Golden Harvest, Inc.
Golden Gates™

Model GH-66 Stainless Steel Downward Opening Weir Gates

A. General

This section covers Stainless Steel Weir Gates and Operators. The equipment provided under this section shall be fabricated, assembled, erected, and placed in proper operating condition in full conformity with the drawings, specifications, engineering data, instructions and recommendations of the equipment manufacturer.

Gates and operators shall be supplied with all the necessary parts and accessories indicated on the drawings specified, or otherwise required for a complete, properly operating installation, and shall be the latest standard product of a manufacturer regularly engaged in the production of fabricated gates.

Approved Manufacturers

Gates supplied under this section shall be Model GH-66 Stainless Steel Weir Gates as manufactured by Golden Harvest Inc. or engineer approved equal.

Governing Standards

Except as modified or supplemented herein, all gates and operators shall conform to the applicable requirements of AWWA-C561 standards.

Quality Assurance

The manufacturer shall have 5 years experience in the production of substantially similar equipment and shall show evidence of satisfactory operation in at least 10 installations. The manufacturer's shop welds, welding procedures and welders shall be qualified and certified in accordance with the requirement of the latest edition of AWS Sections D1.1, 1.2 and 1.6..

The fully assembled gates shall be shop inspected, tested for operation and leakage, and adjusted before shipping. There shall be no assembling or adjusting on the job sites other than for the lifting mechanism.

To ensure quality and consistency, the weir gates listed in this section shall be manufactured and assembled in a facility owned and operated by the weir gate manufacturer. Third-party manufacturers contracted for fabrication and assembly of the weir gates will not be permitted.

Submittals

The manufacturer shall submit for approval by the purchaser drawings showing the principal dimensions, general construction and materials used in the gate and lift mechanism. The manufacturer shall submit for approval complete engineering design calculations in compliance with AWWA standards latest edition.

Performance

Leakage

Weir gates shall be substantially watertight under the design head conditions. Under the design seating head, the leakage shall not exceed 0.10 US gallons per minute per foot of seating perimeter. Under the design unseating head, leakage shall not exceed 0.10 US gallons per minute per lineal foot of perimeter.

B. Materials and Construction

General Design

Gate shall be designed in accordance with AWWA C561-14 Standards for fabricated slide & weir gates.

Gates shall be either self-contained or non-self-contained of the rising stem or non-rising configuration as indicated on the gate schedule.

All parts of the gate shall have a minimum thickness of ¼ inch.

Wall Thimble

Wall thimbles shall be supplied by the gate manufacturer. Refer to the gate schedule for types and applicable locations. Minimum material thickness shall be ¼ inch.

Frame

The gate frame shall be stainless steel and designed for maximum rigidity. The frame configuration shall be of the flush-bottom type and shall allow the replacement of the top and side seals without removing the gate frame from the wall or wall thimble.

Slide

The slide shall consist of stainless-steel plate reinforced to limit its deflection to L/720 of the clear opening span under the design head.

Guides and Seals

The guides shall be provided with ultra high molecular weight polyethylene seats on both sides of the slide and shall be of such length as to retain and support at least two thirds (2/3) of the vertical height of the slide in the fully open position. Guide frame shall not weigh less than 13 lbs. per foot.

Side and invert seals shall be frame mounted. Seals shall be resilient neoprene of the J-bulb type attached with a stainless-steel retainer bar. Seals shall be fully adjustable.

When required for isolation of a pipe or structural opening, a horizontal top spigot and neoprene top seal shall be supplied.

Yoke and Pedestal

The yoke, to support the operating bench stand, shall be formed by two structural members welded at the top of the guides to provide a one-piece rigid frame.

Self-contained gates shall be provided with a yoke to support the operating bench stand. The yoke shall be formed by two structural members welded at the top of the guides to provide a one-piece rigid frame. The maximum deflection of the yoke shall be L/360 of the gate's span.

Non-self-contained gates shall be provided with pedestal mounted lifts. Pedestal shall be mild steel that is prepped per SSPC-05 and provided with industrial grade powder coating. Stainless steel pedestals and/or wall brackets shall be supplied where specified in the gate schedule.

Lifting Assemblies

Stem and Couplings

The operating stem shall be of stainless steel designed to transmit in compression at least 2 times the rated output of the operating manual mechanism with a 40 lb effort on the crank or handwheel.

The stem shall have a slenderness ratio (L/R) less than 200. The threaded portion of the stem shall have Acme type cold rolled threads with a maximum surface of 16 micro-inches.

Where a hydraulic or electric operator is used, the stem design force shall not be less than 1.25 times the output thrust of the hydraulic power unit pressure relief valve setting or 1.25 times the output thrust of the electric motor in the stalled condition.

Stems in more than one piece shall be joined together by solid couplings.

Gates having a width equal to or greater than two times their height shall be provided with two

lifting mechanisms connected by a tandem shaft.

Stem Guides

Stem guides shall be fabricated from stainless steel. Stem guides shall be equipped with a UHMWPE bushing. Guides shall be adjustable and spaced in accordance with the manufacturer's recommendation. The L/R ratio shall not be greater than 200.

Stem Cover

Rising stem gates shall be provided with a clear polycarbonate stem cover. The stem cover shall have a cap and condensation vents and a clear mylar position indicating tape. The tape shall be field applied to the stem cover after the gate has been installed and positioned.

Lifting Mechanism

Operators of the types listed in the schedule shall be provided by the gate manufacturer. Each manual operator shall be designed to operate the gate under the maximum specified seating and unseating heads by using a maximum effort of 40 lb on the crank or handwheel, and shall be able to withstand, without damage, an effort of 80 lb.

Gearboxes shall be provided when required to maintain the operating force below 40 lb. All bearings and gears shall be totally enclosed in a weather-tight housing. Operator housing shall be cast steel or cast iron. The pinion shaft of crank-operated mechanisms shall be supported by roller bearings. The operating shaft shall be fitted with a 2 inch square operating nut and removable crank. The crank shall be fitted with a corrosion-resistant rotating handle. The maximum crank radius shall be 15 inches and the maximum handwheel diameter shall be 24 inches.

Materials

Part	***Material***
Slide, Spigot, Frame, Stiffeners, Yoke, Guide Angles, Stem Guides	Stainless Steel Type 304L or 316L ASTM A-240/276
Side, Top Seals	Resilient Neoprene ASTM D-2000
Invert Seal	Neoprene ASTM D-2000
Guide Liner, Stem Guide Bushing	Ultra High Molecular Weight Polyethylene ASTM D4020
Threaded Stem	Stainless Steel ASTM A-276, Type 304 or 316
Fasteners	Stainless Steel Type 304 or 316 ASTM - F593 / F594, A240
Pedestal, Wall Bracket	Coated Steel ASTM A-36 or Stainless Steel ASTM A240 / 276
Stem Cover	Butyrate ASTM D-2411
Stop Collar (nut), Lift Nut	Bronze ASTM B585