

FLAP GATES - RECTANGULAR AND ROUND

SUGGESTED SPECIFICATIONS

GENERAL

The cast flap gates where shown in the plans and specifications and listed in the flap gate schedule shall be as manufactured by Coldwell-Wilcox Technologies, LLC of Cincinnati, Ohio. Gates shall be cast iron, ductile, 2% nickel or NiResist, construction with circular, square or rectangular openings as called out by the specifications and site drawings. Flap gates shall be thimble, pipe flange or wall mounted. Concrete wall mounted gates shall be anchor bolted and non-shrink grouted in place.

The equipment provided shall be cast, fabricated, machined, assembled and placed in proper operating condition per the drawings, specifications, engineering data, instructions and recommendations of the gate manufacturer unless otherwise noted by the engineer. Gates shall be supplied with all parts and accessories as specified within the site specifications and drawings and as required for a complete installation.

MANUFACTURER'S QUALIFICATIONS

The flap gates shall be the latest standard product in regular production by a manufacturer whose products have proven reliable in similar service. A single manufacturer shall supply the flap gates.

MATERIALS

All materials will comply with applicable provisions and recommendations of the following, except as otherwise shown or specified:

- Frame, Flap,
Wall Thimbles Cast Iron A126, Class B,
 Ductile Cast Iron, ASTM A536, Class B,
 Cast Iron ASTM A126 Class B with 2% Nickel,
 NiResist ASTM A436 Type 1 (15% Nickel)
 NiResist ASTM A436 Type 2 (22% Nickel)

- Hinge Arms A36 Steel
 ASTM A276 Type 304(L) or 316(L) Stainless Steel
 Ductile Cast Iron ASTM A536, Class B
 Bronze ASTM B584, Alloy CA954

- Seat A126 Class B Cast Iron
 ASTM B98 CA 655 Bronze
 ASTM D2000 50-60 Durometer Neoprene

- Hinge Pins ASTM A276 Type 304 or 316 Stainless Steel
 ASTM B584, CA954 Bronze

- Adjusting Screws
Mounting Fasteners ASTM A276 Type 304 or 316 Stainless Steel
 ASTM B98 Silicon Bronze

SUBMITTALS

Manufacturer's data and drawings shall be submitted for approval in accordance with site specifications and engineering drawings. Manufacturer's submittal shall include but not limited to gate material specification sheet, gate data summary sheet, site plan drawings and paint/coating data sheets.

PERFORMANCE

Gates shall be designed and shop tested to the applicable CWT standard. Design and operating heads shall be per the site schedule and/or specifications.

FLAP

The flap shall be one piece cast iron, ductile, 2% nickel or NiResist casting with iron-to-iron, bronze or neoprene seats. The flap shall be designed with integral ribs and hinge bosses to safely withstand the design head with a safety factor of 5.

FRAME

The frame shall be one piece cast iron, ductile, 2% nickel or NiResist casting with iron-to-iron, bronze or neoprene seats. The integrally designed back flange shall be faced and drilled to match the mating thimble bolt pattern, pipe flange bolt pattern or wall mounted configuration. The seat face of the frame shall be sloped from the vertical a minimum of two (2) degrees. Metal thickness of the frame shall be a nominal 1" with flanges not less than 1 1/2 inches thick.

SEATS

Bronze: Seat facings shall be malleable extruded bronze of a composition, which will resist dezincification and will increase in working ability with cold working. The extruded seat facings shall be a special shape to fill and permanently lock in the machined dovetail grooves when impacted into place. Attaching pins and screws shall not be allowed. The installed seat facings shall be machined to a 63 micro-inch finish or better.

Neoprene: Seat facings shall be the best grade of neoprene having a tensile strength of 1,500 p.s.i., a minimum elongation of 400 percent and a durometer hardness of 50-60. An exact slot shall be machined in the seat face to accept the neoprene which shall be mechanically retained without the use of fasteners.

Cast Iron: The castings shall be machined to a 125 micro-inch finish or better forming the cast Iron seat facings.

HINGE ARM ASSEMBLY

Hinge arms shall be fabricated or cast in one of several materials listed in the materials schedule. The hinge arms shall be UHMW or bronze bushed. The hinge pins shall be bronze or stainless steel as detailed in the materials section. The hinge arm and pin configuration is designed to be in double shear with arm to flap adjusting screws to align the flap seat face to the frame seat face. Pivot lug bosses shall be flap and frame mounted with non-corrosive grease fittings without bushings. Bushing and grease fitting configuration shall be as specified in the job specification.

WALL THIMBLE

Wall thimbles will be furnished for all flap gates that are not attached to pipe flanges or concrete wall mounted and as specified in the job specifications. Wall thimbles shall be of the section "F", "E" or "MJ" (mechanical joint) and depth as indicated on the plans and listed in the gate schedule. They will be cast iron, ductile, 2% nickel or NiResist one-piece construction, of adequate section to withstand all operational and reasonable installation stresses. Wall thimbles will be internally braced during concrete placement. A center ring or water stop will be cast around the periphery of the thimble. The front flange will be machined and have tapped holes for the flap gate attaching studs and metal stamped vertical centerlines with the word "TOP" for correct alignment.

Large wall thimbles will be provided with holes in the invert to allow satisfactory concrete placement beneath the thimble.

PAINTING

Steel and cast iron components shall receive manufacturer's standard TNEMEC epoxy series N140-1255 pota-pox beige and TNEMEC series 69 pond 28BL finish prior to shipment. Total system shall be 12-16 mils DFT.

Tnemec coal tar epoxy series 46H-413 or Tnemec potable epoxy series N140 pota pox are available, as specifications require. Coal tar epoxy total system shall be 20-26 mils DFT. Tnemec potable epoxy total system shall be 12-16 mils DFT.

SHOP TESTING

Each gate shall be fully assembled and shop-inspected in the vertical position for proper seating. The flap shall be fully opened and closed to ensure that it operates freely and seals.

INSTALLATION

Installation shall be in complete accordance with manufacturer's instructions and recommendations. Anchor bolts will be set in accordance with approved manufacturer's drawings.

START-UP AND TEST

Contractor shall make adjustments required to place system in proper operating condition. Contractor shall conduct functional field test of each flap gate in the presence of the Owner's Project Representative to demonstrate that each part and all components together function correctly.