

C-10 CANAL GATE

This gate is designed for use on canal and pipeline systems which operate at low "heads" and where a moderately priced gate is desired. Typical installations include: farm turnouts, control of industrial wastes, drainage and for tide control.

Construction is of grey iron with an all-bolted steel frame with 1/4" minimum thickness. The standard stem is of a special leaded steel which resists corrosion. The stem is operated at the structural frame top by a heavy cast-bronze lift nut and a cast iron wheel.

Adjustable cast iron wedge blocks, held securely in place by two machine bolts, assure a dependable seating closure with a practical degree of water tightness. The cast iron seats are machined or ground. A solid rim "easy-grip" handwheel is standard.

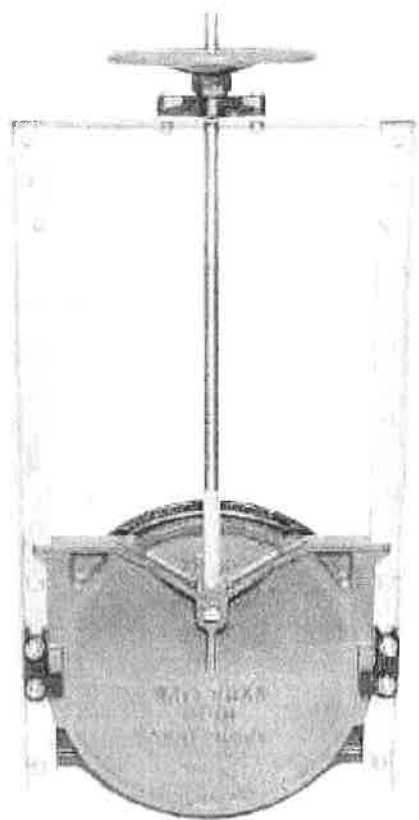
Optional materials include: bronze seats; stainless steel structural frame and bolts; stainless steel or brass stems; and special epoxy, coal tar or ASTM galvanized coatings.

When desired, design variation in stem diameter, pitch and thread rotation are available to match existing equipment. Extended stems, special lifts, oil seals, stem guides and limit nuts are a few of the optional items available for use with these gates.

Various sizes and options are available.

Special materials available include: "Ni-Resist" iron castings, stainless steel structural frame and assembly bolts; total galvanizing per ASTM A-123; coal tar, and epoxy coatings.

Recommended Maximum Seating Heads	
6" - 24"	23 foot head
30" - 36"	11 foot head
42" - 48"	9 foot head
54" - 72"	6 foot head
Recommended Maximum Unseating Head - 0	

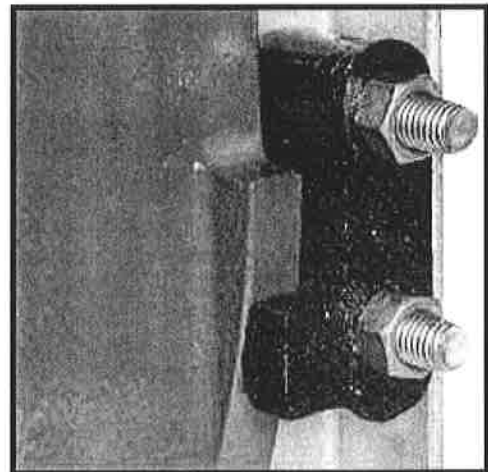


Bronze lift nut furnished as standard on all Waterman Canal Gates.

Frame Types for Various Installation Requirements

- F Flatback for headwall mounting
- SB Spigotback for annular or recor spiral corrugated pipe.
- CIP For solvent cement mounting over plastic pipe
- C With galvanized steel tapered setting collar for concrete or asbestos cement pipe.
- SA Spigotback for annular corrugated pipe.
- TYPE 4 For mounting in plastic pipe utilizing special two part epoxy.

Features 1/4" minimum thickness. Compare to competitor's gates.

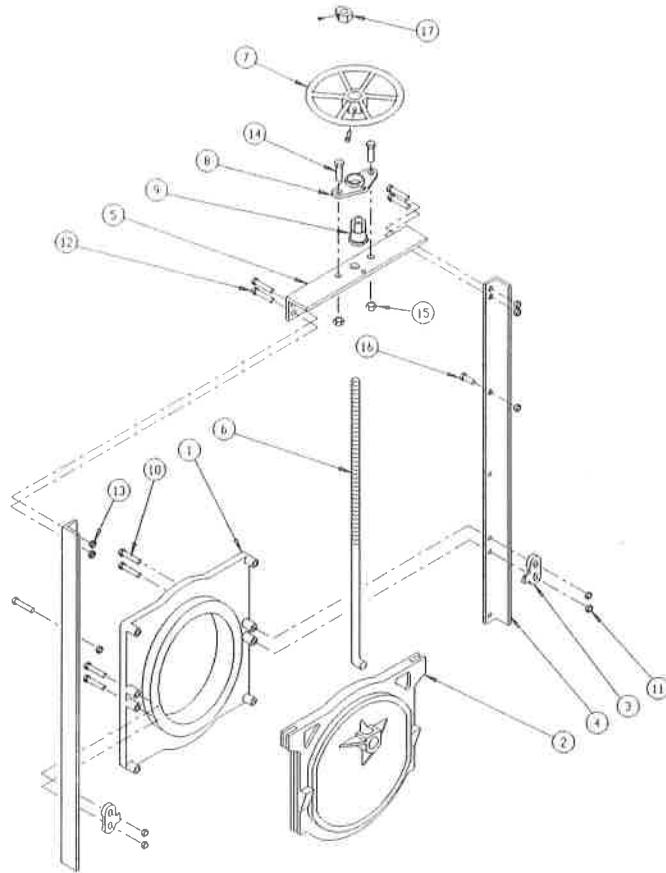


Waterman Model C-10 wedging system offers two point adjustment and larger wedging surfaces for a more positive contact.

C-10 CANAL GATE PARTS

PARTS LIST		
No.	Name	Qty.
1	Frame	1
2	Cover	1
3	Wedge (R&L)	2
4	Guide Rail (R&L)	2
5	Headrail	1
6	Stem	1
7	Handwheel	1
8	Thrust Collar	1
9	Lift Nut	1
10	Wedge Bolt	4
11	Wedge Nut	4
12	Frame Bolt	4
13	Frame Nut	4
14	Collar Bolt	2
15	Collar Nut	2
16	Stop Boll & Nut	1
17	Limit Nut (optional) *	1

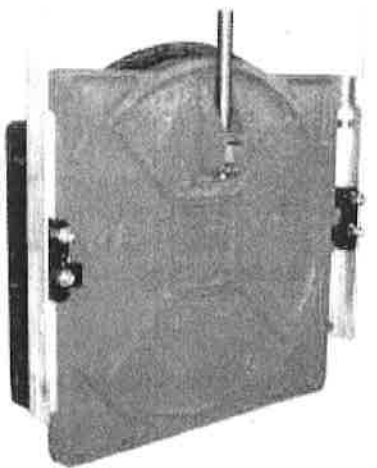
* With set screw



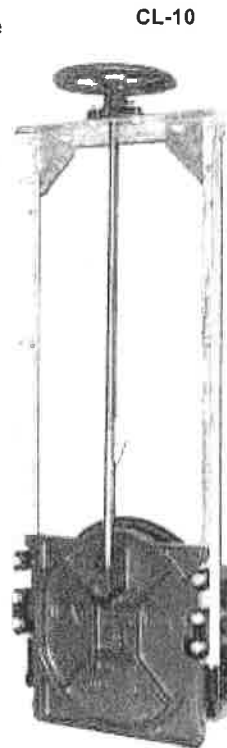
CL-10 CANAL GATE

Waterman CL-10 Canal Gates are identical to our model C-10 Gates with the exception of the cast iron cover (slide) which is of a flat plate type construction with ribs reinforcing its face, to withstand the maximum heads as noted for our C-10 gates. This gate cover also features a square bottom design, which allows a more open "clog-free" flow at points of initial opening. The seat being only slightly raised above the cover plate surface helps prevent trash from collecting behind the cover which can cause difficulty in operation.

Available with threaded thrust nut for true NRS application. All parts are interchangeable with our Standard C-10 gate. Available in a variety of sizes.

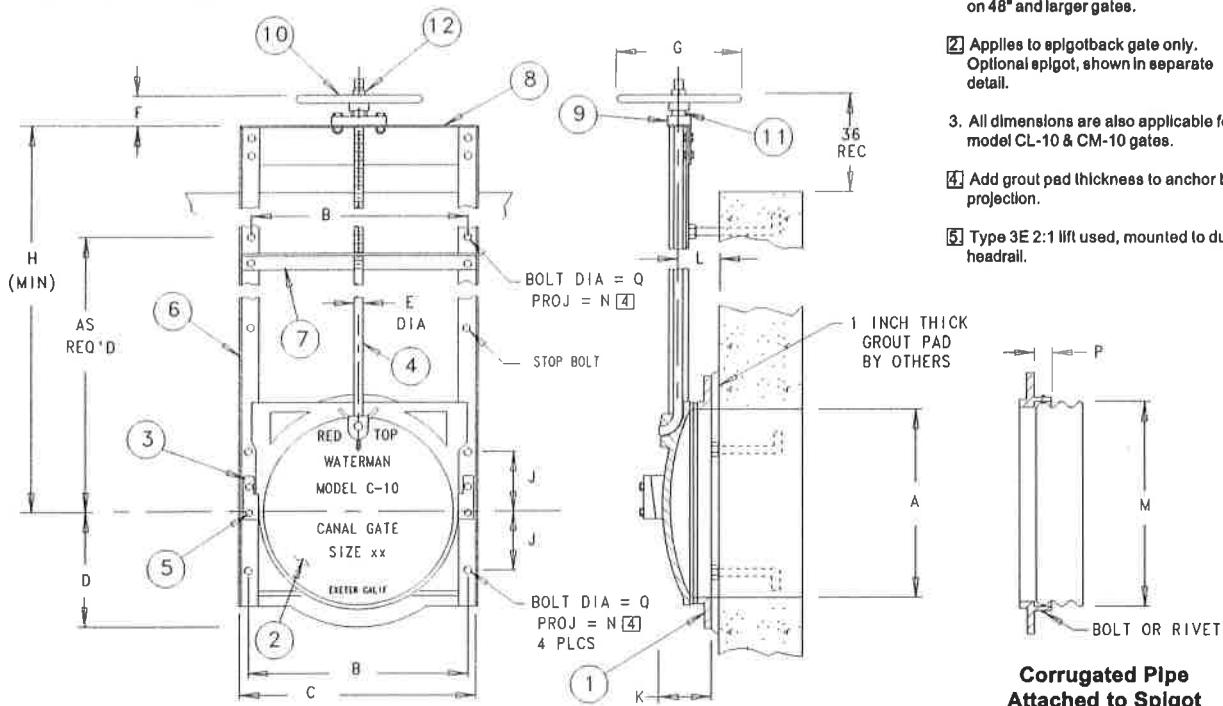


Shown with optional threaded thrust nut for true non-rising stem operation

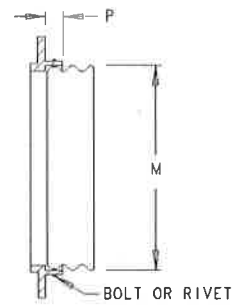


Flat Plate Type, Square Bottom

C-10 CANAL GATE

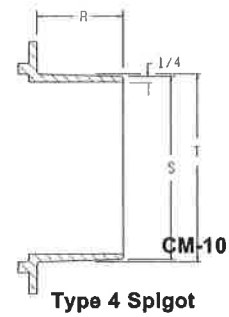
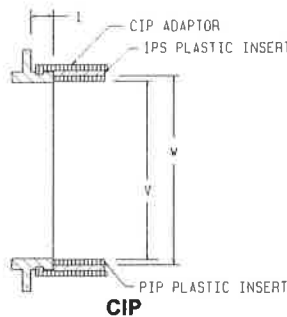


- NOTES**
- 1 TYPE 2 lubricated ball bearing lift used on 48" and larger gates.
 - 2 Applies to spigotback gate only. Optional spigot, shown in separate detail.
 - 3. All dimensions are also applicable for model CL-10 & CM-10 gates.
 - 4 Add grout pad thickness to anchor bolt projection.
 - 5 Type 3E 2:1 lift used, mounted to dual headrail.



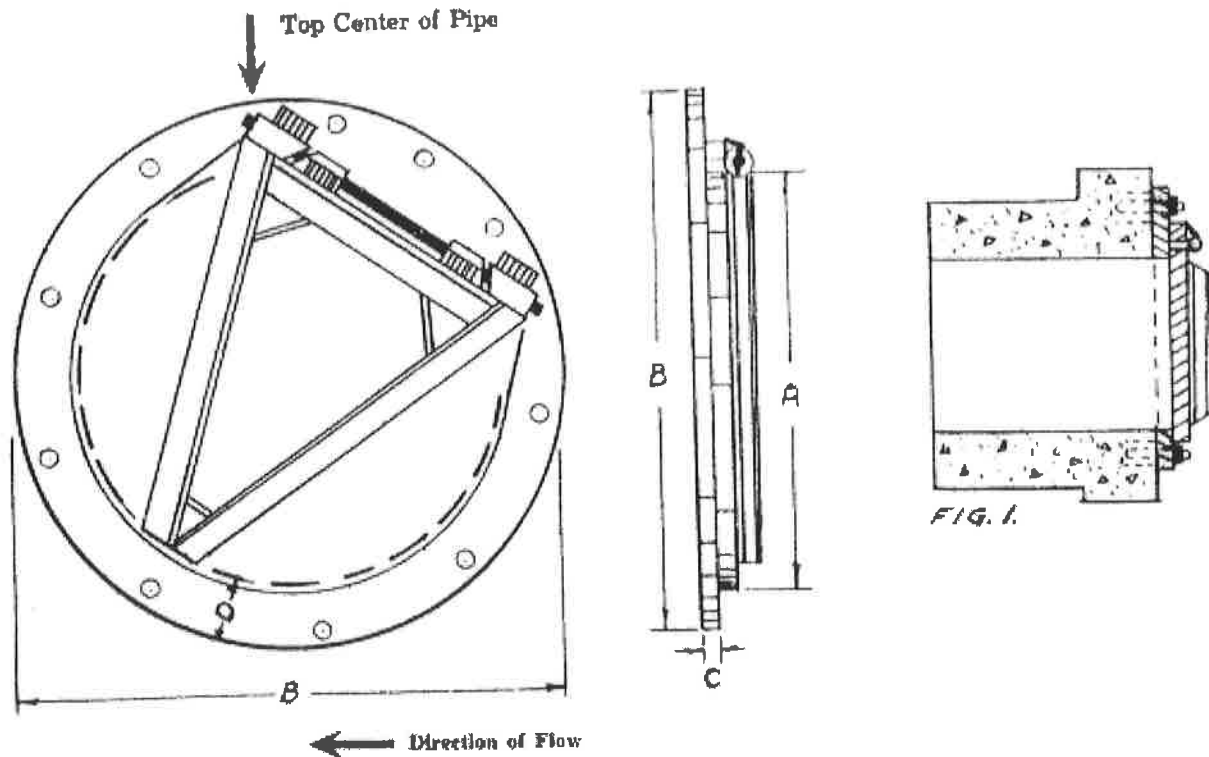
Corrugated Pipe Attached to Spigot Back Frame

PARTS LIST		
No.	Name	Qty.
1	Frame	1
2	Cover	1
3	Wedge (Right & Left)	1 ea.
4	Stem	1
5	Wedge Bolts	4
6	Guide Rail	2
7	Stem Support	A/R
8	Head Rail	1
9	Lift Collar	1
10	Handwheel	1
11	Lift Nut	1
12	Limit Nut	1



A	B	C	D	E	F	G	H	J	K	L	M [2]	N	P [2]	Q	R	S	T	V	W
6	8	9 1/8	4	7/8	2 1/2	10	24	3	3 1/2	2 1/2	7	3 1/2	2 1/4	1/2	-	-	-	6.160	6.645
8	10	12	4 7/8	7/8	2 1/2	10	24	3	3 3/4	2 1/2	9	3 1/2	2 1/4	1/2	4	7 19/16	8	8.180	8.645
10	12	13 3/8	6	7/8	2 1/2	10	24	3 1/2	3 3/4	2 1/2	11	3 1/2	2 1/4	1/2	3 3/8	9 7/8	10	10.220	10.770
12	14	15 1/2	7	7/8	2 1/2	10	24	4	3 1/2	3	13	4	2 1/4	1/2	4	11 1/8	12	12.270	12.780
14	16	17 3/8	8	7/8	2 1/2	10	27	4 1/4	3 3/4	3 1/4	15	4	2 1/4	1/2	-	-	-	-	-
15	17	18 1/8	8 3/8	7/8	2 1/2	10	30	5	4 1/2	3 1/2	16	4	2 1/8	1/2	4	14 1/8	15	-	-
16	18 1/4	20 1/8	9 3/8	7/8	2 1/2	10	32	5 1/2	4 1/2	3 1/2	17	4 1/2	2 1/4	5/8	-	-	-	-	-
18	21	22 1/2	10 1/2	1	3 1/8	12	34	6	4 1/2	4 1/4	19	4 1/2	2 1/4	5/8	4	17 1/16	18	-	-
20	23 1/4	25 1/8	11 1/4	1	3 1/8	12	38	7	4 3/4	4	21	4 1/2	2 1/4	5/8	-	-	-	-	-
21	24	25 3/8	12 3/16	1	3 1/8	12	40	7	4 3/4	4	22	4 1/2	2 1/4	5/8	-	-	-	-	-
24	27 1/4	29 1/8	13 3/8	1	3 1/8	12	44	8	5 3/4	4 1/8	25	4 1/2	2 1/4	5/8	-	-	-	-	-
30	33 3/4	36 1/8	17 3/8	1 1/8	4	15	54	10	6	4 1/2	31	6	2 1/4	3/4	-	-	-	-	-
36	39 3/4	42 1/8	20 1/2	1 1/8	4	15	62	12	6 1/4	5 3/8	37	6	2 1/8	3/4	-	-	-	-	-
42	45 3/4	48 3/8	23 3/8	1 1/2	5	18	84	14	7	6	43	6	2 1/2	3/4	-	-	-	-	-
48	51 3/4	54 3/8	26 3/4	1 1/2	6	24	90	16	7 3/8	6 1/8	49 1/8	6	2 1/2	3/4	-	-	-	-	-
54	58 1/2	61 1/2	30	2	6	30	100	18	7 7/8	6 1/2	55 1/8	7	3	1	-	-	-	-	-
60	65	68	34	2	6	30	102	20	8 1/8	7 1/8	61 1/8	8	3 1/4	1	-	-	-	-	-
72	77 1/2	80 1/4	41	2	13	5	121	25 1/2	10 3/4	8 3/4	73 1/4	8	3 3/8	1	-	-	-	-	-

GATE DIMENSIONS IN INCHES



MODEL A-2

This type of gate is constructed so that it can be easily mounted on a flat head wall by using anchor bolts and it has a flat back. Seating pressures and other specifications are the same as Model A spigot back.

The working principals and material used are the same as the Model A.

DATA AND DIMENSION TABLE

Gate Size	A	B	C	D	Dia. of Anchor Bolts	Number of Anchor Bolts	Anchor Bolt Project On
8"	11"	18"	3/18"	5"	1/2"x7"	4	1-1/2"
10"	13"	20"	3/16"	5"	1/2"x7"	4	1-1/2"
12"	15"	22"	3/16"	5"	1/2"x7"	4	1-1/2"
15"	18"	25"	1/4"	5"	1/2"x7"	4	1-1/2"
18"	21"	28"	1/4"	5"	1/2"x7"	5	1-1/2"
21"	24"	31"	1/4"	5"	1/2"x7"	5	1-1/2"
24"	27"	34"	1/4"	5"	5/8"x10"	6	2"
30"	33"	40"	1/4"	5"	5/8"x10"	6	2"
36"	39"	46"	1/4"	5"	5/8"x10"	6	2"
42"	45"	52"	1/4"	5"	5/8"x10"	6	2"
48"	51"	58"	5/16"	5"	3/4"x10"	8	2"
54"	57"	64"	5/16"	5"	3/4"x10"	8	2"
60"	63"	70"	5/16"	5"	3/4"x10"	10	2"
72"	75"	82"	5/16"	6"	3/4"x10"	10	2"
84"		89"	3/8"	5"	1"x12"	12	2-1/2"
96"		101"	3/8"	6"	1"x12"	12	2-1/2"

C-10 CANAL GATE

- Sizes 6" - 72"
- Attachments Available for
 - CMP
 - Concrete Pipe
 - Headwall
 - Plastic Pipe
- Seating Heads to 23 Feet*

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Construction is of grey iron with an all-bolted steel frame with 1/4" minimum thickness. The standard stem is of a special leaded steel which resists corrosion. The stem is operated at the structural frame top by a heavy cast-bronze lift nut and a cast iron handwheel.

Adjustable cast iron wedge blocks, held securely in place by two machine bolts, assure a dependable seating closure with a practical degree of water tightness. The cast iron seats are machined or ground. A solid rim "easy-grip" handwheel is standard.

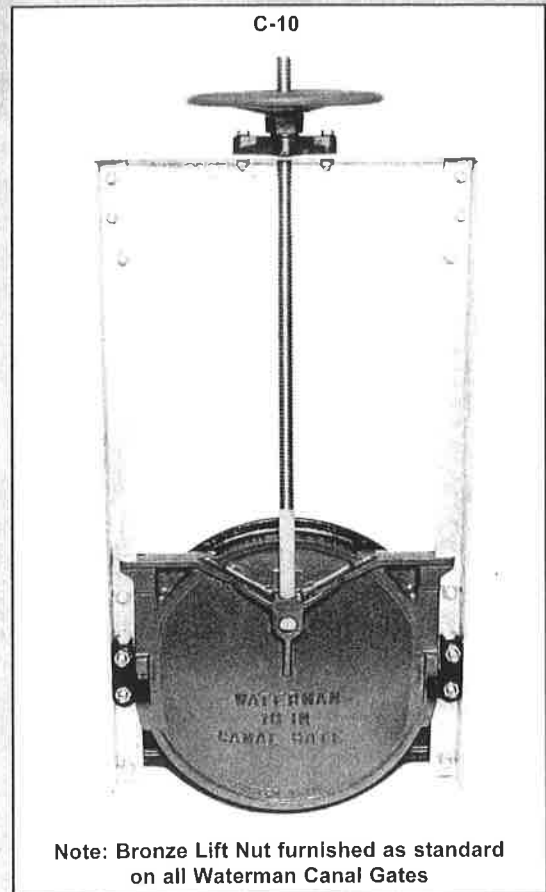
Optional materials include: bronze seats; stainless steel structural frame and bolts; stainless steel or brass stems; and special epoxy, coal tar or galvanized coatings.

When desired, design variations in stem diameter, pitch and thread rotation are available to match existing equipment. Extended stems, special lifts, oil seals, stem guides and limit nuts are a few of the optional items available for use with these gates.

Frame Types for Various Installation Requirements

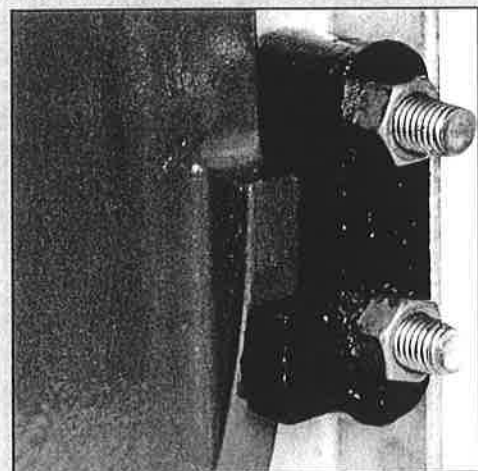
- F- Flatback for headwall mounting.
- SB- Spigotback for annular or recor spiral corrugated pipe.
- CIP- For solvent cement mounting onto plastic pipe.
- C- With galvanized steel tapered setting collar for concrete or asbestos cement pipe.
- SA- Spigot for annular corrugated pipe. (special order)
- TYPE 4- For mounting on plastic pipe utilizing special two part epoxy.

(See following pages for more detailed information.)



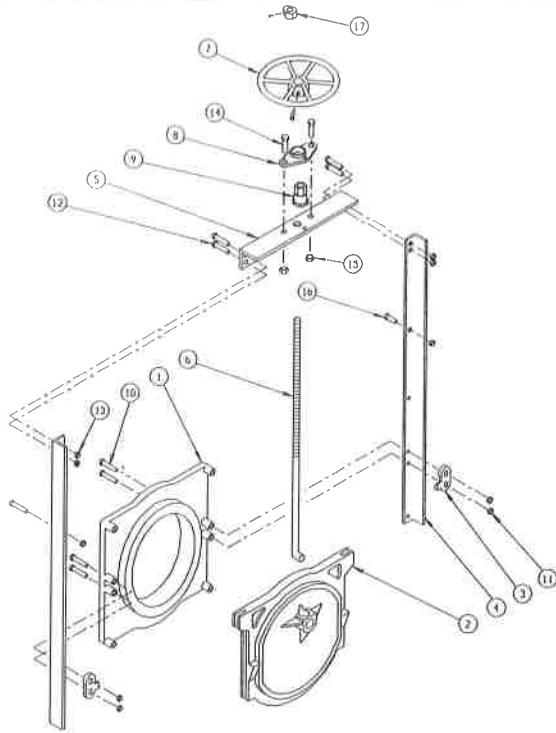
Note: Bronze Lift Nut furnished as standard on all Waterman Canal Gates

* Recommended Maximum Seating Heads		
6" - 24"	23 Feet	
30" - 36"	11 Feet	
42" - 48"	9 Feet	
54" - 72"	6 Feet	
Recommended Maximum Unseating Head - 0		



Waterman Model C-10 wedging system offers two point adjustment and larger wedging surfaces for a more positive contact.

C-10 CANAL GATE PARTS

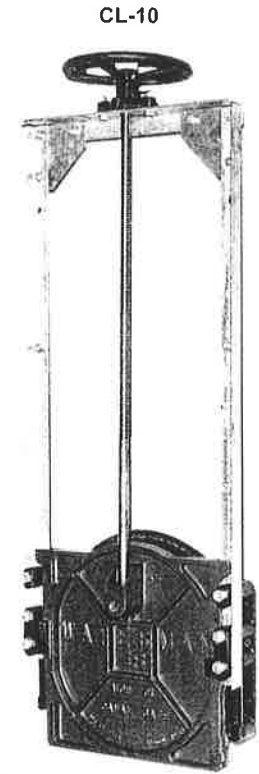


PARTS LIST		
No.	Name	Qty.
1	Frame	1
2	Cover	1
3	Wedge (R&L)	2
4	Guide Rail (R&L)	2
5	Headrail	1
6	Stem	1
7	Handwheel	1
8	Thrust Collar	1
9	Lift Nut	1
10	Wedge Bolt	4
11	Wedge Nut	4
12	Frame Bolt	4
13	Frame Nut	4
14	Collar Bolt	2
15	Collar Nut	2
16	Stop Bolt & Nut	1
17	Limit Nut (optional) *	1

* With set screw

CL-10 CANAL GATE

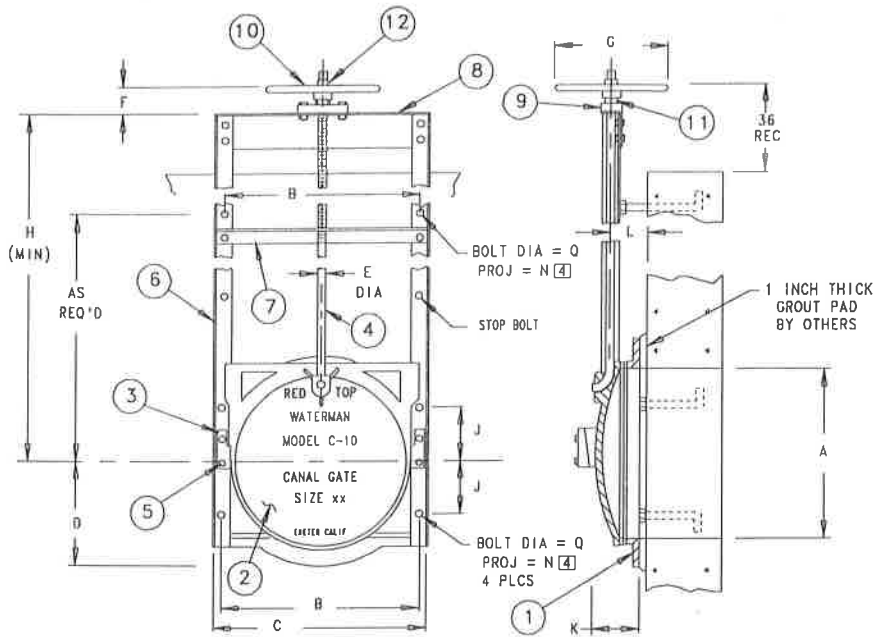
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Flat, Square Bottom Cover

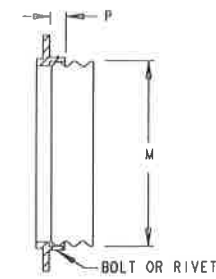
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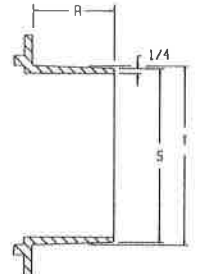


NOTES

1. TYPE 2 lubricated ball bearing lift used on 48" and larger gates.
2. Applies to spigotback gate only. Optional spigot, shown in separate detail.
3. All dimensions are also applicable for model CL-10 & CM-10 when available.
4. Add grout pad thickness to anchor bolt projection.
5. Type 3E 2:1 lift used, mounted to dual headrail.



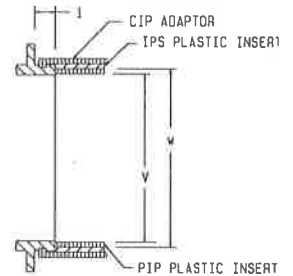
Corrugated Pipe Attached to Spigotback Frame



Type 4 Spigot Frame

Wall Mounted Flatback Frame

PARTS LIST		
No.	Name	Qty.
1	Frame	1
2	Cover	1
3	Wedge (Right & Left)	1 ea.
4	Stem	1
5	Wedge Bolts	4
6	Guide Rail	2
7	Stem Support	A/R
8	Head Rail	1
9	Lift Collar	1
10	Handwheel	1
11	Lift Nut	1
12	Limit Nut	1



CIP Frame

A	B	C	D	E	F	G	H	J	K	L	M [2]	N	P [2]	Q	R	S	T	V	W
6	8	9 7/8	4	7/8	2 1/2	10	24	3	3 1/2	2 1/2	7	3 1/2	2 1/4	1/2	-	-	-	6.160	6.645
8	10	12	4 1/2	7/8	2 1/2	10	24	3	3 3/4	2 1/2	9	3 1/2	2 1/4	1/2	4	7 13/16	8	8.180	8.645
10	12	13 7/8	6	7/8	2 1/2	10	24	3 1/2	3 3/4	2 1/2	11	3 1/2	2 1/4	1/2	3 3/8	9 1/2	10	10.220	10.770
12	14	15 7/8	7	7/8	2 1/2	10	24	4	3 1/2	3	13	4	2 1/4	1/2	4	11 1/8	12	12.270	12.780
14	16	17 7/8	8	7/8	2 1/2	10	27	4 3/4	3 3/4	3 1/4	15	4	2 1/4	1/2	-	-	-	-	-
15	17	18 7/8	8 1/2	7/8	2 1/2	10	30	5	4 1/2	3 1/2	16	4	2 1/2	1/2	4	14 1/8	15	-	-
16	18 1/2	20 1/2	9 1/2	7/8	2 1/2	10	32	5 1/2	4 1/2	3 1/2	17	4 1/2	2 1/4	3/4	-	-	-	-	-
18	21	22 1/2	10 1/2	1	3 1/2	12	34	6	4 1/2	4 1/4	19	4 1/2	2 1/4	5/8	4	17 13/16	18	-	-
20	23 1/4	25 1/2	11 1/4	1	3 1/2	12	38	7	4 3/4	4	21	4 1/2	2 1/4	5/8	-	-	-	-	-
21	24	25 3/4	12 3/16	1	3 1/2	12	40	7	4 3/4	4	22	4 1/2	2 1/4	5/8	-	-	-	-	-
24	27 1/4	29 1/2	13 3/8	1	3 1/2	12	44	8	5 1/4	4 1/2	25	4 1/2	2 1/4	5/8	-	-	-	-	-
30	33 3/4	36 1/2	17 1/2	1 1/2	4	15	54	10	6	4 1/2	31	6	2 1/4	3/4	-	-	-	-	-
36	39 3/4	42 1/2	20 1/2	1 1/2	4	15	62	12	6 1/4	5 1/2	37	6	2 1/2	3/4	-	-	-	-	-
42	45 3/4	48 3/4	23 3/8	1 1/2	5	18	84	14	7	6	43	6	2 1/2	3/4	-	-	-	-	-
48	51 3/4	54 3/4	26 3/4	1 1/2	6	24 [1]	90	16	7 3/4	6 1/2	49 1/2	6	2 1/2	3/4	-	-	-	-	-
54	58 1/2	61 1/2	30	2	6	30 [1]	100	18	7 3/4	6 1/2	55 1/2	7	3	1	-	-	-	-	-
60	65	68	34	2	6	30 [1]	102	20	8 1/2	7 1/2	61 1/2	8	3 1/4	1	-	-	-	-	-
72	77 1/2	80 1/2	41	2	13	5 [5]	121	25 1/2	10 3/4	8 3/4	73 3/4	8	3 3/4	1	-	-	-	-	-

GATE DIMENSIONS IN INCHES

TYPICAL SPECIFICATIONS FOR WATERMAN MODEL C-10 CANAL GATE

General

The gates shall be self-contained with yoke mounted bench stand operators with rising stem, or self-contained with either non-rising stem extension (NRE) or rising stem extension (RSE), or with separate stem guides and operators, in accordance with the requirements of these specifications. Specific gate design and configuration shall be as noted in gate schedule or shown on plans.

Frame and Cover (Slide)

The frame and cover (slide) shall be cast iron with machined seating faces. Seating surfaces of both frame and cover shall be assembled so that maximum clearance between seating faces shall be .004 when in fully closed and wedged position. The frame shall be flatback or spigotback, or other special mounting configuration as specified herein or shown on plans.

Grooves shall be cast on the vertical sides of the cover to match guide angles. The cover shall be of domed design to withstand maximum seating head as specified following:

Gate Size	Max. Seating Head (Ft.)
6" - 24"	23
30" - 36"	11
42" - 48"	9
54" - 72"	6

The guide rails and head rails shall be minimum ¼-inch thick structural steel, designed and built to withstand the total thrust of the gate slide due to water pressure and wedge action.

There shall be one adjustable cast iron wedge per side, located on the horizontal centerline of the gate. The cover wedge shall be integrally cast with the cover, while the other half of the wedging system shall be attached to the guide rail with two bolts. The wedges shall have smooth bearing surfaces and shall be adjustable to insure effective contact between gate seating surfaces.

Stem

The stem shall be cold finished steel of suitable length and ample strength for the intended service. The stem diameter shall be capable of withstanding twice the rated output of the operator at 40 pound pull, and shall be supported such that the L/r ratio for the unsupported part of the stem shall not exceed 200.

When rising stem extension is used, the stem extension shall be supported such that a rigid installation shall be provided. Stem guides shall be spaced that the L/r ratio of the stem does not exceed 200.

Operators

Manual operated lifting mechanisms shall be as indicated on the plan drawings or in the gate schedule. Handwheel type lifts shall have threaded bronze lift nut to match stem. Threads shall be machine cut, acme type, and right hand unless otherwise specified.

An arrow shall be cast on the handwheel to indicate the direction of rotation to open the gate. A maximum effort of 40 pounds shall be required to operate the gate after it is unseated, based on the maximum specified head.

The canal gates shall be Waterman Model C-10 or approved equal.

Materials

Frame, Cover (Slide), Handwheel - Cast Iron - ASTM A=126; Class B

Rails and Yoke - Structural Steel - ASTM 1-36

Stem - Leaded Cold Rolled Steel - ASTM A-108, Type 12L14

Lift Nut - Bronze - ASTM B-584, Alloy 844 or 865

Assembly Hardware and Fasteners - Galvanized per ASTM A-153

Paint - Manufacturer's Standard

Optional Items Include:

Galvanized Steel or 304 or 316 Stainless Steel Rails and Yoke

Type 304 or 316 Stainless Steel or Brass Stems

Stainless Steel Assembly Hardware

Structural Steel Pipe (w/cast iron brackets) NRE and RSE

Stem Extensions

Total Galvanizing per ASTM A-123 (Frame, Cover, Rails, Lift, Etc.)

Special Paint Finish: Coal Tar Epoxy, Polyamide Epoxy, Etc.