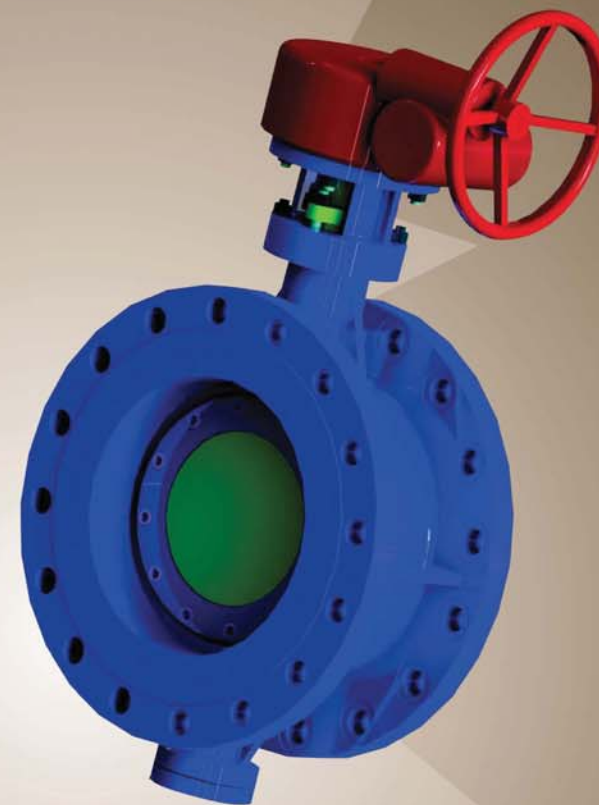


BUTTERFLY VALVE



8303 EDGEVALLEY DRIVE NW,
CALGARY, AB, CANADA T3A 4V3

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Control
Automation
Distribution

 **CWT Valve**
CWT VALVE INDUSTRIES INC.

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CWT FIGURE NUMBER SYSTEM

1. VALVE TYPE	CBU= BUTTERFLY VALVE		
2. SIZE	02=2"	10=10"	26=26"
	21=2 1/2"	12=12"	28=28"
	03=3"	14=14"	30=30"
	04=4"	16=16"	32=32"
	05=5"	18=18"	36=36"
	06=6"	20=20"	40=40"
	08=8"	24=24"	42=42"
3. PRESSURE	01=ANSI CLASS 150		
	03=ANSI CLASS 300		
	06=ANSI CLASS 600		
4. CONSTRUCTION	C=CONCENTRIC BUTTERFLY VALVE D=DOUBLE OFFSET BUTTERFLY VALVE T=TRIPLE OFFSET BUTTERFLY VALVE		
5. ENDS	RF=RAISED FACE FLANGED JF=RTJ FLANGED RW=RAISED FACE FLANGEDxWELDED END JR=RTJxRAISED FACE FLANGED JW=RTJxWELDED END	EW=BUTT WELDED FF=FLAT FACE WR=WAFER RF LR=LUGGED RF	
6. BODY MATERIAL	01=ASTM A216 WCB/A105 02=ASTM A352 LCC/A350 LF2 03=ASTM A351 CF8M/A182 F316 04=ASTM A890 4A/A182 F51 05=ASTM A182 F55 06=ASTM A105N 07=ASTM A216 WCB+ENP/A105+ENP 08=ASTM A395 09=ASTM A351 CF8/A182 F304	10=ASTM A217 WC6/A182 F11 11=ASTM A217 C5/ASTM A182 F5 12=ASTM A351 CF3M/A182 F304L 13=ASTM A351 CF3M/A182 F316L 14=ASTM M35-1/B 564 N04400 15=ASTM A351 CN7M/ 16=ASTM A217 C12/A182 F9 17=ASTM A217 WC9/A182 F22 18=ASTM A 126 B	19=ASTM A216 WCC 20=ASTM A352 LCB 21=ASTM A217 C12A/A182 F91 22=ASTM A182 F12 23=ASTM A182 F321 24=ASTM A217 WC1 25=ASTM B61/B62 26=ASTM A 694 F60 27=ASTM A494 N-7M/CW-GMC 28=ASTM A487 Cx9 29=ASTM A182 F347 30=ASTM A351 CF8C 31=ASTM A182 904L 32=ASTM A182 F304H 33=ASTM A890 5A/A182 F53

CWT FIGURE NUMBER SYSTEM

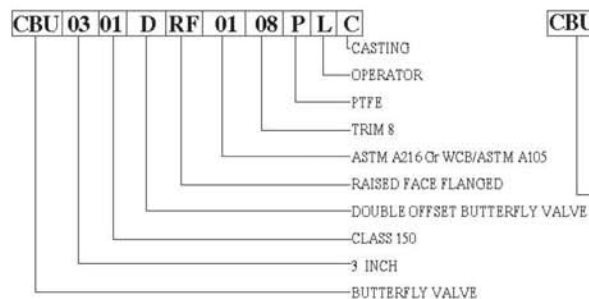
7. TRIM MATERIAL	TRIM NUMBER#	WEDGE FACE	SEAT FACE	STEM
	01=13CR	13CR	13CR	ASTM 276 410
	02=304SS	304SS	304SS	ASTM A276 304
	05=STL / STL	STL	STL	ASTM 276 410
	08=13CR / STL	13CR	STL	ASTM 276 410
	09=MONEL	MONEL	MONEL	ASTM B865 N05500
	10=316SS	316SS	316SS	ASTM A276 316
	12=316 / STL	316SS	STL	ASTM A276 316
	13=ALLOY 20	ALLOY 20	ALLOY 20	ASTM B473
	14=ALLOY 20 / STL	ALLOY 20	STL	ASTM B473
	15=STL / STL	STL	STL	ASTM A276 304
	16=STL / STL	STL	STL	ASTM A276 316
	20=BRONZE	BRONZE	BRONZE	ASTM 276 410
	23=304SS / STL	304SS	STL	ASTM A276 304
	27=316L / 316L	316LSS	316LSS	ASTM A276 316L
	28=316L / STL	316LSS	STL	ASTM A276 316L
	29=STL / STL	STL	STL	ASTM A276 316L
	30=F55 / STL	F55	STL	ASTM A182 F55

8. BUTTERFLY SEAT	P=PTFE/TEFLON	R=REINFORCED PTFE
	B=NBR	C=PTFE
	T=VITON	M=METAL TO METAL
	E=EPDM	

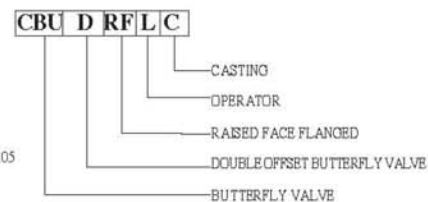
9. OPERATOR	L=LEVER/WRENCH	E=ELECTRICAL OPERATOR
	G=GEAR BOX	P=PNEUMATIC OPERATOR
	B=BARE STEM	H=HYDRAULIC OPERATOR
	W=HANDWHEEL	S=SOLENOID OPERATOR

10. MATERIAL TYPE	C=CASTING	F=FORGED
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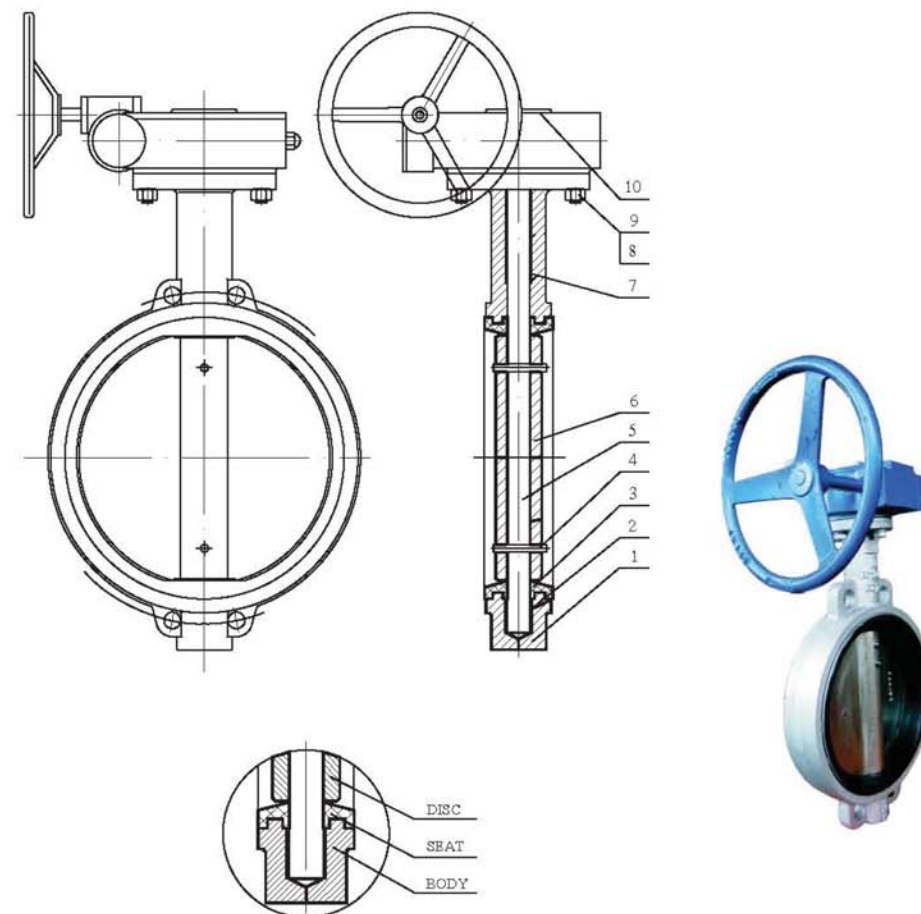
1. PART NUMBER EXAMPLE:



2. SERIES NUMBER EXAMPLE:



CONCENTRIC BUTTERFLY VALVE



DESIGN FEATURES:

- SIMPLE STRUCTURE AND GOOD SEALING PERFORMANCE.
- GOOD FLOW REGULATING FUNCTION AND BI-DIRECTIONAL SEALING FEATURE.
- SEALING PRINCIPLE: THE SHAFT AND DISC ARE IN THE SAME CENTERLINE. THE RUBBER SEAT IS SQUEEZED BY THE DISC'S OUTER EDGE DURING ROTATION, WHICH FURTHER PRODUCED ELASTIC FORCE, TO ENSURE THE VALVE CLOSURE WITH THE TIGHT SEALING RESULT.

CONCENTRIC BUTTERFLY VALVE

STANDARDS:

- DESIGN AND MANUFACTURE: API 609
- FACE TO FACE DIMENSIONS: API 609
- FLANGE ENDS DIMENSIONS: NPS 1/2"~24" ASME B16.5
- PRESSURE-TEMPERATURE RATINGS: ASME B16.34
- PRESSURE: CLASS 150
- SIZE: NPS 2"-36"

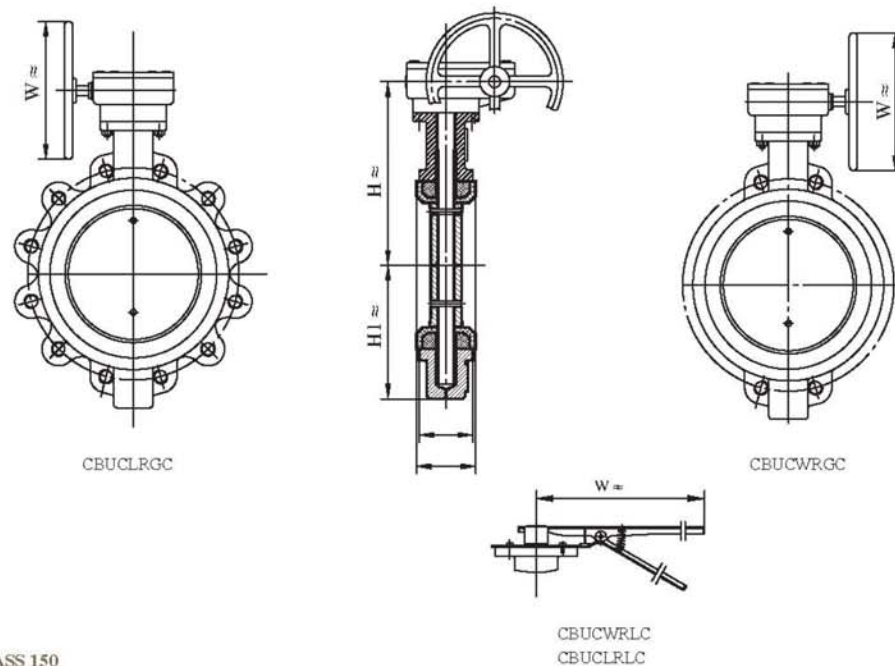


BILL OF MATERIAL(PARTIAL)

ITEM	PART NAME	STANDARD	LOW TEMPERATURE	STAINLESS STEEL	COPPER(Cu)
1	BODY	ASTM A216 WCB	ASTM A352 LCC	ASTM A351 CF8M	ASTM B148 C95800
2	BUSHING	PTFE	PTFE	PTFE	PTFE
3	SEAT	PTFE/RUBBER	PTFE/RUBBER	PTFE/RUBBER	PTFE/EPDM
4	PIN	ASTM A276 410	ASTM A276 304	ASTM A276 316	ASTM A276 316
5	STEM	ASTM A182 F6	ASTM A182 F304	ASTM A182 F316	ASTM B148 C95800
6	DISC	ASTM A216 WCB	ASTM A352 LCC	ASTM A351 CF8M	ASTM B148 C95800
7	BUSHING	PTFE	PTFE	PTFE	PTFE
8 ♦	GEAR OPERATOR	ASSEMBLY			

♦GEAR OPERATOR, ELECTRICAL OPERATOR, PNEUMATIC OPERATOR, HYDRAULIC OPERATOR ETC. ARE AVAILABLE
 NOTE: OTHER MATERIALS ARE AVAILABLE UPON REQUEST.

CONCENTRIC BUTTERFLY VALVE -WAFER/LUG TYPE

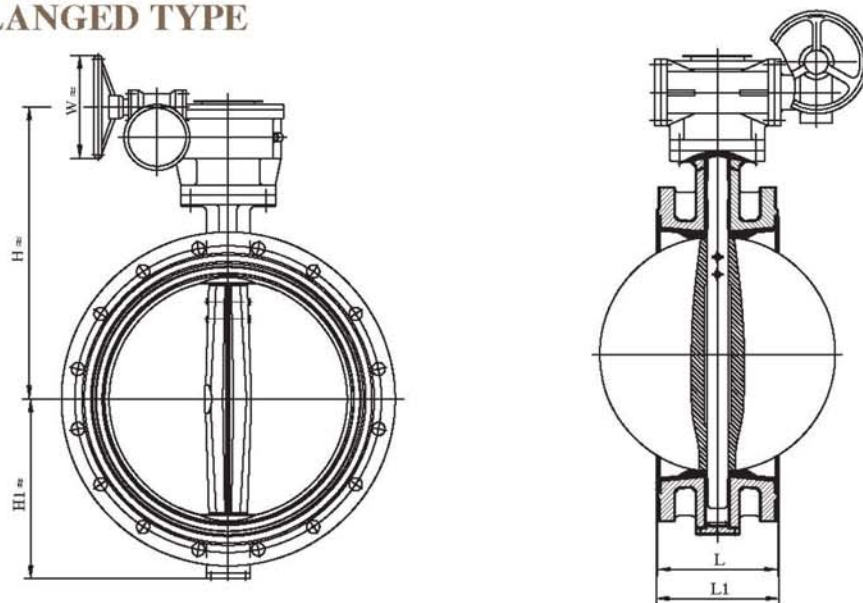


CLASS 150

NPS	in	2	2-1/2	3	4	5	6	8	10	12	14	16	18	20	24	30	36
DN	mm	50	65	80	100	125	150	200	250	300	350	400	450	500	600	750	900
L	mm	43	46	46	52	56	56	60	68	78	78	102	114	127	154	165	200
L1	mm	46	49	49	55	59	59	63	71	81	81	105	117	130	157	168	203
H	mm	143	150	165	200	215	226	274	314	378	513	550	618	676	728	-	-
H1	mm	89	99	103	114	125	139	184	215	255	270	322	365	395	434	-	-
W	mm	300	300	350	400	400	200	200	200	250	250	450	450	450	450	-	-
WT(WR)	Kg	2.9	3.9	4.8	6.4	8.8	12	14.8	19.6	32.5	44.1	53.5	75	125	200	-	-
WT(LR)	Kg	3.5	4.5	7	12.6	13.2	15.2	22.5	33	48	71	90	105	180	278	-	-

GEAR OPERATOR FOR NPS ≥ 6"

CONCENTRIC BUTTERFLY VALVE- DOUBLE FLANGED TYPE



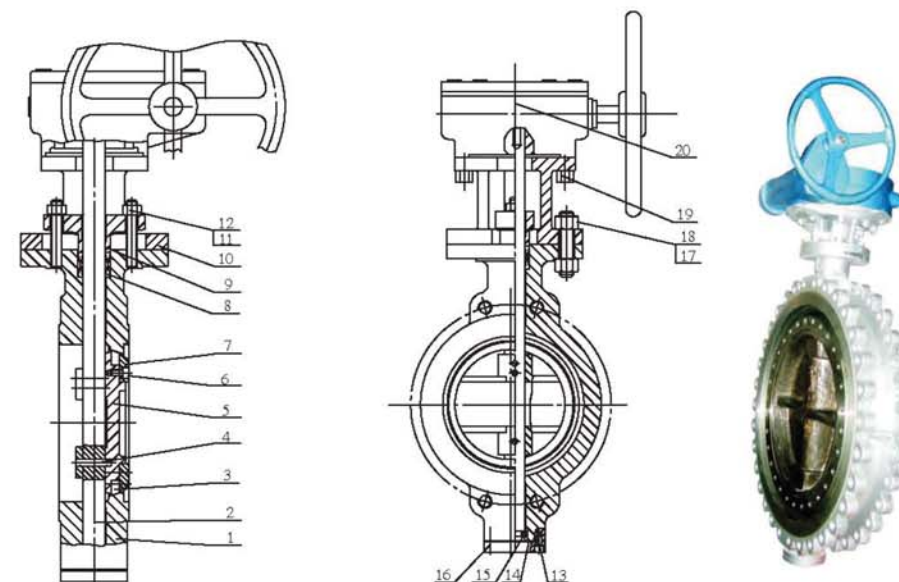
CBUCRFGC

CLASS 150

NPS	in	2	3	4	6	8	10	12	14	16	18	20	24	30	36
DN	mm	50	80	100	150	200	250	300	350	400	450	500	600	750	900
L	mm	108	114	127	140	152	165	178	190	216	222	229	267	318	330
L1	mm	111	117	130	143	155	168	182	194	221	227	234	272	326	338
H	mm	143	165	200	226	274	314	378	513	550	618	676	728	-	-
H1	mm	89	103	114	139	175	200	225	280	300	365	380	434	-	-
W	mm	300	350	400	200	200	200	250	250	450	450	450	450	-	-
WT	Kg	8	11	14	22	32	45	58	82	108	150	230	340	-	-

GEAR OPERATOR FOR NPS ≥ 6"

DOUBLE OFFSET BUTTERFLY VALVE

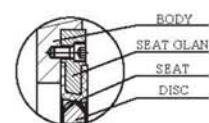


DESIGN FEATURES:

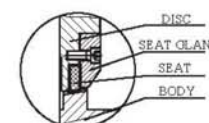
- GOOD FLOW REGULATING FUNCTION AND SEALING PERFORMANCE.
- DIFFERENT SEAT DESIGNS SATISFY VARIOUS SERVICE CONDITIONS.
- THE DISC CAN MOVE AWAY FROM THE SEAT FAST WHEN OPENING TO REDUCE THE FRICTION, AND THEN PROLONG THE VALVE LIFE.
- SEALING PRINCIPLE: TWO OFFSET DESIGNS I.E. THE OFFSET BETWEEN THE STEM'S ROTATION AXIS AND THE CENTERLINE OF VALVE BODY; AND THE OFFSET BETWEEN THE STEM'S ROTATION AXIS AND THE CENTERLINE OF VALVE SEAT RING. THE RUBBER SEAT IS SQUEEZED BY THE DISC'S OUTER EDGE SLOWLY AND GRADUALLY DURING ROTATION, WHICH FURTHER PRODUCED ELASTIC DEFORMATION, TO ENSURE THE VALVE CLOSURE WITH THE TIGHT SEALING RESULT.

TYPES OF SEAT:

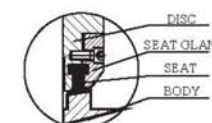
1. SEAT ON THE BODY



2. SEAT ON THE DISC



3. T-SHAPED SEAT



DOUBLE OFFSET BUTTERFLY VALVE

STANDARDS:

- DESIGN AND MANUFACTURE: API 609 / MSS SP-67 / MSS SP-68
- FACE TO FACE DIMENSIONS: API 609 / BS 5155
- FLANGE ENDS DIMENSIONS:
 - NPS 1/2" - 24 ASME B16.5
 - NPS 26" - 36" ASME B16.47
- PRESSURE-TEMPERATURE RATINGS: ASME B16.34
- PRESSURE: CLASS 150 - CLASS 300
- SIZE: NPS 2" - 36"

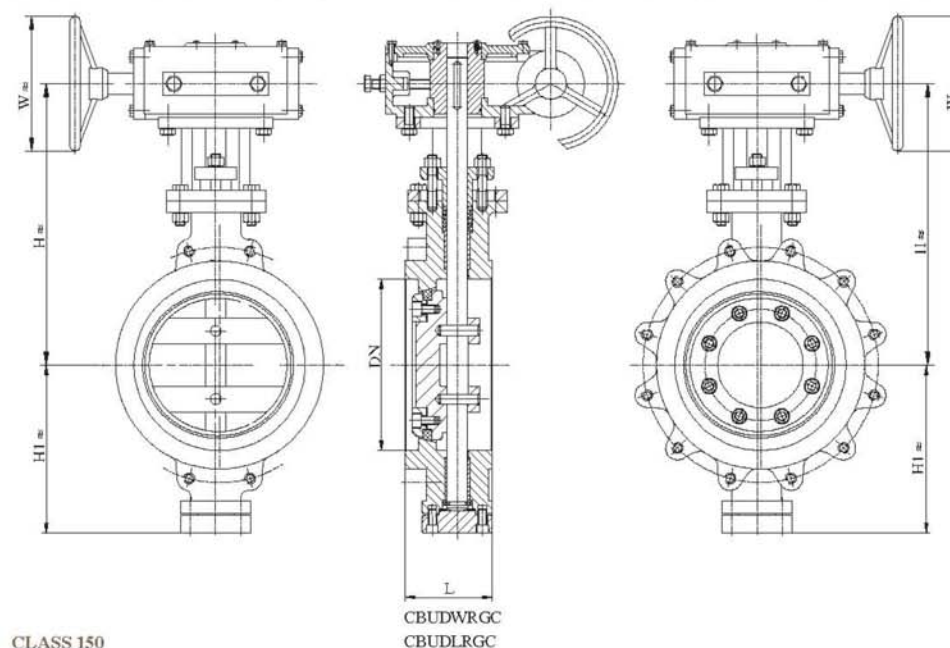


BILL OF MATERIAL(PARTIAL)

ITEM	PART NAME	STANDARD	LOW TEMPERATURE	STAINLESS STEEL
1	BODY	ASTM A216 WCB	ASTM A352 LCC	ASTM A351 CF8M
2	STEM	ASTM A182 F6	AISI 4140 / 4340	ASTM A182 F316
3	SEAT	PTFE / RUBBER		
4	PIN	ASTM A276 410	ASTM A276 304	ASTM A276 316
5	DISC	ASTM A216 WCB	ASTM A352 LCC	ASTM A351 CF8M
6	SCREW	CARBON STEEL	STAINLESS STEEL	STAINLESS STEEL
7	SEAT GLAND	CARBON STEEL	STAINLESS STEEL	STAINLESS STEEL
8	PACKING	GRAPHITE / PTFE		
9	GLAND FLANGE	ASTM A216 WCB	ASTM A216 WCB	ASTM A351 CF8
10	YOKE	ASTM A216 WCB	ASTM A216 WCB	ASTM A351 CF8
11	GLAND NUT	ASTM A194 2H/2HM	ASTM A194 7/7M	ASTM A194 8M
12	EYEBOLT	ASTM A193 B7/B7M	ASTM A320 L7/L7M	ASTM A193 B8M
13	COVER BOLT	ASTM A193 B7/B7M	ASTM A320 L7/L7M	ASTM A193 B8M
14	GASKET	SS304 / SS316+GRAPHITE		
15	SPLINT COLLAR	CARBON STEEL	STAINLESS STEEL	316 SS
16	COVER	ASTM A216 WCB	ASTM A352 LCC	ASTM A351 CF8M
17	YOKE BOLT	ASTM A193 B7 / B7M	ASTM A193 B7/B7M	ASTM A193 B8
18	YOKE NUT	ASTM A194 2H / 2HM	ASTM A194 2H/2HM	ASTM A194 8
19	BOLT	CARBON STEEL	CARBON STEEL	CARBON STEEL
20 ♦	GEAR	ASSEMBLY		
	SEALING FACE OVERLAY	API TRIMS AVAILABLE		

♦ GEAR OPERATOR, ELECTRICAL OPERATOR, PNEUMATIC OPERATOR, HYDRAULIC OPERATOR ETC. ARE AVAILABLE
 NOTE: OTHER MATERIALS ARE AVAILABLE UPON REQUEST.

DOUBLE OFFSET BUTTERFLY VALVE – WAFER / LUG TYPE

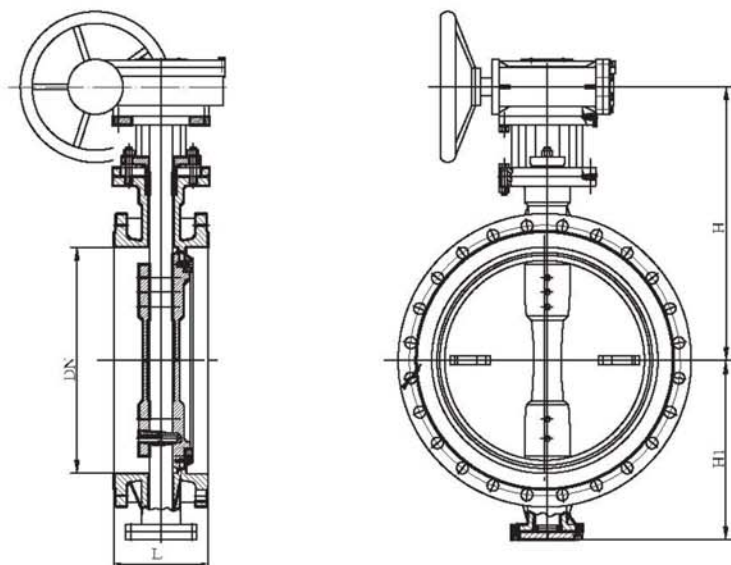


CLASS 150

NPS	in	2	2-1/2	3	4	5	6	8	10	12	14	16	18	20	24	30	36
DN	mm	50	65	80	100	125	150	200	250	300	350	400	450	500	600	750	900
L	mm	43	46	48	54	57	57	64	71	81	92	102	114	127	154	165	200
H	mm	115	135	145	169	201	221	274	314	378	513	585	618	676	728	980	1130
H1	mm	80	90	100	114	132	146	180	252	283	304	315	365	395	434	585	675
W	mm	300	300	350	400	400	200	200	200	250	250	450	450	450	450	550	550
WT(WR)	Kg	5	8	10	12	14	18	22	35	51	85	115	155	200	333	595	950
WT(LR)	Kg	7	10	12	15	18	22	33	45	65	105	165	205	260	385	745	1100

GEAR OPERATOR FOR NPS ≥ 6"

DOUBLE OFFSET BUTTERFLY VALVE – FLANGED TYPE



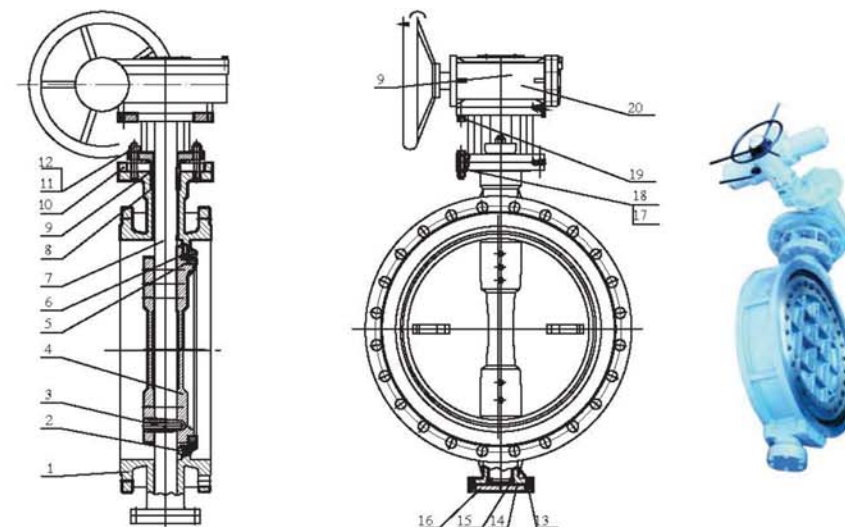
CBUDRFLC

CLASS 150

NPS	in	2	3	4	6	8	10	12	14	16	18	20	24	30	36
DN	mm	50	80	100	150	200	250	300	350	400	450	500	600	750	900
L	mm	108	114	127	140	152	165	178	190	216	222	229	267	318	330
H	mm	115	145	169	221	274	314	378	513	585	618	676	728	980	1130
H1	mm	80	100	114	146	180	252	283	304	315	365	395	434	585	675
W	mm	300	350	400	200	200	200	250	250	450	450	450	450	550	550
WT	Kg	12	15.4	23	33	50	73	108	143	186	234	277	408	816	1157

GEAR OPERATOR FOR NPS ≥ 6"

TRIPLE OFFSET BUTTERFLY VALVE



DESIGN FEATURES:

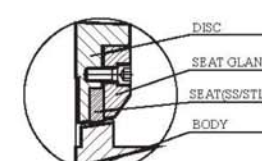
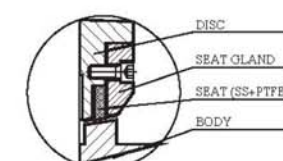
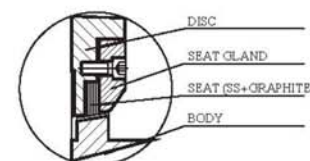
- GOOD FLOW REGULATING FUNCTION AND SEALING PERFORMANCE.
- THE DISC CAN MOVE AWAY FROM THE SEAT FAST WHEN OPENING TO REDUCE THE FRICTION, AND THEN PROLONG THE VALVE LIFE.
- ANTI-BLOWOUT SHAFT AND FIRE SAFE DESIGN.
- SEALING PRINCIPLE: TRIPLE OFFSET DESIGNS I.E. THE OFFSET BETWEEN THE STEM'S ROTATION AXIS AND THE CENTERLINE OF VALVE BODY; AND THE OFFSET BETWEEN THE STEM'S ROTATION AXIS AND THE CENTERLINE OF VALVE SEAT RING; AND THE OFFSET BETWEEN THE CENTERLINE OF VALVE SEAT RING AND THE CENTERLINE OF VALVE BODY. THE RUBBER SEAT IS SQUEEZED BY THE DISC'S OUTER EDGE SLOWLY AND GRADUALLY DURING ROTATION, WHICH FURTHER REDUCES THE FRICTION BETWEEN SEAT AND DISK, AND ENSURES THE TIGHT SEALING RESULT.

TYPE OF SEAT (METAL TO METAL):

1 MULTI-LAYER SEATS (FIRE SAFE AND WELL USED IN HIGH OPERATING TEMPERATURE)

2 COMBINATION OF METAL AND SOFT SEATS (DUAL ADVANTAGES OF METAL AND SOFT SEATS)

3 S S SEAT OR INTEGRAL OVERLAY SEAT (FIRE SAFE AND WELL USED IN HIGH OPERATING TEMPERATURE)



TRIPLE OFFSET BUTTERFLY VALVE

STANDARDS:

- DESIGN AND MANUFACTURE:
- FACE TO FACE DIMENSIONS:
- FLANGE ENDS DIMENSIONS:
- NPS 1/2" - 24
- NPS 26" - 36"
- BW ENDS DIMENSIONS:
- PRESSURE-TEMPERATURE RATINGS:
- PRESSURE:
- SIZE:

API 609 / MSS SP-67 / MSS SP-68
API 609 / BS5155

ASME B16.5
ASME B16.47
ASME B16.25
ASME B16.34
CLASS 150-CLASS600
NPS 2" - 36"

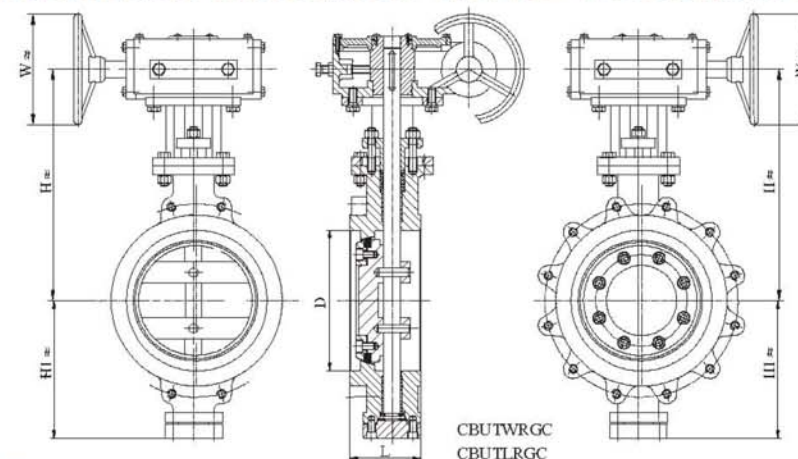


BILL OF MATERIAL(PARTIAL)

ITEM	PART NAME	STANDARD	HIGH TEMPERATURE	STAINLESS STEEL
1	BODY	ASTM A216 WCB	ASTM A217 WC6	ASTM A351 CF8M
2	SEAT RING	SS+GRAPHITE/PTFE	SS+GRAPHITE	SS+GRAPHITE/PTFE
3	PIN	ASTM A276 410	ASTM A276 410	ASTM A276 316
4	DISC	ASTM A216 WCB	ASTM A217 WC6	ASTM A351 CF8M
5	SCREW	CARBON STEEL	STAINLESS STEEL	ASTM A193 B8M
6	SEAT GLAND	CARBON STEEL	ASTM A182 F11	ASTM A276 316
7	STEM	ASTM A182 F6a	AISI 4140/4340	ASTM A182 F316
8	PACKING	GRAPHITE/PTFE	GRAPHITE	GRAPHITE/PTFE
9	GLAND FLANGE	ASTM A216 WCB	ASTM A217 WC6	ASTM A351 CF8M
10	YOKE	ASTM A216 WCB	ASTM A216 WCB	ASTM A351 CF8
11	GLAND NUT	ASTM A194 2H/2HM	ASTM A194 4	ASTM A194 8M
12	EYEBOLT	ASTM A193 B7/B7M	ASTM A193 B16	ASTM A193 B8M
13	COVER BOLT	ASTM A193 B7/B7M	ASTM A193 B16	ASTM A193 B8M
14	GASKET	SS+GRAPHITE/PTFE	SS+GRAPHITE	SS+GRAPHITE/PTFE
15	SPLINT COLLAR	CARBON STEEL	AISI 4140/4340	316 SS
16	COVER	ASTM A216 WCB	ASTM A217 WC6	ASTM A351 CF8M
17	YOKE BOLT	ASTM A193 B7/B7M	ASTM A193 B16	ASTM A193 B8
18	YOKE NUT	ASTM A194 2H/2HM	ASTM A194 4	ASTM A194 8
19	BOLT	CARBON STEEL	CARBON STEEL	CARBON STEEL
20 ♦	GEAR	ASSEMBLY		
	SEALING FACE OVERLAY	API TRIMS AVAILABLE		

♦ GEAR OPERATOR, ELECTRICAL OPERATOR, PNEUMATIC OPERATOR, HYDRAULIC OPERATOR ETC. ARE AVAILABLE
NOTE: OTHER MATERIALS ARE AVAILABLE UPON REQUEST.

TRIPLE OFFSET BUTTERFLY VALVE - WAFER/LUG TYPE



CLASS 150

NPS	in	2	2-1/2	3	4	6	8	10	12	14	16	18	20	24	30	36
DN	mm	50	65	80	100	150	200	250	300	350	400	450	500	600	750	900
L	mm	43	46	48	54	57	64	71	81	92	102	114	127	154	165	200
H	mm	112	125	140	270	290	330	362	420	555	580	623	745	862	976	1121
H1	mm	82	95	100	108	126	165	215	250	280	310	350	436	455	583	675
W	mm	300	300	350	180	180	300	300	300	300	300	400	450	500	500	550
WT(WR)	Kg	5	8	10	12	18	22	35	51	85	115	155	200	333	595	950
WT(LR)	Kg	7	10	12	15	22	33	45	65	105	165	205	260	385	745	1100

CLASS 300

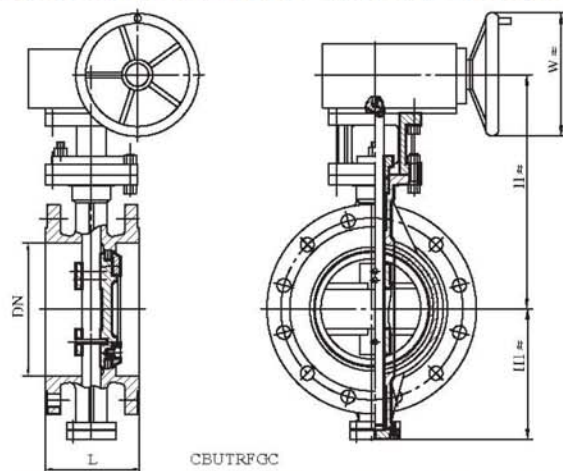
NPS	in	2	2-1/2	3	4	6	8	10	12	14	16	18	20	24	30	36
DN	mm	50	65	80	100	150	200	250	300	350	400	450	500	600	750	900
L	mm	43	46	48	54	59	73	83	92	117	133	149	159	181	241	241
H	mm	143	150	165	290	330	368	490	495	636	663	675	690	848	942	1010
H1	mm	80	90	103	110	186	211	245	290	320	352	410	460	525	605	670
W	mm	300	300	350	150	300	300	400	450	760	760	760	760	760	760	1016
WT(WR)	Kg	10	20	27	30	50	85	135	190	280	370	495	610	900	-	-
WT(LR)	Kg	15	25	30	40	60	100	160	230	370	480	620	685	1100	-	-

CLASS 600

NPS	in	2	2-1/2	3	4	6	8	10	12	14	16	18	20	24
DN	mm	50	65	80	100	150	200	250	300	350	400	450	500	600
L	mm	43	46	54	64	78	102	117	140	155	178	200	216	232
H	mm	143	150	460	476	500	533	558	595	695	719	745	800	875
H1	mm	90	110	180	192	222	245	256	310	380	388	420	468	530
W	mm	310	310	300	300	400	610	610	760	760	760	760	760	812
WT(WR)	Kg	10	20	27	30	60	91	168	230	300	395	525	650	980
WT(LR)	Kg	15	25	30	40	75	120	190	290	395	500	680	780	1250

GEAR OPERATOR FOR NPS ≥ 6"

TRIPLE OFFSET BUTTERFLY VALVE - FLANGED TYPE


CLASS 150

NPS	in	2	2-1/2	3	4	6	8	10	12	14	16	18	20	24	30	36
DN	mm	50	65	80	100	150	200	250	300	350	400	450	500	600	750	900
L	mm	108	112	114	127	140	152	165	178	190	216	222	229	267	318	330
H	mm	112	125	140	270	290	330	362	420	555	580	623	745	862	976	1121
H1	mm	82	95	100	108	126	165	215	250	280	310	350	436	455	583	675
W	mm	300	300	350	180	180	300	300	300	300	400	450	500	500	550	
WT	Kg	12	13.5	15.4	23	33	50	73	108	143	186	234	277	408	816	1157

CLASS 300

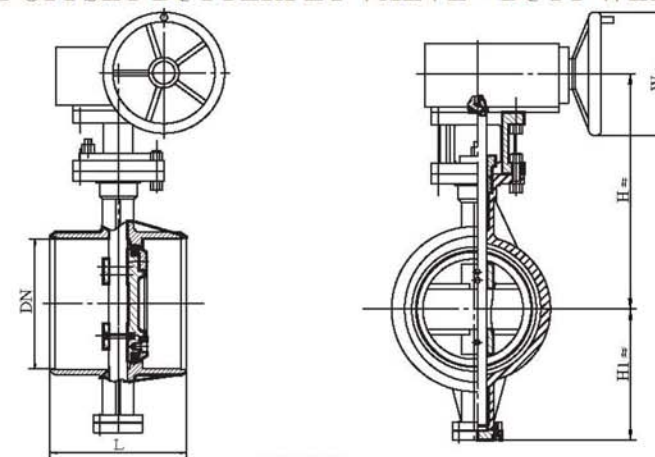
NPS	in	2	2-1/2	3	4	6	8	10	12	14	16	18	20	24	30	36
DN	mm	50	65	80	100	150	200	250	300	350	400	450	500	600	750	900
L	mm	150	170	180	190	210	230	250	270	290	310	330	350	390	450	510
H	mm	143	150	165	290	330	368	490	495	636	663	675	690	848	942	1010
H1	mm	80	90	103	110	186	211	245	290	320	352	410	460	525	605	670
W	mm	300	300	350	150	300	300	400	450	760	760	760	760	760	760	1016
WT	Kg	19	29	39	48	70	140	200	280	420	530	680	735	1235	-	-

CLASS 600

NPS	in	2	2-1/2	3	4	6	8	10	12	14	16	18	20	24
DN	mm	50	65	80	100	150	200	250	300	350	400	450	500	600
L	mm	150	170	180	190	210	230	250	270	290	310	330	350	390
H	mm	143	150	165	476	500	533	558	595	695	719	745	800	875
H1	mm	90	110	180	192	222	245	256	310	380	388	420	468	530
W	mm	310	310	300	300	400	610	610	760	760	760	760	760	812
WT	Kg	45	60	82	125	191	247	413	576	664	971	1117	1639	2082

GEAR OPERATOR FOR NPS ≥ 6"

TRIPLE OFFSET BUTTERFLY VALVE - BUTT WELDED TYPE


CLASS 150

NPS	in	2	2-1/2	3	4	6	8	10	12	14	16	18	20	24	30	36
DN	mm	50	65	80	100	150	200	250	300	350	400	450	500	600	750	900
L	mm	150	170	180	190	210	230	250	270	290	310	330	350	390	450	510
H	mm	112	125	140	270	290	330	362	420	555	580	623	745	862	976	1121
H1	mm	82	95	100	108	126	165	215	250	280	310	350	436	455	583	675
W	mm	300	300	350	180	180	300	300	300	300	400	450	500	500	550	
WT	Kg	15	18	20	25	36	58	78	118	152	193	242	290	428	838	1260

CLASS 300

NPS	in	2	2-1/2	3	4	6	8	10	12	14	16	18	20	24	30	36
DN	mm	50	65	80	100	150	200	250	300	350	400	450	500	600	750	900
L	mm	150	170	180	190	210	230	250	270	290	310	330	350	390	450	510
H	mm	143	150	165	290	330	368	490	495	636	663	675	690	848	942	1010
H1	mm	80	90	103	110	186	211	245	290	320	352	410	460	525	605	670
W	mm	300	300	350	150	300	300	400	450	760	760	760	760	760	760	1016
WT	Kg	16	22	32	40	56	124	186	256	395	495	665	710	1200	-	-

CLASS 600

NPS	in	2	2-1/2	3	4	6	8	10	12	14	16	18	20	24
DN	mm	50	65	80	100	150	200	250	300	350	400	450	500	600
L	mm	150	170	180	190	210	230	250	270	290	310	330	350	390
H	mm	143	150	165	476	500	533	558	595	695	719	745	800	875
H1	mm	90	110	180	192	222	245	256	310	380	388	420	468	530
W	mm	310	310	300	300	400	610	610	760	760	760	760	760	812
WT	Kg	25	45	60	102	150	225	380	552	612	916	998	1539	1995

GEAR OPERATOR FOR NPS ≥ 6"

TORQUE VALUE CHART

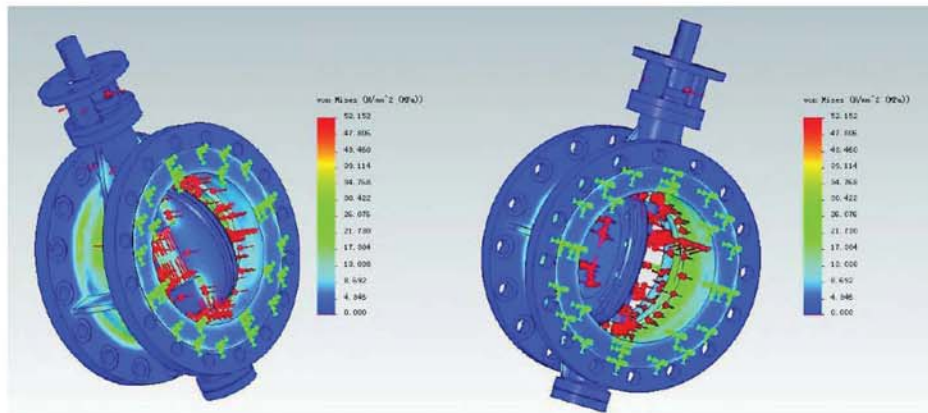
CONCENTRIC BUTTERFLY VALVE

NPS		150Lb
IN	mm	N.m
2"	50	45
2-1/2"	65	55
3"	80	68
4"	100	100
6"	150	215
8"	200	372
10"	250	552
12"	300	811
14"	350	1200
16"	400	1630
18"	450	2296
20"	500	2870
24"	600	3700

TRIPLE OFFSET BUTTERFLY VALVE

NPS		150Lb	300Lb	600Lb
IN	mm	N.m	N.m	N.m
3"	80	91	155	275
4"	100	128	220	545
6"	150	195	463	1295
8"	200	389	1008	2452
10"	250	678	1615	4338
12"	300	1045	2598	6190
14"	350	1466	3503	8263
16"	400	2052	5768	11822
18"	450	2843	7705	20305
20"	500	3535	9885	25895
24"	600	6000	15968	39900
30"	750	21900	46448	
36"	900	31915	72968	

THE STATIC STRESS ANALYSIS



INSTALLATION, MAINTENANCE AND OPERATING INSTRUCTION

BUTTERFLY VALVE

1. STORAGE

- 1.1 The seat, disc, stem and bushing of the butterfly valve should be coated with a silicone lubricant.
- 1.2 The disc should be opened (5° ~ 7°) during transportation & storage.
- 1.3 Where applicable, the faces of each valve should be covered with cardboard, plywood or similar sturdy material to prevent damage to the seat face, disc edge or butterfly valve interior.
- 1.3 Valves should be stored indoors with face protectors intact. Storage temperature ideally should remain in a range from +40°F to 85°F.
- 1.4 When valves have been stored for more than 3 months, open and close the valves. Repeat for every 3 months of storage.
- 1.5 Store valves so that no heavy loads are applied to the bodies.

2. VALVE INSTALLATION

- 2.1 Make sure the pipeline and pipe flanges are clean. Any foreign material such as pipe scale, metal chips, welding slag, welding rods, etc. can obstruct disc movement or damage the valve.
- 2.2 Ensure that the entire rust preventive on the machined surface in the flow area is removed, before the valve is put in pipe-line.
- 2.3 Note the name plate details and arrow flow mark on valve body and install the valve in right orientation with respect to pressure gradient. Arrow on valve body should point from high pressure side to low pressure side of the pipeline. Recheck valve pressure rating adequacy with respect to operating pressure.
- 2.4 Align the piping and then spread the pipe flanges so that the valve body can be easily placed between the flanges without contacting the pipe flanges.
- 2.5 Insert the valve between the flanges taking care not to damage the seat faces. Always pick the valve up by locating holes or by using a nylon sling around the valve neck. IMPORTANT: Never pick the valve up by the actuator or operator as damage may occur.
- 2.6 Place the valve between the flanges, center it, and then span the valve body with all flange bolts. Do not tighten the bolts at this time. Carefully open the disc to the full open position, ensuring that the disc does not make contact with the pipe I.D. Systematically remove any jack bolts on flange spreaders and hand tighten the flange bolts. Very slowly close the valve disc to ensure disc edge clearance from the adjacent pipe flange I.D.
- 2.7 Operate the butterfly valve manually from full close to full open and full open to full close, with the operator hand wheel. Ensure that there is no undue resistance / friction in the operation. Ensure that the factory setting of Limiting Stopper Bolts in the Gear Box is not disturbed, for the respective limit positions. If so, adjust the same.
- 2.8 Before connecting valve & pipeline flanges, ensure that they do not have parallel, angular and radial gaps. While fitting the valve in pipeline, ensure that diagonally opposite bolts are simultaneously & uniformly tightened.

3. VALVE MAINTENANCE

1. Operate the valve from full open to full close to assure operability.
2. Check flange bolting for evidence of loosening and correct as needed.
3. Inspect the valve and surrounding area for previous or existing leakage at flange faces or shaft connections.
4. Check piping and/or wiring to actuators and related equipment for looseness and correct as needed.

Possibilities	Causes	Remedies
Valve opens only a few degrees and stops (It will not open to the full angle desired)	1. Improper installation. The valve is improperly aligned. 2. Missing pipe internal or other obstruction is interfering with disc. 3. Actuator not properly installed.	1. Loosen the flange bolts, realign the valve with flanges, and retighten the flange bolts to correct torque per ANSI requirements. 2. Pipe does not meet standards and spacers may be required. Any pipeline or disc obstruction must be removed. 3. Refer to actuator adjustment manual.
Leakage between disc and valve seating	1. There is muddy sediments accumulated on seal surfaces. 2. Worn out or scored seal surface. 3. Closure on the misplace.	1. Clean muddy sediments. 2. Repair or replace seal surface. 3. Adjust the close position of the actuator.
Leakage between valve stem and packing	1. Packing cap has not screwed on tightly. 2. Packing wears out. 3. The contact surface between valve stem and packing wear out.	1. Tighten the nuts on the cap to get a uniform pressure between cap and packing. 2. Add suitable amount of packing. 3. Replace stem or repair the contact surface of valve stem.
Switch can't be used freely	1. Seal surface is deformed too heavily. 2. Failure of the actuator.	1. Adjust the bolts on it. 2. Replace or repair it.