

FRH-50 HYDRAULIC CUSHION FLAP GATE

- HEAVY DUTY STEEL CONSTRUCTION
- 50 FOOT SEATING HEAD MAXIMUM
- MINIMUM SLAMMING

The Model FRH-50 hydraulic cushion flap gate is used in special applications where the "slam" of conventional flap gates is undesirable. The Model FRH-50 utilizes the effects of the water trapped in the seat area of the gate to slow the closure of the cover. A latch mechanism captures the cover on contact, preventing rebound and violent re-contact with the frame. The FRH-50 may be used on pump discharge or where vibration must be dampened.

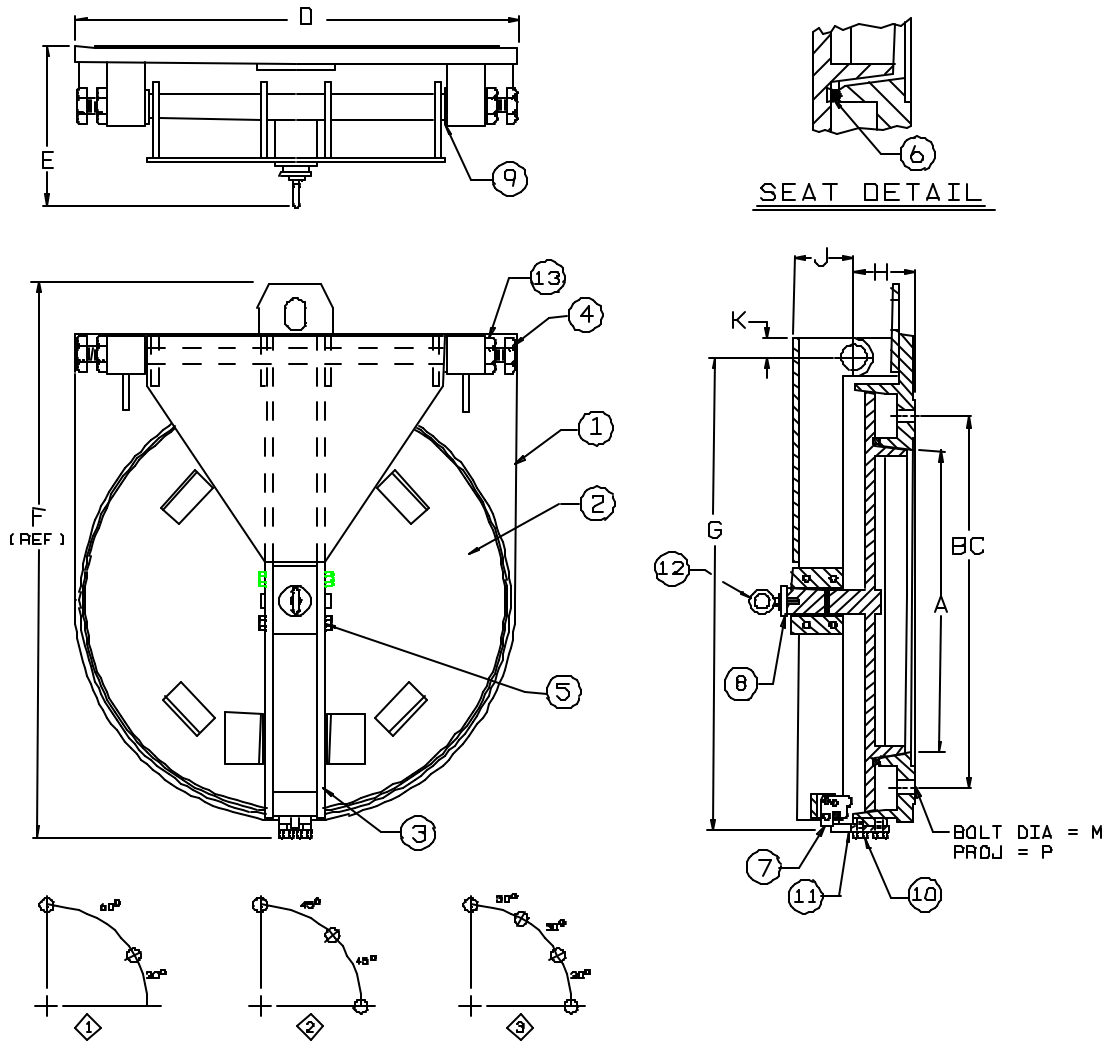
Standard materials of construction include mild steel frame, cover and hinge arm weldment with permalube bronze bushings, stainless steel hinge pins and stainless steel latching mechanism. Cover seat is neoprene.

Optional materials include type 304 or 316 stainless steel frame, cover, and hinge arm weldment.



INDUSTRIES, INC.

FRH-50 HYDRAULIC CUSHION FLAP GATE



ANCHOR BOLT LAYOUTS

- 1. 125 Lb. Standard drilling available on request.
- 2. Add grout pad thickness to anchor bolt projection.
- 3. If grout pad mounting is used add grout pad thickness to dimensions.

GATE DIMENSIONS IN INCHES

	10	12	14	16	18	20	24	30	36	42	48
A	10	12	14	16	18	20	24	30	36	42	48
BC	14 1/4	17	18 3/4	21 1/4	22 3/4	25	29 1/2	36	42 3/4	49 1/2	56
D	19	21 3/4	23 3/4	26 1/4	28	30 1/4	35	42	49 1/4	56	62 1/2
E	11 1/8	11 1/8	11 1/8	11 1/8	11 1/8	11 1/8	11 1/8	13 1/2	13 1/2	14 1/8	14 1/8
F	26 1/2	29 1/8	31 1/8	33 3/8	35 1/2	38 3/8	43 1/4	51 1/2	58 7/8	66 1/2	72 3/4
G	20 1/2	23 1/8	25 1/8	27 3/8	29 1/2	32 1/8	37	44	51 3/8	59	65 1/4
H	4 1/2	4 1/2	4 1/2	4 1/2	4 1/2	4 3/4	4 3/4	5 1/4	5 1/4	5 1/2	5 1/2
J	4 1/4	4 1/2	4 1/2	4 1/2	4 3/8	4 3/8	4 3/8	5	5	5	5
K	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/4	1 3/4	2	2	2	2
M	3/8	3/4	3/4	3/4	3/4	3/4	3/4	7/8	7/8	1	1
P	2 1/2	2 1/2	2 1/2	2 1/2	2 1/2	2 1/2	2 1/2	3	3	3	3
Q	1	1	1	1	1	2	2	2	2	3	3

PARTS	
No.	Name
1	FRAME
2	COVER
3	HINGE ARM
4	PIVOT BOLT
5	PIN
6	SEAT
7	LOCKING DEVICE
8	RETAINING WASHER
9	WASHER
10	ASSEMBLY BOLT
11	LATCH PLATE
12	EYEBOLT
13	NUT



NOTE: FOR PRELIMINARY DESIGN PURPOSES ONLY
DO NOT USE FOR INSTALLATION
UNLESS PART OF CERTIFIED & APPROVED SUBMITTAL

TYPICAL SPECIFICATIONS FRH-50 HYDRAULIC CUSHION FLAP GATES

General

The gate shall be designed to allow pump discharge and prevent backflow for maximum seating heads up to 50 feet. Gates shall be suitable for pump discharge service, provide hydraulic cushioning of cover upon closing, and have a positive latching mechanism to provide positive closure of cover without rebounding. Gates shall be Waterman Model FRH-50 or equal.

Construction

The frame shall be a steel weldment with rigid pivot pin supports. Pivot pins shall provide for minor horizontal adjustment of cover, and shall be provided with positive means of locking. Two concentric conical shaped areas and a flat plate shall be used to develop the frame form. The upper surface of the inner ring shall be machined flat for a seating surface. When mounted to a pipe flange, the rear of the frame shall be machined flat for the seating surface.

The cover shall be of reinforced flat plate with a conical ring, machined to a close tolerance to match the frame. Cover seat shall be resilient rubber extrusion retained in a dovetail slot. A stainless steel grooved pin shall be welded to the cover to provide a recess for the detent latching mechanism. The pin shall be drilled and tapped for an eyebolt for lifting or manual operation.

The hinge arm assembly shall be a welded and bolted unit providing support for the cover and attachment to the frame. Hinge pin bushings shall be provided for adjustable hinge pins. A cover support block shall allow for minor vertical adjustment of cover and shall house the cover latching mechanism. The gate latching device, which prevents rebounding of cover and hinge arm, shall be housed in the lower hinge arm.

All anchor bolts, assembly bolts, screws, nuts, etc., shall be of ample section to safely withstand the forces created by operation of the gate while subjected to the heads specified. Quantity and size of the fasteners shall be as recommended by the manufacturer. Anchor bolts shall be furnished with two nuts each to facilitate installation and alignment of the gates when attached to concrete.

Finish

Flange, seating and conical surfaces shall be coated or painted with water-resistant rust preventative compound. Remainder of gate, except for stainless steel parts shall be painted with coal tar epoxy paint to a minimum 16 mil thickness.

Materials

Frame, cover, and hinge arm weldment - Structural steel per ASTM-A-36
Bushings - Perma-lube bronze
Hinge pins, cover pin - 18-8 Stainless steel
Latching mechanism, and hardware - Stainless steel, Type 304
Cover seat - Neoprene rubber per ASTM D-2000

Optional Materials

Frame, cover and hinge arm weldment - Stainless steel - ASTM A-276, Type 304 or 316 or 316L
Low-zinc bronze seats - ASTM B-139
Stainless steel seats (and conical surfaces) - ASTM A-276, Type 304, or 316
Stainless steel trim (includes pins, hardware, and seats) - ASTM A-276, Type 316

