

OILFIELD | MARINE | INDUSTRIAL | AGRICULTURE

RESILIENT SEATED BUTTERFLY VALVES

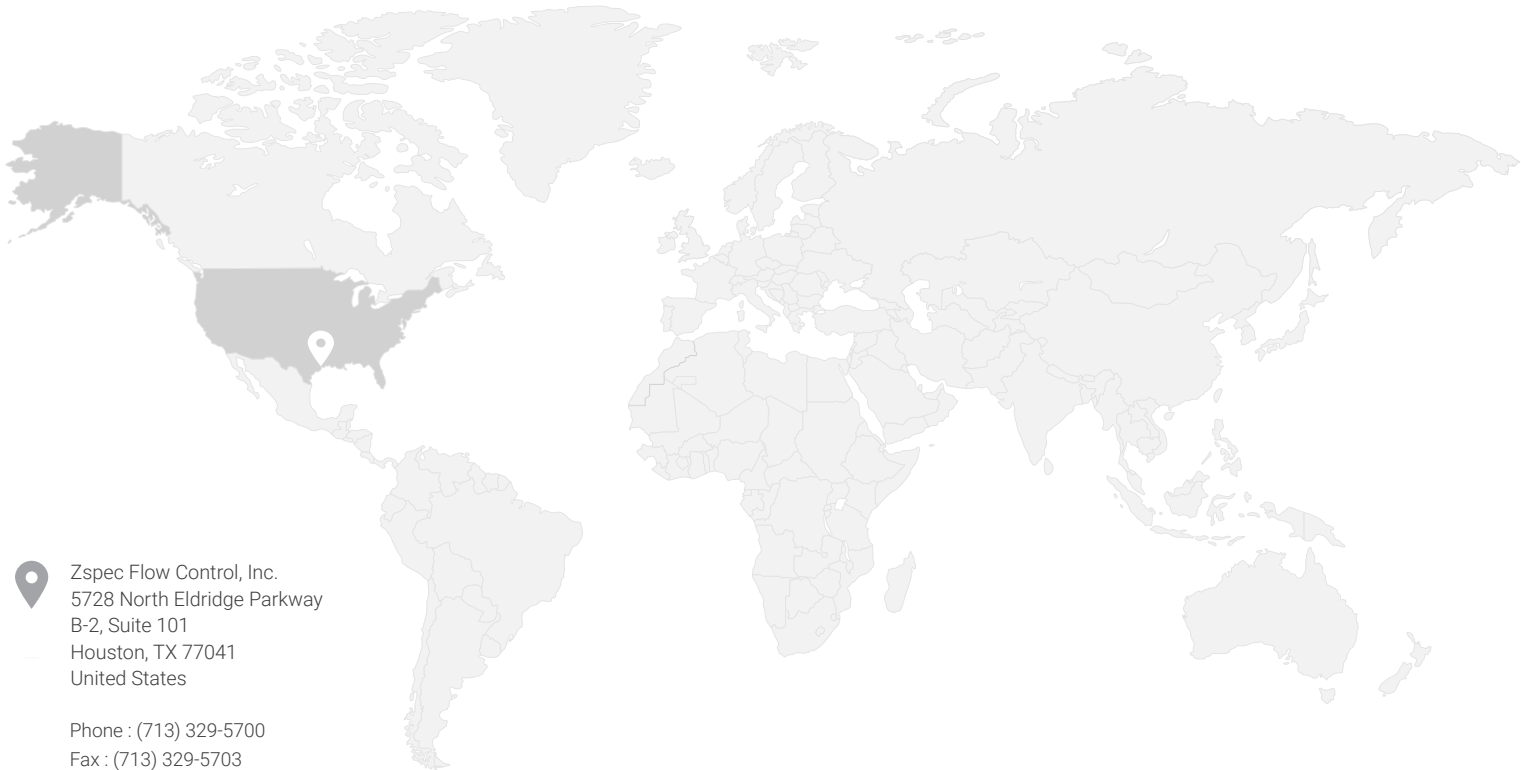




OUR STORY WELCOME TO ZSPEC®

Zspec Flow Control, Based out of Houston, Texas, ZSPEC® supplies top-quality valves and fittings to distributors throughout the United States. We are guided by a singular determination to do whatever it takes to be a reliable supplier for our customers with our ready-to-ship inventory.

VALVES & FITTINGS.
OILFIELD | MARINE | INDUSTRIAL | AGRICULTURE



 Zspec Flow Control, Inc.
5728 North Eldridge Parkway
B-2, Suite 101
Houston, TX 77041
United States

Phone : (713) 329-5700
Fax : (713) 329-5703
Email : sales@zspec.com
www.zspec.com

© 2026 ZSPEC® Flow Control, ALL Rights Reserved.

TABLE OF CONTENTS



A. ORDERING INFORMATION	4
How-to-order guide	4
B. VALVE SERIES SPECIFICATIONS	6
BW Series - Blue Wafer Butterfly Valves	6
BL Series - Blue Lug Butterfly Valves	8
RL Series - Red Lug Butterfly Valves	10
RRW Series - Red Round Wafer Butterfly Valves	11
RNW Series - Red Notch Wafer Butterfly Valves	12
RNW SQ Series - Red Notch Wafer Butterfly Valves with Square Stem	13
RNW6BT Series - Red Notch 6 Bolt Pattern Wafer Butterfly Valves with Square Stem	14
T Series - Threaded End Butterfly Valves	15
G Series - Grooved End Butterfly Valves	16
C. ACCESSORIES AND OPTIONS	17
Gear Operators	17
Stem Extenders	20
D. ACTUATOR SPECIFICATIONS	21
BDA Double Acting Pneumatic Actuators	21
BSR Spring Return Pneumatic Actuators	23
BDA-WG (double acting) & BSR-WG (spring return) Pneumatic Actuators with Manual Gear Override	25
E. INSTALLATION AND MAINTENANCE	27
Butterfly Valve Manual and Maintenance Instructions	27
F. TECHNICAL CHARTS	29
Bolt and Cap Screw Charts	29
Torque and CV Charts	30

VALVES & FITTINGS.

OILFIELD | MARINE | INDUSTRIAL | AGRICULTURE

ORDERING INFORMATION

HOW-TO-ORDER GUIDE

RESILIENT SEATED BUTTERFLY VALVES

B

VALVE TYPE

B - Butterfly Valve

040

SIZE

020 - 2"	040 - 4"	080 - 8"	140 - 14"	200 - 20"
025 - 2.5"	050 - 5"	100 - 10"	160 - 16"	240 - 24"
030 - 3"	060 - 6"	120 - 12"	180 - 18"	

BW

SERIES

BW - Blue Wafer	RNW - Red Notch Wafer
BL - Blue Lug	RNW6BT - Red Notch Wafer 6 Bolt Pattern
RL - Red Lug	G - Grooved
RRW - Red Round Wafer	G230 - Low Profile Grooved

D

DISC MATERIAL

D - Nickel Plated Ductile Iron	T - Teflon
A - Aluminum Bronze	D - Ductile Iron + Buna (Grooved Series)
S - Stainless Steel	

B

SEAT MATERIAL

B - Buna	T - Teflon
E - EPDM	V - Viton
N - Natural Rubber	

Examples:

B040BWDBL
B040BLDBL
B040RLSBL
B040RNWDBL-SQ
B040RNW6BTDBL-SQ
B040RRWABL

L

VALVE OPERATOR

L - Lever

THREADED BUTTERFLY VALVES

BT

VALVE TYPE

BT - Threaded Butterfly Valve with Aluminum Bronze Disc
BTD - Threaded Butterfly Valve with Ductile Iron Disc

L

SIZE

2 - 2"	4 - 4"
3 - 3"	6 - 6"

Examples:

BT4
BTD4

STEM EXTENDERS

BX

VALVE TYPE

BX - Stem Extension for Butterfly Valves

4

SIZE

2 - 2", 2.5", 3"
4 - 4"

6 - 5", 6"
8 - 8"

10 - 10"
12 - 12"

48

STEM EXTENDER SIZE

24 - 24"

48 - 48"

Examples:

BX424

BX448

GEAR OPERATORS

BG

VALVE TYPE

BG-Gear Operator R - Red Butterfly Valves

600

SIZE

200 - 2", 3"
400 - 4"

600 - 5", 6"
800 - 8"

1000 - 10"
1200 - 12"

Examples:

BG400

BG400R

HANDLES

BH

VALVE TYPE

BH - Butterfly Valve Handle - DD Stem
BH-SQ - Butterfly Valve Handle - Square Stem

Examples:

BH400

BV200-600SQ

400

SIZE

200 - 2", 3"
400 - 4"
600 - 6"

800 - 8"
1000 - 10"
1200 - 12"

200-600SQ - 5/8" Square Handle for 2", 3", 4", 6" Butterfly Valves
800-1000SQ - 7/8" Square Handle for 8", 10" Butterfly Valves
1200SQ - 1 1/8" Square Handle for 12" Butterfly Valve

PNEUMATIC ACTUATORS

BDA

VALVE TYPE

BDA - Double Acting Pneumatic Actuator
BSR - Spring Return Fail Closed Pneumatic Actuator

WG - Manual Gear Override

400

SIZE

300 - 2", 3"
400 - 4"

600 - 6"
800 - 8"

1000 - 10"
1200 - 12"

Examples:

BDA4, BSR4

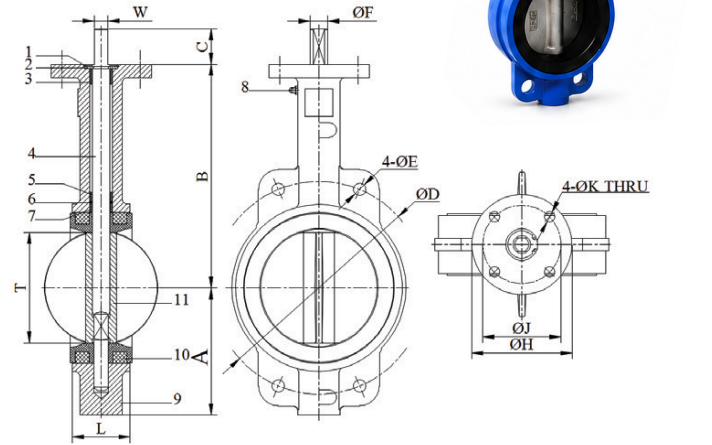
BDA4-WC

VALVE SERIES SPECIFICATIONS

BW SERIES

BLUE WAFER BUTTERFLY VALVES

ZSPEC BW Series butterfly valves are general-purpose valves that are economical, durable, and versatile for industries including oil & gas, HVAC, chemical, power generation, and mining. Featuring a long-neck design and guide holes for easy installation, these valves are rated to 200 PSI NSCWP and are available in sizes from 2" through 24".



MATERIALS OF CONSTRUCTION

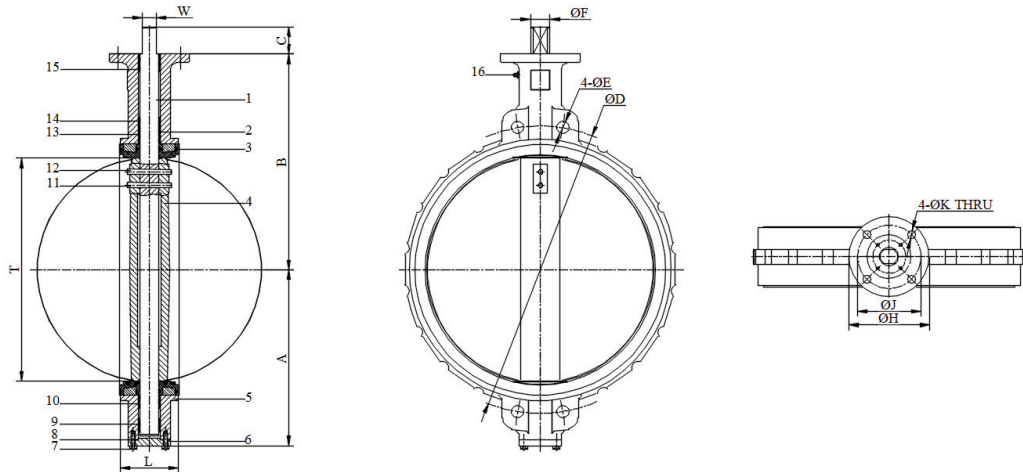
Item	Description	Materials
1	Circlip	Carbon Steel
2	Thrust Washer	Carbon Steel
3	Bushing	PTFE
4	Stem	SS410
5	Bushing	PTFE
6	O-ring	Same as seat material
7	Bushing	PTFE
8	Grease Fitting	Copper
9	Body	Ductile Iron
10	Seat	EPDM, Buna
11	Disc	Nickel Plated Ductile Iron, CF8M, Aluminum Bronze (C95400)

DIMENSIONAL INFORMATION

Size	A		B		C		ØD		ØE		ØF		ØH		ØJ		ØK		L		W		T	
	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
2"	76	2.99	162	6.38	32	1.26	120.7	4.75	17.5	0.69	12.70	0.50	65	2.56	50	1.97	7.0	0.28	42	1.65	9.00	0.354	32	1.26
2.5"	89	3.50	174	6.85	32	1.26	139.7	5.50	17.5	0.69	12.70	0.50	65	2.56	50	1.97	7.0	0.28	45	1.77	9.00	0.354	47	1.85
3"	95	3.74	181	7.13	32	1.26	152.4	6.00	17.5	0.69	12.70	0.50	65	2.56	50	1.97	7.0	0.28	45	1.77	9.00	0.354	65	2.56
4"	114	4.49	200	7.87	32	1.26	190.5	7.50	17.5	0.69	15.88	0.63	90	3.54	70	2.76	9.5	0.37	52	2.05	11.15	0.439	90	3.54
5"	127	5.00	213	8.39	32	1.26	215.9	8.50	20.6	0.81	19.05	0.75	90	3.54	70	2.76	9.5	0.37	54	2.13	12.70	0.500	111	4.37
6"	139	5.47	225	8.86	32	1.26	241.3	9.50	20.6	0.81	19.05	0.75	90	3.54	70	2.76	9.5	0.37	56	2.20	12.70	0.500	145	5.71
8"	177	6.97	260	10.24	38	1.50	298.5	11.75	20.6	0.81	22.23	0.88	125	4.92	102	4.02	11.5	0.45	60	2.36	15.90	0.626	193	7.60
10"	203	7.99	292	11.50	38	1.50	362.0	14.25	23.8	0.94	28.58	1.13	125	4.92	102	4.02	11.5	0.45	66	2.60	20.62	0.812	241	9.49
12"	242	9.53	337	13.27	38	1.50	431.8	17.00	23.8	0.94	31.75	1.25	125	4.92	102	4.02	11.5	0.45	77	3.03	24.00	0.945	292	11.50

BW SERIES (14"-24")

BLUE WAFER BUTTERFLY VALVES



MATERIALS OF CONSTRUCTION

Item	Description	Materials
1	Stem	SS410
2	Oring	Same as seat material
3	Seat	EPDM, Buna
4	Disc	Nickel Plated Ductile Iron, CF8M, Aluminum Bronze (C95400)
5	Body	Ductile Iron
6	End Cap	Ductile Iron
7	Bolt	Carbon Steel
8	Oring	Same as seat material
9	Bushing	PTFE
10	Bushing	PTFE
11	Taper Pin	SS410, SS316
12	Taper Pin	SS410, SS316
13	Bushing	PTFE
14	Bushing	PTFE
15	Bushing	PTFE
16	Grease Fitting	Copper

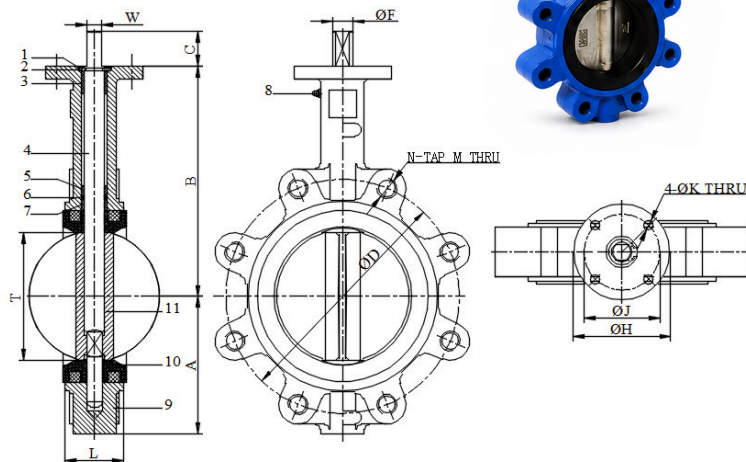
DIMENSIONAL INFORMATION

Size	A		B		C		ØD		ØE		ØF		ØH		ØJ		ØK		L		W		T	
	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
14"	227	10.91	368	14.49	45	1.77	476.30	18.75	27.00	1.06	31.75	1.25	140	5.51	102	4.02	11.5	0.45	77	3.03	24	0.945	325	12.80
16"	308	12.13	400	15.75	51	2.01	539.80	21.25	27.00	1.06	33.34	1.31	210	8.27	165	6.50	22.0	0.87	86	3.39	27	1.063	380	14.96
18"	342	13.46	422	16.61	51	2.01	577.90	22.75	32.00	1.26	38.10	1.50	210	8.27	165	6.50	22.0	0.87	105	4.13	27	1.063	428	16.85
20"	374	14.72	479	18.86	64	2.52	635.00	25.00	32.00	1.26	41.28	1.63	210	8.27	165	6.50	22.0	0.87	130	5.12	32	1.260	474	18.66
24"	459	18.07	562	22.13	70	2.76	749.30	29.50	35.00	1.38	50.80	2.00	210	8.27	165	6.50	22.0	0.87	152	5.98	36	1.417	575	22.64

BL SERIES

BLUE LUG BUTTERFLY VALVES

ZSPEC BL Series butterfly valves are general-purpose valves that are economical, durable, and versatile for industries including oil & gas, HVAC, chemical, power generation, and mining. Featuring a lug-style design for secure installation and end-of-line service, these valves are rated to 200 PSI NSCWP and are available in sizes from 2" through 24".



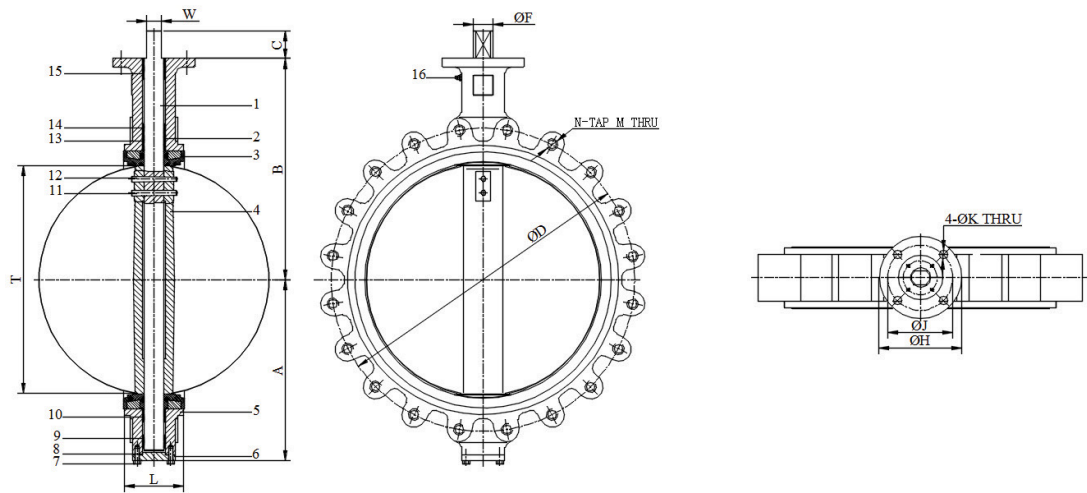
MATERIALS OF CONSTRUCTION

Item	Description	Materials
1	Circlip	Carbon Steel
2	Thrust Washer	Carbon Steel
3	Bushing	PTFE
4	Stem	SS410
5	Bushing	PTFE
6	Oring	Same as seat material
7	Bushing	PTFE
8	Grease Fitting	Copper
9	Body	Ductile Iron
10	Seat	EPDM, Buna
11	Disc	Nickel Plated Ductile Iron, CF8M, Aluminum Bronze (C95400)

DIMENSIONAL INFORMATION

Size	A		B		C		ØD		N-M	ØF		ØH		ØJ		ØK		L		W		T	
	mm	inch	mm	inch	mm	inch	mm	inch		mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
2"	76	2.99	162	6.38	32	1.26	120.7	4.75	4-5/8"-11	12.70	0.50	65	2.56	50	1.97	7.0	0.28	42	1.65	9.00	0.354	32	1.26
2.5"	89	3.50	174	6.85	32	1.26	139.7	5.50	4-5/8"-11	12.70	0.50	65	2.56	50	1.97	7.0	0.28	45	1.77	9.00	0.354	47	1.85
3"	95	3.74	181	7.13	32	1.26	152.4	6.00	4-5/8"-11	12.70	0.50	65	2.56	50	1.97	7.0	0.28	45	1.77	9.00	0.354	65	2.56
4"	114	4.49	200	7.87	32	1.26	190.5	7.50	8-5/8"-11	15.88	0.63	90	3.54	70	2.76	9.5	0.37	52	2.05	11.15	0.439	90	3.54
5"	127	5.00	213	8.39	32	1.26	215.9	8.50	8-3/4"-10	19.05	0.75	90	3.54	70	2.76	9.5	0.37	54	2.13	12.70	0.500	111	4.37
6"	139	5.47	225	8.86	32	1.26	241.3	9.50	8-3/4"-10	19.05	0.75	90	3.54	70	2.76	9.5	0.37	56	2.20	12.70	0.500	145	5.71
8"	177	6.97	260	10.24	38	1.50	298.5	11.75	8-3/4"-10	22.23	0.88	125	4.92	102	4.02	11.5	0.45	60	2.36	15.90	0.626	193	7.60
10"	203	7.99	292	11.50	38	1.50	362.0	14.25	12-7/8"-9	28.58	1.13	125	4.92	102	4.02	11.5	0.45	66	2.60	20.62	0.812	241	9.49
12"	242	9.53	337	13.27	38	1.50	431.8	17.00	12-7/8"-9	31.75	1.25	125	4.92	102	4.02	11.5	0.45	77	3.03	24.00	0.945	292	11.50

BL SERIES (14"-24")
BLUE LUG BUTTERFLY VALVES



MATERIALS OF CONSTRUCTION

Item	Description	Materials
1	Stem	SS410
2	Oring	Same as seat material
3	Seat	EPDM, Buna
4	Disc	Nickel Plated Ductile Iron, CF8M, Aluminum Bronze (C95400)
5	Body	Ductile Iron
6	End Cap	Ductile Iron
7	Bolt	Carbon Steel
8	Oring	Same as seat material
9	Bushing	PTFE
10	Bushing	PTFE
11	Taper Pin	SS410, SS316
12	Taper Pin	SS410, SS316
13	Bushing	PTFE
14	Bushing	PTFE
15	Bushing	PTFE
16	Grease Fitting	Copper

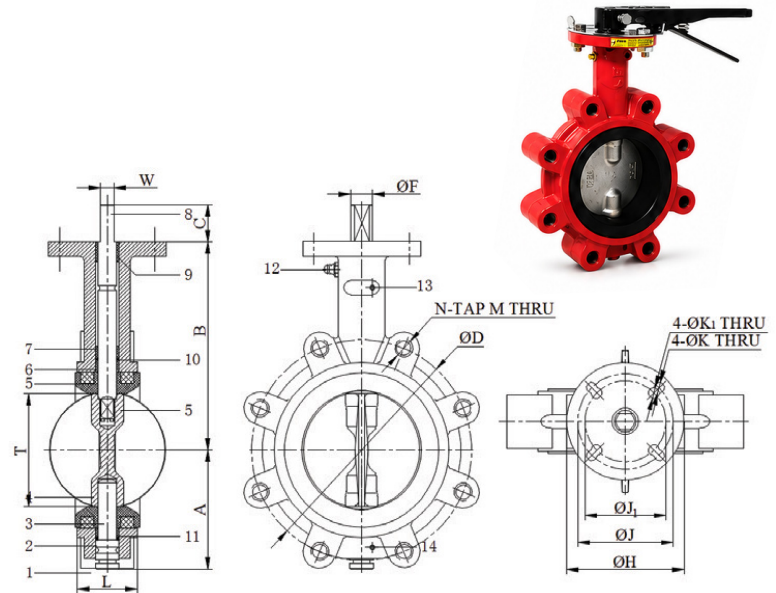
DIMENSIONAL INFORMATION

Size	A		B		C		ØD		ØF		N-M	ØH		ØJ		ØK		L		W		T	
	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch		mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
14"	277	10.91	368	14.49	45	1.77	476.30	18.75	31.75	1.25	12-1"-8	140	5.51	102	4.02	11.5	0.45	77	3.03	24	0.945	325	12.80
16"	308	12.13	400	15.75	51	2.01	539.80	21.25	33.34	1.31	16-1"-8	210	8.27	165	6.50	22.0	0.87	86	3.39	27	1.063	380	14.96
18"	342	13.46	422	16.61	51	2.01	577.90	22.75	38.10	1.50	16-1-1/8"-7	210	8.27	165	6.50	22.0	0.87	105	4.13	27	1.063	428	16.85
20"	374	14.72	479	18.86	64	2.52	635.00	25.00	41.28	1.63	20-1-1/8"-7	210	8.27	165	6.50	22.0	0.87	130	5.12	32	1.260	474	18.66
24"	459	18.07	562	22.13	70	2.76	749.30	29.50	50.80	2.00	20-1-1/4"-7	210	8.27	165	6.50	22.0	0.87	152	5.98	36	1.417	575	22.64

RL SERIES

RED LUG BUTTERFLY VALVES

ZSPEC RL Series butterfly valves are general-purpose valves that are economical and durable for industries including refining, oil & gas, and chemical. Featuring a lug-style body with an extended neck to accommodate pipe insulation, these valves include a two piece stem for easy maintenance and meet MSS SP-67 and API 609 standards. They are rated to 200 PSI NSCWP and are available in sizes from 2" through 12".



MATERIALS OF CONSTRUCTION

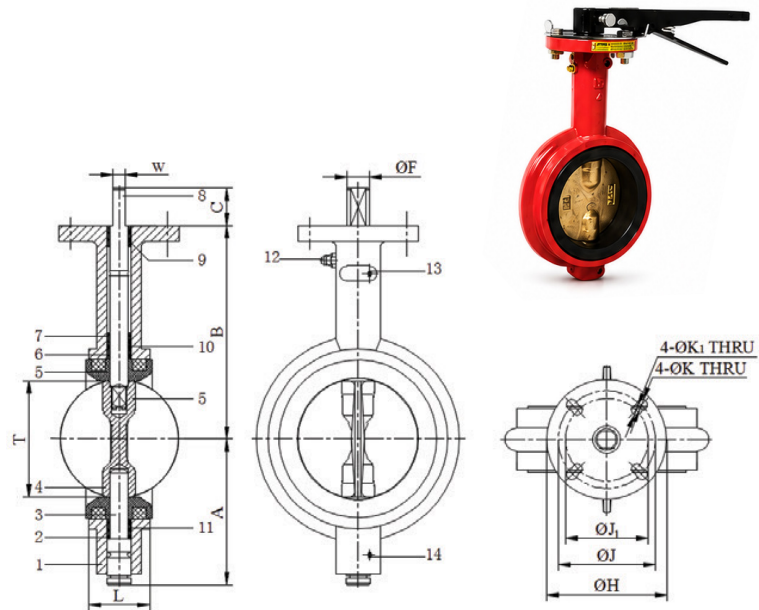
Item	Description	Materials
1	Body	Ductile Iron
2	Oring	Same as seat material
3	Lower Stem	SS410
4	Disc	Nickel Plated Ductile Iron, CF8M, Aluminum Bronze (C9S400)
5	Seat	Buna, Viton
6	Bushing	PTFE
7	Bushing	PTFE
8	Upper Stem	SS410
9	Bushing	PTFE
10	Oring	Same as seat material
11	Bushing	PTFE
12	Grease Fitting	Copper
13	Spring Pin	Carbon Steel
14	Spring Pin	Carbon Steel

DIMENSIONAL INFORMATION

Size	A		B		C		ØD		N-M	ØF		ØH		ØJ		ØJ1		ØK		ØK1		L		W		T	
	mm	inch	mm	inch	mm	inch	mm	inch		mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
2"	73	2.87	143	5.63	32	1.26	120.7	4.75	4-5/8"-11	12.7	0.5	102	4.02	82.6	3.25	70	2.76	11.1	0.44	9.5	0.37	42	1.65	9	0.354	32	1.26
2.5"	79	3.11	156	6.14	32	1.26	139.7	5.50	4-5/8"-11	12.7	0.5	102	4.02	82.6	3.25	70	2.76	11.1	0.44	9.5	0.37	45	1.77	9	0.354	47	1.85
3"	85	3.35	162	6.38	32	1.26	152.4	6.00	4-5/8"-11	12.7	0.5	102	4.02	82.6	3.25	70	2.76	11.1	0.44	9.5	0.37	45	1.77	9	0.354	65	2.56
4"	103	4.06	181	7.13	32	1.26	190.5	7.5	8-5/8"-11	15.88	0.63	102	4.02	82.6	3.25	70	2.76	11.1	0.44	9.5	0.37	52	2.05	11.15	0.439	90	3.54
5"	115	4.53	197	7.76	32	1.26	215.9	8.5	8-3/4"-10	19.05	0.75	102	4.02	82.6	3.25	70	2.76	11.1	0.44	9.5	0.37	54	2.13	12.7	0.5	111	4.37
6"	131	5.16	210	8.27	32	1.26	241.3	9.5	8-3/4"-10	19.05	0.75	102	4.02	82.6	3.25	70	2.76	11.1	0.44	9.5	0.37	56	2.2	12.7	0.5	145	5.71
8"	160	6.3	240	9.45	38	1.5	298.5	11.75	8-3/4"-10	22.23	0.88	152	5.98	127	5	102	4.02	14.3	0.56	11.5	0.45	60	2.36	15.9	0.626	193	7.6
10"	190	7.48	286	11.26	38	1.5	362	14.25	12-7/8"-9	28.58	1.13	152	5.98	127	5	102	4.02	14.3	0.56	11.5	0.45	66	2.6	20.62	0.812	241	9.49
12"	242	9.53	310	12.2	38	1.5	431.8	17	12-7/8"-9	31.75	1.25	152	5.98	127	5	102	4.02	14.3	0.56	11.5	0.45	77	3.03	24	0.945	292	11.5

RRW SERIES
RED ROUND WAFER BUTTERFLY VALVES

ZSPEC RRW Series butterfly valves are general-purpose valves that are economical, durable, and versatile for applications including oil & gas, HVAC, chemical, refining, water cooling, and irrigation. Featuring an extended neck to accommodate pipe insulation, these valves include a smooth round body and two-piece stem for easy maintenance and meet MSS SP-67 and API 609 standards. They are rated to 200 PSI NSCWP and are available in sizes from 2" through 12".



MATERIALS OF CONSTRUCTION

Item	Description	Materials
1	Body	Ductile Iron
2	Oring	Same as seat material
3	Lower Stem	SS410
4	Disc	Nickel Plated Ductile Iron, CF8M, Aluminum Bronze (C95400)
5	Seat	Buna, Viton
6	Bushing	PTFE
7	Bushing	PTFE
8	Upper Stem	SS410
9	Bushing	PTFE
10	Oring	Same as seat material
11	Bushing	PTFE
12	Grease Fitting	Copper
13	Spring Pin	Carbon Steel
14	Spring Pin	Carbon Steel

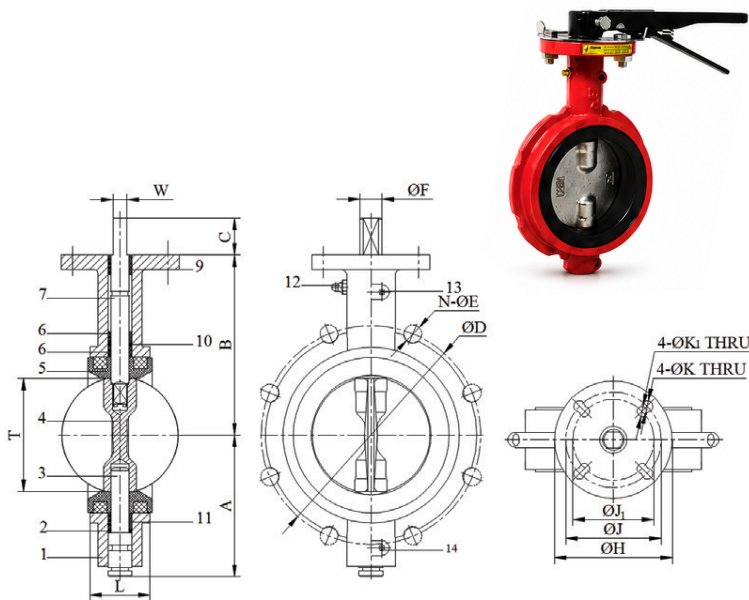
DIMENSIONAL INFORMATION

Size	A		B		C		ØF		ØH		ØJ		ØJ1		ØK		ØK1		L		W		T	
	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
2"	73	2.87	143	5.63	32	1.26	12.7	0.5	102	4.02	82.6	3.25	70	2.76	11.1	0.44	9.5	0.37	42	1.65	9	0.354	32	1.26
2.5"	79	3.11	156	6.14	32	1.26	12.7	0.5	102	4.02	82.6	3.25	70	2.76	11.1	0.44	9.5	0.37	45	1.77	9	0.354	47	1.85
3"	85	3.35	162	6.38	32	1.26	12.7	0.5	102	4.02	82.6	3.25	70	2.76	11.1	0.44	9.5	0.37	45	1.77	9	0.354	65	2.56
4"	103	4.06	181	7.13	32	1.26	15.88	0.63	102	4.02	82.6	3.25	70	2.76	11.1	0.44	9.5	0.37	52	2.05	11.15	0.439	90	3.54
5"	115	4.53	197	7.76	32	1.26	19.05	0.75	102	4.02	82.6	3.25	70	2.76	11.1	0.44	9.5	0.37	54	2.13	12.7	0.5	111	4.37
6"	131	5.16	210	8.27	32	1.26	19.05	0.75	102	4.02	82.6	3.25	70	2.76	11.1	0.44	9.5	0.37	56	2.2	12.7	0.5	145	5.71
8"	160	6.3	240	9.45	38	1.5	22.23	0.88	152	5.98	127	5	102	4.02	14.3	0.56	11.5	0.45	60	2.36	15.9	0.626	193	7.6
10"	190	7.48	286	11.26	38	1.5	28.58	1.13	152	5.98	127	5	102	4.02	14.3	0.56	11.5	0.45	66	2.6	20.62	0.812	241	9.49
12"	242	9.53	310	12.2	38	1.5	31.75	1.25	152	5.98	127	5	102	4.02	14.3	0.56	11.5	0.45	77	3.03	24	0.945	292	11.5

RNW SERIES

RED NOTCH WAFER BUTTERFLY VALVES

ZSPEC RNW Series butterfly valves are general-purpose valves that are economical and durable, ideal for compact spaces including trucks, trailers, and other tight installations. Featuring a short-neck design and a notched body to guide flange bolts and ensure accurate alignment, these valves are rated to 200 PSI NSCWP and are available in sizes from 2" through 12".



MATERIALS OF CONSTRUCTION

Item	Description	Materials
1	Body	Ductile Iron
2	Oring	Same as seat material
3	Lower Stem	SS410
4	Disc	Nickel Plated Ductile Iron, CF8M, Aluminum Bronze (C95400), WCB + PTFE
5	Seat	Buna, Viton, PTFE + Silicone
6	Bushing	PTFE
7	Bushing	PTFE
8	Upper Stem	SS410
9	Bushing	PTFE
10	Oring	Same as seat material
11	Bushing	PTFE
12	Grease Fitting	Copper
13	Spring Pin	Carbon Steel
14	Spring Pin	Carbon Steel

DIMENSIONAL INFORMATION

Size	A		B		C		ØD		ØE		N	ØH		ØJ		ØJ1		ØK		ØK1		L		W		T	
	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch		mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
2"	76	2.99	100	3.94	32	1.26	120.7	4.75	19	0.75	4	102	4.02	82.6	3.25	70	2.76	11.1	0.44	9.5	0.37	42	1.65	9	0.354	32	1.26
2.5"	85	3.35	117	4.61	32	1.26	139.7	5.5	19	0.75	4	102	4.02	82.6	3.25	70	2.76	11.1	0.44	9.5	0.37	45	1.77	9	0.354	47	1.85
3"	93	3.66	125	4.92	32	1.26	152.4	6	19	0.75	4	102	4.02	82.6	3.25	70	2.76	11.1	0.44	9.5	0.37	45	1.77	9	0.354	65	2.56
4"	109	4.29	153	6.02	32	1.26	190.5	7.5	19	0.75	8	102	4.02	82.6	3.25	70	2.76	11.1	0.44	9.5	0.37	52	2.05	11.15	0.439	90	3.54
5"	123	4.84	156	6.14	32	1.26	215.9	8.5	22	0.87	8	102	4.02	82.6	3.25	70	2.76	11.1	0.44	9.5	0.37	54	2.13	12.7	0.5	111	4.37
6"	136	5.35	170	6.69	32	1.26	241.3	9.5	22	0.87	8	102	4.02	82.6	3.25	70	2.76	11.1	0.44	9.5	0.37	56	2.2	12.7	0.5	145	5.71
8"	166	6.54	240	9.45	38	1.5	298.5	11.75	22	0.87	8	152	5.98	127	5	102	4.02	14.3	0.56	11.5	0.45	60	2.36	15.9	0.626	193	7.6
10"	199	7.83	285	11.22	38	1.5	362	14.25	25	0.98	12	152	5.98	127	5	102	4.02	14.3	0.56	11.5	0.45	66	2.6	20.62	0.812	241	9.49
12"	238	9.37	300	11.81	38	1.5	431.8	17	25	0.98	12	152	5.98	127	5	102	4.02	14.3	0.56	11.5	0.45	77	3.03	24	0.945	292	11.5

RED NOTCH WAFER BUTTERFLY VALVES WITH SQUARE STEM

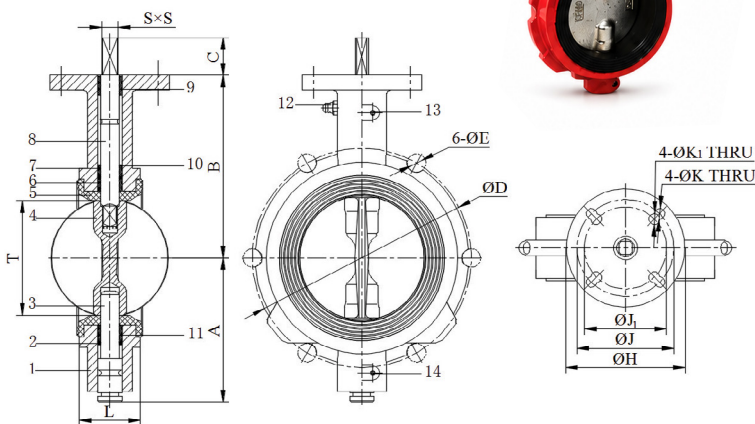
Item	Description	Materials
1	Body	Ductile Iron
2	Oring	Same as seat material
3	Lower Stem	SS410
4	Disc	Nickel Plated Ductile Iron, CF8M, Aluminum Bronze (C95400), WCB + PTFE
5	Seat	Buna, Viton, PTFE + Silicone
6	Bushing	PTFE
7	Bushing	PTFE
8	Upper Stem	SS410
9	Bushing	PTFE
10	Oring	Same as seat material
11	Bushing	PTFE
12	Grease Fitting	Copper
13	Spring Pin	Carbon Steel
14	Spring Pin	Carbon Steel

Size	A		B		C		ØD		ØE		N	ØH		ØJ		ØJ1		ØK		ØK1		L		S		T	
	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch		mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
2"	76	2.99	100	3.94	32	1.26	120.7	4.75	19	0.75	4	102	4.02	82.6	3.25	70	2.76	11.1	0.44	9.5	0.37	42	1.65	15.88	0.625	32	1.26
2.5"	85	3.35	117	4.61	32	1.26	139.7	5.5	19	0.75	4	102	4.02	82.6	3.25	70	2.76	11.1	0.44	9.5	0.37	45	1.77	15.88	0.625	47	1.85
3"	93	3.66	125	4.92	32	1.26	152.4	6	19	0.75	4	102	4.02	82.6	3.25	70	2.76	11.1	0.44	9.5	0.37	45	1.77	15.88	0.625	65	2.56
4"	109	4.29	153	6.02	32	1.26	190.5	7.5	19	0.75	8	102	4.02	82.6	3.25	70	2.76	11.1	0.44	9.5	0.37	52	2.05	15.88	0.625	90	3.54
5"	123	4.84	156	6.14	32	1.26	215.9	8.5	22	0.87	8	102	4.02	82.6	3.25	70	2.76	11.1	0.44	9.5	0.37	54	2.13	15.88	0.625	111	4.37
6"	136	5.35	170	6.69	32	1.26	241.3	9.5	22	0.87	8	102	4.02	82.6	3.25	70	2.76	11.1	0.44	9.5	0.37	56	2.2	15.88	0.625	145	5.71
8"	166	6.54	240	9.45	38	1.5	298.5	11.75	22	0.87	8	152	5.98	127	5	102	4.02	14.3	0.56	11.5	0.45	60	2.36	22.23	0.875	193	7.6
10"	199	7.83	285	11.22	38	1.5	362	14.25	25	0.98	12	152	5.98	127	5	102	4.02	14.3	0.56	11.5	0.45	66	2.6	22.23	0.875	241	9.49
12"	238	9.37	300	11.81	38	1.5	431.8	17	25	0.98	12	152	5.98	127	5	102	4.02	14.3	0.56	11.5	0.45	77	3.03	28.58	1.125	292	11.5

RNW6BT SERIES

RED NOTCH 6 BOLT PATTERN WAFER BUTTERFLY VALVES WITH SQUARE STEM

ZSPEC RNW 6BT Series butterfly valves with square stems are economical, durable, and versatile general-purpose valves ideal for compact spaces, including trucks, trailers, and other tight installations. Featuring a short neck design, a notched body (6 bolt pattern) for guided flange bolt alignment, and a square stem for secure actuator or handle mounting, these valves are rated to 200 PSI NSCWP and are available in sizes from 3" through 5".



MATERIALS OF CONSTRUCTION

Item	Description	Materials
1	Body	Ductile Iron
2	O-ring	Same as seat material
3	Lower Stem	SS410
4	Disc	Nickel Plated Ductile Iron, CF8M
5	Seat	Buna
6	Bushing	PTFE
7	Bushing	PTFE
8	Upper Stem	SS410
9	Bushing	PTFE
10	Grease Fitting	Copper
11	Bushing	PTFE
12	Grease Fitting	Copper
13	Spring Pin	Carbon Steel
14	Spring Pin	Carbon Steel

DIMENSIONAL INFORMATION

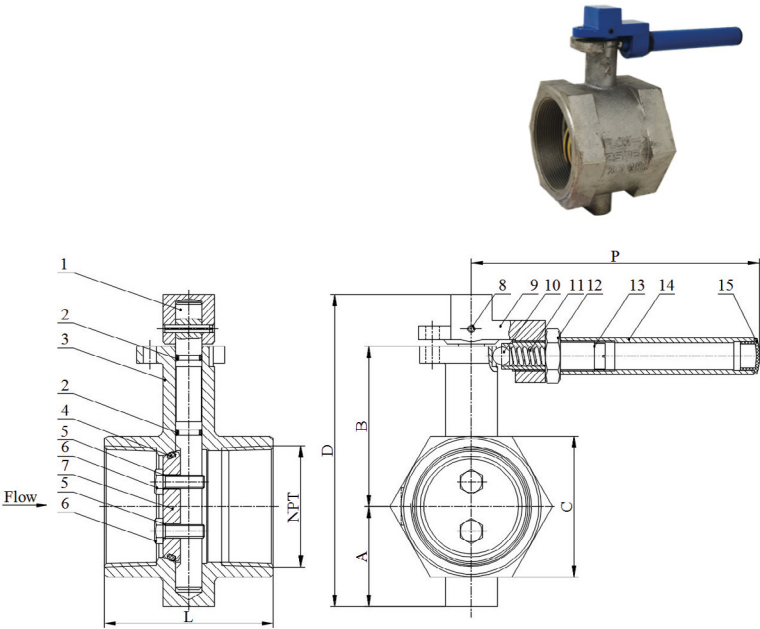
Size	A		B		C		ØD		ØE		ØH		ØJ		ØJ1		ØK		ØK1		L		S		T	
	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
3"	93	3.66	125	4.92	32	1.26	127	5	16	0.63	102	4.02	82.6	3.25	70	2.76	11.1	0.44	9.5	0.37	45	1.77	15.88	0.625	65	2.56
4"	109	4.29	153	6.02	32	1.26	181	7.13	19	0.75	102	4.02	82.6	3.25	70	2.76	11.1	0.44	9.5	0.37	52	2.05	15.88	0.625	90	3.54
5"	123	4.84	156	6.14	32	1.26	194	7.64	19	0.75	102	4.02	82.6	3.25	70	2.76	11.1	0.44	9.5	0.37	54	2.13	15.88	0.625	111	4.37

ZSPEC®
FLOW CONTROL

T SERIES

THREADED END BUTTERFLY VALVES

ZSPEC T Series butterfly valves provide an economical and reliable solution for flow control in threaded applications. Featuring a streamlined design for smooth operation and long life, these valves include a one-piece, nickel-plated ductile iron body for corrosion resistance and a locking handle that can be secured in fully open or closed positions. Disc options include aluminum bronze or nickel-plated ductile iron, and readily available repair kits allow for easy in-field maintenance. They are rated to 200 PSI NSCPW and are available in sizes from 2" through 6".



MATERIALS OF CONSTRUCTION

Item	Description	Materials
1	Stem	SS410
2	Stem Oring	Buna
3	Body	Ductile Iron
4	Disc Oring	Buna
5	Bolt Oring	Buna
6	Bolt Oring	Stainless Steel
7	Disc	Nickel Plated Ductile Iron, Aluminum Bronze (C95400)
8	Spring Pin	Carbon Steel
9	Handle Body	Ductile Iron
10	Ball	Stainless Steel
11	Spring	Carbon Steel
12	Nut	Carbon Steel
13	Sleeve	Carbon Steel
14	Handle	Carbon Steel
15	Protection Plug	Plastic

DIMENSIONAL INFORMATION

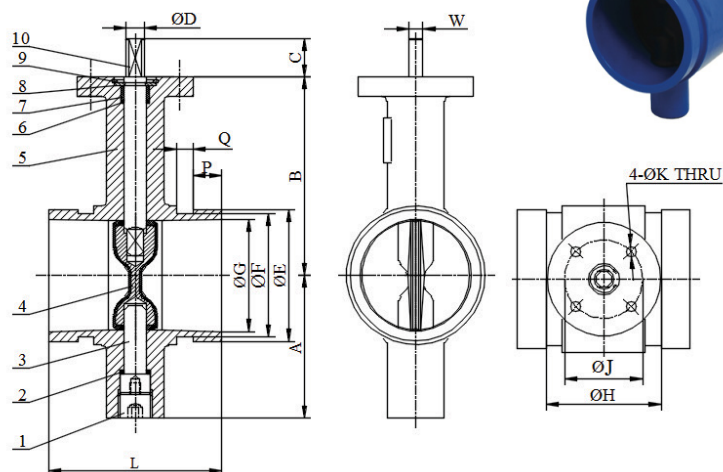
Size	A		B		C		D		L		P		NPT
	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	
2"	57	2.24	85	3.35	76.2	3	180	7.09	108	4.25	211	8.31	NPT 2-11.5
3"	73	2.87	117	4.61	103.1	4.06	228	8.98	123.7	4.87	211	8.31	NPT 3-8
4"	94	3.7	123	4.84	134.9	5.31	255	10.04	130	5.12	211	8.31	NPT 4-8
6"	125	4.92	190	7.48	196.9	7.75	365	14.37	177.8	7	331	13.03	NPT 6-8



G SERIES

GROOVED END BUTTERFLY VALVES

ZSPEC G Series butterfly valves are designed for bidirectional, leak-proof shutoff with exceptional flow performance in grooved end applications. Featuring a Buna seal that encapsulates the ductile iron disc for enhanced flow capacity and a one-piece epoxy-coated ductile iron body for excellent corrosion resistance, these valves are rated to 200 PSI NSCWP and are available in sizes from 2" through 12".



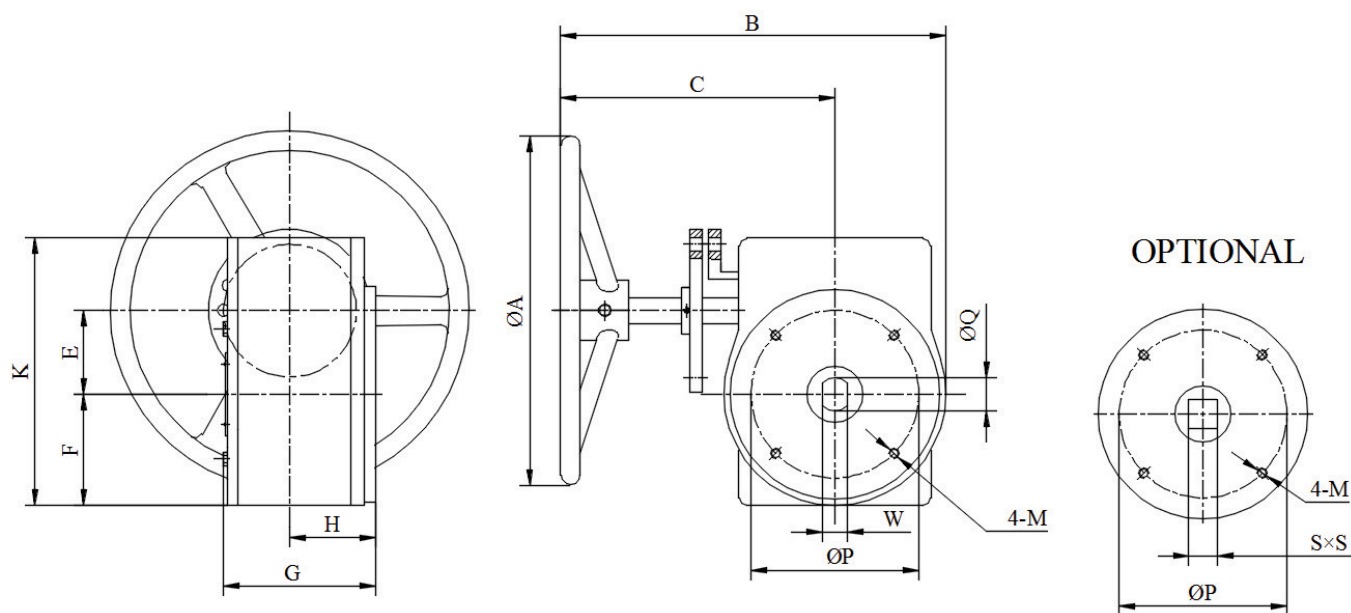
MATERIALS OF CONSTRUCTION

Item	Description	Materials
1	Stopper	Carbon Steel
2	Oring	Same as seat material
3	Lower Stem	SS410
4	Disc	Nickel Plated Ductile Iron + Buna
5	Body	Ductile Iron
6	Oring	Same as seat material
7	Bushing	PTFE
8	Thrust Washer	Carbon Steel
9	Circlip	Carbon Steel
10	Upper Stem	SS410

DIMENSIONAL INFORMATION

Size	A		B		C		ØD		ØE		ØF		ØG		ØH		ØJ		ØK		L		P		Q		W	
	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
2"	65	2.56	102	4.02	32	1.26	12.7	0.5	60.5	2.38	57	2.24	50	1.97	65	2.56	50	1.97	7	0.28	81	3.19	16	0.63	8	0.31	9	0.354
2.5"	72	2.83	112	4.41	32	1.26	12.7	0.5	73	2.87	69	2.72	61	2.4	65	2.56	50	1.97	7	0.28	97	3.82	16	0.63	8	0.31	9	0.354
3"	80	3.15	118	4.65	32	1.26	12.7	0.5	89	3.5	85	3.35	76	2.99	65	2.56	50	1.97	7	0.28	97	3.82	16	0.63	8	0.31	9	0.354
4"	100	3.94	137	5.39	32	1.26	15.88	0.63	114.5	4.51	110	4.33	100	3.94	90	3.54	70	2.76	9.5	0.37	116	4.57	16	0.63	9.5	0.37	11.15	0.439
5"	118	4.65	149	5.87	32	1.26	19.05	0.75	141.5	5.57	137	5.39	125	4.92	90	3.54	70	2.76	9.5	0.37	148	5.83	16	0.63	9.5	0.37	12.7	0.5
6"	140	5.51	170	6.69	32	1.26	19.05	0.75	168.5	6.63	164	6.46	150	5.91	90	3.54	70	2.76	9.5	0.37	148	5.83	16	0.63	9.5	0.37	12.7	0.5
8"	175	6.89	204	8.03	38	1.5	22.23	0.88	219	8.62	214.5	8.44	200	7.87	125	4.92	102	4.02	11.5	0.45	134	5.28	19	0.75	11.5	0.45	15.9	0.626
10"	215	8.46	250	9.84	38	1.5	28.58	1.13	273	10.75	268.5	10.57	250	9.84	125	4.92	102	4.02	11.5	0.45	159	6.26	19	0.75	13	0.51	20.62	0.812
12"	258	10.16	275	10.83	38	1.5	31.75	1.25	324	12.76	318.5	12.54	300	11.81	125	4.92	102	4.02	11.5	0.45	165	6.5	19	0.75	13	0.51	24	0.945

GEAR OPERATORS ISO 5211 FLANGE

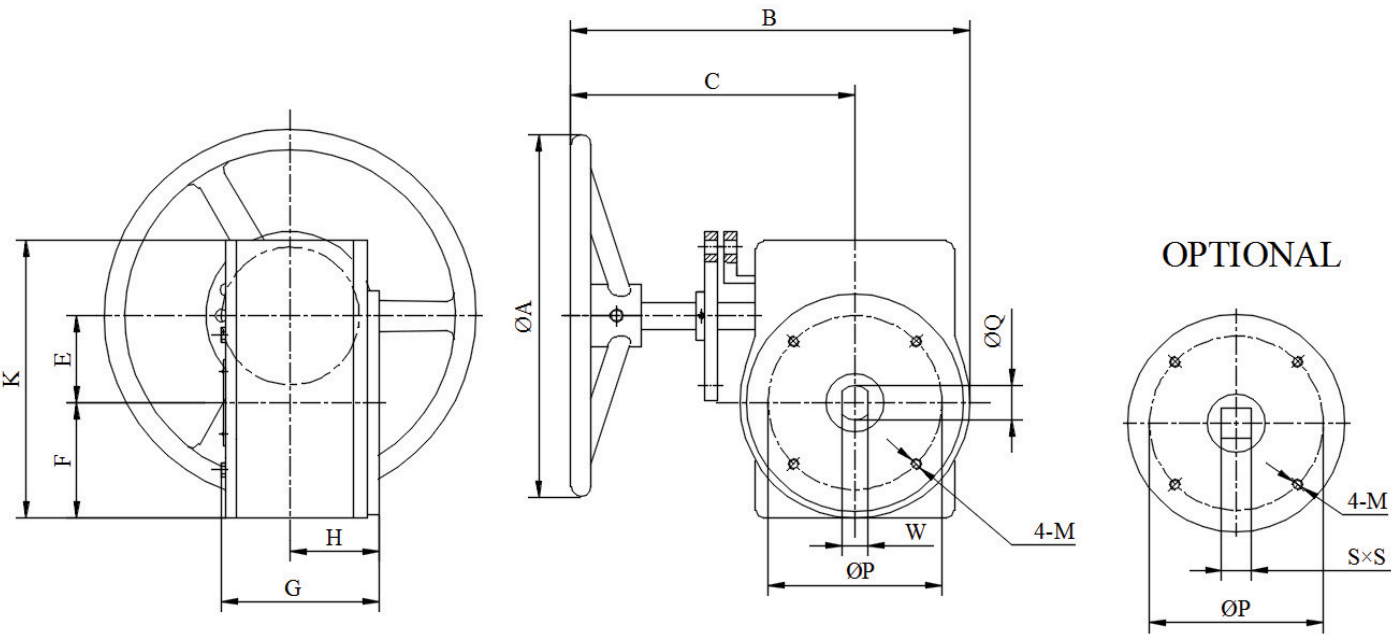


DIMENSIONAL INFORMATION

Size	Torque	Ratio	ØA		B		C		E		F		G		H		K		M	P		Q		S		W	
			mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch		mm	inch	mm	inch	mm	inch	mm	inch
2", 3"	125.39	24:1	144	5.67	196	7.72	145	5.71	45	1.77	50	1.97	65	2.56	34	1.34	123	4.84	M6	50	1.97	12.7	0.5	15.88	0.625	9	0.354
4"	125.39	24:1	144	5.67	196	7.72	145	5.71	45	1.77	50	1.97	65	2.56	34	1.34	123	4.84	M8	70	2.76	15.88	0.63	15.88	0.625	11.15	0.439
5", 6"	125.39	24:1	144	5.67	196	7.72	145	5.71	45	1.77	50	1.97	65	2.56	34	1.34	123	4.84	M8	70	2.76	19.05	0.75	15.88	0.625	12.7	0.5
8"	553.17	30:1	283	11.14	285	11.22	213	8.39	64	2.52	72	2.83	79	3.11	40	1.57	170	6.69	M10	102	4.02	22.23	0.88	22.23	0.875	15.9	0.626
10"	553.17	30:1	283	11.14	285	11.22	213	8.39	64	2.52	72	2.83	79	3.11	40	1.57	170	6.69	M10	102	4.02	28.58	1.13	22.23	0.875	20.62	0.812
12" 14"	885.07	50:1	283	11.14	281	11.06	204	8.03	79	3.11	77	3.03	75	2.95	44	1.73	187	7.36	M10	102	4.02	31.75	1.25	28.58	1.125	24	0.945
16"	1843.91	80:1	385	15.16	413	16.26	285	11.22	118	4.65	130	5.12	121	4.76	69	2.72	290	11.42	M20	165	6.5	33.34	1.31	-	-	27	1.063
18"	1843.91	80:1	385	15.16	413	16.26	285	11.22	118	4.65	130	5.12	121	4.76	69	2.72	290	11.42	M20	165	6.5	38.1	1.5	-	-	27	1.063

GEAR OPERATORS

AMERICAN STANDARD FLANGE

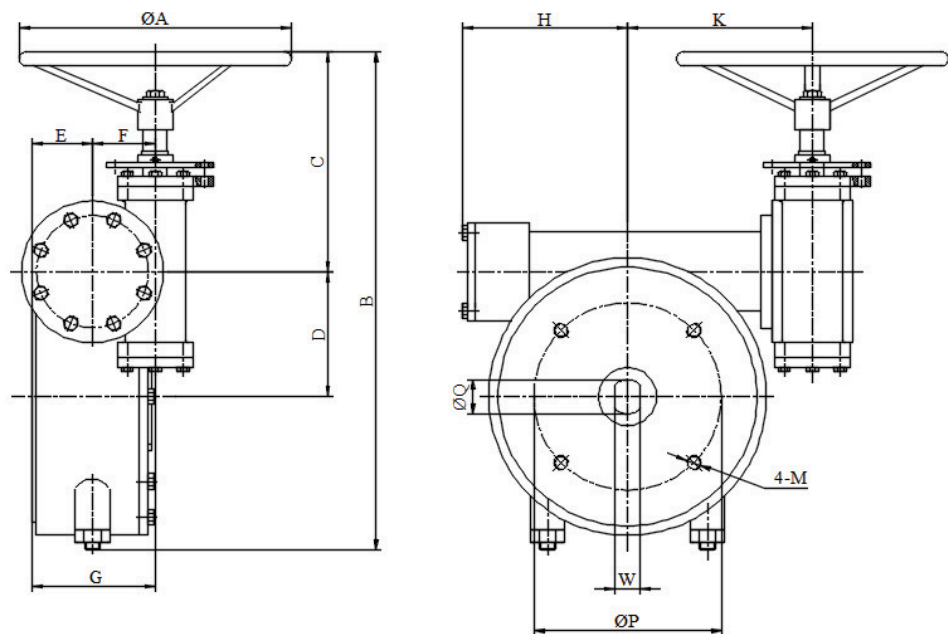


DIMENSIONAL INFORMATION

Size	Torque	Ration	ØA		B		C		E		F		G		H		K		M	P		Q		S		W	
			mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch		mm	inch	mm	inch	mm	inch	mm	inch
2", 3"	125.39	24:1	283	11.14	285	11.22	213	8.39	64	2.52	72	2.83	79	3.11	40	1.57	170	6.69	M10	82.6	3.25	12.7	0.5	15.88	0.625	9.00	0.354
4"	125.39	24:1	283	11.14	285	11.22	213	8.39	64	2.52	72	2.83	79	3.11	40	1.57	170	6.69	M10	82.6	3.25	15.88	0.63	15.88	0.625	11.15	0.439
5", 6"	125.39	24:1	283	11.14	285	11.22	213	8.39	64	2.52	72	2.83	79	3.11	40	1.57	170	6.69	M10	82.6	3.25	19.05	0.75	15.88	0.625	12.7	0.5
8"	553.17	30:1	283	11.14	281	11.06	204	8.03	79	3.11	77	3.03	75	2.95	44	1.73	187	7.36	M12	127	5	22.23	0.88	22.23	0.875	15.9	0.626
10"	553.17	30:1	283	11.14	281	11.06	204	8.03	79	3.11	77	3.03	75	2.95	44	1.73	187	7.36	M12	127	5	28.58	1.13	22.23	0.875	20.62	0.812
12"	885.07	50:1	283	11.14	281	11.06	204	8.03	79	3.11	77	3.03	75	2.95	44	1.73	187	7.36	M12	127	5	31.75	1.25	28.58	1.125	24.00	0.945



GEAR OPERATORS
ISO 5211 FLANGE

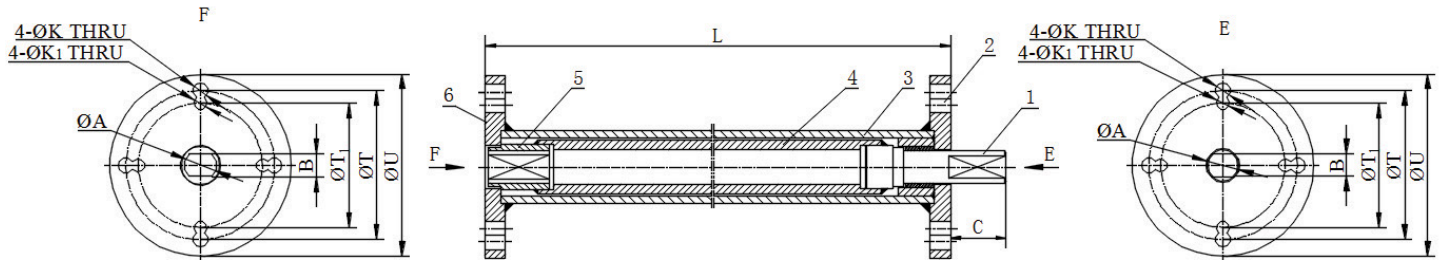


DIMENSIONAL INFORMATION

Size	Torque	Ration	ØA		B		C		D		E		F		G		H		K		M	P		Q		W	
			mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch		mm	inch	mm	inch	mm	inch
20"	2212.69	532:1	283	11.14	380	14.96	155	6.1	96	3.78	55	2.17	56	2.2	109	4.29	110	4.33	180	7.09	M20	165	6.5	41.28	1.63	32	1.26
24"	2950.25	640:1	385	15.16	450	17.72	180	7.09	113	4.45	60	2.36	67	2.64	125	4.92	147	5.79	215	8.46	M20	165	6.5	50.8	2	36	1.417



STEM EXTENDERS



MATERIALS OF CONSTRUCTION

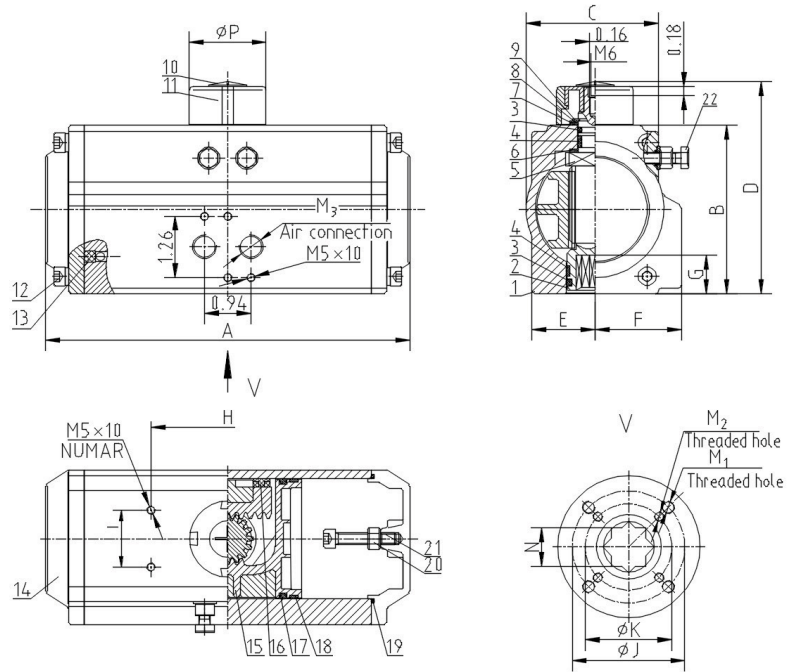
Item	Description	Materials
1	Handle Connecting Shaft	Carbon Steel
2	Upper Flange	Carbon Steel
3	Outer Support Tube Assembly	-
4	Extended Shaft Assembly	-
5	Connecting Shaft Sleeve	Carbon Steel
6	Lower Flange	Carbon Steel

DIMENSIONAL INFORMATION

Size	ØA		B		C		L		ØT		ØT1		ØU		ØV		ØV1	
	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
2", 3"	12.7	0.5	9	0.354	32	1.26	610	24	82.6	3.25	70	2.76	102	4.02	11.1	0.44	9.5	0.37
2"~3"	12.7	0.5	9	0.354	32	1.26	1220	48	82.6	3.25	70	2.76	102	4.02	11.1	0.44	9.5	0.37
4"	15.88	0.63	11.15	0.439	32	1.26	610	24	82.6	3.25	70	2.76	102	4.02	11.1	0.44	9.5	0.37
4"	15.88	0.63	11.15	0.439	32	1.26	1220	48	82.6	3.25	70	2.76	102	4.02	11.1	0.44	9.5	0.37
5", 6"	19.05	0.75	12.7	0.5	32	1.26	610	24	82.6	3.25	70	2.76	102	4.02	11.1	0.44	9.5	0.37
5", 6"	19.05	0.75	12.7	0.5	32	1.26	1220	48	82.6	3.25	70	2.76	102	4.02	11.1	0.44	9.5	0.37
8"	22.23	0.88	15.9	0.626	38	1.5	610	24	127	5	102	4.02	152	5.98	14.3	0.56	11.5	0.45
8"	22.23	0.88	15.9	0.626	38	1.5	1220	48	127	5	102	4.02	152	5.98	14.3	0.56	11.5	0.45
10"	28.58	1.13	20.62	0.812	38	1.5	610	24	127	5	102	4.02	152	5.98	14.3	0.56	11.5	0.45
10"	28.58	1.13	20.62	0.812	38	1.5	1220	48	127	5	102	4.02	152	5.98	14.3	0.56	11.5	0.45
12"	31.75	1.25	24	0.945	38	1.5	610	24	127	5	102	4.02	152	5.98	14.3	0.56	11.5	0.45
12"	31.75	1.25	24	0.945	38	1.5	1220	48	127	5	102	4.02	152	5.98	14.3	0.56	11.5	0.45

ZSPEC[®]
FLOW CONTROL

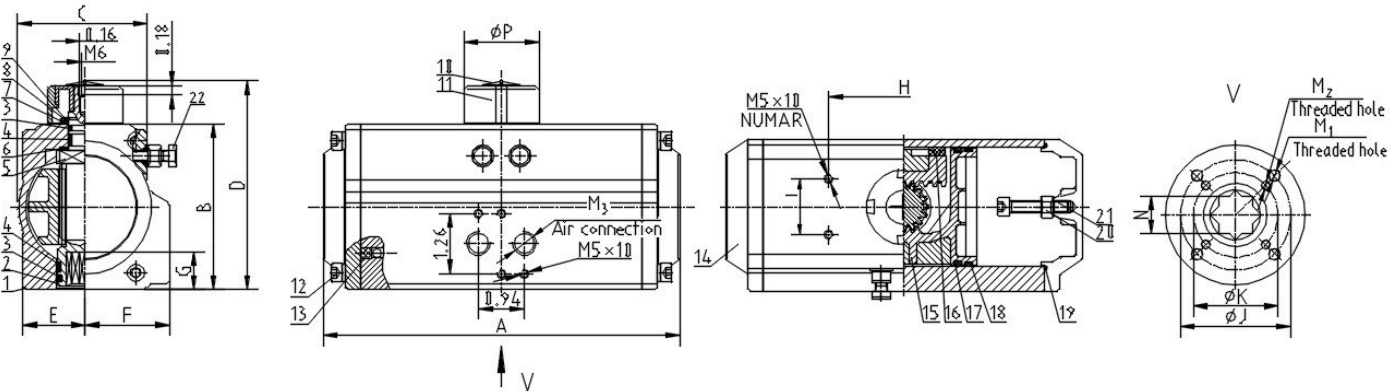
BDA DOUBLE ACTING PNEUMATIC ACTUATORS



MATERIALS OF CONSTRUCTION

Item	Description	Materials
1	Cylinder	Aluminum Alloy (Anodized Oxygenation)
2	Pinion	Carbon Steel (Nickel Plated)
3	Oring	NBR
4	Bearing	POM
5	Spacer	Carbon Steel (Anodized Oxygenation)
6	Thrust Bearing Pinion	Alloy Steel
7	Thrust Bearing Pinion	POM
8	Thrust Washer (Pinion)	Stainless Steel
9	Spring Clip	Stainless Steel
10	Nut (Indicator)	Engineered Plastic
11	Indicator	Engineered Plastic
12	Bolts (End Cap)	Stainless Steel
13	Plug	NBR
14	End Cap	Aluminum Alloy (Poly Coated)
15	Piston	Aluminum Alloy
16	Bearing Ring (Piston)	POM
17	Oring (Piston)	NBR
18	Guide Ring (Piston)	POM
19	Oring (End Cap)	NBR
20	Adjusting Nut (End Cap)	Stainless Steel
21	Adjusting Screw (End Cap)	Stainless Steel
22	Adjusting Screw	Stainless Steel

BDA DOUBLE ACTING
PNEUMATIC ACTUATORS (CONT.)



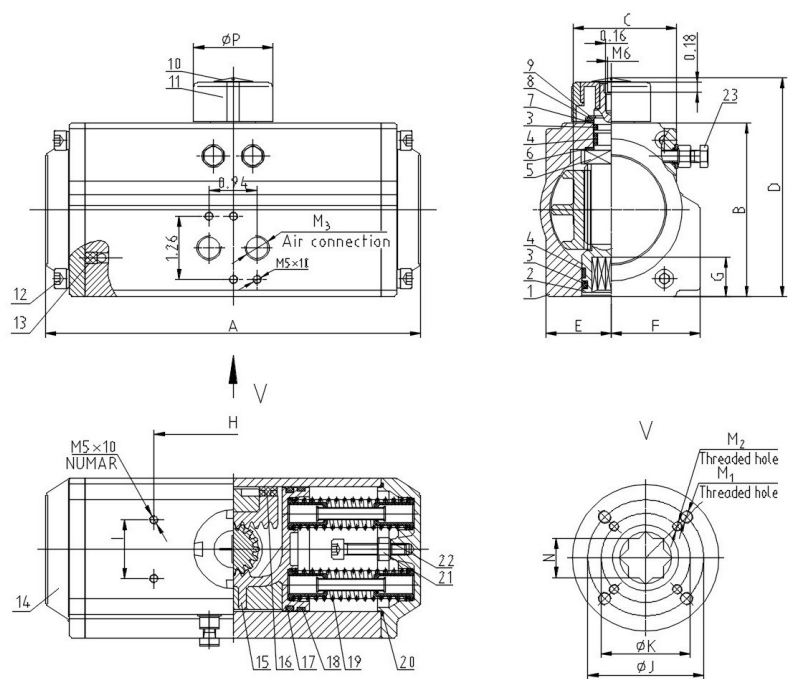
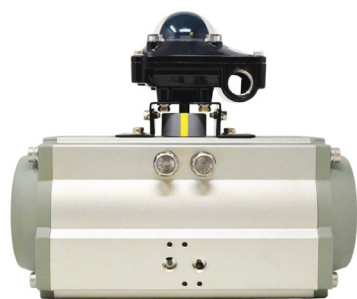
MATERIALS OF CONSTRUCTION

Output Torque for Differential Air Supply Pressure (LBS-FT)				
Size	73 PSI	87 PSI	102 PSI	116 PSI
2", 2.5", 3"	25.37	30.46	35.55	40.57
4"	79.66	95.59	111.52	127.45
5", 6"	116.39	139.69	162.93	186.23
8"	199.95	239.93	279.9	319.95
10"	300.93	361.11	421.3	481.48
12"	463.48	556.2	648.83	741.55

DIMENSIONAL INFORMATION

Size	A		B		C		D		E		F		G		H		I		J		K		M1	M2	N		P		M3
	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch			mm	inch	mm	inch	
2" 2.5" 3"	190	7.48	88	3.46	69	2.72	113	4.45	36	1.42	45	1.77	18	0.71	80	3.15	30	1.18	70	2.76	50	1.97	M8X15	M6X12	14	0.55	40	1.57	G 1/4
4"	259	10.2	120	4.72	98	3.86	145	5.71	51	2.01	58	2.28	20	0.87	80	3.15	30	1.18	70	2.76	50	1.97	M8X13	M6X12	17	0.67	40	1.57	G 1/4
5" 6"	284	11.18	133	5.24	106	4.17	158	6.22	58	2.28	64	2.52	24	0.94	80	3.15	30	1.18	102	4.02	70	2.76	M10X18	M8X14	22	0.87	40	1.57	G 1/4
8"	340	13.39	155	6.1	121	4.76	182	7.17	68	2.68	70	2.76	28	1.1	80	3.15	30	1.18	102	4.02	70	2.76	M10X18	M8X14	22	0.87	65	2.56	G 1/4
10"	414	16.3	172	6.77	137	5.39	198	7.8	76	2.99	77	3.03	32	1.26	80	3.15	30	1.18	125	4.92	102	4.02	M12X22	M10X18	27	1.06	65	2.56	G 1/4
12"	476	18.74	197	7.76	160	6.3	224	8.82	87	3.43	88	3.46	34	1.34	80	3.15	30	1.18	125	4.92	102	4.02	M12X22	M10X18	27	1.06	65	3.06	G 1/4

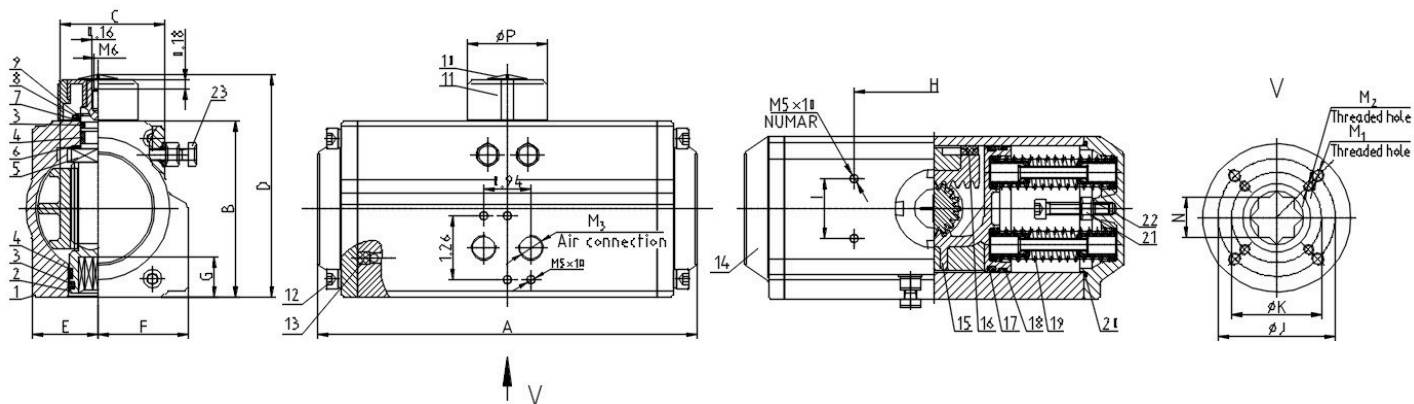
BSR SPRING RETURN PNEUMATIC ACTUATORS



MATERIALS OF CONSTRUCTION

Item	Description	Materials
1	Cylinder	Aluminum Alloy (Anodized Oxygenation)
2	Pinion	Carbon Steel (Nickel Plated)
3	Oring	NBR
4	Bearing	POM
5	Spacer	Carbon Steel (Anodized Oxygenation)
6	Thrust Bearing Pinion	Alloy Steel
7	Thrust Bearing Pinion	POM
8	Thrust Washer (Pinion)	Stainless Steel
9	Spring Clip	Stainless Steel
10	Nut (Indicator)	Engineered Plastic
11	Indicator	Engineered Plastic
12	Bolts (End Cap)	Stainless Steel
13	Plug	NBR
14	End Cap	Aluminum Alloy (Poly Coated)
15	Piston	Aluminum Alloy
16	Bearing Ring (Piston)	POM
17	Oring (Piston)	NBR
18	Guide Ring (Piston)	POM
19	Spring	Spring Steel (Electrophoresis Painted Epoxy Coated)
20	Oring (End Cap)	Stainless Steel
21	Adjusting Nut (End Cap)	Stainless Steel
22	Adjusting Screw (End Cap)	Stainless Steel
23	Adjusting Screw	Stainless Steel

BSR SPRING RETURN PNEUMATIC ACTUATORS (CONT.)



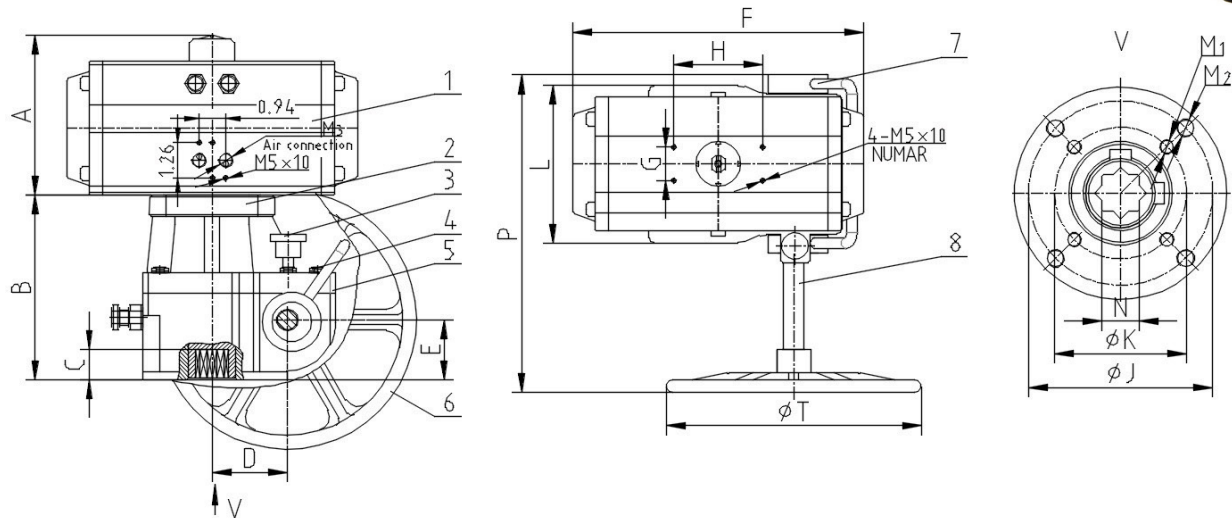
MATERIALS OF CONSTRUCTION

Output Torque for Differential Air Supply Pressure (LBS-FT)							Output Torque of Spring (LBS-FT)	
Size	73 PSI		87 PSI		102 PSI			
	0°	90°	0°	90°	0°	90°	0°	90°
	Starting	Stop	Starting	Stop	Starting	Stop	Starting	Stop
2"	14.09	6.56	19.32	10.99	24.56	15.49	11.06	19.4
2.5", 3"	21.76	11.14	30.09	18.96	38.57	26.77	19.91	30.98
4"	62.62	31.49	86.15	52.74	109.82	74.05	52.88	86.37
5", 6"	105.47	53.84	146.77	91.68	188	129.52	92.49	147.66
8"	158.58	80.91	220.01	139.1	281.53	197.45	141.02	222.01
10"	393.42	195.82	546.02	338.91	698.55	481.92	346.36	548.23
12"	540.63	278.5	750.25	481.63	959.94	684.68	475.95	744.94

DIMENSIONAL INFORMATION

Size	A		B		C		D		E		F		G		H		I		J		K		M1	M2	N		P		M3
	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch			mm	inch	mm	inch	
2"	190	7.48	88	3.46	69	2.72	113	4.45	36	1.42	45	1.77	18	0.71	80	3.15	30	1.18	70	2.76	50	1.97	M8X15	M6X12	14	0.55	40	1.57	G 1/4"
2.5" 3"	206	8.11	100	3.94	79	3.11	125	4.92	42	1.65	52	2.05	20	0.79	80	3.15	30	1.18	70	2.76	50	1.97	M8X13	M6X11	14	0.55	40	1.57	G 1/4"
4"	284	11.18	133	5.24	106	4.17	158	6.22	58	2.28	64	2.52	24	0.94	80	3.15	30	1.18	102	4.02	70	2.76	M10X18	M8X14	22	0.87	40	1.57	G 1/4"
5" 6"	340	13.39	155	6.1	121	4.76	182	7.17	68	2.68	70	2.76	28	1.1	80	3.15	30	1.18	102	4.02	70	2.76	M10X18	M8X14	22	0.87	65	2.56	G 1/4"
8"	414	16.3	172	6.77	137	5.39	198	7.8	76	2.99	77	3.03	32	1.26	80	3.15	30	1.18	125	4.92	102	4.02	M12X22	M10X18	27	1.06	65	2.56	G 1/4"
10"	524	20.63	230	9.06	186	7.32	269	10.59	103	4.06	103	4.06	40	1.57	130	5.12	30	1.18	140	5.51	-	-	M16X23	-	36	1.42	78	3.04	G 1/4"
12"	559	22.01	255	10.04	202	7.95	294	11.57	113	4.45	113	4.45	40	1.57	130	5.12	30	1.18	140	5.51	-	-	M16X25	-	36	1.42	78	3.04	G 1/4"

BDA-WG (DOUBLE ACTING) & BSR-WG (SPRING RETURN) PNEUMATIC ACTUATORS WITH MANUAL GEAR OVERRIDE



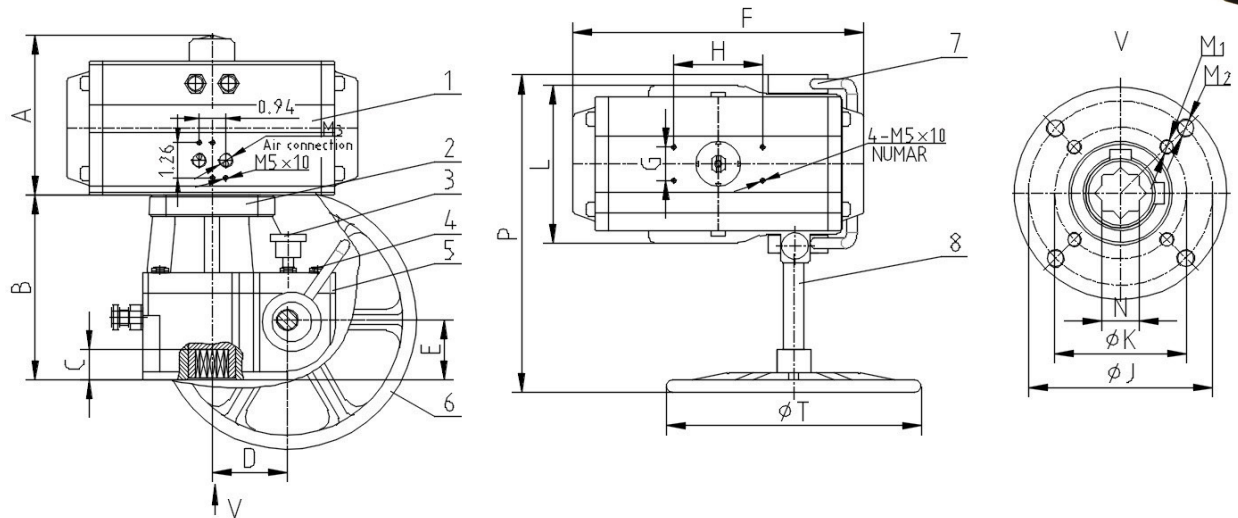
MATERIALS OF CONSTRUCTION

Item	Description	Materials
1	Pneumatic Actuator	-
2	Upper Cover	Aluminum Alloy
3	Positioning Pin	Alloy Steel
4	Fastening	Stainless Steel
5	Box	Aluminum Alloy
6	Handwheel	Carbon Steel
7	Handle	Stainless Steel
8	Transmission Rod	Alloy Steel

DIMENSIONAL INFORMATION

Size	A		B		C		D		E		F		G		H		L		ØT		J		K		M1	M2	N		P		M3
	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch			mm	inch	mm	inch	
2" 2.5" 3"	113	4.45	105	4.13	16	0.63	44	1.73	33	1.3	190	7.48	30	1.18	80	3.15	90	3.54	180	7.09	70	2.76	50	1.97	M6	M8	14	0.55	190	7.48	G 1/4
4"	145	5.71	110	4.33	19	0.75	54	2.13	36	1.42	259	10.2	30	1.18	80	3.15	125	4.92	200	7.87	102	4.02	70	2.76	M8	M10	17	0.67	240	9.45	G 1/4
5" 6"	158	6.22	130	5.12	24	0.94	65	2.56	39	1.54	284	11.18	30	1.18	80	3.15	140	5.51	280	11.02	125	4.92	70	2.76	M8	M12	22	0.87	272	10.71	G 1/4
8"	182	7.17	130	5.12	24	0.94	65	2.56	39	1.54	340	13.39	30	1.18	80	3.15	140	5.51	280	11.02	125	4.92	102	4.02	M10	M12	22	0.87	272	10.71	G 1/4
10"	198	7.8	165	6.5	29	1.14	82	3.23	56	2.2	414	16.3	30	1.18	80	3.15	187	7.36	300	11.81	125	4.92	102	4.02	M10	M12	27	1.06	358	14.09	G 1/4
12"	224	8.82	165	6.5	29	1.14	82	3.23	56	2.2	476	18.74	30	1.18	80	3.15	187	7.36	300	11.81	125	4.92	102	4.02	M10	M12	27	1.06	358	14.09	G 1/4

BDA-WG (DOUBLE ACTING) & BSR-WG (SPRING RETURN) PNEUMATIC ACTUATORS WITH MANUAL GEAR OVERRIDE (CONT.)



MATERIALS OF CONSTRUCTION

Item	Description	Materials
1	Pneumatic Actuator	-
2	Upper Cover	Aluminum Alloy
3	Positioning Pin	Alloy Steel
4	Fastening	Stainless Steel
5	Box	Aluminum Alloy
6	Handwheel	Carbon Steel
7	Handle	Stainless Steel
8	Transmission Rod	Alloy Steel

DIMENSIONAL INFORMATION

Size	A		B		C		D		E		F		G		H		L		ØT		J		K		M1	M2	N		P		M3
	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch			mm	inch	mm	inch	
2"	113	4.45	105	4.13	16	0.63	44	1.73	33	1.3	190	7.48	30	1.18	80	3.15	90	3.54	180	7.09	70	2.76	50	1.97	M6	M8	14	0.55	190	7.48	G 1/4
2.5"	125	4.92	105	4.13	16	0.63	44	1.73	33	1.3	206	8.11	30	1.18	80	3.15	90	3.54	180	7.09	70	2.76	50	1.97	M6	M8	14	0.55	190	7.48	G 1/4
3"	125	4.92	105	4.13	16	0.63	44	1.73	33	1.3	206	8.11	30	1.18	80	3.15	90	3.54	180	7.09	70	2.76	50	1.97	M6	M8	14	0.55	190	7.48	G 1/4
4"	158	6.22	130	5.12	24	0.94	65	2.56	39	1.54	284	11.18	30	1.18	80	3.15	140	5.51	280	11.02	125	4.92	70	2.76	M8	M12	22	0.87	272	10.71	G 1/4
5", 6"	182	7.17	130	5.12	24	0.94	65	2.56	39	1.54	340	13.39	30	1.18	80	3.15	140	5.51	280	11.02	125	4.92	70	2.76	M8	M12	22	0.87	272	10.71	G 1/4
8"	198	7.8	165	6.5	29	1.14	82	3.23	56	2.2	414	16.3	30	1.18	80	3.15	187	7.36	300	11.81	125	7.92	102	4.02	M10	M12	27	1.06	358	14.09	G 1/4
10"	269	10.59	177	6.97	40	1.57	109	4.29	59	2.32	524	20.63	30	1.18	130	5.12	221	8.7	400	15.75	140	5.51	102	4.02	M10	M16	36	1.42	405	15.94	G 1/4
12"	294	11.57	177	6.97	40	1.57	109	4.29	59	2.32	559	22.01	30	1.18	130	5.12	221	8.7	400	15.75	140	5.51	102	4.02	M10	M16	36	1.42	405	15.94	G 1/4

BUTTERFLY VALVE MANUAL AND MAINTENANCE INSTRUCTIONS

STORAGE

- Store butterfly valves in a closed, clean, dry, and dark environment.
- Keep discs in the half-closed position to prevent damage to the rubber seats.

INSTALLATION

- Butterfly valves are bidirectional.
- Do not use gaskets or seal rings between flanges.
- Before installation, ensure pipe flanges are clean, properly aligned, and parallel.
- For dead-end service, install flanges on both sides of the valve.

1

INSTALLATION ON AN EXISTING PIPELINE

- Verify the valve fits easily between flanges.
- Center the valve body between the flanges.
- Hand-tighten all bolts in a star pattern with the valve in the half-open position.
- Open and close the valve to confirm smooth disc operation.
- Return the disc to the full open position and tighten all bolts.

2

INSTALLATION ON AN EXISTING PIPELINE

- Position the valve in the closed position between two flanges.
- Secure the valve to the flanges using bolts tightened in a star pattern.
- Weld the flanges to the pipeline.
- **Do not completely weld the flanges with the valve installed, as heat may damage the seals.**
- Remove the valve by loosening the bolts.
- Finish welding the flanges to the pipeline and allow them to cool completely.
- Reinstall the valve following the steps for an existing pipeline.

VALVE REMOVAL FROM THE PIPELINE

- Place the disc in the half-closed position.
- Loosen and remove all bolts. For wafer-style valves, remove only the bolts necessary for removal.
- Use appropriate tool to separate the flanges, then remove the valve.

MAINTENANCE

- No routine maintenance or lubrication is required.
- Operate the valve at least once a month to ensure proper function.

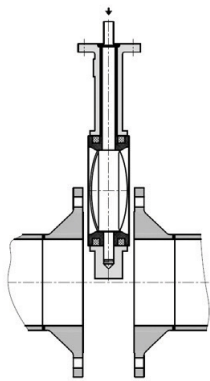
APPLICATION LIMITS

Do not use the butterfly valves under the following conditions:

- Pressures exceeding the rated working pressure.
- Pressures exceeding the test pressure, even temporarily.
- Temperatures outside the specified range.
- Exposure to aggressive or incompatible substances.

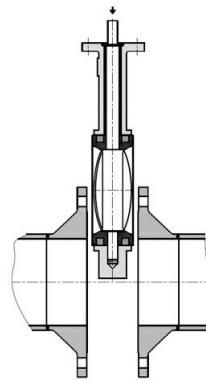
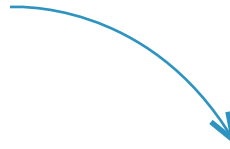
SAFETY REGULATIONS

- Do not service the valve while pipeline is under pressure.
- Do not apply excessive loads to the valve and protect it from impact.
- Open and close valves slowly to prevent water hammer.



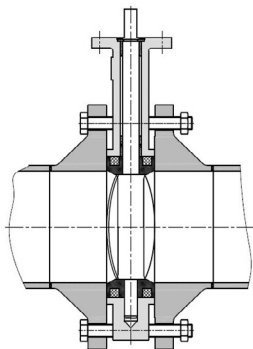
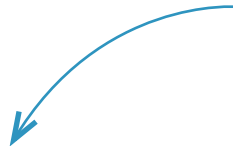
1

Space the flanges adequately to allow easy insertion of the valve. Ensure the disc is in the half-open position.



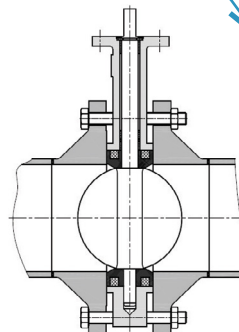
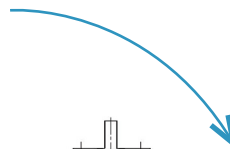
2

Do not use gaskets or seal rings between flanges.



3

Install the valve with the disc in the half-open position and hand-tighten all bolts.

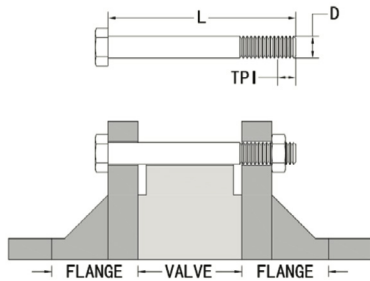


4

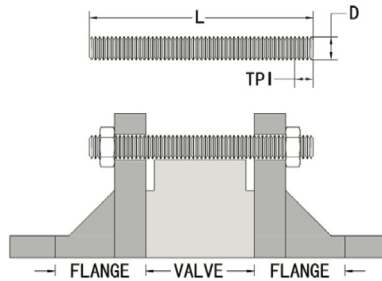
Open the valve fully to confirm alignment, then tighten all bolts.

BOLT AND CAP SCREW CHARTS

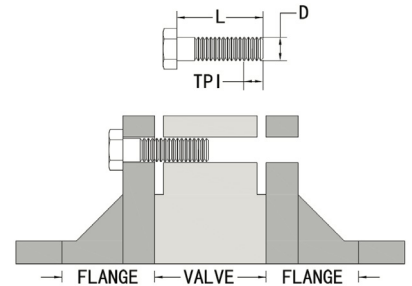
WAFER VALVE AND CAP SCREWS



WAFER VALVE AND STUD BOLTS



LUG VALVE AND CAP SCREWS



Size	D	TPI	L	QTY
2	5/8"	11	4-1/4"	4
2.5	5/8"	11	4-3/4"	4
3	5/8"	11	5"	4
4	5/8"	11	5"	8
5	3/4"	10	5-1/4"	8
6	3/4"	10	5-1/2"	8
8	3/4"	10	6"	8
10	7/8"	9	6-1/2"	12
12	7/8"	9	7"	12
14	1"	8	8"	12
16	1"	8	8-3/4"	16
18	1-1/8"	7	9-1/2"	16
20	1-1/8"	7	10-1/2"	20
24	1-1/4"	7	12	20

Size	D	TPI	L	QTY
2	5/8"	11	5-1/8"	4
2.5	5/8"	11	5-1/8"	4
3	5/8"	11	5-1/2"	4
4	5/8"	11	5-1/2"	8
5	3/4"	10	6-3/8"	8
6	3/4"	10	6-3/8"	8
8	3/4"	10	6-1/4"	8
10	7/8"	9	7-1/2"	12
12	7/8"	9	8-3/8"	12
14	1"	8	8-3/4"	12
16	1"	8	10"	16
18	1-1/8"	7	11-1/8"	16
20	1-1/8"	7	12"	20
24	1-1/4"	7	13-13	20

Size	D	TPI	L	QTY
2	5/8"	11	4-1/4"	8
2.5	5/8"	11	4-3/4"	8
3	5/8"	11	5"	8
4	5/8"	11	5"	16
5	3/4"	10	5-1/4"	16
6	3/4"	10	5-1/2"	16
8	3/4"	10	6"	16
10	7/8"	9	6-1/2"	24
12	7/8"	9	7"	24
14	1"	8	8"	24
16	1"	8	8-3/4"	32
18	1-1/8"	7	9-1/2"	32
20	1-1/8"	7	10-1/2"	40
24	1-1/4"	7	12	40

WARNING:

Improper bolt and stud lengths could result in leakage at the flange, resulting in damage, serious injury, or death.

CAUTION:

Dimensions provided for flange bolting are intended only as a guide. Bolt lengths may vary due to manufacturing tolerances in valves, gaskets, flange bolts, and flanges. ZSPEC resilient seated butterfly valves are designed to fit between ANSI B16.5 class 150 flanges without flange gaskets. Since inside flange diameters may vary depending on the type of flange, always verify that the connecting pipe flange face fully engages the valve seat face before installation.

TORQUE AND CV CHARTS

TORQUES FOR DIFFERENTIAL PRESSURES (LBS-FT)

Size	$\Delta P = 0 \text{ PSI}$	$\Delta P = 50 \text{ PSI}$	$\Delta P = 100 \text{ PSI}$	$\Delta P = 150 \text{ PSI}$	$\Delta P = 200 \text{ PSI}$
2"	11	11.58	12.32	12.91	13.64
2.5"	16.61	17.48	19.03	20.43	21.98
3"	22.84	24.04	25.59	27.07	28.4
4"	32.09	33.78	37.62	41.6	45.43
5"	46.81	49.27	56.05	62.99	69.7
6"	66.28	69.77	80.54	91.31	102
8"	117.43	123.62	137.92	152.38	166.76
10"	185.12	194.86	218.39	241.92	265.37
12"	284.55	299.52	326	352.63	378.96
14"	292.54	307.93	358.09	408.31	462.52
16"	472.12	496.97	569.25	641.68	698.47
18"	696.76	733.43	844.95	956.62	1071.31
20"	926.51	975.28	1071.01	1166.6	1266.91
24"	1709.81	1799.8	1961.47	2123.29	2184.95

CV VALUES: GALLONS PER MINUTE (GPM) @ 1 PSI

Size	10°	20°	30°	40°	50°	60°	70°	80°	90°
2"	0.06	3	7	15	27	44	70	105	115
2.5"	0.1	6	12	25	45	75	119	178	196
3"	0.2	9	18	39	70	116	183	275	302
4"	0.3	17	36	78	139	230	364	546	600
5"	0.5	29	61	133	237	392	620	930	1022
6"	0.8	45	95	205	366	605	958	1437	1579
8"	2	89	188	408	727	1202	1903	2854	3136
10"	3	151	320	694	1237	2049	3240	4859	5340
12"	4	234	495	1072	1911	3162	5005	7507	8250
14"	6	338	715	1549	2761	4568	7230	10844	11917
16"	8	464	983	2130	3797	6282	9942	14913	16388
18"	11	615	1302	2822	5028	8320	13168	19752	21705
20"	14	791	1647	3628	6465	10698	16931	25396	27908
24"	22	1222	2587	5605	9989	16528	26157	39236	43116





Zspec Flow Control, Inc.
5728 North Eldridge Parkway
B-2, Suite 101
Houston, TX 77041
United States

Phone : (713) 329-5700
Fax : (713) 329-5703
Email : sales@zspec.com
www.zspec.com





Zspec Flow Control, Inc.
5728 North Eldridge Parkway
B-2, Suite 101
Houston, TX 77041
United States

Phone : (713) 329-5700

Fax : (713) 329-5703

Email : sales@zspec.com

www.zspec.com



**ISO 9001:2015
CERTIFIED COMPANY**

 **PRI Certification**
PERFORMANCE REVIEW INSTITUTE



American
Petroleum
Institute