Golden Harvest, Inc.
Golden Gates™

Model GH-50-SS Combination Flap/Slide Gate

A. GENERAL

This section covers Combination Flap/Slide Gates. 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 water control gates.

APPROVED MANUFACTURERS

Gates supplied under this section shall be Model GH-50 Combination Flap/Slide Gates as manufactured by Golden Harvest Inc. (800-338-6238) or pre-approved equal.

GOVERNING STANDARDS

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

QUALITY ASSURANCE

The manufacturer shall have 10 years experience in the production of hydraulic control gates and have a licensed engineering staff with a minimum of 10 years of experience in the design of hydraulic control gates. If requested the manufacturer shall show evidence of 10 installations of substantially similar gates to that specified herewith.

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 adjusted before shipping.

SUBMITTALS

The manufacturer shall submit for approval drawings showing the principal dimensions, general construction and materials used.

PERFORMANCE

LEAKAGE

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.

B. MATERIALS AND CONSTRUCTION

GENERAL DESIGN

Combination gates shall be designed to operate as a conventional top hinged drainage tide gate (when in the down or closed position) that, when desired, may be raised to allow for free flow in both directions.

The frame, slide and reinforcing members shall have a minimum thickness of ¼-inch.

FRAME

The gate frame shall be of stainless-steel shapes not less than 7.0 pounds per foot.

The frame configuration shall be of the flush-bottom type.

COVER AND CARRIAGE ASSEMBLY

The gate cover / flap shall be stainless steel with minimum ¼" thick plate reinforced to limit deflection to L/360 or less at the design head pressure.

Pivot support arms shall be welded to the head and attached to a stainless-steel carriage with pivot lugs and stainless-steel hinge pins. Hinge bushings shall be of self-lubricating fiberglass type, Gar-Max or approved equal.

MATERIALS TABLE

Part	Material
Slide (Flap), Spigot, Frame, Stiffeners, Yoke, Guide Angles	Stainless Steel Type 304L or 316L ASTM A276 / A240
Resilient Seals	Neoprene ASTM D-2000
Bearing bars, Guides, Stem Guide Bushings	Ultra High Molecular Weight Polyethylene (UHMW-PE) ASTM D4020
Hinge Bushing	Self-Lubricating Fiberglass Reinforced DIN ISO 4379
Threaded stem, Stem Guides	Stainless steel Type 304L or 316L ASTM A-276
Fasteners	Stainless steel Type 304 or 316 ASTM - F593 / F594
Pedestal, Wall Brackets	Epoxy Coated Mild Steel ASTM A36 or Stainless Steel ASTM A312/276
Stem cover	Butyrate ASTM D-2411
Lift and stop nut	Bronze ASTM B584 / B505

SEALS

Seals shall be mounted to the inside perimeter of the frame opening. Seals shall be of a resilient neoprene P-seal with a stainless-steel retainer bar.

All seals shall be mechanical and fully adjustable. Seal design shall allow for replacement without removing the gate frame from the wall.

YOKE

Self-contained gates shall be provided with a yoke made of structural members or formed plates. The maximum deflection of the yoke shall be L/360 or less.

Non-self-contained gates shall be provided with pedestal or wall bracket pedestal mounted lifts. Pedestals shall be provided with shop coating.

LIFTING ASSEMBLIES

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.

Stem lengths requiring more than one piece shall be coupled or pinned to an extension tube.

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 UHMW-PE bushing. Guides shall be adjustable and spaced in accordance with the manufacturer's recommendation. The L/R ratio shall not be greater than 200.

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 tight weather housing. Geared operators shall be furnished with a threaded bronze lift nut to engage the threaded portion of the stem. 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.

C. EXECUTION

GATE HANDLING, TRANSPORTATION AND STORAGE

Contractor shall exercise the following precautions with the supplied Combo Gates:

Handling: Avoid bending, scraping or overstressing the gates.

Transportation: Loading, transporting and unloading of the gates shall be conducted such that the gates are kept clean and free from damage.

Protection: Provide sheltered onsite storage. Provide blocking, platforms, or skids to protect the gates from contact with the ground. Protect the gates from damage from construction activities or equipment.