

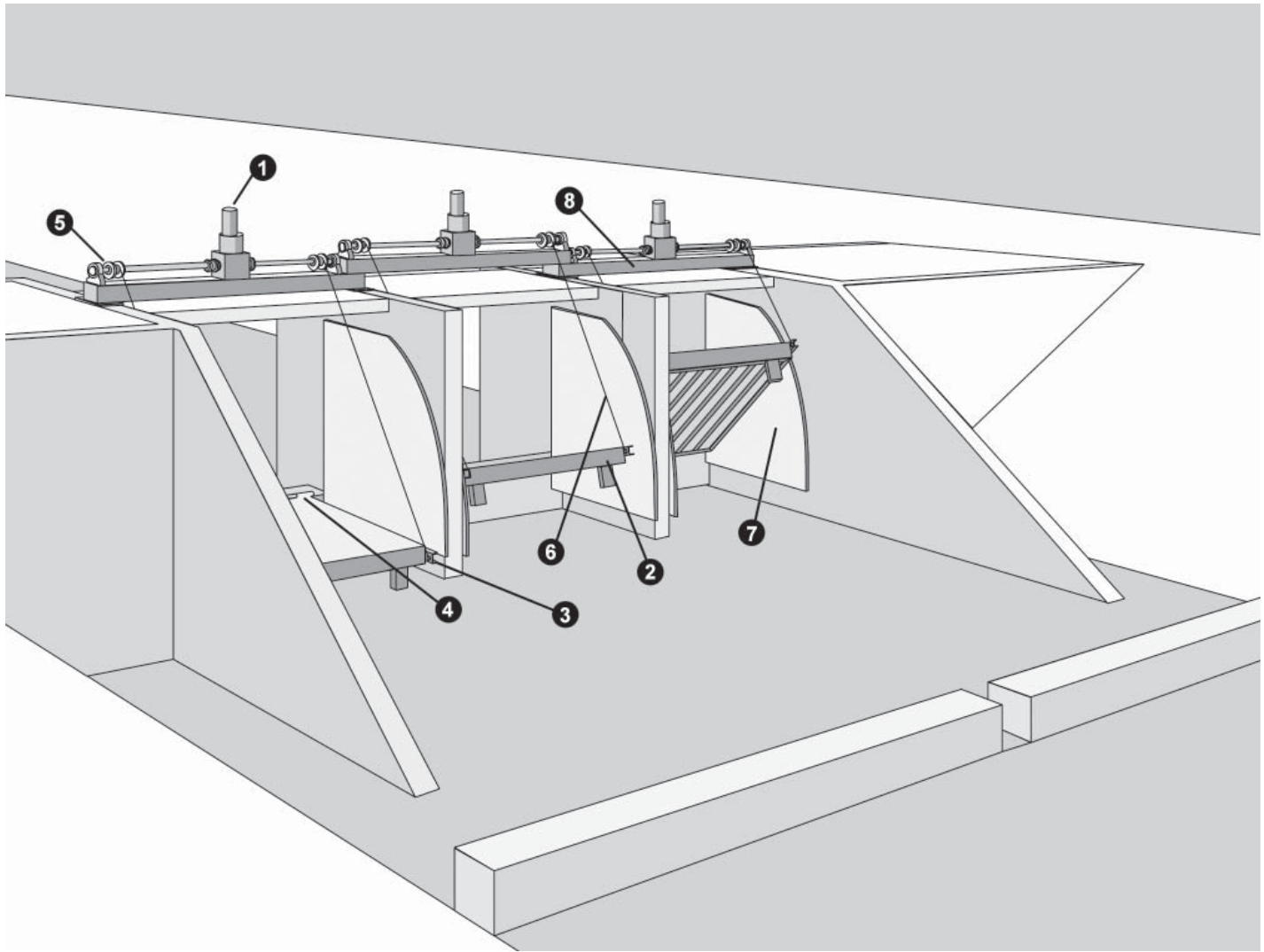
**TECHNICAL DATA SHEET****Safe, Effective Canal Control****Applications**

Fresno Overshot Gates effectively control upstream and downstream levels of canals. Improved flow control is achieved through the use of this fully adjustable, self-contained, overflow weir. Fresno Overshot Gates can be operated manually or electronically, with on-site or remote automation available. Versatility, efficiency and safety are the primary reasons the Fresno Overshot Gate is the method of choice for municipal, agricultural and industrial canal water control.

The Overshot Gate can be used in a variety of canal applications. This gate can be adapted to existing structures where check boards were previously used, or on a check site where there are existing concrete walls.

- Custom engineered to fit most dimensions.
- Manual, electric or solar operation.
- Proven technology - over 10 years of successful operation.
- Safe, cost effective replacement of existing check boards.
- Reduced labor and less chance of injury.
- Optional side rubbing panels ensure perfect fit - no wear, no leaks, no repairs.
- Available in aluminum, stainless steel or carbon steel materials.

# SPECIFICATIONS



**Note:**  
Fresno Overshot Gates are custom engineered. Consult your Fresno representative for design data for your specific application.

## 1. Gear Box

Fully enclosed, weatherproof, helical worm gear box with roller bearing mounted shafts. Oil bath lubrication.

## 2. Gate Leaf

Fabricated according to required size.

## 3. Lifting Pin

Stainless steel pin, available with pulley, if required.

## 4. Hinge Pin

Continuous piano style hinge.

## 5. Cable Drum

Grooved cable drum with internal cable clamp.

## 6. Cable

Stainless steel or galvanized wire rope with swedge socket.

## 7. Side Panel

Made according to gate size.

## 8. Hoist Yoke

Steel lifting device, fabricated to requirements.

## OVERSHOT GATE

### TECHNICAL DATA SHEET

The Overshot gate is a gate design which allows water to flow over the top of the gate. More accurate control can be achieved due to the sharp crest at the tip of the gate leaf. This sharp crest is advantageous when the water flowing over the gate is being measured. Lowering or raising the gate controls the flow, or water level. A hoist is mounted above the gate and is used to lower or raise the gate.

The gate consists of three major pieces. The side panels, which are mounted on either side of the channel opening, allow the gate leaf seals to rub against them. They are also referred to as rubbing panels. The rubbing panels allow for better sealing of the gate. The side panel can be an option if water tightness is not required. The gate leaf is the piece that pivots up and down and controls the water level. It mounts to a concrete sill, which needs to be poured in the channel. There is a mounting plate that attaches to the sill through a series of anchor bolts. This sill is welded to a continuous hinge pin. The gate is controlled by a set of stainless steel cables. The cables are connected to one end of the gate leaf and at the other end to a drum-like pulley.

The third item is the hoist or lift. It is available in various configurations and operators. Basically it is two drums and a gear-box which are connected by a cross shaft. The lift can be a basic handwheel type operation, which you crank by hand to move the gate up or down.

The next type of lift would be electric; this can be AC or DC. The AC actuators are usually for the larger gate sizes and where power is available. The DC actuators can be used on smaller gates and can be equipped with solar panels for remote operations.

The overshot gates can be used for various applications such as upstream level control. In traditional applications canal companies stack boards to achieve upstream level. The overshot gate can be used in this application to easily and accurately adjust water level. Down stream flow control can be achieved when used with an automation package. Automation packages are available through various companies. These gates have also been used in specialized applications such as fish control.

An advantage of using overshot gates is the fact that labor is saved. When the time comes to adjust the gate, just turn the handle and adjust the gate height. This is opposed to removing or adding boards. This also brings up an important safety issue when removing or putting in stop boards. It can be dangerous, causing back injuries and even falling into the canal. The problem of theft and storage of stop-boards is eliminated.

The overshot gate can be built in several materials such as carbon steel, stainless steel and aluminum. The preferred material is aluminum due to its corrosion resistance and lightweight. The light weight of aluminum helps minimize the lifting load on the hoist.

### General

#### A. Materials:

All materials used in construction of gates and embedded seal plates shall be structural steel conforming to ASTM A-36.

All support brackets, drive shafts and cable drums shall be painted structural steel in accordance with ASTM A-36, A-53, etc., as applicable.

#### B. Lifting Lugs:

Equipment assemblies and components weighing over 100 pounds shall be provided with lifting lugs.

#### C. Anchor Bolts:

Type 304 stainless steel bolts.

### Manufacturers

A. Overshot Gate and accessories provided under this section shall be the products of Fresno Valves & Castings, Inc., Selma, Ca.

### Equipment

#### A. General

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

#### B. Design Criteria

1. The gate leaf and operator system shall be designed based on hydraulic and other loads acting on the gate through its full operating range.
2. The gate hinge shall be designed such that the load to be transferred from the gate to the concrete sill is evenly distributed across the structure.
3. Gate operator housings, supports, and wire rope connections to the gate shall be designed with a minimum safety factor of five, based on the ultimate strength, or a safety factor of three, based on the yield strength of the materials used.

#### C. Gate Leaf

1. Gate leaf dimensions shall be sufficient to span the structure width and provide a water barrier to depth shown on the drawings.
2. The leaf shall consist of a steel frame joined by welding, and covered with a steel sheet face plate. Steel sheets for the 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.

#### D. Gate Arms

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

#### E. Gate Hinge

Hinge plates shall be stainless steel conforming to ASTM A240 and A269, or A312, type 304. The pin shall be stainless steel in accordance with ASTM 582, Type 303.

#### F. 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 F593, Type 304. Cap nuts and washers shall be 304 stainless steel per ASTM F594.

## Typical Specification Steel Overshot Gate (continued)

### G. Gate Seals

#### 1. Side Seals

Seal angles shall be hot-dipped galvanized or stainless steel and shall be designed to be attached to the gate leaf structure bay walls on each side of the gate. The seal 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 gate leaves as the gate is brought into the fully closed position.

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

### H. Wire Drum Gate Hoists

#### 1. General

The hoist shall consist of a hoist base, hoist operator, cable drums, drum shaft, cables and bearing bracket to operate the overshot 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.

#### 2. Manual Hoist (Enclosed Gear)

The manual hoist operator shall consist of a self-locking worm and worm gear, with reduction spur gears as required, totally enclosed in a cast iron housing. A suitably sized handwheel, located approximately 36 inches above the operating surface, shall be provided to produce the necessary output torque to raise the gate when a maximum 40 pound pull is exerted on the handwheel rim. The handwheel shall turn counter clockwise to open (lower) gate and the direction of rotation to open the gate shall be marked on the handwheel.

### Finish

All structural steel or cast iron parts shall be painted with 7 mils polyamide epoxy paint. Color shall be light gray.