	154	3.1	80	4.8	122
4"	4.2	106	6.5	166	3.9	100	5.9	150
5"	4.7	119	7.1	181	4.9	125	7.1	180
6"	5.5	139	7.8	199	5.9	151	8.2	208
8"	6.5	165	9.3	235	7.7	197	10.2	259
10"	7.9	200	10.5	267	9.7	247	12.5	318
12"	9.5	241	12.1	309	11.6	296	14.6	371
14"	10.4	265	13.6	346	13.0	330	20.2	512
16"	11.8	299	13.8	350	14.9	379	22.6	575
18"	13.8	350	15.7	400	17.2	437	24.5	622
20"	15.0	380	17.3	440	19.3	490	27.2	690
24"	17.3	440	20.1	510	22.6	575	32.0	813

SIZE	P		V		L		B		B1		A		C		n	WAFLER - h		LUG - h
IN	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM		IN	MM	
2"	0.6	14	0.6	15	1.7	43	1.9	49			0.2	5	4.8	121	4	0.6	16	5/8"
2-1/2"	0.6	14	0.6	15	1.8	46	2.5	64			0.4	11	5.5	140	4	0.6	16	5/8"
3"	0.6	14	0.6	15	1.8	46	3.0	77			0.7	17	6.0	152	4	0.6	16	5/8"
4"	0.6	16	0.7	18	2.0	52	3.8	97			0.9	24	7.5	191	8	0.6	16	5/8"
5"	0.6	16	0.7	18	2.2	56	4.8	122			1.0	25	8.5	216	8	0.8	19	3/4"
6"	0.6	16	0.7	18	2.2	56	5.8	148			1.9	47	9.5	241	8	0.8	19	3/4"
8"	0.7	17	0.8	21	2.4	60	7.6	194			2.7	68	11.8	299	8	0.8	19	3/4"
10"	0.8	20	0.8	21	2.7	68	9.6	244			3.5	90	14.3	362	12	0.9	22	7/8"
12"	0.8	20	1.1	27	3.1	78	11.5	293			4.3	109	17.0	432	12	0.9	22	7/8"
14"	0.8	20	2.8	70	3.4	86	12.8	326	14.8	375	5.0	126	18.8	476	12	1.0	25	1"
16"	0.9	23	3.1	80	4.3	110	14.8	377	17.0	431	5.5	139	21.3	540	16	1.0	25	1"
18"	0.9	23	3.1	80	4.8	122	17.1	434	19.0	483	6.4	162	22.8	578	16	1.1	29	1-1/8"
20"	0.9	23	3.5	90	5.3	135	19.1	486	21.0	534	7.1	182	25.0	635	20	1.1	29	1-1/8"
24"	0.9	23	3.7	95	6.4	162	22.5	571	25.2	641	8.3	210	29.5	749	20	1.3	32	1-1/4"



TOP FLANGE & TORQUES

Top Flange & Stem



DIMENSIONS:

SIZE	PCD		n-h		Ø C		F		W		B		ISO 5211
IN	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	
2"	2.8	70	0.4	9	0.6	14	0.4	11					F07
2-1/2"	2.8	70	0.4	9	0.6	14	0.4	11					F07
3"	2.8	70	0.4	9	0.6	14	0.4	11					F07
4"	2.8	70	0.4	9	0.6	16	0.6	14					F07
5"	2.8	70	0.4	9	0.7	18	0.6	14					F07
6"	2.8	70	0.4	9	0.7	18	0.6	14					F07
8"	2.8	70	0.4	9	0.9	22	0.7	17					F07
10"	4.0	102	0.4	11	1.0	25	0.9	22					F10
12"	4.0	102	0.4	11	1.1	28	0.9	22					F10
14"	4.0	102	0.5	12	1.1	28			0.4	10	0.2	5	F10
16"	5.5	140	0.7	18	1.3	32			0.4	10	0.2	5	F14
18"	5.5	140	0.7	18	1.5	38			0.5	12	0.2	5	F14
20"	6.5	165	0.9	22	1.8	45			0.5	12	0.2	5	F16
24"	6.5	165	0.9	22	2.2	55			0.6	14	0.2	5	F16

Valve Seating Torques

BOOT STYLE

BUNA-N & HT EPDM Seats (in/lbs)

SIZE	ISO 5211
2"	F07
2-1/2"	F07
3"	F07
4"	F07
5"	F07
6"	F07
8"	F07
10"	F10
12"	F10
14"	F10
16"	F14
18"	F14
20"	F16
24"	F16

145 PSI	255 PSI
226	226
226	238
226	384
451	507
477	607
477	694
825	1,084
1,650	2,517
1,996	2,604
7,928	10,296
10,365	13,466
13,934	18,109
17,206	22,366
27,731	36,036

CARTRIDGE STYLE

Teflon & Viton Seats (in/lbs)

165 PSI
120
168
348
348
708
984
1,908
2,436
4,344

Torques shown were derived from test data using water. For dry service multiply these torque numbers by 1.6.

Factors to consider that affect the torque include:

- Frequency of Use
- Media
- Piping Arrangement
- Pressure
- Seat & Packing Material
- Shape of Disc
- Stem Design & Diameter
- Temperature, High or Low

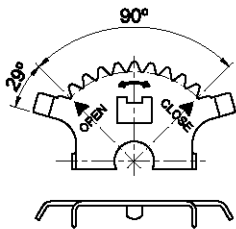
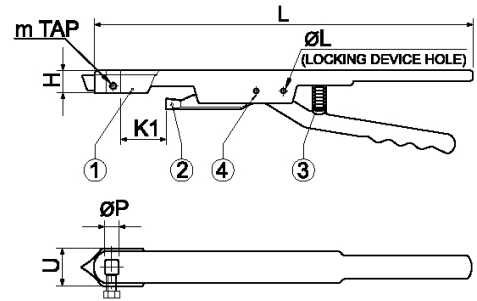
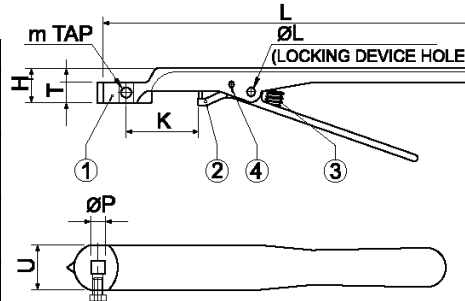
LEVER & GEAR HANDLE

SIZE 2" – 6"

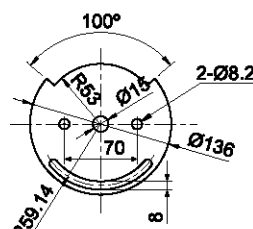
SIZE 8" – 12"

MATERIAL

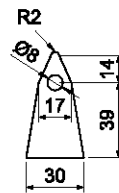
Item	Part	Material
1	Lever	Malleable Iron or Stainless Steel
2	Aux Lever	Malleable Iron or Stainless Steel
3	Spring	Steel or SS 304
4	Pin	Steel or SS 410



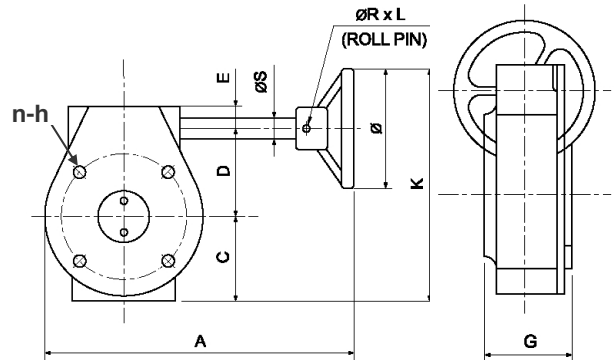
10 POSITION
INDICATOR



INFINITE
NOTCH PLATE



INFINITE NOTCH
PLATE USE



LEVER DIMENSIONS

SIZE	H		T		K		K1		L		ØL		m		U		ØP		Weight	
IN	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	KG	LB
2" - 3"	1.1	27	0.6	16	2.2	55			11.4	289	0.3	7.5	0.3	8	1.3	34	0.4	11	0.5	1.1
4" - 6"	1.1	27	0.7	18	2.2	55			11.4	289	0.3	7.5	0.3	8	1.3	34	0.6	14	0.6	1.3
8"	1.0	26					1.7	42	16.3	415	0.3	7.5	0.4	10	1.8	45	0.7	17	1.9	4.1
10" - 12"	1.0	26					2.1	53	16.3	415	0.3	7.5	0.3	8	1.8	45	0.9	22	1.9	4.1

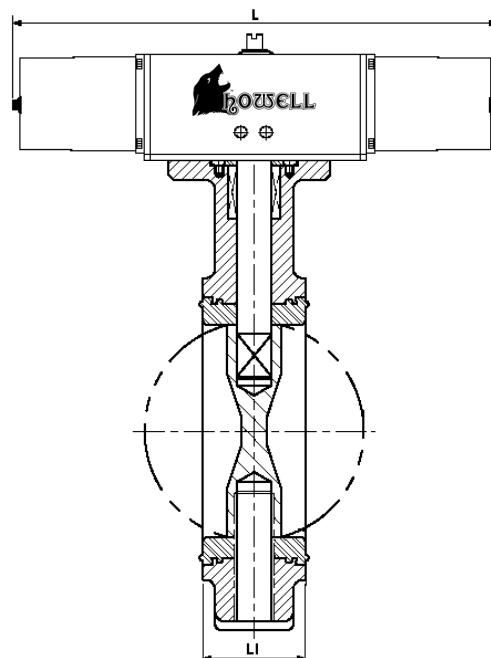
GEAR DIMENSIONS

SIZE	RATIO	n-h	A		C		D		E		ØS		ØRxL	Ø		K		G		Weight	
			IN	MM	IN	MM	IN	MM	IN	MM	IN	MM		IN	MM	IN	MM	IN	MM	KG	LB
2"	24:1	4-M8	8.7	222	2.1	54	1.8	45	1.1	28	0.6	16	5.2x40	5.8	147	6.9	174	2.8	72	3.4	7.5
2-1/2"	24:1	4-M8	8.7	222	2.1	54	1.8	45	1.1	28	0.6	16	5.2x40	5.8	147	6.9	174	2.8	72	3.4	7.5
3"	24:1	4-M8	8.7	222	2.1	54	1.8	45	1.1	28	0.6	16	5.2x40	5.8	147	6.9	174	2.8	72	3.4	7.5
4"	24:1	4-M8	8.7	222	2.1	54	1.8	45	1.1	28	0.6	16	5.2x40	5.8	147	6.9	174	2.8	72	3.5	7.6
5"	24:1	4-M8	8.7	222	2.1	54	1.8	45	1.1	28	0.6	16	5.2x40	5.8	147	6.9	174	2.8	72	3.5	7.6
6"	24:1	4-M8	8.7	222	2.1	54	1.8	45	1.1	28	0.6	16	5.2x40	5.8	147	6.9	174	2.8	72	3.6	8.0
8"	30:1	4-M8	10.5	267	3.0	76	2.6	66	1.3	34	0.7	19	6.4x50	11.8	300	11.5	292	3.3	84	6.7	14.8
10"	30:1	4-M10	10.5	267	3.0	76	2.6	66	1.3	34	0.7	19	6.4x50	11.8	300	11.5	292	3.3	84	7.2	15.8
12"	30:1	4-M10	10.5	267	3.0	76	2.6	66	1.3	34	0.7	19	6.4x50	11.8	300	11.5	292	3.3	84	9.6	21.1
14"	50:1	4-M10	13.6	346	3.1	79	3.1	78	1.5	39	0.7	19	6.4x50	11.8	300	12.1	309	3.5	89	9.6	21.1
16"	50:1	4-M16	13.6	346	3.1	79	3.1	78	1.5	39	0.7	19	6.4x50	11.8	300	12.1	309	3.5	89	10.3	22.8
18"	50:1	4-M16	13.6	346	3.1	79	3.1	78	1.5	39	0.7	19	6.4x50	15.6	395	12.1	309	3.5	89	10.6	23.4
20"	80:1	4-M20	17.3	440	5.1	130	5.3	135	1.6	40	1.0	25	8.4x51	15.6	395	18.3	465	4.3	110	23.5	51.9
24"	80:1	4-M20	17.3	440	5.1	130	5.3	135	1.6	40	1.0	25	8.4x51	15.6	395	18.3	465	4.3	110	23.5	51.9

Howell reserves the right to alter design specifications without notice.

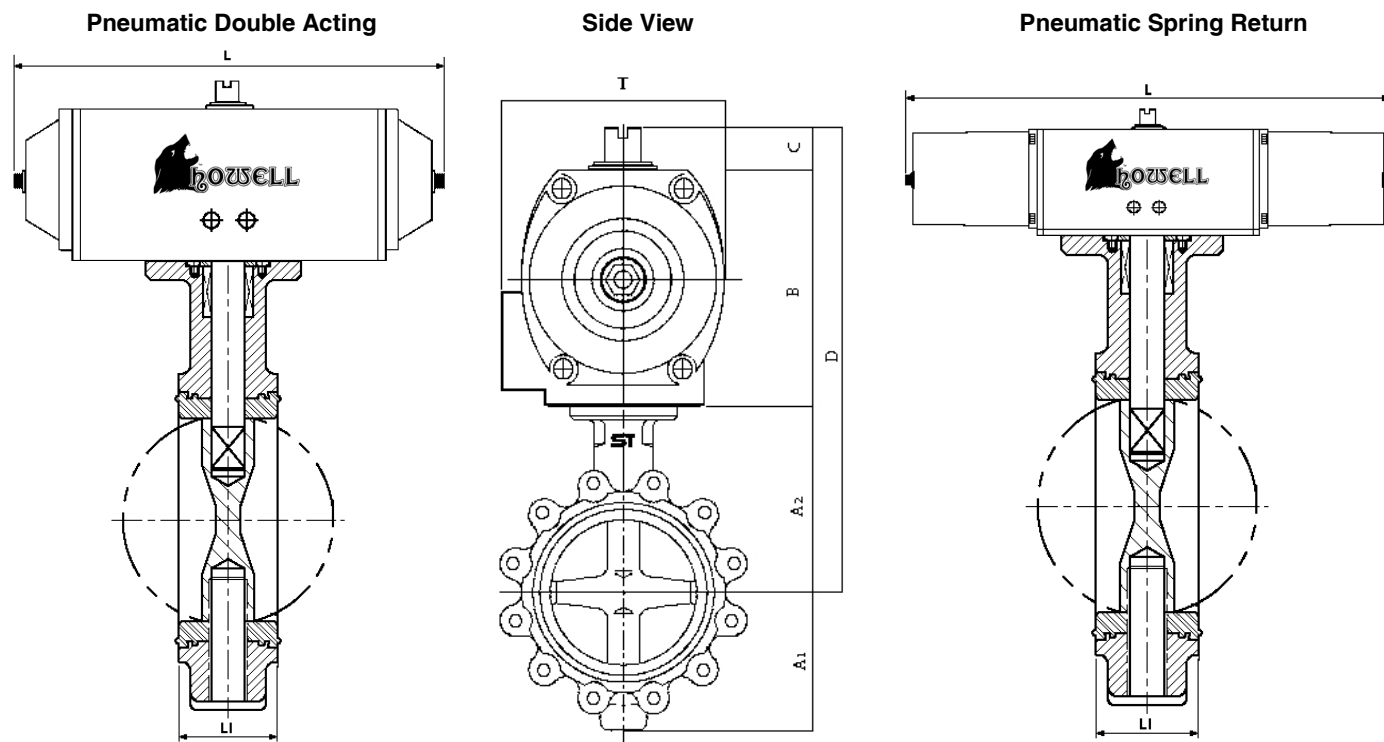


Pneumatic Spring Return





LUG STYLE WITH ACTUATOR



Lug Style with Pneumatic Double Acting Actuator

DIMENSIONS

SIZE	HDA	A1		A2		B		C		D		T		L		L1	
		IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM
2"	65	2.8	70	4.9	125	3.4	86	0.8	21	9.1	232	3.3	83	10.0	242	1.7	43
2-1/2"	65	3.0	75	5.2	132	3.4	86	0.8	21	9.4	239	3.3	83	10.0	242	1.8	46
3"	65	3.7	93	6.1	154	3.4	86	0.8	21	10.3	261	3.3	83	10.0	242	1.8	46
4"	65	4.2	106	6.5	166	3.4	86	0.8	21	10.7	273	3.3	83	10.0	242	2.0	52
5"	65	4.7	119	7.1	181	3.4	86	0.8	21	11.3	288	3.3	83	10.0	242	2.2	56
6"	80	5.5	139	7.8	199	4.1	103	0.8	21	12.7	323	3.9	98	11.0	289	2.2	56
8"	80	6.5	165	9.3	235	4.1	103	0.8	21	14.1	359	3.9	98	11.0	289	2.4	60
10"	100	7.9	200	10.5	267	4.8	123	0.8	21	16.2	411	4.5	114	14.0	348	2.7	68
12"	100	9.5	241	12.2	309	4.8	123	0.8	21	17.8	453	4.5	114	14.0	348	3.1	78

Lug Style with Pneumatic Spring Return Actuator

DIMENSIONS

SIZE	HSR	A1		A2		B		C		D		T		L		L1	
		IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM
2"	65	2.8	70	4.9	125	3.4	86	0.8	21	9.1	232	3.3	83	13.0	330	1.7	43
2-1/2"	65	3.0	75	5.2	132	3.4	86	0.8	21	9.4	239	3.3	83	13.0	330	1.8	46
3"	65	3.7	93	6.1	154	3.4	86	0.8	21	10.3	261	3.3	83	13.0	330	1.8	46
4"	65	4.2	106	6.5	166	3.4	86	0.8	21	10.7	273	3.3	83	13.0	330	2.0	52
5"	80	4.7	119	7.1	181	3.4	86	0.8	21	11.3	288	3.3	83	17.0	422	2.2	56
6"	80	5.5	139	7.8	199	4.1	103	0.8	21	12.7	323	3.9	98	17.0	422	2.2	56
8"	100	6.5	165	9.3	235	4.8	123	0.8	21	14.9	379	4.5	114	20.0	508	2.4	60
10"	125	7.9	200	10.5	267	5.8	148	0.8	21	17.2	436	5.4	136	25.0	640	2.7	68
12"	125	9.5	241	12.2	309	5.8	148	0.8	21	18.8	478	5.4	136	25.0	640	3.1	78



Cv VALUES & BOLTING

Valve Sizing Coefficients

The Cv values are in imperial units, that is the flow rate of water passing through the butterfly valve giving a pressure drop of 1 psi at a temperature of 20°C / 68°F.

Cv VALUES

Size	Disc Position (degrees)							
	20°	30°	40°	50°	60°	70°	80°	90°
2"	8	9	18	28	55	72	110	135
2-1/2"	10	15	27	44	85	110	168	210
3"	15	23	39	65	130	165	250	310
4"	27	41	71	115	230	300	465	540
5"	58	86	150	245	480	640	980	1100
6"	96	140	245	400	785	1010	1615	1910
8"	165	245	410	685	1275	1715	2670	3185
10"	255	380	650	1130	2100	2700	4250	4900
12"	370	540	950	1570	3050	3950	5950	7350
14"	450	750	1300	2210	4080	5610	8078	11200
16"	640	900	1720	2790	5000	7650	10770	12900
18"	730	1250	2295	3700	7050	9180	13900	17500
20"	910	1595	2850	4630	7600	11500	17540	22400
24"	1250	2290	4000	6090	12500	16500	23590	28300

U.S. GPM

Flange Bolting Data

Size	Thread Size	WAFFER STYLE			LUG STYLE		Recommended Torques (ft. lbs.)	
		Qty	Bolt Length	Stud Length	Qty	Bolt Length	Min.	Max.
2"	5/8" - 11	4	4-1/4"	5-1/8"	8	1-1/2"	20	60
2-1/2"	5/8" - 11	4	4-3/4"	5-1/8"	8	1-1/2"	20	60
3"	5/8" - 11	4	5"	5-1/2"	8	1-1/2"	20	60
4"	5/8" - 11	8	5-1/4"	5-1/2"	16	1-3/4"	20	60
5"	3/4" - 10	8	5-1/2"	6-3/8"	16	1-3/4"	30	100
6"	3/4" - 10	8	5-1/2"	6-3/8"	16	2"	30	100
8"	3/4" - 10	8	6"	6-3/4"	16	2-1/4"	30	100
10"	7/8" - 9	12	6-1/2"	7-1/2"	24	2-1/4"	50	200
12"	7/8" - 9	12	7-1/4"	8-3/8"	24	2-1/2"	50	200
14"	1" - 8	12	8"	8-3/4"	24	2-1/2"	70	250
16"	1" - 8	16	8-3/4"	10"	32	3-1/4"	70	250
18"	1-1/8" - 7	16	9-1/2"	11-1/8"	32	3-1/4"	100	350
20"	1-1/8" - 7	20	10-1/2"	12"	40	3-1/4"	100	350
24"	1-1/4" - 7	20	12"	13-13/16"	40	3-1/2"	150	450

Recommended Flange Bolting

Flange bolts are not included with the ST butterfly valves. The bolt tightening should be completed in a crossover or star pattern to ensure even sealing. The use of lock washers and/or lubricant will affect the torque values. Do not over tighten the bolts. Reference Howell Installation, Operation, and Maintenance (IOM) manual for complete information.



PART NUMBER MATRIX

HOW TO ORDER:

1	SERIES	6	SEAT	9	- ACTUATOR
STC	Boot, Wafer Style	1	EPDM	D3	HDA-65 Pneumatic Double Acting
STL	Boot, Lug Style	2	Black BUNA (NBR)	D4	HDA-80 Pneumatic Double Acting
SR	Cartridge, Wafer or Lug Style	3	White EPDM	D5	HDA-100 Pneumatic Double Acting
		4	Viton	D6	HDA-125 Pneumatic Double Acting
		5	Silicon	D7	HDA-140 Pneumatic Double Acting
		6	HT EPDM	D8	HDA-160 Pneumatic Double Acting
		7	Neoprene	D9	HDA-210 Pneumatic Double Acting
		8	Hypalon	S3	HSR-65 Pneumatic Spring Return
		9	Natural Rubber	S4	HSR-80 Pneumatic Spring Return
		10	Teflon	S5	HSR-100 Pneumatic Spring Return
		11	White BUNA (NBR)	S6	HSR-125 Pneumatic Spring Return
				S7	HSR-140 Pneumatic Spring Return
				S8	HSR-160 Pneumatic Spring Return
				S9	HSR-210 Pneumatic Spring Return
2	MATERIAL	7	OPERATOR	Note, add "L" to prefix for low temperature actuator (-40°C). Example: D3L HDA-65 LT Pneumatic Double Acting	
1	Cast Iron	0	Bare Shaft		
2	Ductile Iron	1	Lever Handle		
3	Cast Steel	2	Infinite Handle	10	- ACCESSORIES / OPTIONS
4	Stainless Steel	3	Gear Operator	4L	Nema 4 Limit Switch
5	Bronze	4	Pneumatic Double Acting	7L	Nema 7 Limit Switch
6	Aluminum Bronze	5	Pneumatic Spring Return	4S1	Nema 4 Namur Solenoid Valve 120vac
7	Aluminum	6	Electric	4S2	Nema 4 Namur Solenoid Valve 24vdc
		X	Special	7S1	Nema 7 Namur Solenoid Valve 120vac
3	BODY TYPE	8	- SIZE	7S2	Nema 7 Namur Solenoid Valve 24vdc
1	Wafer Style	2	2"	4S0	Nema 4 Namur Solenoid Valve special voltage
2	Lug Style	212	2-1/2"	7S0	Nema 7 Namur Solenoid Valve special voltage
4	DISC MATERIAL	3	3"		
1	304 S.S.	4	4"		
2	D.I. Nickel Plated	5	5"		
3	316 S.S.	6	6"		
4	304L S.S.	8	8"		
5	316L S.S.	10	10"		
6	Bronze	12	12"		
7	Aluminum Bronze	14	14"		
X	Special	16	16"		
5	STEM MATERIAL	18	18"		
1	304 S.S.	20	20"		
2	316 S.S.	24	24"		
3	410 S.S.				
4	K-Monel				
X	Special				

Actuated Assemblies

The following pages are a guide for the common Howell Butterfly Valve and Howell Actuator assemblies. These automated packages are sized for on/off service of 150 psi line pressure of water. Correct valve and actuator selection is required for reliable operation and will vary for different applications. Conditions that affect the valve operating torque include operation frequency, media type, pressure and temperature.

Please contact Howell for full actuator and accessory specifications and:

- Modulating applications
- Dry or slurry media service
- Automated valves above size 12"



BOOT SERIES

PRODUCT CODES FOR ACTUATED ASSEMBLIES:

PNEUMATIC DOUBLE ACTING

WAFFER STYLE WITH HIGH TEMPERATURE EPDM SEAT

Size	Sized for 80 PSI	Sized for 60 PSI
2"	STC213264-2-D3	STC213264-2-D3
2-1/2"	STC213264-212-D3	STC213264-212-D3
3"	STC213264-3-D3	STC213264-3-D3
4"	STC213264-4-D3	STC213264-4-D3
5"	STC213264-5-D3	STC213264-5-D4
6"	STC213264-6-D3	STC213264-6-D4
8"	STC213264-8-D4	STC213264-8-D5
10"	STC213264-10-D5	STC213264-10-D6
12"	STC213264-12-D5	STC213264-12-D6

PNEUMATIC SPRING RETURN

Size	Sized for 80 PSI	Sized for 60 PSI
2"	STC213265-2-S3	STC213265-2-S3
2-1/2"	STC213265-212-S3	STC213265-212-S3
3"	STC213265-3-S3	STC213265-3-S4
4"	STC213265-4-S4	STC213265-4-S4
5"	STC213265-5-S4	STC213265-5-S5
6"	STC213265-6-S4	STC213265-6-S5
8"	STC213265-8-S5	STC213265-8-S6
10"	STC213265-10-S6	STC213265-10-S7
12"	STC213265-12-S6	STC213265-12-S7

WAFFER STYLE WITH BLACK BUNA (NBR) SEAT

Size	Sized for 80 PSI	Sized for 60 PSI
2"	STC213224-2-D3	STC213224-2-D3
2-1/2"	STC213224-212-D3	STC213224-212-D3
3"	STC213224-3-D3	STC213224-3-D3
4"	STC213224-4-D3	STC213224-4-D3
5"	STC213224-5-D3	STC213224-5-D4
6"	STC213224-6-D3	STC213224-6-D4
8"	STC213224-8-D4	STC213224-8-D5
10"	STC213224-10-D5	STC213224-10-D6
12"	STC213224-12-D5	STC213224-12-D6

Size	Sized for 80 PSI	Sized for 60 PSI
2"	STC213225-2-S3	STC213225-2-S3
2-1/2"	STC213225-212-S3	STC213225-212-S3
3"	STC213225-3-S3	STC213225-3-S4
4"	STC213225-4-S4	STC213225-4-S4
5"	STC213225-5-S4	STC213225-5-S5
6"	STC213225-6-S4	STC213225-6-S5
8"	STC213225-8-S5	STC213225-8-S6
10"	STC213225-10-S6	STC213225-10-S7
12"	STC213225-12-S6	STC213225-12-S7

PNEUMATIC DOUBLE ACTING

LUG STYLE WITH HIGH TEMPERATURE EPDM SEAT

Size	Sized for 80 PSI	Sized for 60 PSI
2"	STL223264-2-D3	STL223264-2-D3
2-1/2"	STL223264-212-D3	STL223264-212-D3
3"	STL223264-3-D3	STL223264-3-D3
4"	STL223264-4-D3	STL223264-4-D3
5"	STL223264-5-D3	STL223264-5-D4
6"	STL223264-6-D3	STL223264-6-D4
8"	STL223264-8-D4	STL223264-8-D5
10"	STL223264-10-D5	STL223264-10-D6
12"	STL223264-12-D5	STL223264-12-D6

PNEUMATIC SPRING RETURN

Size	Sized for 80 PSI	Sized for 60 PSI
2"	STL223265-2-S3	STL223265-2-S3
2-1/2"	STL223265-212-S3	STL223265-212-S3
3"	STL223265-3-S3	STL223265-3-S4
4"	STL223265-4-S4	STL223265-4-S4
5"	STL223265-5-S4	STL223265-5-S5
6"	STL223265-6-S4	STL223265-6-S5
8"	STL223265-8-S5	STL223265-8-S6
10"	STL223265-10-S6	STL223265-10-S7
12"	STL223265-12-S6	STL223265-12-S7

LUG STYLE WITH BLACK BUNA (NBR) SEAT

Size	Sized for 80 PSI	Sized for 60 PSI
2"	STL223224-2-D3	STL223224-2-D3
2-1/2"	STL223224-212-D3	STL223224-212-D3
3"	STL223224-3-D3	STL223224-3-D3
4"	STL223224-4-D3	STL223224-4-D3
5"	STL223224-5-D3	STL223224-5-D4
6"	STL223224-6-D3	STL223224-6-D4
8"	STL223224-8-D4	STL223224-8-D5
10"	STL223224-10-D5	STL223224-10-D6
12"	STL223224-12-D5	STL223224-12-D6

Size	Sized for 80 PSI	Sized for 60 PSI
2"	STL223225-2-S3	STL223225-2-S3
2-1/2"	STL223225-212-S3	STL223225-212-S3
3"	STL223225-3-S3	STL223225-3-S4
4"	STL223225-4-S4	STL223225-4-S4
5"	STL223225-5-S4	STL223225-5-S5
6"	STL223225-6-S4	STL223225-6-S5
8"	STL223225-8-S5	STL223225-8-S6
10"	STL223225-10-S6	STL223225-10-S7
12"	STL223225-12-S6	STL223225-12-S7



CARTRIDGE SERIES

PRODUCT CODES FOR ACTUATED ASSEMBLIES:

PNEUMATIC DOUBLE ACTING

WAFFER STYLE WITH TEFLON SEAT

Size	Sized for 80 PSI	Sized for 60 PSI
2"	SR2132104-2-D3	SR2132104-2-D3
2-1/2"	SR2132104-212-D3	SR2132104-212-D3
3"	SR2132104-3-D3	SR2132104-3-D3
4"	SR2132104-4-D3	SR2132104-4-D3
5"	SR2132104-5-D3	SR2132104-5-D4
6"	SR2132104-6-D3	SR2132104-6-D4
8"	SR2132104-8-D4	SR2132104-8-D5
10"	SR2132104-10-D5	SR2132104-10-D6
12"	SR2132104-12-D5	SR2132104-12-D6

PNEUMATIC SPRING RETURN

Size	Sized for 80 PSI	Sized for 60 PSI
2"	SR2132105-2-S3	SR2132105-2-S3
2-1/2"	SR2132105-212-S3	SR2132105-212-S3
3"	SR2132105-3-S3	SR2132105-3-S4
4"	SR2132105-4-S3	SR2132105-4-S4
5"	SR2132105-5-S4	SR2132105-5-S5
6"	SR2132105-6-S5	SR2132105-6-S6
8"	SR2132105-8-S6	SR2132105-8-S6
10"	SR2132105-10-S6	SR2132105-10-S7
12"	SR2132105-12-S7	SR2132105-12-S8

WAFFER STYLE WITH VITON SEAT

Size	Sized for 80 PSI	Sized for 60 PSI
2"	SR213244-2-D3	SR213244-2-D3
2-1/2"	SR213244-212-D3	SR213244-212-D3
3"	SR213244-3-D3	SR213244-3-D3
4"	SR213244-4-D3	SR213244-4-D3
5"	SR213244-5-D3	SR213244-5-D4
6"	SR213244-6-D3	SR213244-6-D4
8"	SR213244-8-D4	SR213244-8-D5
10"	SR213244-10-D5	SR213244-10-D6
12"	SR213244-12-D5	SR213244-12-D6

Size	Sized for 80 PSI	Sized for 60 PSI
2"	SR213245-2-S3	SR213245-2-S3
2-1/2"	SR213245-212-S3	SR213245-212-S3
3"	SR213245-3-S3	SR213245-3-S4
4"	SR213245-4-S3	SR213245-4-S4
5"	SR213245-5-S4	SR213245-5-S5
6"	SR213245-6-S5	SR213245-6-S6
8"	SR213245-8-S6	SR213245-8-S6
10"	SR213245-10-S6	SR213245-10-S7
12"	SR213245-12-S7	SR213245-12-S8

PNEUMATIC DOUBLE ACTING

LUG STYLE WITH TEFLON SEAT

Size	Sized for 80 PSI	Sized for 60 PSI
2"	SR2232104-2-D3	SR2232104-2-D3
2-1/2"	SR2232104-212-D3	SR2232104-212-D3
3"	SR2232104-3-D3	SR2232104-3-D3
4"	SR2232104-4-D3	SR2232104-4-D3
5"	SR2232104-5-D3	SR2232104-5-D4
6"	SR2232104-6-D3	SR2232104-6-D4
8"	SR2232104-8-D4	SR2232104-8-D5
10"	SR2232104-10-D5	SR2232104-10-D6
12"	SR2232104-12-D5	SR2232104-12-D6

PNEUMATIC SPRING RETURN

Size	Sized for 80 PSI	Sized for 60 PSI
2"	SR2232105-2-S3	SR2232105-2-S3
2-1/2"	SR2232105-212-S3	SR2232105-212-S3
3"	SR2232105-3-S3	SR2232105-3-S4
4"	SR2232105-4-S3	SR2232105-4-S4
5"	SR2232105-5-S4	SR2232105-5-S5
6"	SR2232105-6-S5	SR2232105-6-S6
8"	SR2232105-8-S6	SR2232105-8-S6
10"	SR2232105-10-S6	SR2232105-10-S7
12"	SR2232105-12-S7	SR2232105-12-S8

LUG STYLE WITH VITON SEAT

Size	Sized for 80 PSI	Sized for 60 PSI
2"	SR223244-2-D3	SR223244-2-D3
2-1/2"	SR223244-212-D3	SR223244-212-D3
3"	SR223244-3-D3	SR223244-3-D3
4"	SR223244-4-D3	SR223244-4-D3
5"	SR223244-5-D3	SR223244-5-D4
6"	SR223244-6-D3	SR223244-6-D4
8"	SR223244-8-D4	SR223244-8-D5
10"	SR223244-10-D5	SR223244-10-D6
12"	SR223244-12-D5	SR223244-12-D6

Size	Sized for 80 PSI	Sized for 60 PSI
2"	SR223245-2-S3	SR223245-2-S3
2-1/2"	SR223245-212-S3	SR223245-212-S3
3"	SR223245-3-S3	SR223245-3-S4
4"	SR223245-4-S3	SR223245-4-S4
5"	SR223245-5-S4	SR223245-5-S5
6"	SR223245-6-S5	SR223245-6-S6
8"	SR223245-8-S6	SR223245-8-S6
10"	SR223245-10-S6	SR223245-10-S7
12"	SR223245-12-S7	SR223245-12-S8



Head Office:

Toll Free: 1-888-469-3557 (HOWELLS)

Main Fax: 1-866-469-3550

Email: sales@howellvalve.com

For additional information or pricing please contact Howell or your local Howell distributor or agent.