Flip-Up Flood Gate (WK Model# FG-BH) Specifications

Part 1 – General

1.01 Description: Provide flood gate(s) factory assembled with frame(s) and all operating components in accordance with contract specifications and approved drawings.

1.02 **Acceptable Manufacturers**: Flood gate shall be as manufactured by Walz & Krenzer, Inc (203-267-5712; sales@wkdoors.com).

1.03 **Standards:** Comply with the provisions of the following (as applicable):

A. AISC "Specifications for Design, Fabrication, and Erection of Structural Steel for Buildings".
B. The Aluminum Assoc. "Aluminum Design Manual".
C. AWS Structural Welding Code D1.1, D1.2, D1.3, D1.6.
D. ASME Structural Welding Code Section IX.
E. FEMA Bulletin 3-93, #102 & #114.

1.04 Submittals:

A. Manufacturers Data: Submit installation and maintenance manuals for flood gate.
B. Shop Drawings: Submit shop drawings approved by licensed Professional Engineer for flood gate including dimensional plans, elevations, sections, details for all mountings/connections, and parts list.
C. Calculations (optional for critical applications): Submit calculations approved by licensed Professional Engineer verifying the flood gate's ability to withstand the design pressure loading.
D. QA Submittals: Submit test reports showing compliance with specified performance characteristics.

1.05 Qualifications: Manufacturer shall present evidence attesting to at least five years successful experience in the design and manufacture of similar closures.

Part 2 – Products

2.01 Product Description: Bottom hinged flood gate shall be Model FG-BH as manufactured by Walz & Krenzer, Inc.

2.02 Materials:

A. Panel: 6061-T6 aluminum diamond plate (options include mild steel and stainless steel).
B. Frame: ASTM A-36 steel (options include aluminum and stainless steel).

C. Gasket: Depends on size and application. Options include WK neoprene lip seal gasket, WK star gasket, EPDM inflatable gasket, or ASTM D2000 GR DE 25 duro neoprene gasket.
D. Dogs: stainless steel or bronze dogs are used depending on loads.
E. Finish: aluminum panel painted with INSL-X CheckRust acrylic paint. Mild steel frame to be blast to near white metal per SSPC-SP-7 and primed with one coat of inorganic zinc primer. Finish coat with epoxy paint is available.
F. Hinges: to include bronze oil-impregnated thrust bearing and stainless steel hinge pins.

2.03 Design:

A. Design Pressure: # (in feet of water). Specify seating (pushing gate closed) or unseating direction (pushing gate open).
B. When flood gate is in the lowered position, it becomes part of the ground or road surface.
C. Diamond tread plates (if applicable) shall be used for top facing plate. Non-skid grooves can be cut as a substitute.
D. Side frames are angles for mounting to existing exterior face of the wall surface or flatbars for mounting inside door jambs.
E. Bottom frame(s) shall have mounting holes for expansion anchors (options include masonry subframe with welded anchors for embedment in concrete). Bottom trough in which flood gate rests in can be supplied in the form of a pan with drain connections supplied.
F. For flood gates located in roadways, appropriate live loads are to be specified, such as AASHTO H-20.
G. Flood gate shall be designed to withstand flood waters up to its full height with allowable stresses in accordance with the Aluminum Association “Aluminum Design Manual” and AISC.
H. For large and/or heavy floodgates: mechanical assist is required. Options include manual or power winch, counterweight, or hydraulic lift system.
I. Inflatable gasket systems require an air source. Options include compressed air tank, hand or foot pumps.
J. Gate size and design pressure direction shall determine the quantity and type of dogs.
K. Additional requirements such as hydrodynamic loads, impact loads and breaking wave loads shall be added as required by the specific application.

2.04 Quality Assurance:

A. Perform shop operational test.
B. Perform shop chalk test for compression and inflatable gasket gates; shop hose test for lip seal gate.
C. Perform air leakage test for inflatable gasket gate: inflate gasket(s) and confirm no loss of pressure over ½ hour time period.

D. Liquid Penetrant Test (for critical applications): Welds in the "potential" leak path shall be liquid penetrant inspected in accordance with Appendix VIII of Section VIII of ASME Code Div. 1.

Part 3 – Execution

3.01 Fabrication:

A. The finished product shall be rigid, neat in appearance, and free from all defects, warps, and buckles. All exposed joints and corners shall be well rounded.
B. The panel and frame shall be flat within 1/8" in any 6' length.
C. All butt welds in frame to be full penetration welds.
D. For inflatable gasket gate, sealing surfaced shall be finished to 63 micro inches to maximize sealing, uninterrupted by steps greater than .015", free of cracks, with finish lay parallel to seal.

3.02 Installation:

A. Install flood gate in accordance with manufacturer's instructions and approved shop drawings.
B. After installation, perform field operational and chalk test per manufacturer's instructions to verify seal.
C. Finish paint (if applicable) after installation.

3.03 Warranty: Flood gate shall operate satisfactorily and be free of defects in material and workmanship for a period of not less than one year from the date of delivery.