Golden Harvest, Inc.
Golden Gates™

SPECIFICATION: Model GH-8000 Radial (Tainter) Gates

A. General

This section covers Fabricated Radial 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.

The radial gate with appurtenant seals, side seal plates, sill, hoist and accessories shall be supplied as 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-8000 Radial Gates as manufactured by Golden Harvest Inc. or engineer approved equal.

Quality Assurance

The manufacturer shall have experience in the production of substantially similar equipment, and shall show evidence of satisfactory 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.

All parts shall shop dimensional checked prior to shipping.

Submittals

1. 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.

2. The manufacturer shall submit for approval by the purchaser, complete and stamped engineering design calculations.

B. Materials and Construction

Gate Disc

The gate disc shall consist of a curved face plate with the center of the curvature concentric with the centerline of the trunnion pins. The curved face plate shall be reinforced with horizontal beams and curved vertical structural members to transmit the hydraulic thrust to the trunnion arms. The gate disc shall be fabricated in one section with a minimum material thickness of 1/4-inch. The disc deflection shall not exceed 1/720 of the nominal gate width.

Radial Arms

The radial arm assemblies shall consist of structural members to transmit the hydraulic load from the gate disc to the trunnions. The trunnion pins shall be bolted to the radial arms for easy access and removal of the trunnion pin.

The unsupported length of the radial trunnion arms shall not exceed an L/R ratio of 150.

The radial arms shall be accurately machined for field bolting to the horizontal stiffener on the gate disc.

Trunnion Pins and Bearings

Trunnion pivot pins shall be stainless steel and sized to transfer the hydraulic loads to the bearing assembly. The trunnion bearings shall be self lubricating bronze sleeve bearings encased by a fabricated steel or stainless-steel housing. The bearing assembly shall be firmly anchored to the concrete structure by embedding the assembly in the channel walls or by a fabricated trunnion bracket anchored into the channel walls or concrete abutments.

Seals

Resilient J-bulb seals shall be placed along the bottom and both sides of the gate to prevent excessive leakage. Seals shall be attached to the disc with a stainless-steel retainer bar and allow lateral seal adjustment or seal replacement.

Side and Sill Plates

The bottom and side sill plates shall be stainless steel with minimal surface roughness. Sill plates shall be anchored and embedded in the side walls and at the gate invert. Leveling nuts shall be provided for fine tune alignment prior to placing grout.

Lifting Assembly

Cable Hoist

The hoists shall consist of hoist base, hoist operator, cable drums, drum shafts, cables, and bearing bracket to operate the radial gates. The operators shall be adequate for opening of radial gates to the required height under the specified operating head. The hoist shall be furnished with a steel drum shaft and twin steel interconnecting drums. Drums with larger than ½ diameter cable shall be grooved, accurately machined to the proper diameter and attached to the drum shaft. Galvanized or stainless-steel cables and clamps shall be furnished for field connection of the drums and to the gate head.

Manually operated lift shall consist of a worm gear with reduction spur gears as required to open and close the gate with a maximum 40 lbs rim pull on the handwheel or handcrank. The worm gear ratio shall have a minimum of 50:1 gear ratio such that the gate will self-lock in the desired postion.

Electric Motor Actuator

The motor shall be specifically designed for radial gate service and shall be for high torque, totally enclosed, non-ventilated construction, with motor leads brought into the limit switch compartment. The electric motor drive shall be self contained, complete with a weatherproof motor having Class B insulation, limit and torque switches, integral reversing controls and controls as specified. The electric actuator shall be directly coupled to a worm gear reducer. Worm gears will be self-locking to hold the gate in position. The motor duty rating shall be sufficient for one complete open to close to open (or reverse) cycle.

Materials

Part	***Material***
Radial Disc, Radial Arms	Stainless Steel, ASTM A276 / A240 Type 304L, 316L or Steel, ASTM A36/36M
Seals	Neoprene J-bulb ASTM D-2000
Sill Plates – Side and Invert	Stainless Steel ASTM A-240, Type 304L
Bearing Housing	Stainless Steel, ASTM A276 / A240 Type 304L, 316L
Trunnion Bearing	Self Lubricating Bronze ASTM B438
Trunnion Shaft	Stainless Steel ASTM A-276, Type 304
Hoist Assembly, Wall Brackets	Mild Steel A36/A36M
Hoist Drums	Steel Pipe, ASTM A54 Grade B
Drum Pins	Stress Proof Bar, ASTM A311
Cables	Stainless Steel ASTM A-492, Type 302/304 or Galvanized Steel
Fasteners and Anchors	Stainless Steel ASTM F593 / F594, Type 304

Note: Stainless steel hoist assemblies are available upon request.