

CLOW BUTTERFLY VALVES
CLASS 250

CLOW VALVE COMPANY

**CLOW AWWA Butterfly Valves
Meet or Exceed the Requirements
of AWWA C504
Class 250**

Size Range	4"—48"
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Size Range	Water Working Pressure psi	Bubble Tight Test psi	Hydrostatic Test psi
4"—48"	250	250	500

Available End Connections & Size Range

Style No.

Flange	4"—24"	4500
Flange	30"—48"	1450
M.J.	4"—24"	4500
M.J.	30"—48"	1450

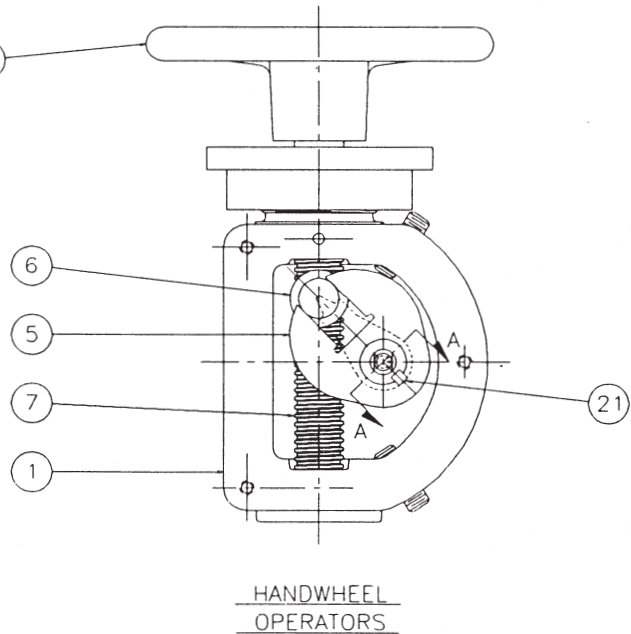
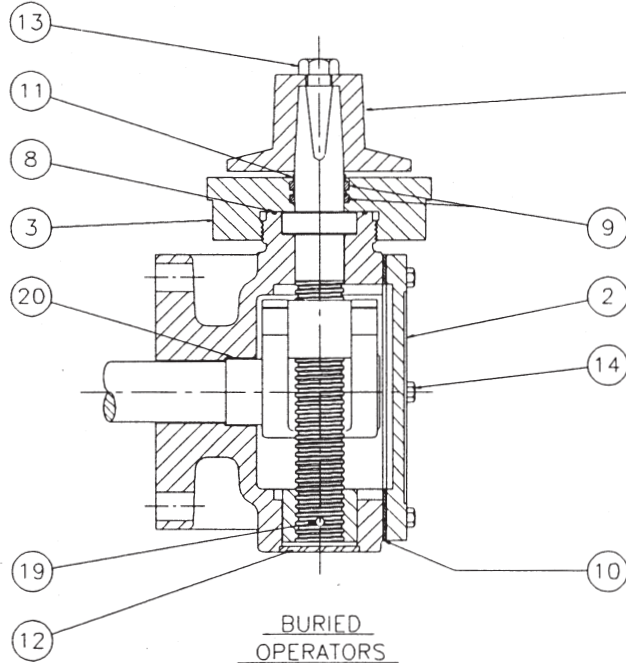
Accessories (Illustrated in the gate valve section)

Floorstands	Chainwheels
Extension Stems	2" Operating Nuts
Stem Guides	Handwheels
Traveling Nut & Screw Actuator	"T" Handles
*Worm Gear Actuators	Floor Boxes
Hand Lever Actuators	*Limit Switches
*Electric Motor Actuators	
*Cylinder Actuators	

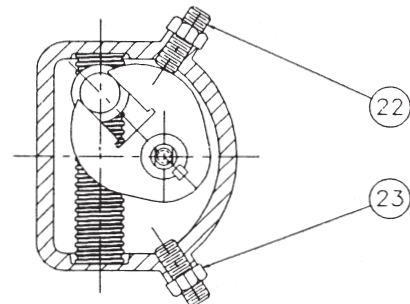
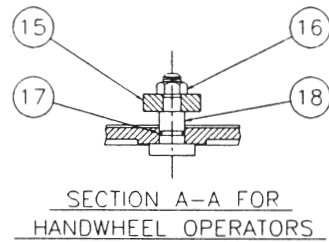
*Note: Call Factory for Special Applications

SUB-ASSEMBLY MANUAL OPERATOR

CLOW VALVE COMPANY



*** Not supplied with set screws**



OPERATOR MODEL

150 *

510 *

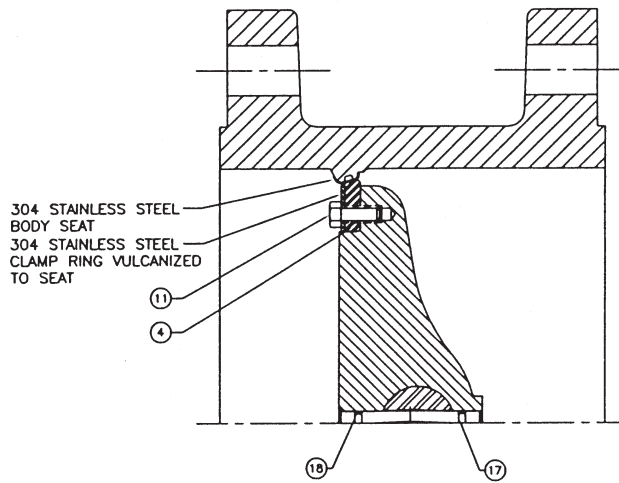
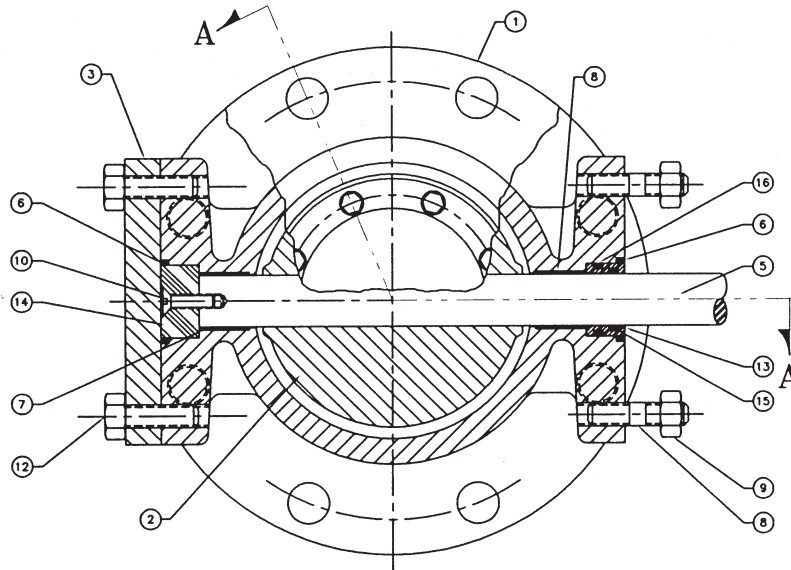
1250

2200

ITEM #	DESCRIPTION	MATERIAL
1	HOUSING OPERATOR	CAST IRON, A-126, CLASS B
2	COVER, HOUSING	CAST IRON, A-126, CLASS B
3	CAP, THRUST	CAST IRON, A-126, CLASS B
4	AS REQUIRED	CAST IRON, A-126, CLASS B
5	LEVER	DUCTILE IRON, A-536, GRADE 80-45-06
6	CROSSHEAD	DUCTILE IRON, A-536, GRADE 65-55-12
7	SHAFT, INPUT	C.D. STEEL, 12L14
8	"O" RING	N.B.R.
9	"O" RING	N.B.R.
10	GASKET, COVER	CORK-NEOPRENE
11	SHIELD, SHAFT	REINFORCED TEFLON
12	PLUG, EXPANSION	BRASS COMM.
13	BOLT, HEX HEAD (AWWA NUT)	STAINLESS STEEL, 18-8
14	BOLT, HEX HEAD (COVER)	STAINLESS STEEL, 18-8
15	INDICATOR	CAST IRON, A-126, CLASS B
16	NUT, HEX	STEEL, COMM.
17	"O" RING	N.B.R.
18	PIN, INDICATOR	STEEL, COMM.
19	PIN, INPUT SHAFT	STEEL, COMM.
20	BUSHING	REINFORCED TEFLON
21	KEY	STEEL, COMM.
22	SET SCREW, LEVER	STAINLESS STEEL, 18-8
23	NUT, JAM	STAINLESS STEEL, 18-8

SUB-ASSEMBLY 4"-12" BFV
 STYLE 4500-FLANGE ENDS-CLASS 250

CLOW VALVE COMPANY

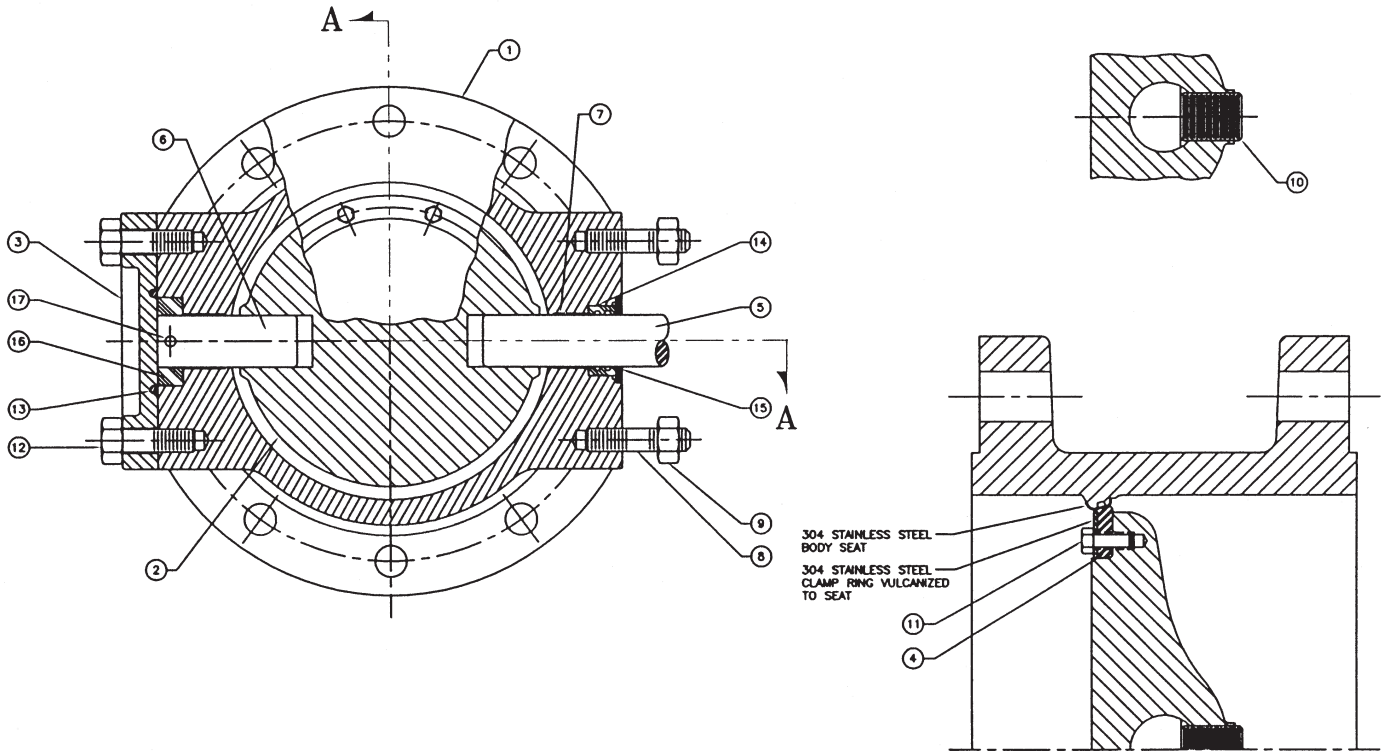


SECTION A-A

ITEM #	DESCRIPTION	MATERIAL
1	BODY, VALVE	DUCTILE IRON ASTM A-536 GR. 70-50-05
2	VANE	DUCTILE IRON ASTM A-536 GR. 70-50-05
3	COVER, END	CAST IRON, A-126, CLASS B
4	SEAT RING, VANE	BUNA "S" WITH 304 STAINLESS STEEL INSERT
5	SHAFT	TYPE 630, CONDITION H1100 STN. STL. ASTM A-564
6	O-RING, BODY	BUNA "N"
7	BEARING, BODY	EPOXY FIBERGLASS WITH TEFLON LINER
8	STUD	STEEL, ASTM A-307, ELCTRO ZINC PLATED
9	NUT, HEAVY HEX	STEEL, ASTM A-563, GRADE A, ELCTRO ZINC PLATED
10	SOCKET SCREW, FLAT HEAD HEX	STAINLESS STEEL, 18-8
11	CAPSCREW, HEX	STAINLESS STEEL, 18-8 WITH NYLOK INSERT
12	CAPSCREW, HEX	STEEL, ASTM A-307, ELCTRO ZINC PLATED
13	CARTRIDGE SEAL	UHMW (POLYEHTYLENE)
14	THRUST DISK	ACETEL
15	"O" RING CARTRIDGE, INSIDE	BUNA "N"
16	"O" RING CARTRIDGE, OUTSIDE	BUNA "N"
17	GROOVED PIN	393 STAINLESS STEEL
18	O-RING, GROOVED PIN	BUNA-N

SUB-ASSEMBLY 14"-24" BFV
 STYLE 4500-FLANGE ENDS-CLASS 250

CLOW VALVE COMPANY

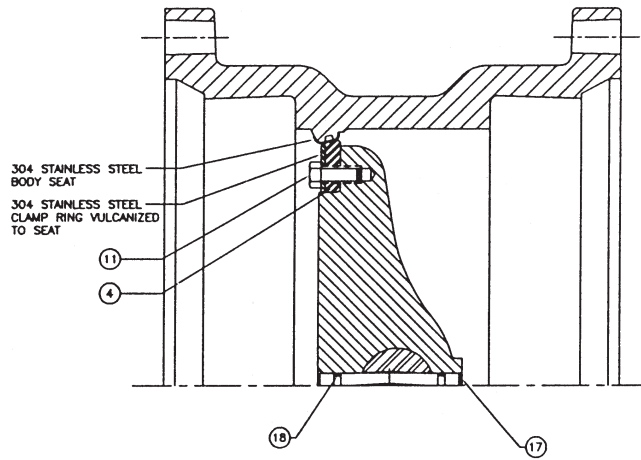
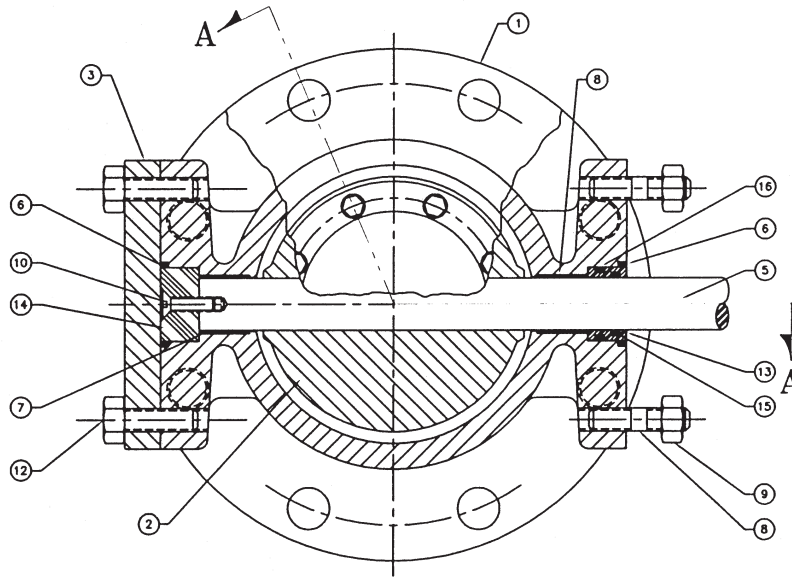


SECTION A-A

ITEM #	DESCRIPTION	MATERIAL
1	BODY, VALVE	DUCTILE IRON ASTM A-536 GR. 70-50-05
2	VANE	DUCTILE IRON ASTM A-536 GR. 70-50-05
3	COVER, END	CAST IRON, A-126, CLASS B
4	SEAT RING, VANE	BUNA "S" WITH 304 STAINLESS STEEL INSERT
5	SHAFT, OPERATOR	TYPE 630, CONDITION H1100 STN. STL. ASTM A-564
6	SHAFT, THRUST	304 STAINLESS STEEL, ASTM A-276
7	BUSHING	REINFORCED TEFLON
8	STUD	STEEL, ASTM A-307, ELCTRO ZINC PLATED
9	NUT, HEX	STEEL, ASTM A-307, GRADE A, ELCTRO ZINC PLATED
10	TORQUE PLUG, SHAFT	304 STAINLESS STEEL, ASTM A-276
11	CAPSCREW, HEX	STAINLESS STEEL, 18-8 WITH NYLOK INSERT
12	BOLT, HEX HEAD	STEEL, ASTM A-307, GRADE B, ELCTRO ZINC PLATED
13	O-RING, END COVER	BUNA "N"
14	SHAFT SEAL	BUNA "S"
15	SEAL RING	STEEL, C-1018
16	THRUST COLLAR	BEARING BRONZE, ASTM B-144, ALLOY 3B
17	ROLL PIN	STAINLESS STEEL, A.I.S.I. 420

SUB-ASSEMBLY 4"-12" BFV
 STYLE 4500-MECHANICAL JOINT-CLASS 250

CLOW VALVE COMPANY

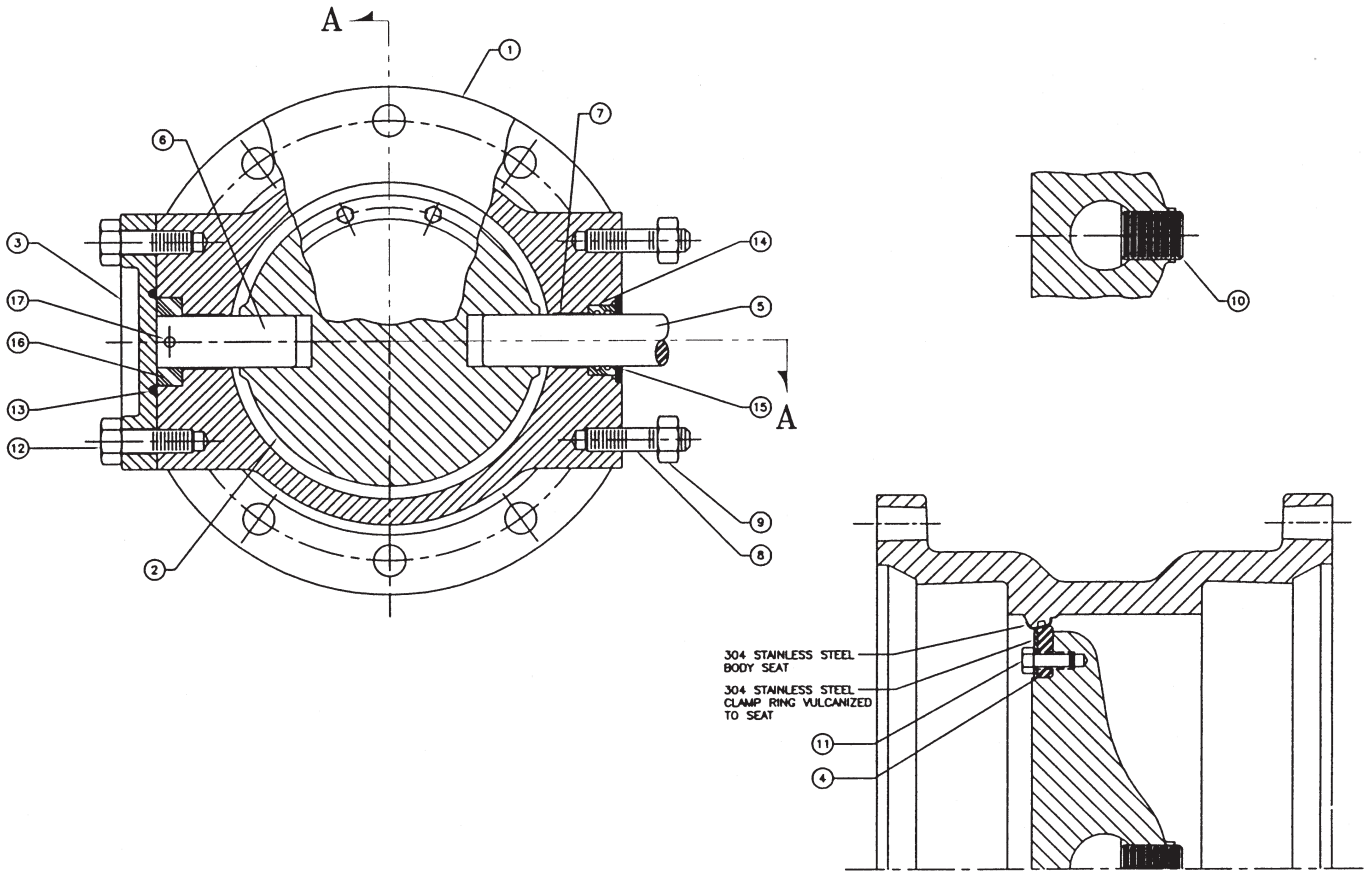


SECTION A-A

ITEM #	DESCRIPTION	MATERIAL
1	BODY, VALVE	DUCTILE IRON ASTM A-536 GR. 70-50-05
2	VANE	DUCTILE IRON ASTM A-536 GR. 70-50-05
3	COVER, END	CAST IRON, A-126, CLASS B
4	SEAT RING, VANE	BUNA "S" WITH 304 STAINLESS STEEL INSERT
5	SHAFT	TYPE 630, CONDITION H1100 STM. STL. ASTM A-564
6	O-RING, BODY	BUNA "N"
7	BEARING, BODY	EPOXY FIBERGLASS WITH TEFLON LINER
8	STUD	STEEL, ASTM A-307, ELCTRO ZINC PLATED
9	NUT, HEAVY HEX	STEEL, ASTM A-563, GRADE A, ELCTRO ZINC PLATED
10	SOCKET SCREW, FLAT HEAD HEX	STAINLESS STEEL, 18-8
11	CAPSCREW, HEX	STAINLESS STEEL, 18-8 WITH NYLOK INSERT
12	CAPSCREW, HEX	STEEL, ASTM A-307, ELCTRO ZINC PLATED
13	CARTRIDGE SEAL	UHMW (POLYETHYLENE)
14	THRUST DISK	ACETEL
15	"O" RING CARTRIDGE, INSIDE	BUNA "N"
16	"O" RING CARTRIDGE, OUTSIDE	BUNA "N"
17	GROOVED PIN	393 STAINLESS STEEL
18	O-RING, GROOVED PIN	BUNA-N

SUB-ASSEMBLY 14"-24" BFV
 STYLE 4500-MECHANICAL JOINT-CLASS 250

CLOW VALVE COMPANY



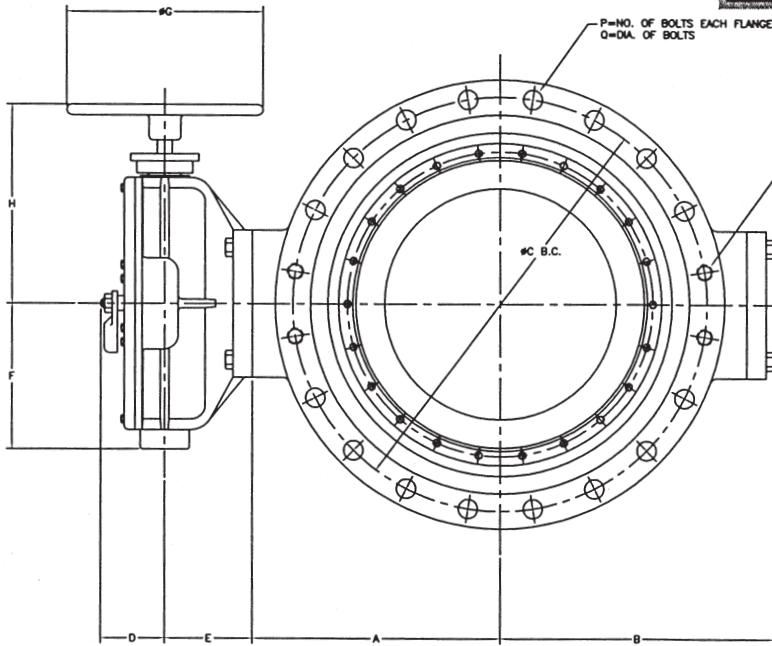
SECTION A-A

ITEM #	DESCRIPTION	MATERIAL
1	BODY, VALVE	DUCTILE IRON ASTM A-536 GR. 70-50-05
2	VANE	DUCTILE IRON ASTM A-536 GR. 70-50-05
3	COVER, END	CAST IRON, A-126, CLASS B
4	SEAT RING, VANE	BUNA "S" WITH 304 STAINLESS STEEL INSERT
5	SHAFT, OPERATOR	TYPE 630, CONDITION H1100 STM. STL. ASTM A-564
6	SHAFT, THRUST	304 STAINLESS STEEL, ASTM A-276
7	BUSHING	REINFORCED TEFLON
8	STUD	STEEL, ASTM A-307, ELCTRO ZINC PLATED
9	NUT, HEX	STEEL, ASTM A-307, GRADE A, ELCTRO ZINC PLATED
10	TORQUE PLUG, SHAFT	304 STAINLESS STEEL, ASTM A-276
11	CAPSCREW, HEX	STAINLESS STEEL, 18-8 WITH NYLOK INSERT
12	BOLT, HEX HEAD	STEEL, ASTM A-307, GRADE B, ELCTRO ZINC PLATED
13	O-RING, END COVER	BUNA "N"
14	SHAFT SEAL	BUNA "S"
15	SEAL RING	STEEL, C-1018
16	THRUST COLLAR	BEARING BRONZE, ASTM B-144, ALLOY 3B
17	ROLL PIN	STAINLESS STEEL, A.I.S.I. 420

ASSEMBLY-STYLE 4500-4"-24" BFV
 FLANGED END-CLASS 250 W/HANDWHEEL OPR.

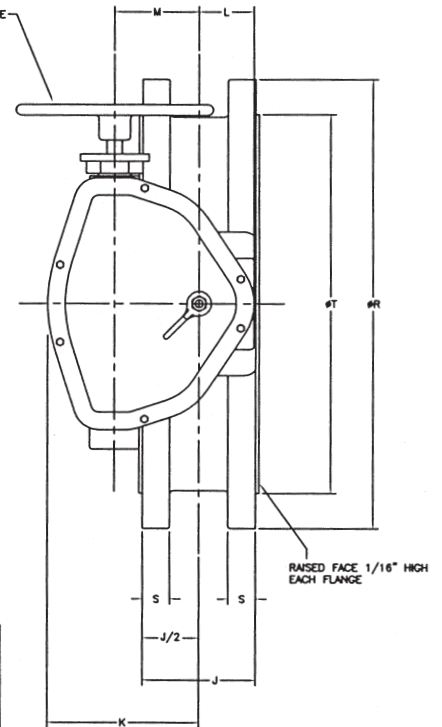
CLOW VALVE COMPANY

- NOTES:
 1. FLOW MAY BE IN EITHER DIRECTION
 2. VALVE SHAFT WILL MEET OR EXCEED REQUIREMENTS OF SHAFT TABLE PER API/ISA STANDARD C-504 FOR APPLICABLE CLASS.
 3. ANSI CLASS 250 FLANGES & DRILLING
 4. RATED FOR 250 PSI WORKING PRESSURE



AA=NO. OF TAPPED HOLES EACH FLANGE
 AB=SIZE OF TAPPED HOLES
 AC=DEPTH OF TAPPED HOLES

N=NO. OF TURNS TO CLOSE



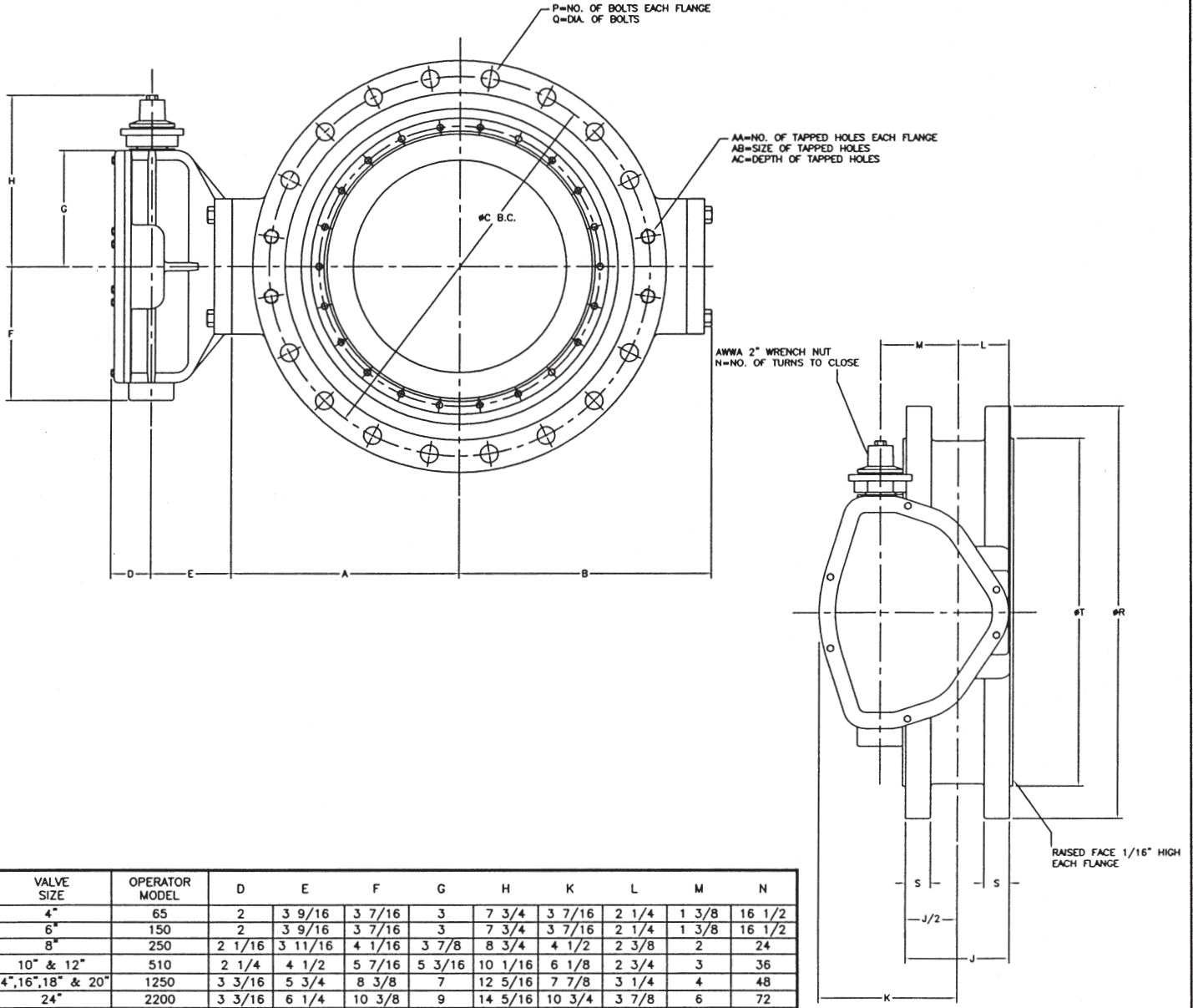
VALVE SIZE	OPERATOR MODEL	D	E	F	G	H	K	L	M	N
4"	65	2 15/16	3 9/16	3 7/16	7 1/2	7 3/4	3 7/16	2 1/4	1 3/8	16 1/2
6"	150	2 15/16	3 9/16	3 7/16	7 1/2	7 3/4	3 7/16	2 1/4	1 3/8	16 1/2
8"	250	3	3 11/16	4 1/16	14	8 7/8	4 1/2	2 3/8	2	24
10" & 12"	510	3 3/16	4 1/2	5 7/16	14	10 3/16	6 1/8	2 3/4	3	36
4", 16", 18" & 20"	1250	4 1/16	5 3/4	8 3/8	18	12 1/2	7 7/8	3 1/4	4	48
24"	2200	4 1/16	6 1/4	10 3/8	18	14 1/2	10 3/4	3 7/8	6	72

VALVE SIZE	A	B	C	J	P	Q	R	S	T	AA	AB	AC
4"	4	5 7/16	7 7/8	5 1/2	8	3/4	10	1 1/4	6 15/16	4	3/4-10	1 3/16
6"	5	6 1/2	10 5/8	5 3/4	12	3/4	12 1/2	1 7/16	9 11/16	4	3/4-10	1 3/8
8"	6	7 9/16	13	6 7/8	12	7/8	15	1 5/8	11 15/16	4	7/8-9	1 9/16
10"	7 3/4	9 5/8	15 1/4	9 1/4	16	1	17 1/2	1 7/8	14 1/16	4	1-8	1 1/2
12"	9 1/2	10 5/8	17 3/4	9 3/8	16	1 1/8	20 1/2	2	16	4	1 1/8-7	1 5/8
14"	10 7/16	12 15/16	20 1/4	9 3/8	20	1 1/8	23	2 1/8	18 15/16	8	1 1/8-7	1 5/8
16"	12 3/16	13 3/4	22 1/2	9 1/2	20	1 1/4	25 1/2	2 1/4	21 1/16	8	1 1/4-7	1 3/4
18"	14 5/16	15 13/16	24 3/4	9 1/2	24	1 1/4	28	2 3/8	23 5/16	8	1 1/4-7	1 3/4
20"	15 7/8	18 3/8	27	9 1/2	24	1 1/4	30 1/2	2 1/2	25 9/16	8	1 1/4-7	1 3/4
24"	23 11/32	20 1/8	32	9 5/8	24	1 1/2	36	2 3/4	30 5/16	8	1 1/2-6	1 7/8

ASSEMBLY-STYLE 4500-4"-24" BFV
FLANGED END-CLASS 250 W/BURIED OPR.

CLOW VALVE COMPANY

- NOTES:**
 1. FLOW MAY BE IN EITHER DIRECTION
 2. VALVE SHAFT WILL MEET OR EXCEED REQUIREMENTS OF SHAFT TABLE PER AWWA STANDARD C-504 FOR APPLICABLE CLASS.
 3. ANSI CLASS 250 FLANGES & DRILLING
 4. RATED FOR 250 PSI WORKING PRESSURE



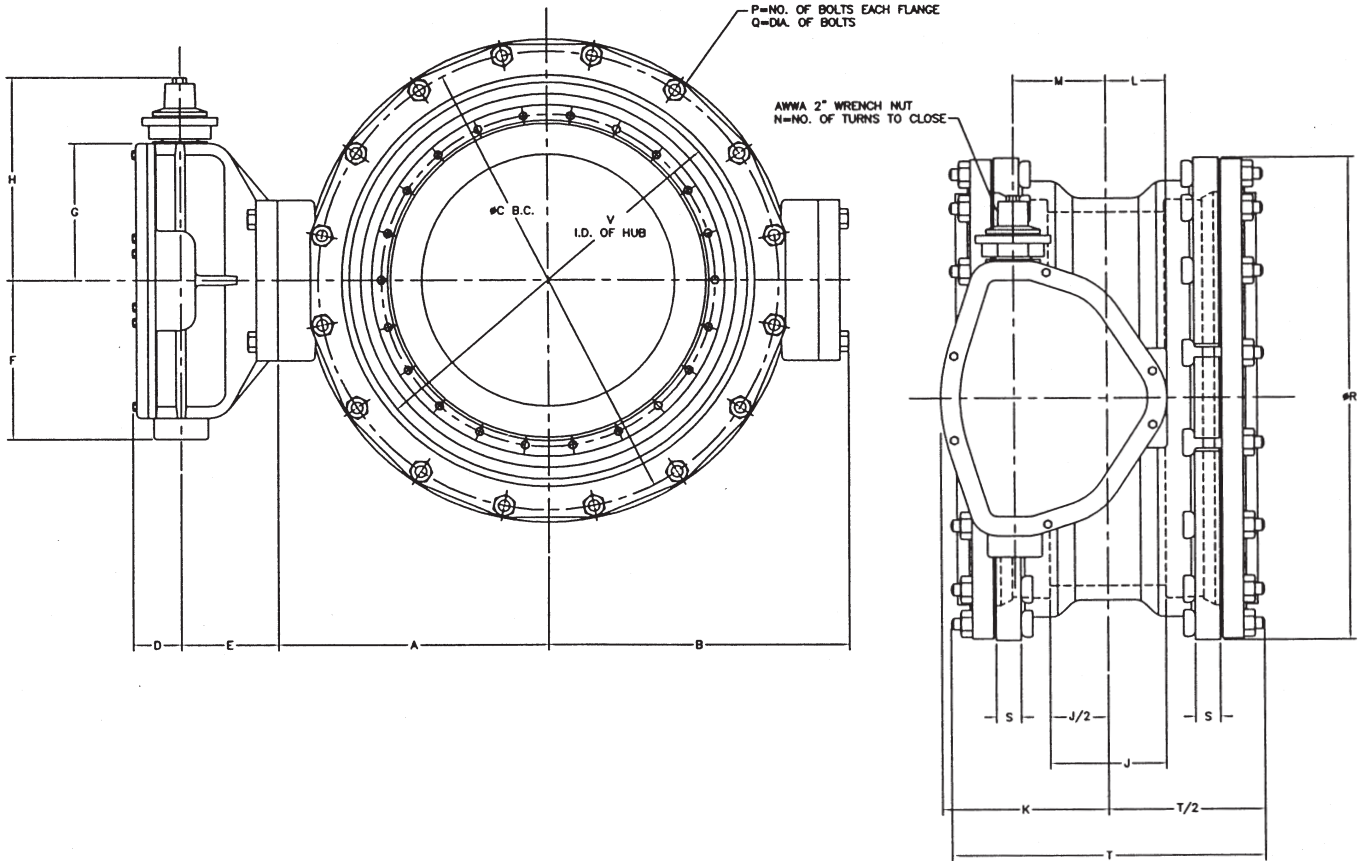
VALVE SIZE	OPERATOR MODEL	D	E	F	G	H	K	L	M	N
4"	65	2	3 9/16	3 7/16	3	7 3/4	3 7/16	2 1/4	1 3/8	16 1/2
6"	150	2	3 9/16	3 7/16	3	7 3/4	3 7/16	2 1/4	1 3/8	16 1/2
8"	250	2 1/16	3 11/16	4 1/16	3 7/8	8 3/4	4 1/2	2 3/8	2	24
10" & 12"	510	2 1/4	4 1/2	5 7/16	5 3/16	10 1/16	6 1/8	2 3/4	3	36
14", 16", 18" & 20"	1250	3 3/16	5 3/4	8 3/8	7	12 5/16	7 7/8	3 1/4	4	48
24"	2200	3 3/16	6 1/4	10 3/8	9	14 5/16	10 3/4	3 7/8	6	72

VALVE SIZE	A	B	C	J	P	Q	R	S	T	AA	AB	AC
4"	4	5 7/16	7 7/8	5 1/2	8	3/4	10	1 1/4	6 15/16	4	3/4-10	1 3/16
6"	5	6 1/2	10 5/8	5 3/4	12	3/4	12 1/2	1 7/16	9 11/16	4	3/4-10	1 3/8
8"	6	7 9/16	13	6 7/8	12	7/8	15	1 5/8	11 15/16	4	7/8-9	1 9/16
10"	7 3/4	9 5/8	15 1/4	9 1/4	16	1	17 1/2	1 7/8	14 1/16	4	1-8	1 1/2
12"	9 1/2	11 3/8	17 3/4	9 3/8	16	1 1/8	20 1/2	2	16	4	1 1/8-7	1 9/16
14"	10 7/16	12 15/16	20 1/4	9 3/8	20	1 1/8	23	2 1/8	18 15/16	8	1 1/8-7	1 5/8
16"	12 3/16	14 11/16	22 1/2	9 1/2	20	1 1/4	25 1/2	2 1/4	21 1/16	8	1 1/4-7	1 3/4
18"	14 5/16	15 13/16	24 3/4	9 1/2	24	1 1/4	28	2 3/8	23 5/16	8	1 1/4-7	1 3/4
20"	15 7/8	18 3/8	27	9 1/2	24	1 1/4	30 1/2	2 1/2	25 9/16	8	1 1/4-7	1 3/4
24"	23 11/32	20 1/8	32	9 5/8	24	1 1/2	36	2 3/4	30 5/16	8	1 1/2-6	1 7/8

ASSEMBLY-STYLE 4500-4"-24" BFV
MECHANICAL JOINT-CLASS 250 W/BURIED OPR.

CLOW VALVE COMPANY

- NOTES:
1. FLOW MAY BE IN EITHER DIRECTION
2. GASKETS, GLANDS & BOLTS FOR MECHANICAL JOINT ARE FURNISHED WITH VALVE WHEN SPECIFIED ON ORDER.
3. VALVE SHAFT WILL MEET OR EXCEED REQUIREMENTS OF SHAFT TABLE PER AWWA STANDARD C-504 FOR APPLICABLE CLASS.
4. REFERENCE AWWA STD. C-111 (A.N.S.I. A21-11)



VALVE SIZE	OPERATOR MODEL	D	E	F	G	H	K	L	M	N
4"	65	2	3 9/16	3 7/16	3	7 3/4	3 7/16	2 1/4	1 3/8	16 1/2
6"	150	2	3 9/16	3 7/16	3	7 3/4	3 7/16	2 1/4	1 3/8	16 1/2
8"	250	2 1/16	3 11/16	4 1/16	3 7/8	8 3/4	4 1/2	2 3/8	2	24
10" & 12"	510	2 1/4	4 1/2	5 7/16	5 3/16	10 1/16	6 1/8	2 3/4	3	36
14", 16", 18" & 20"	1250	3 3/16	5 3/4	8 3/8	7	12 5/16	7 7/8	3 1/4	4	48
24"	2200	3 3/16	6 1/4	10 3/8	9	14 5/16	10 3/4	3 7/8	6	72

VALVE SIZE	A	B	C	J	P	Q	R	S	T	V
4"	4	5 7/16	7 1/2	2 1/2	4	3/4x3 1/2	9 1/8	1	12 3/4	4.90±
6"	5	6 1/2	9 1/2	2 7/8	6	3/4x3 1/2	11 1/8	1 1/16	13	7.00±
8"	6	7 9/16	11 3/4	3	6	3/4x4	13 1/8	1 1/8	14	9.15±
10"	7 3/4	9 5/8	14	4 1/4	8	3/4x4	15 11/16	1 3/16	15 1/8	11.20±
12"	9 1/2	11 3/8	16 1/4	4 1/4	8	3/4x4	17 15/16	1 1/4	16	13.30±
14"	10 7/16	12 15/16	18 3/4	5 1/4	10	3/4x4	20 5/16	1 5/16	17 5/8	15.44±
16"	12 3/16	14 11/16	21	5 1/4	12	3/4x4 1/2	22 9/16	1 3/8	18 1/2	17.54±
18"	13 5/16	15 13/16	23 1/4	6 1/8	12	3/4x4 1/2	24 13/16	1 7/16	19 1/4	19.64±
20"	14 7/8	17 3/8	25 1/2	6 1/8	14	3/4x4 1/2	27 1/16	1 1/2	19 1/8	21.74±
24"	17 19/32	20 1/8	30	7 1/2	16	3/4x5	31 9/16	1 5/8	21 1/4	25.94±

CLOW BUTTERFLY VALVE AWWA CLASS 250-B
SUGGESTED SPECIFICATIONS 4" THROUGH 24"

CLOW VALVE COMPANY

A. GENERAL

All butterfly valves shall be of the rubber-seated tight-closing type. They shall meet or exceed AWWA Standard C504. All valves shall be M&H 4500 butterfly valves, or approved equal.

Both valve ends shall be mechanical joint (or other, as available) per AWWA Standard C111. Accessories (bolts, glands, and gaskets) shall be supplied by the valve manufacturer.

All valves must use full AWWA C504 Class 250B valve shaft diameter, and full Class 250B underground-service-operator torque rating throughout entire travel, to provide capability for operation in emergency service. All valves shall be NSF approved.

B. VALVE

Valve body shall be high-strength ductile iron ASTM A536 GR 70-50-5 with 18-8 Type 304 stainless steel body seat. Valve vane shall be high-strength ductile iron ASTM A536, having rubber seat mechanically secured with an integral 18-8 stainless steel clamp ring and 18-8 stainless steel self-locked screws.

For valves 4" – 12" the valve shaft shall be one piece, extending full size through the entire valve. Valve shaft shall be 630 stainless steel. Packing shall be O-ring cartridge designed for permanent duty in underground service. For 14" and larger valve shaft shall be 630 stainless steel stub shaft design keyed to the vane with stainless steel torque plugs.

Body Type

All butterfly valves shall be of the rubber-seated tight-closing type. They shall meet or exceed AWWA Standard C504. All valves shall be M&H butterfly valves or approved equal.

Valve ends shall be (select desired):

Flanged – short body design sizes 4" thru 48" flanges shall be 250# ANSI drilling.

Mechanical Joint - Both ends of valve shall be "MJ" per AWWA C111. "MJ" accessories (bolts, glands, gaskets) must be supplied by valve manufacturer.

C. OPERATOR

Underground

Valve operator shall be of the traveling-nut type, sealed, gasketed, and lubricated for underground service. It shall be capable of withstanding an overload input torque of 450 ft. lbs. at full-open or full-closed position without damage to the valve or valve operator. It shall be designed for submergence in water to 25 ft. head pressure for up to 72 hours.

Pipe and Valve Size	Turns to Close	Pipe and Valve Size	Turns to Close
4", 6" 8"	16 ½ 24	14" thru 20"	48
10", 12"	36	24"	72

Valve shall be capable of easy closure by one man using standard valve key even under emergency line-break conditions. Operators come with easy external adjustment.

All valves shall open left (right), and be equipped with 2" AWWA operating nut.

Handwheel or Chainwheel - All manual operators for service other than underground shall have position indicator and shall be totally enclosed and permanently lubricated. In any event, a maximum pull of 80 lbs. on the wheel shall produce full table 1 output torque through entire travel.

D. COATING

FLANGE:

Standard coating shall be Universal Primer. Coating shall be applied to entire valve body and vane before final assembly.

Epoxy (optional) shall be applied to all surfaces of valve body and vane to an average minimum film thickness of 4-6 mils, conforming to AWWA C-550 Standard.

MECHANICAL JOINT:

Standard coating shall be Epoxy. Coating shall be applied to entire valve body and vane.

E. TESTS

All valves shall be tested bottle-tight to 250 psi. and have a 500 psi shell test.

NSF APPROVED

CLOW BUTTERFLY VALVE
LARGE DIAMETER AWWA CLASS 250-B

CLOW VALVE COMPANY

CLOW 1450 AWWA Butterfly Valves C504

- CLASS 250-B
- Style 1450 30"-48"
- Butterfly Valves

Rugged Stainless Steel Shafts.

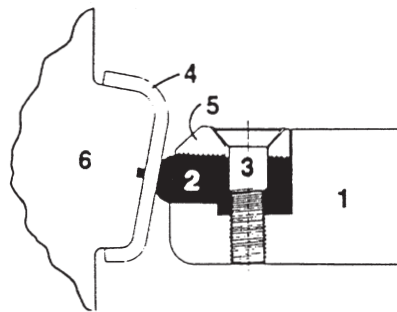
All shafts are of 18-8 type 304 stainless steel keyed for operator connection and pinned to the vane with stainless steel taper pins secured with stainless steel lock nuts...full metal to metal contact is assured with no leakage to shaft ways CLOW Style 1450 shafts are manufactured to meet or exceed AWWA Standard C-504. Shaft diameters are as specified for the various valve classes.

Maintenance-Free. The CLOW Style 1450 butterfly valve is permanently lubricated and requires no periodic exercising or stem replacement. The closing action of the vane is self-cleaning and there are no pockets in which sediment formations can deposit, resulting in longer lifetime service.

Working Parts Corrosion-Free. All critical bearing and sealing surfaces are stainless steel, rubber, bronze or Teflon*. Your assurance of long life, easy and efficient valve operation. Further protection can be afforded the CLOW Style 1450 with the added option of AWWA C550 EPOXY coating on interior valve surfaces. C550 coating provides effective protection from corrosion caused by tuberculation.

For underground applications, the Style 1450 is supplied with O-Ring shaft seals contained in bronze cartridge. Valves for inplant applications are supplied

**UNIQUE ADJUSTABLE
DESIGN ASSURES 360°
UNINTERRUPTED SEALING**



The CLOW Style 1450 incorporates a unique sealing system in which the seal is locked into a vane recess and is further restrained by a serrated clamp ring. Seal relaxation when the valve is in the open position is eliminated.

You are assured of uninterrupted 360° reliable and mechanically adjustable sealing as well as reduced wear and lower seating torque. Should field adjustment be required, one man with a torque wrench does the job in minutes without valve disassembly.

- 1-Vane; 2-360° Rubber Seat;
- 3-Stainless Steel Self-Locking Screw Fastener; with Nylon Sealing Sleeve;
- 4-Stainless Steel Body Seat Ring;
- 5-Stainless Steel Seat Retaining Ring;
- 6-Valve Body

with adjustable packing of Teflon* impregnated polymer and Buna-N packing. Any sudden increase in line pressure automatically increases packing tightness. Water is sealed out and leakage is eliminated. Underground operators and end covers are permanently sealed against ground-water infiltration.

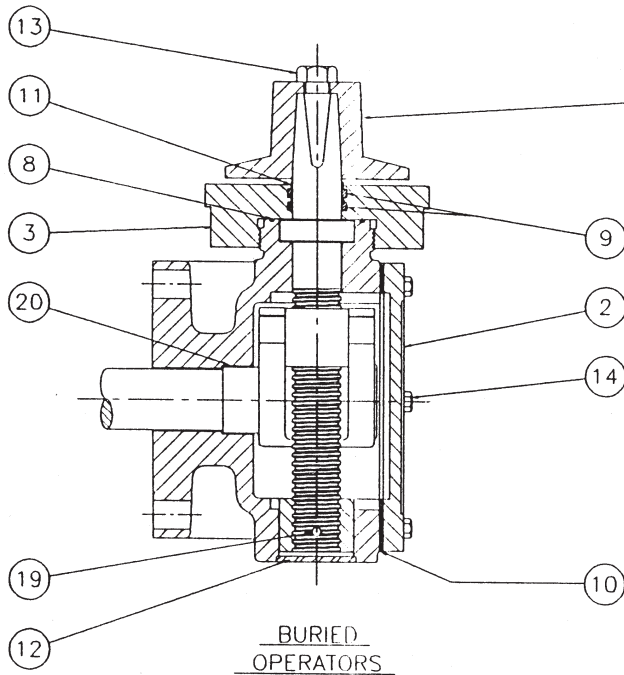
When municipalities, consultants and contractors install the CLOW Style 1450 butterfly valve, they are making a sound investment for the future in dependable, maintenance-free service, bottle-tight sealing and long valve life. The CLOW Style 1450 will prove to set a new industry standard for large diameter butterfly valves. Contact your nearest CLOW field representative soon for complete details.

*Dupont Registered Trademark

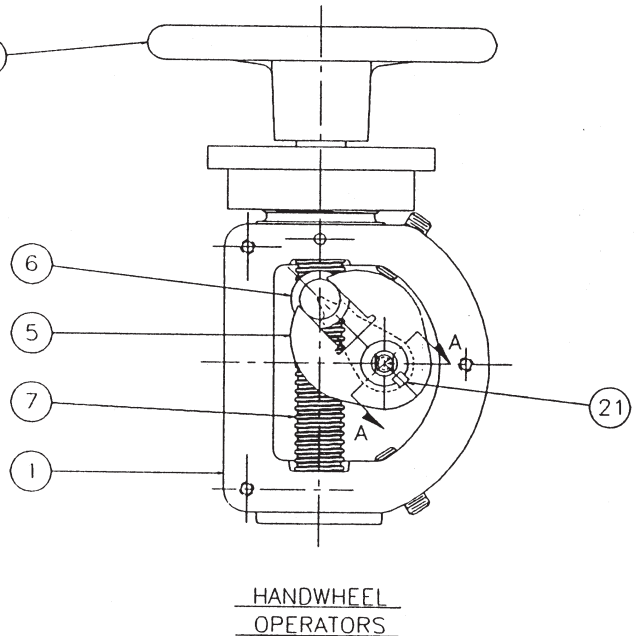
NSF APPROVED

ASSEMBLY MANUAL OPERATOR

CLOW VALVE COMPANY

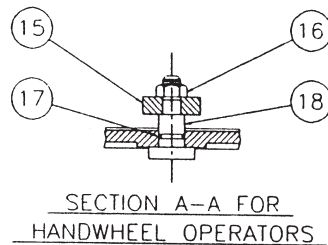


BURIED OPERATORS

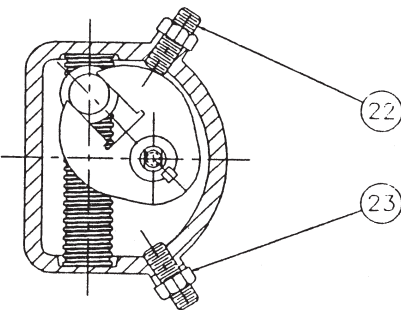


HANDWHEEL OPERATORS

* Not supplied with set screws



SECTION A-A FOR HANDWHEEL OPERATORS



OPERATOR MODEL

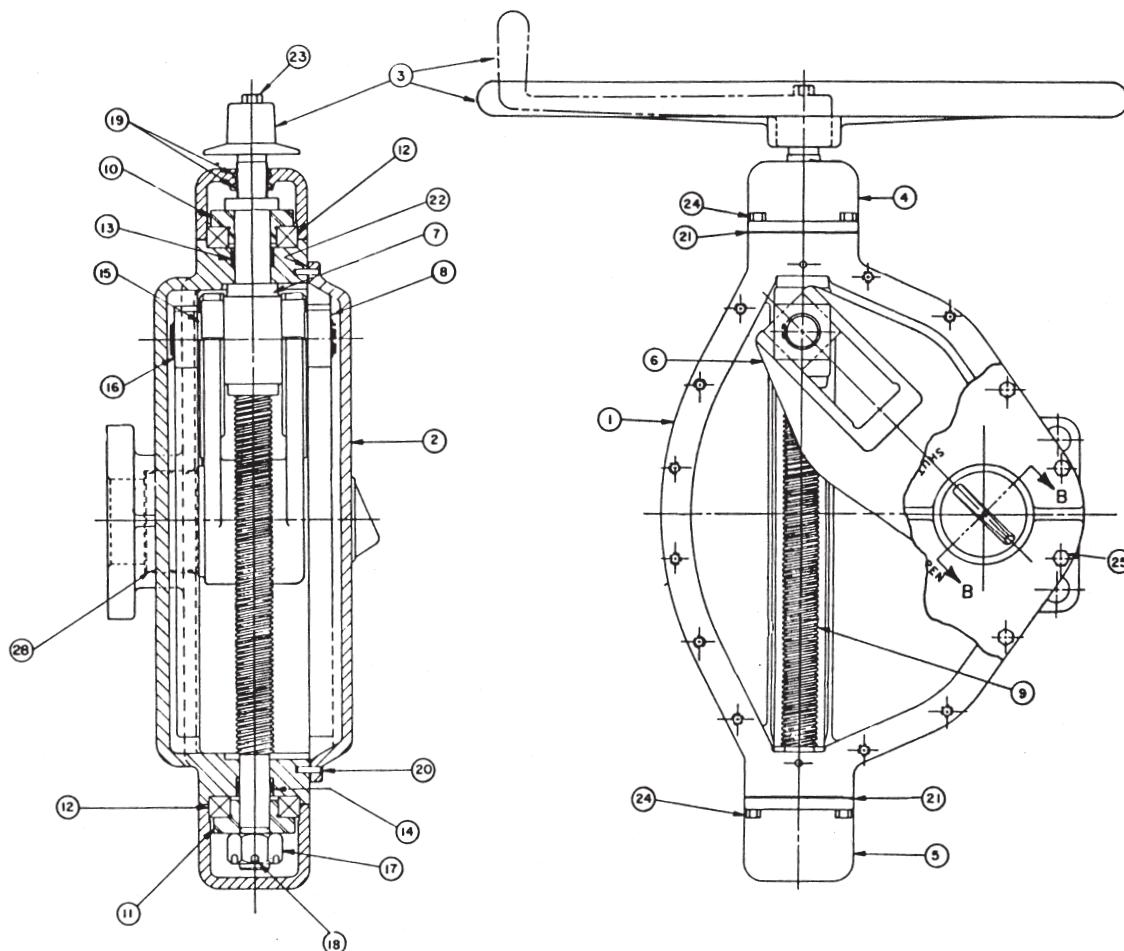
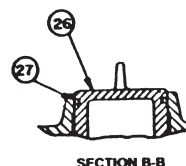
- 150 *
- 510 *
- 1250
- 2200

ITEM #	DESCRIPTION	MATERIAL
1	HOUSING OPERATOR	CAST IRON, A-126, CLASS B
2	COVER, HOUSING	CAST IRON, A-126, CLASS B
3	CAP, THRUST	CAST IRON, A-126, CLASS B
4	AS REQUIRED	CAST IRON, A-126, CLASS B
5	LEVER	DUCTILE IRON, A-536, GRADE 80-45-06
6	CROSSHEAD	DUCTILE IRON, A-536, GRADE 65-55-12
7	SHAFT, INPUT	C.D. STEEL, 12L14
8	O' RING	N.B.R.
9	O' RING	N.B.R.
10	GASKET, COVER	CORK-NEOPRENE
11	SHIELD, SHAFT	REINFORCED TEFLON
12	PLUG, EXPANSION	BRASS COMM.
13	BOLT, HEX HEAD (AWWA NUT)	STAINLESS STEEL, 18-8
14	BOLT, HEX HEAD (COVER)	STAINLESS STEEL, 18-8
15	INDICATOR	CAST IRON, A-126, CLASS B
16	NUT, HEX	STEEL, COMM.
17	O' RING	N.B.R.
18	PIN, INDICATOR	STEEL, COMM.
19	PIN, INPUT SHAFT	STEEL, COMM.
20	BUSHING	REINFORCED TEFLON
21	KEY	STEEL, COMM.
22	SET SCREW, LEVER	STAINLESS STEEL, 18-8
23	NUT, JAM	STAINLESS STEEL, 18-8

ASSEMBLY MANUAL OPERATOR
MODEL 4350

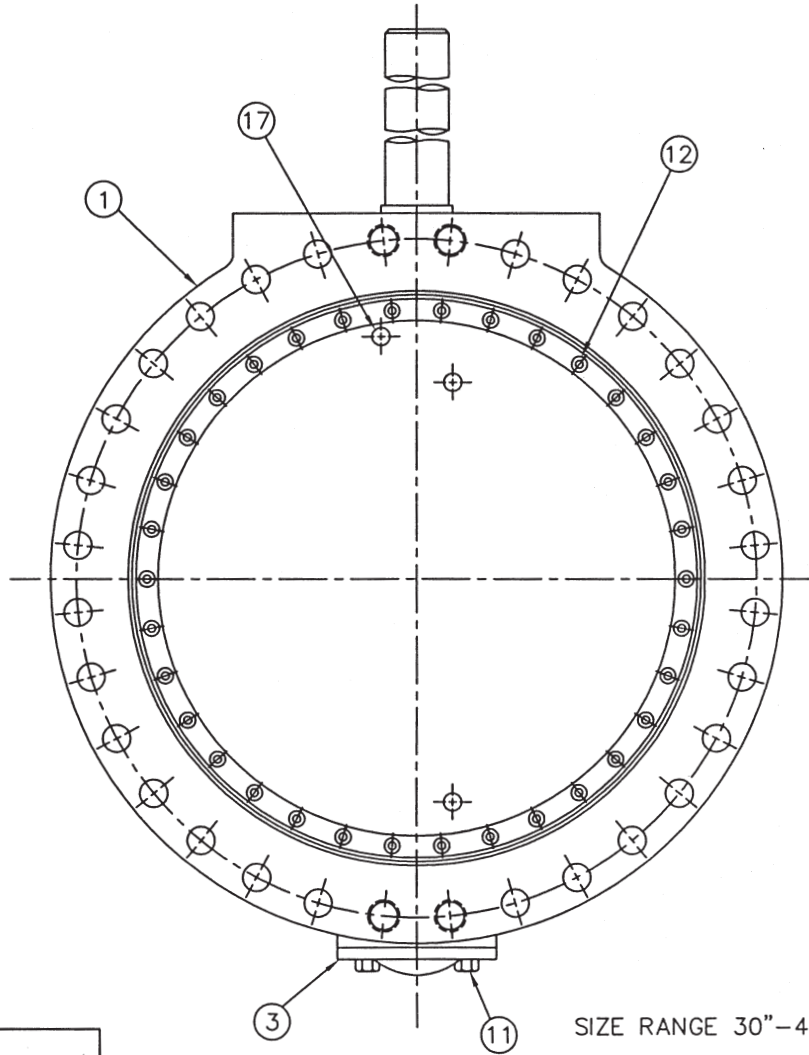
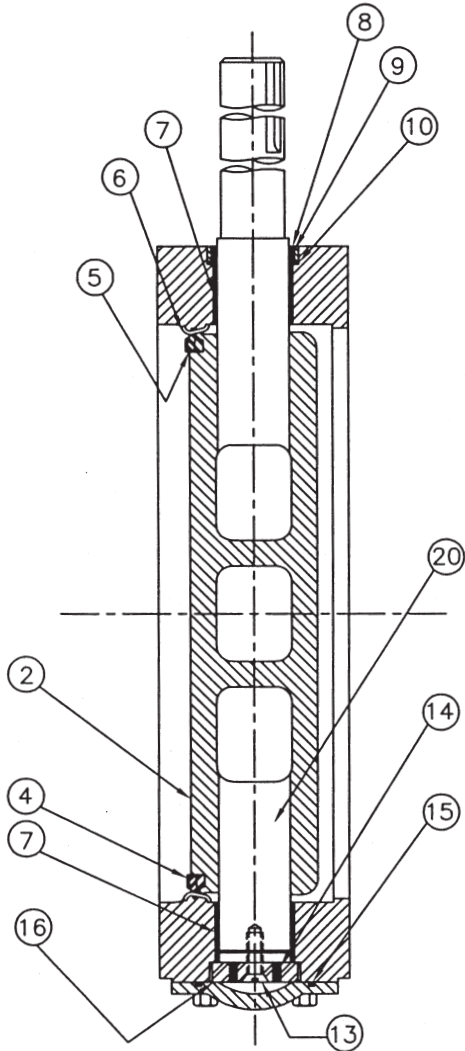
CLOW VALVE COMPANY

ITEM NO.	DESCRIPTION	MATERIAL
1	OPERATOR HOUSING	CAST IRON, ASTM A-126, CL. B
2	HOUSING COVER	CAST IRON, ASTM A-126, CL. B
3	AS REQUIRED	CAST IRON, ASTM A-126, CL. B
4	END CAP (INPUT)	CAST IRON, ASTM A-126, CL. B
5	END CAP (LOCKNUT)	CAST IRON, ASTM A-126, CL. B
6	LEVER	DUCTILE IRON, ASTM A-536, GR. 65-45-12
7	CROSSHEAD	DUCTILE IRON, ASTM A-536, GR. 65-45-12
8	CROSSHEAD SLEEVE	ALLOY IRON
9	INPUT SHAFT	CDS AISM C1117 LEADED
10	BEARING RETAINER	CDS AISM C1117 LEADED
11	BEARING RETAINER	CDS AISM C1117 LEADED
12	ROLLER THRUST BEARING	COMM. STEEL
13	SLEEVE BEARING	OILITE BRONZE
14	SLEEVE BEARING	OILITE BRONZE
15	SPACER	COMM. STEEL
16	RETAINER RING	SPRING STEEL
17	SLOTTED NUT	COMM. STEEL
18	LOCK PIN	COMM. STEEL
19	END CAP SEAL	BUNA "N"
20	DOWEL PIN	COMM. STEEL
21	END CAP GASKET	PERMATEX FORM-A GASKET NO. 2
22	COVER GASKET	PERMATEX FORM-A GASKET NO. 2
23	HEX HEAD CAPSCREW	COMM. STEEL
24	HEX HEAD CAPSCREW	COMM. STEEL
25	HEX HEAD CAPSCREW	COMM. STEEL
26	INDICATOR CAP	CAST IRON, ASTM A-126 CL. B
27	INDICATOR CAP SEAL	BUNA "N"
28	BUSHING	REINFORCED TEFLON



SUB-ASSEMBLY CLASS 250
FLANGED END BFV

CLOW VALVE COMPANY

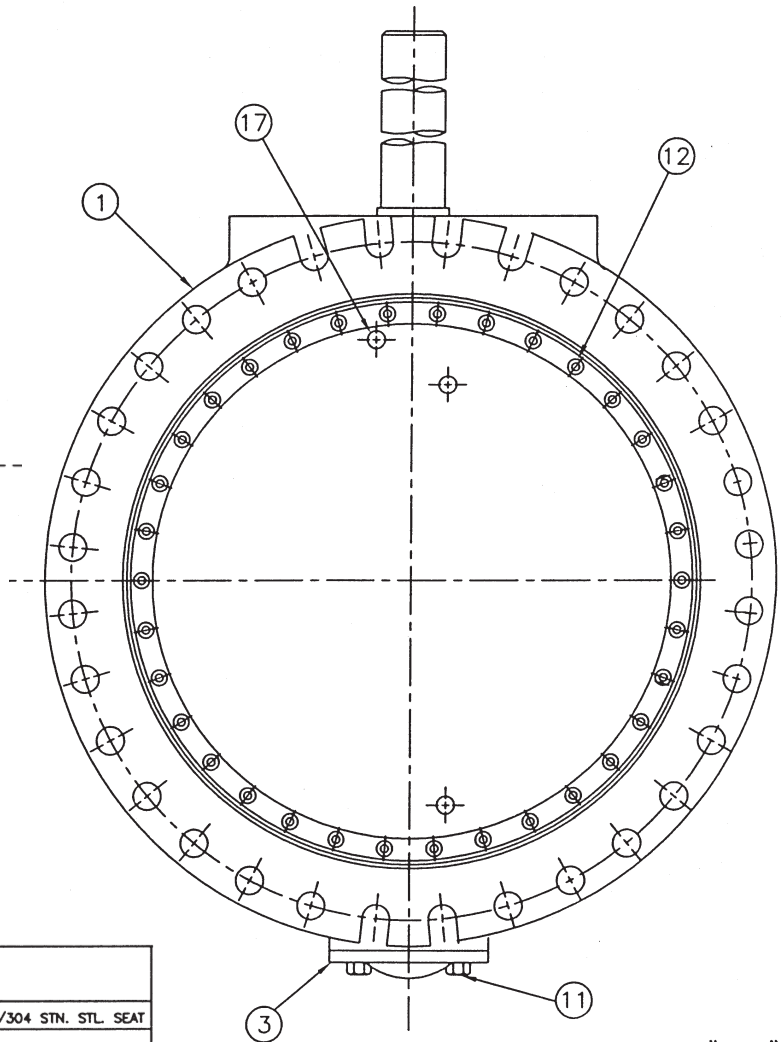
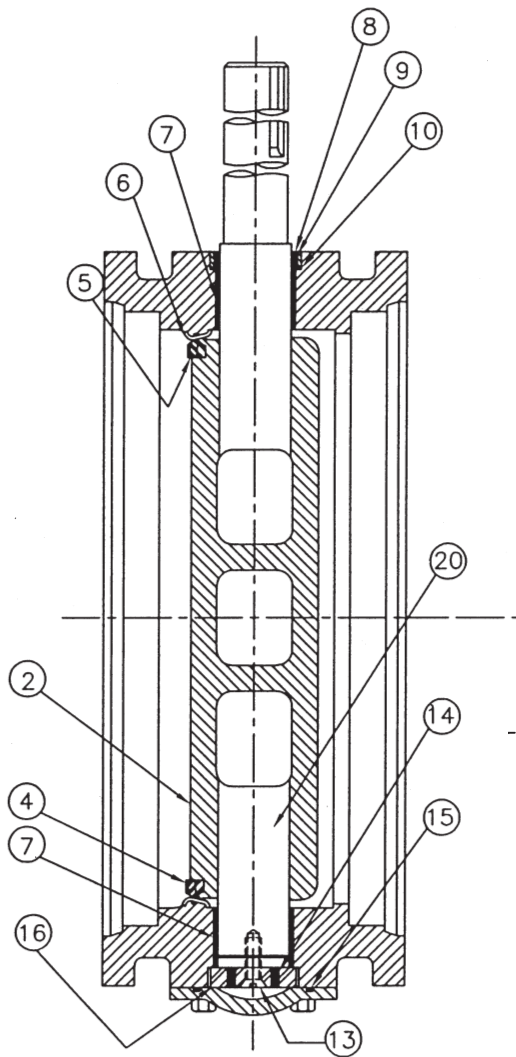


SIZE RANGE 30"-48"

ITEM NO.	DESCRIPTION	MATERIAL
1	BODY, VALVE	DUCTILE IRON, ASTM A-536 GR. 70-50-05 W/304 STN.STL. SEAT
2	VANE	DUCTILE IRON, ASTM A-536 GR. 70-50-05
3	END COVER	CAST IRON, ASTM A-126, CL. B
4	SEAT RING, VANE	BUNA "S"
5	CLAMP RING, SEAT	304 STAINLESS STEEL
6	SEALING WASHER	NYLON
7	BUSHING, BODY	FIBERGLIDE
8	CARTRIDGE, SHAFT	BRONZE
9	SEAL, SHAFT	BUNA "N"
10	SEAL, CARTRIDGE	BUNA "N"
11	BOLT, END COVER	COMMERCIAL STEEL
12	SOCKET SCREW ~ FLAT HEAD	18-8 STAINLESS STEEL W/NYLOK INSERT
13	SOCKET SCREW ~ FLAT HEAD	18-8 STAINLESS STEEL W/NYLOK INSERT
14	SET SCREW ~ FLAT POINT	18-8 STAINLESS STEEL W/NYLOK INSERT
15	END COVER SEAL	BUNA "N"
16	THRUST BEARING R.	BRONZE
17	TAPER PIN	STAINLESS STEEL
18	TAPER PIN NUT	18-8 STAINLESS STEEL
19	SHAFT (OPERATOR)	TYPE 630, CONDITION H1100 STN STL ASTM A-564
20	SHAFT (THRUST)	304 STAINLESS STEEL

SUB-ASSEMBLY-CLASS 250
MECHANICAL JOINT ENDS BFV

CLOW VALVE COMPANY



SIZE RANGE 30"–48"

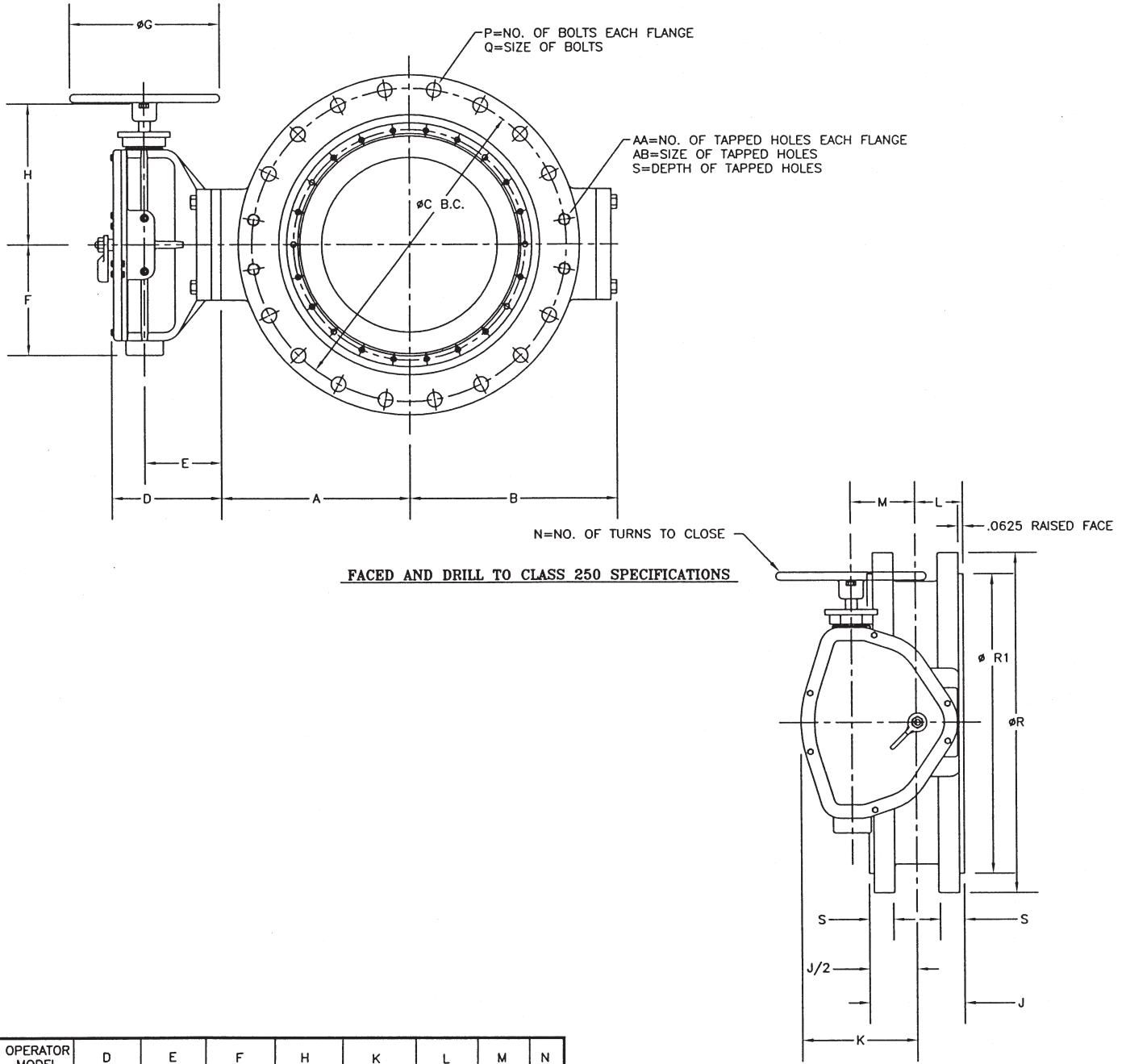
ITEM NO.	DESCRIPTION	MATERIAL
1	BODY, VALVE	DUCTILE IRON, ASTM A-536, GR. 70-50-05 W/304 STN. STL. SEAT
2	VANE	DUCTILE IRON, ASTM A-536 GR. 70-50-05
3	END COVER	CAST IRON, ASTM A-126, CL. B
4	SEAT RING, VANE	BUNA "S"
5	CLAMP RING, SEAT	304 STAINLESS STEEL
6	SEALING WASHER	NYLON
7	BUSHING, BODY	FIBERGLIDE (REINFORCED TEFLON)
8	CARTRIDGE, SHAFT	BRONZE
9	SEAL, SHAFT	BUNA "N"
10	SEAL, CARTRIDGE	BUNA "N"
11	BOLT, END COVER	COMMERCIAL STEEL
12	SOCKET SCREW ~ FLAT HEAD	18-8 STAINLESS STEEL W/NYLOK INSERT
13	SOCKET SCREW ~ FLAT HEAD	18-8 STAINLESS STEEL W/NYLOK INSERT
14	SET SCREW ~ FLAT POINT	18-8 STAINLESS STEEL W/NYLOK INSERT
15	END COVER SEAL	BUNA "N"
16	THRUST BEARING \mathbb{R}	BRONZE
17	TAPER PIN	STAINLESS STEEL
18	TAPER PIN NUT	18-8 STAINLESS STEEL
19	SHAFT (OPERATOR)	TYPE 630, CONDITION H1100 STN STL ASTM A-564
20	SHAFT (THRUST)	304 STAINLESS STEEL

NOTES:

1. FLOW MAY BE IN EITHER DIRECTION
2. VALVE SHAFT WILL MEET OR EXCEED REQUIREMENTS OF SHAFT TABLE PER AWWA STANDARD C-504 FOR APPLICABLE CLASS.
3. A.N.S.I. B 16.1 CLASS 250 FLANGES.
4. VALVE RATED AND TESTED FOR 250 P.S.I. SERVICE.

**ASSEMBLY-STYLE 1450 30"-40" BFV
CLASS 250 FLANGE END HANDWHEEL OPR.**

CLOW VALVE COMPANY



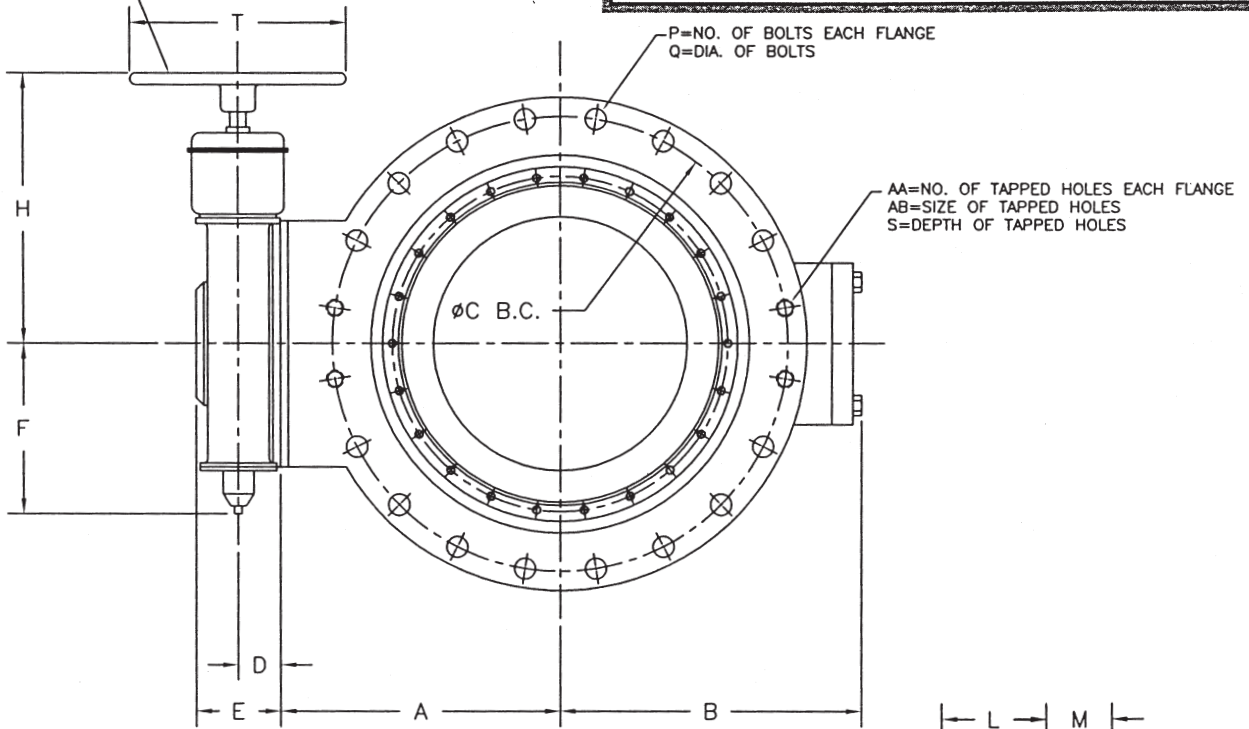
OPERATOR MODEL	D	E	F	H	K	L	M	N
2200	9 1/16	6 1/4	10 3/8	14 1/2	10 3/4	3 7/8	6	72
4350	10 1/16	6 1/16	15 1/8	18	13 5/16	4 3/16	7 1/2	90

VALVE SIZE	A	B	C	J	P	Q	R	R1	S	AA	AB
30"	21.711	22.711	39.250	13.750	28	1.75	43	37.187	3	4	1 3/4-5
36"	25.15	25.20	46	14.00	28	2.250	50	43.688	2.75	4	2-4 1/2
42"	29.00	29.875	52.750	14.125	28	2.250	57	50.438	3.75	8	2-4 1/2

ASSEMBLY-STYLE 1450 48" BFV
CLASS 250 FLANGE END HANDWHEEL OPR.

CLOW VALVE COMPANY

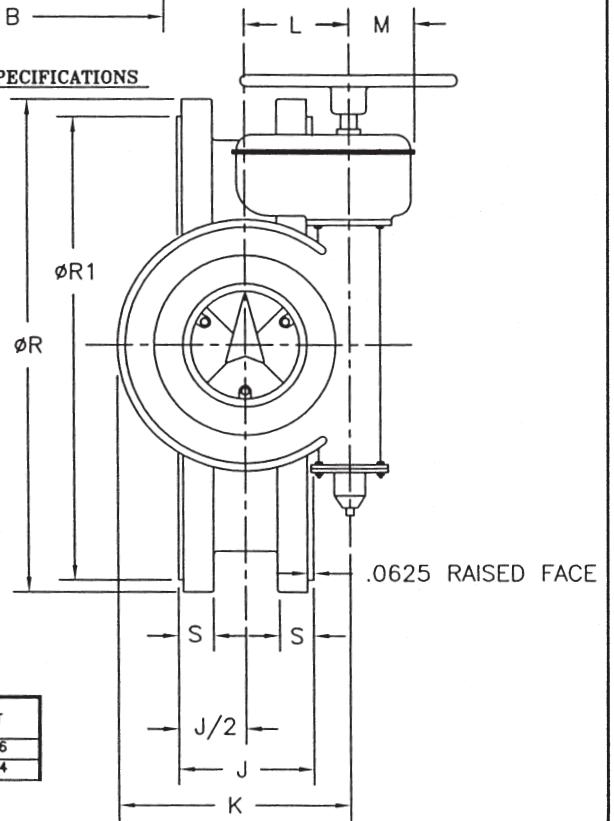
N=NO. OF TURNS TO CLOSE



FACED AND DRILL TO CLASS 250 SPECIFICATIONS

NOTES:

1. FLOW MAY BE IN EITHER DIRECTION
2. VALVE SHAFT WILL MEET OR EXCEED REQUIREMENTS OF SHAFT TABLE PER AWWA STANDARD C-504 FOR APPLICABLE CLASS.
3. REFERENCE AWWA C-504 FLANGES & DRILLING (A.N.S.I. 125)



OPERATOR MODEL	D	E	F	H	K	L	M	N	T
GS 200/GZ 16-8	4.0	8.3	15.8	20.7	16.4	7.9	4.5	106	16
GS 250/GZ 25-16	5.3	10.5	19.3	23.9	20.4	9.8	4.5	208	24

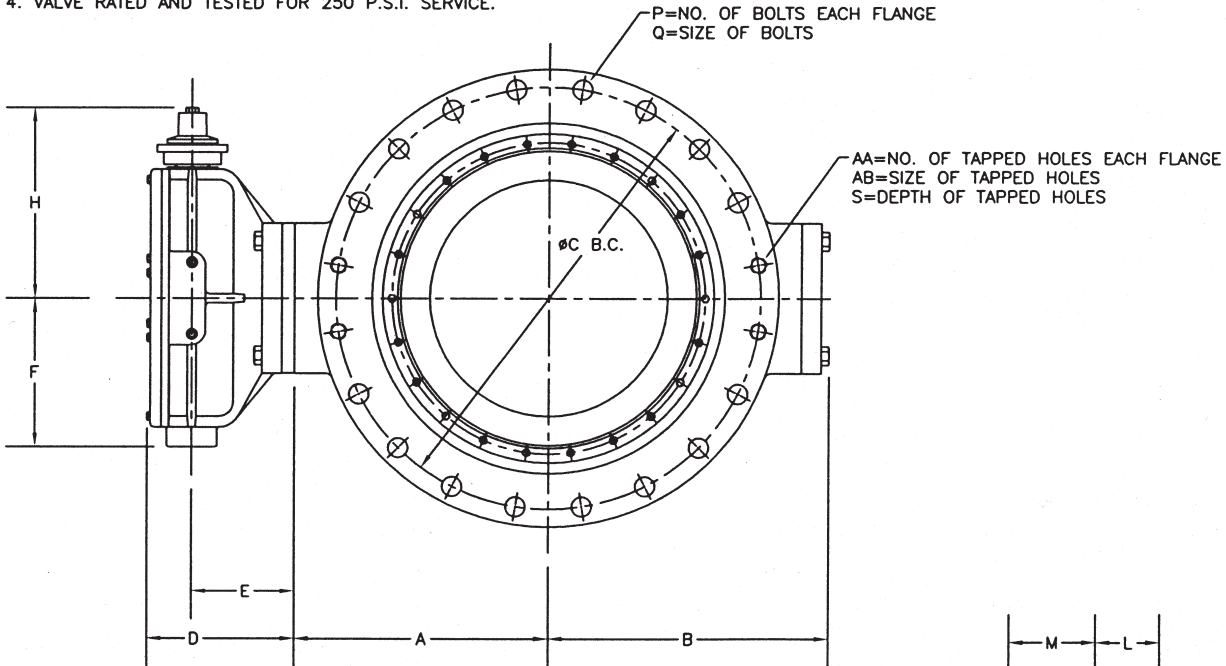
VALVE SIZE	A	B	C	J	P	Q	ØR	ØR1	S	AA	AB
48"	32.75	33.35	60.75	17.50	32	2.250	65.00	51.625	4.00	8	2- 4.5

ASSEMBLY-STYLE 1450 30"-42" BFV
CLASS 250 FLANGE END BURIED OPR.

CLOW VALVE COMPANY

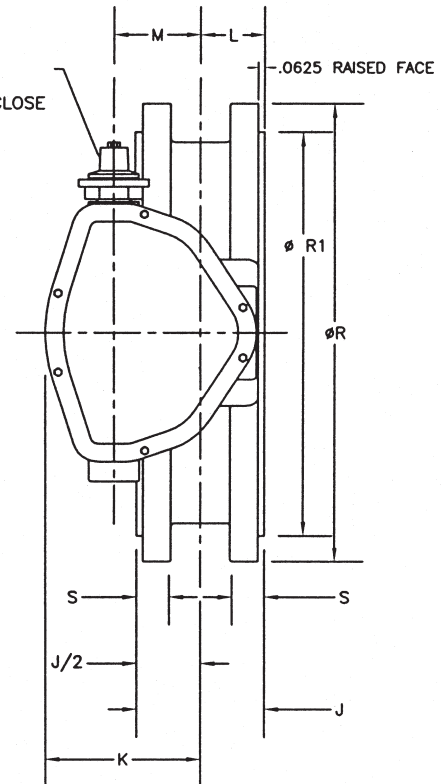
NOTES:

1. FLOW MAY BE IN EITHER DIRECTION
2. VALVE SHAFT WILL MEET OR EXCEED REQUIREMENTS OF SHAFT TABLE PER AWWA STANDARD C-504 FOR APPLICABLE CLASS.
3. A.N.S.I. B 16.1 CLASS 250 FLANGES.
4. VALVE RATED AND TESTED FOR 250 P.S.I. SERVICE.



FACED AND DRILL TO CLASS 250 SPECIFICATIONS

AWWA 2" WRENCH NUT
N=NO. OF TURNS TO CLOSE



OPERATOR MODEL	D	E	F	H	K	L	M	N
2200	9 1/16	6 1/4	10 3/8	14 1/2	10 3/4	3 7/8	6	72
4350	10 1/16	6 1/16	15 1/8	18	13 5/16	4 3/16	7 1/2	90

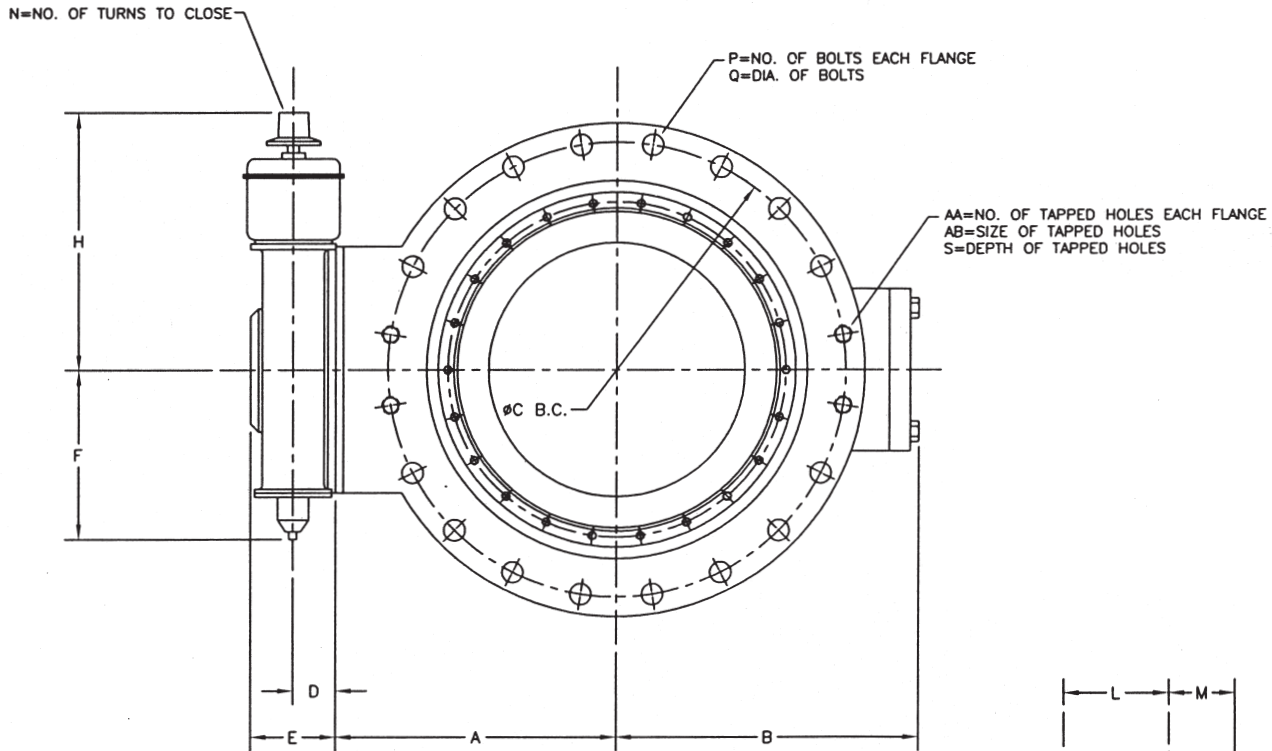
VALVE SIZE	A	B	C	J	P	Q	R	R1	S	AA	AB
30"	21.711	22.711	39.250	13.750	28	1.75	43	37.187	3	4	1 3/4-5
36"	25.15	25.20	46	14.00	28	2.250	50	43.688	2.75	4	2-4 1/2
42"	29.00	29.875	52.750	14.125	28	2.250	57	50.438	3.75	8	2-4 1/2

NOTES:

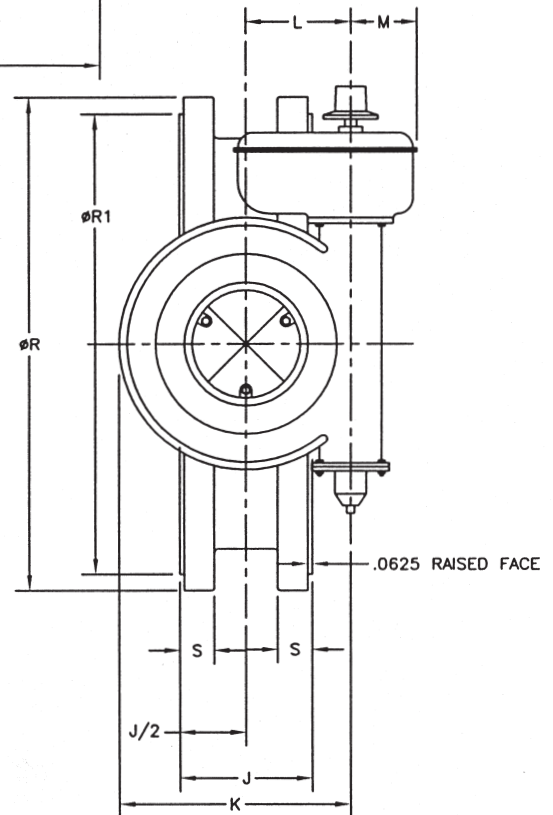
1. FLOW MAY BE IN EITHER DIRECTION
2. VALVE SHAFT WILL MEET OR EXCEED REQUIREMENTS OF SHAFT TABLE PER AWWA STANDARD C-504 FOR APPLICABLE CLASS.
3. REFERENCE AWWA C-504 FLANGES & DRILLING (A.N.S.I. 125)

**ASSEMBLY-STYLE 1450 48" BFV
CLASS 250 FLANGE END BURIED OPR.**

CLOW VALVE COMPANY



FACED AND DRILL TO CLASS 250 SPECIFICATIONS.



OPERATOR MODEL	D	E	F	H	K	L	M	N
GS 200/GZ 16-4	4.0	8.3	15.8	21.5	16.4	7.9	4.5	53
GS 250/GZ 25-8	5.3	10.5	19.3	24.7	20.4	9.8	4.5	104

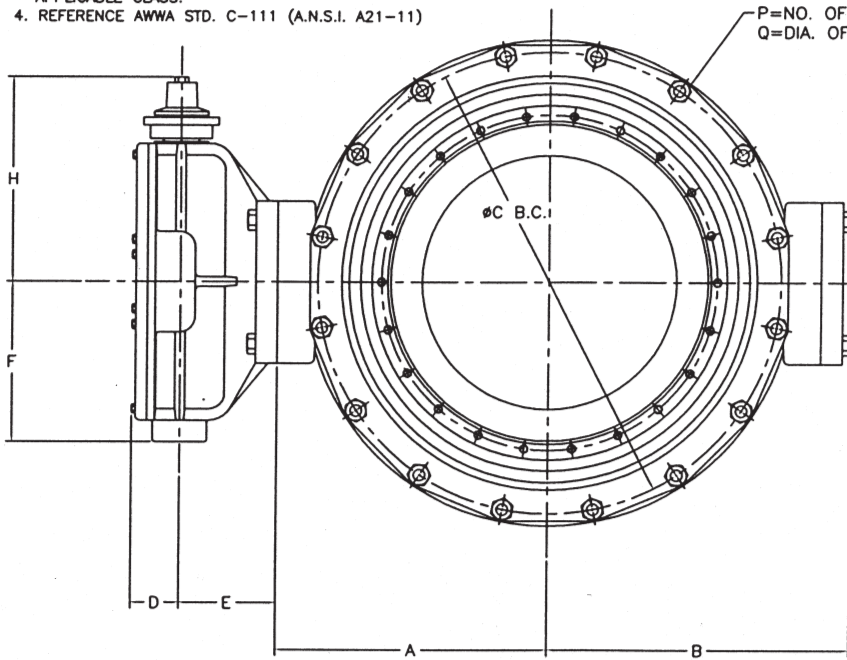
VALVE SIZE	A	B	C	J	P	Q	∅R	∅R1	S	AA	AB
48"	32.75	33.35	60.75	17.50	32	2.250	65.00	51.625	4.00	8	2- 4.5

ASSEMBLY-STYLE 1450 30"-42" BFV
CLASS 250 MECHANICAL JOINT BURIED OPR.

CLOW VALVE COMPANY

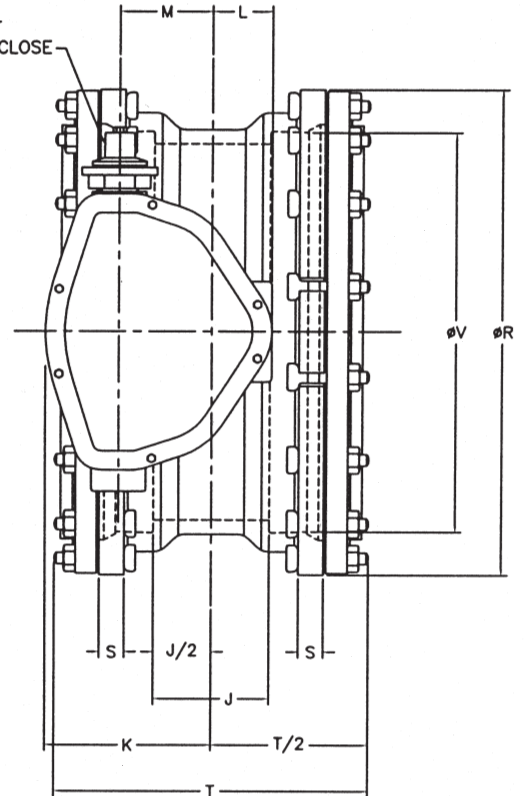
NOTES:

1. FLOW MAY BE IN EITHER DIRECTION
2. GASKETS, GLAND & BOLTS FOR MECHANICAL JOINT ARE FURNISHED WITH VALVE WHEN SPECIFIED ON ORDER.
3. VALVE SHAFT WILL MEET OR EXCEED REQUIREMENTS OF SHAFT TABLE PER AWWA STANDARD C-504 FOR APPLICABLE CLASS.
4. REFERENCE AWWA STD. C-111 (A.N.S.I. A21-11)



P=NO. OF BOLTS EACH FLANGE
Q=DIA. OF BOLTS

AWWA 2" WRENCH NUT
N=NO. OF TURNS TO CLOSE



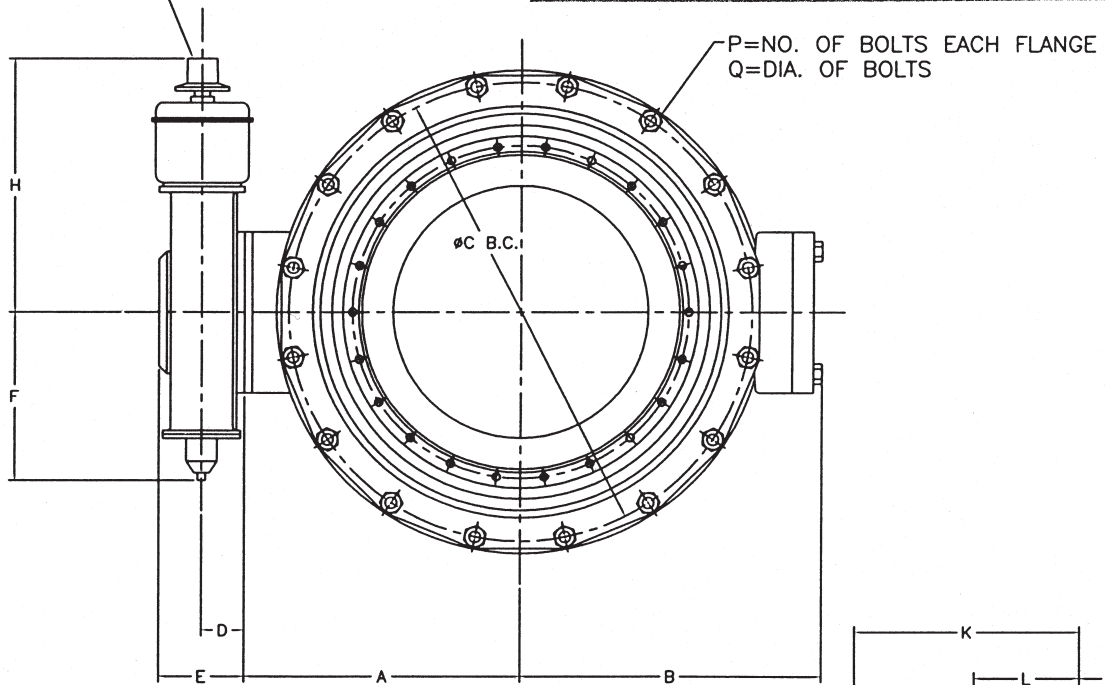
OPERATOR MODEL	D	E	F	H	K	L	M	N
2200	9 1/16	6 1/4	10 3/8	14 1/2	10 3/4	3 7/8	6	72
4350	10 1/16	6 1/16	15 1/8	18	13 5/16	4 3/16	7 1/2	90

VALVE SIZE	A	B	C	J	P	Q	R	S	T	V
30"	20 5/8	21 1/4	36 7/8	12	20	1	39 1/8	1 13/16	28 3/8	32.17
36"	24 1/4	24 7/8	43 3/4	12	24	1	46	2	28 3/8	38.47
42"	28 1/4	28 7/8	50 5/8	12	28	1 1/4	53 1/8	2	28 3/8	44.67

ASSEMBLY-STYLE 1450 48" BFV
CLASS 250 MECHANICAL JOINT BURIED OPR.

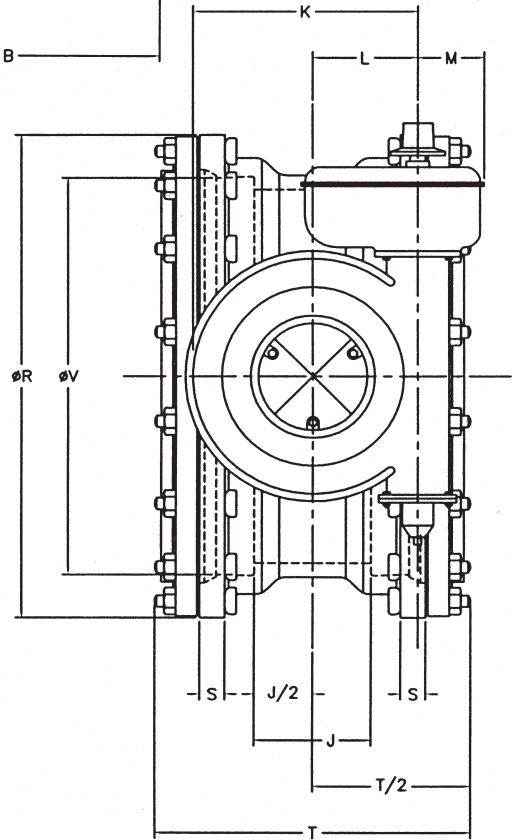
CLOW VALVE COMPANY

AWWA 2" WRENCH NUT
N=NO. OF TURNS TO CLOSE



NOTES:

1. FLOW MAY BE IN EITHER DIRECTION
2. GASKETS, GLANDS & BOLTS FOR MECHANICAL JOINT ARE FURNISHED WITH VALVE WHEN SPECIFIED ON ORDER.
3. VALVE SHAFT WILL MEET OR EXCEED REQUIREMENTS OF SHAFT TABLE PER AWWA STANDARD C-504 FOR APPLICABLE CLASS.
4. REFERENCE AWWA STD. C-111 (A.N.S.I. A21-11)



OPERATOR MODEL	D	E	F	H	K	L	M	N
GS 200/GZ 16-4	4.0	8.3	15.8	21.5	16.4	7.9	4.5	53
GS 250/GZ 25-8	5.3	10.5	19.3	24.7	20.4	9.8	4.5	104

VALVE SIZE	A	B	C	J	P	Q	R	S	T	V
48"	32	32	57 1/2	15	32	1 1/4-6	60	2	31 3/8	50.97

A. GENERAL

All Butterfly valves shall be of the rubber-sealed tight-closing type designed, manufactured and tested in conformance to AWWA Standard C-504, latest revision. All valves shall be M&H Style 1450 Butterfly Valves, or approved equal. NSF approval is recommended.

B. VALVE

Valve Body shall be high strength ductile iron, ASTM A-536, Grade 70-50-5, with 18-8 Stainless Steel Body Seat. Valve Vane (Disc) shall be ductile iron, ASTM A-536, Grade 70-50-5 having rubber seat mechanically secured with a serrated 18-8 Stainless Steel self-locked screws. Rubber Seat shall be a full-circle 360° seat not penetrated by the valve shaft. The vane shall be of a "Flow-Through" design incorporating three integral flow passages, in order to provide low flow resistance and assurance of high quality. Valve shafts shall be of two-piece stub shaft type, made of 18-8 Type 630 stainless steel with a diameter equal to or larger than specified for applicable valve class as defined by AWWA Standard C-504, latest revision. Rubber Seats shall be capable of ready replacement or adjustment without the use of special tools. For underground service, shaft seals shall be of the "O-ring" type.

Seat – Valve seats must be easily replaceable in the field and in the pipeline without any use of special tools, syringes or adhesives.

C. OPERATOR

The operator shall be of the traveling nut or worm gear type, self-locking in any position and sealed, gasketed and lubricated as needed.

All valves shall close by turning the operator nut or handwheel in a clock-wise direction (Open left). The operator shall be capable of meeting the torque requirements for opening and closing the valve against the pressure and flow rate specified.

For underground service, the minimum number of turns to close a valve shall be no less than 2 turns per inch of valve size in order to minimize water hammer; and AWWA stops shall be provided capable of absorbing up to 450 foot-

pounds of input torque without damage to the valve or operator.

OPEN RIGHT VALVES CAN BE FURNISHED AS AN OPTION IF REQUIRED.

For above-ground service, the operator shall provide position indication; and shall require no more than 80 pounds pull on the handwheel to provide necessary torque for specified pressure and flow rate.

D. END CONFIGURATIONS

Flanged-end valves shall be of the short-body type having 250# flanges conforming to ANSI B16-1. Mechanical joint end valves shall conform to AWWA Standard C-111 (ANSI B21.11). Mechanical joint bolts, glands and gaskets (shall)(shall not) be supplied by the valve manufacturer.

E. TESTS

All valves shall be tested for leakage at rated pressure, and tested hydrostatically at two times rated pressure – all in conformance with AWWA Standard C-504, latest revision.

SEAT TEST = 250 psi
SHELL TEST = 500 psi
NSF Approved