TILTING WEIR GATES

WATERMAN TILTING WEIR GATES

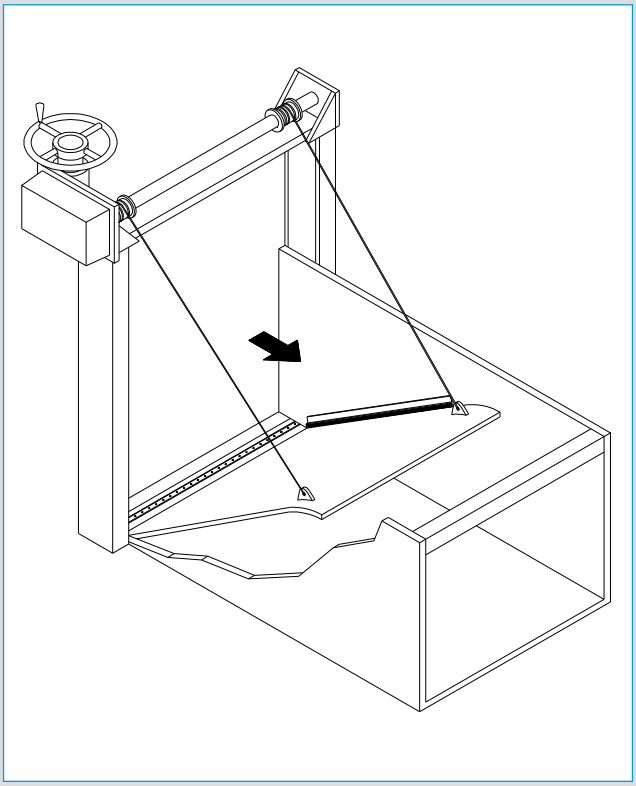
FOR PRECISE AUTOMATED OR MANUAL LEVEL AND FLOW CONTROL

The tilting weir gate can be totally self-contained and include fully automated electric motor operation. It is capable of accepting set-point inputs from user equipment.

The design of the tilting weir hoist is precisely and thoroughly calculated for each gate. This typically includes:

1. Cable analysis with a safety factor of 5
2. Drum diameter of 14 times that of cable
3. Shaft analysis for beam and torque loading
4. Bearing requirements
5. Lift capacity
6. Torque requirements
7. Number of turns to open the gate

By incorporating gear reduction actuators, the size ranges of hoist systems are virtually limitless. The hoist system can be designed to span the gate structure, thus eliminating the need for expensive concrete decks and pads for mounting gear reducers or pillow-block bearings.



Waterman Industries
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TYPICAL SPECIFICATIONS

GENERAL
The Tilting Weir Gate system shall be furnished as a complete package including gate leaf; gate hinge; mounting angle; and side seal plates, gate seals; gate operator; and miscellaneous appurtenances as necessary to place the system in operation to perform its intended functions.

GATE LEAF
Gate leaf dimensions shall be sufficient to span structure width and provide a water barrier to depth shown on drawings. The leaf shall consist of a steel frame joined by welding and covered with a steel sheet face plate. Steel sheets for face plate shall cover the full height of the gate with no horizontal seams. The face plates shall be joined together and attached to the structural members by welding.

GATE ARMS
Gate arms for attaching lifting cables shall extend above top of gate.

GATE HINGE
Hinge plates shall be stainless steel conforming to ASTM A240, type 304. The pin shall be stainless steel in accordance with ASTM 582, Type 303.

MOUNTING ANGLE
The mounting angle shall include stud anchors for embedment in the concrete sill and threaded bolts for bolting the gate hinges to the mounting angle. The studs for attachment of the gate hinge to the mounting angle shall be stainless steel conforming to ASTM F-593 Type 304. Cap nuts and washers shall be 304 stainless steel per ASTM F-594.

SEALS
Seal angles shall be stainless steel and shall be designed to be attached to the leaf gate structure bay walls on each side of the gate. The seals angles shall have “J”-seals attached to the downstream face of the angles so that the “J”-seals will compress against the sides of the leaf gates as the gate is brought into the fully closed position.

Hinge Seal shall be a neoprene flap attached on one edge to cover and seal the hinge area.

WIRE DRUM GATE HOISTS
The hoist shall consist of a hoist base, hoist operator, cable drums, drum shaft, cables and bearing bracket to operate the tilting weir gates. The operators shall be adequate for opening of the gates to the gate height.

The hoist shall be furnished with steel drum shaft and with two steel drums of the same diameter attached to the drum shaft. Stainless steel cables and clamps shall be furnished for field connection to the drums and to the gate. The drum diameter shall not be less than 14 times the cable diameter.

The manual hoist operator shall consists of a self-locking worm and worm gear, with reduction spur gears as required, totally enclosed in a cast iron housing. A suitable size handwheel,

TYPICAL SPECIFICATIONS

located approximately 900mm above operating surface, shall be provided to produce the necessary output torque to raise gate when a maximum 18 kg (40 lb) pull is exerted on the handwheel rim. The handwheel shall turn counter clockwise to open (lower) gate and the direction of rotation to open gate shall be marked on handwheel.

MATERIALS

Gate and embedded seal plates
ASTM A 36, DIN 17100 St 37-2

Support brackets, drive shafts and cable drums
ASTM A 36, DIN 17100 St 37-2

Anchor bolts
Type 304 stainless steel bolts.

Finish
Mill finish on all stainless steel surfaces
Epoxy paint on all steel surfaces