



WACO Environmental Products

WACO Series 4000 Stop Gates and Frames- Sample Specification

General

The fabricated 6061-T6 aluminum hand lift stop gates and 6063-T6 aluminum frames shall be manufactured by WACO Products, Inc., Baltimore, Maryland or equal. Stop gates and frames shall be furnished with all necessary accessories and parts for a complete installation and shall be the latest standard product of a manufacturer regularly engaged in the production of equipment of this type. All stop gates and frames shall be furnished by the same manufacturer.

Design

Except as otherwise indicated by this specification, all stop gates and frames will be designed and manufactured to meet or exceed all structural design criteria of AWWA Standard C562, most current edition, defining head and loading calculations, deflection requirements, and material specifications including minimum dimensions.

Structural components shall have a minimum design safety factor of 5 with regard to ultimate tensile, compressive, and shear strength and a minimum safety factor of 3 with regard to tensile, compressive, and shear yield strength.

Stop Gate Plates

The stop plates are to be fabricated from minimum 1/4" thickness 6061-T6 aluminum plate and shapes, reinforced as required to meet the engineer's specified design head. Deflection under full design head will be no more than 1/720 of the span width of the gate. Stop gates will be fabricated so that gate plates will be interchangeable for all channels of

equal width with the same frame type.

Stop gates equal to or under 3 feet in width shall have single hand slots or handles as specified for lifting purposes. Gate plates wider than 3 feet in width shall incorporate dual slots or handles. Where drawings do not indicate otherwise, slots shall be provided. All slots shall have welded pipe handholds on the upper side of the slot for ease of lifting unless otherwise indicated.

Stop Gate Guide Frames

The guide frame is to be fabricated from minimum 1/4" thickness 6063-T6 aluminum extrusions designed to resist loads imposed by the design head upon the stop plate and into the frame. Guide frames built out of plate or structural shapes shall not be acceptable. The frame shall have factory welded mitered corners where the side and invert frames meet. Embedded and end-of-wall mount frames shall be designed to allow for a flush bottom installation. Flush bottom frames will incorporate a countersunk invert seat or flush neoprene invert seal as indicated. Formed concrete inverts and stop plate mounted seals shall not be acceptable.

Embedded frames shall be grouted in place within a blackout or embedded at the time of the channel concrete pour. Embedded frame extrusions shall have a minimum weight of 1½ pounds per foot. Frames shall have a factory applied coating of bituminous paint on all surfaces to be in contact with concrete or grout.

Wall mount frame anchors are to be 300 series stainless steel and supplied by the gate manufacturer at a size, quantity and spacing sufficient for the design loads. Wall mounted frames shall have bolt holes factory drilled at the recommended locations for use as a template to locate anchors in the field. Wall mounted frames shall be designed for grouted or gasketed installation as indicated. Gasket-type frames require that Installer/Contractor field verify channel dimensions, wall alignment and wall surface conditions for suitability with gasket use prior to start of submittal drawings. End-of wall mount and intra-channel surface mount frames shall have a minimum extrusion weight of 2 pounds per foot. Frames shall have a factory applied coating of bituminous paint on all surfaces to be in contact with concrete or grout.

All guide frames shall incorporate ultra high molecular weight polyethylene (UHMW) bearing bars on both sides of the stop plate to reduce friction and wear between the plate and frame. Bearing bars shall be extruded from virgin UHMW PE ultraviolet resistant polymer and shall be held within the guide frame by integral dovetail retaining slots in the guide extrusion. Bearing bars glued or mechanically fastened to the frame or plate shall not be acceptable. Standard frame sealing performance shall limit leakage to no more than 0.2gpm/wfp seated x 0.2gpm/wfp unseated.

Optional P-Seals and Frame

Optional stop gate frames incorporating supports for P-seals (J-bulbs) shall allow for minimum 1/4" thick neoprene hollow bulb extrusions (P-seals) to be fastened to the gate side frames by means of an adjustable bolted retainer. The P seal and retainer shall have slotted mounting holes to allow for adjustment of the compression of the P-seal against the stop plate. The retainer and P-seal assembly support shall be welded to the gate frame extrusion on the upstream side of the gate unless otherwise indicated. Minimum seal seating surface width shall be 3/4 inches. Seals shall be

replaceable without special tools and without

removing the frame from its installed position. P-seal frame sealing performance shall limit leakage to no more than 0.1gpm/wfp seated x 0.1gpm/wfp unseated. Applications requiring lower leakage should consider WACO Series 6600 slide gates.

Using this Specification and Other Design Features:

All WACO Products' gates are made to order from approved drawings and our standard designs can be customized to fit virtually any specific head, mounting, or operating condition.

Please note that larger stop gates may not be operable by hand due to the combinations of plate weight, head pressure, and seal compression required to meet other design specifications herein for this type of gate. Please call WACO Products for design assistance.

Specifying Style:

To specify 4000 series models, use the specifying grid below by selecting the opening type and mounting style required. Indicate the gate type, height and width dimensions for both the frame and stop plate (if different from the frame, and relevant elevations in the schedule or specification. Where the installation may require a combination of frame types (i.e. embedded side frame with channel mounted invert frame) please call WACO Products Engineering Department for recommendations and model designation.

4000 Series Stop Gates	
Type	Mounting
4001	channel embedded
4101	intra-channel bolted
4201	end-of-wall bolted

WACO Products, Inc.

1330 Knecht Avenue
 Baltimore, Maryland 21229-5511
 410-242-1000 Fax 410-247-4890
 Sales@WACOProducts.com