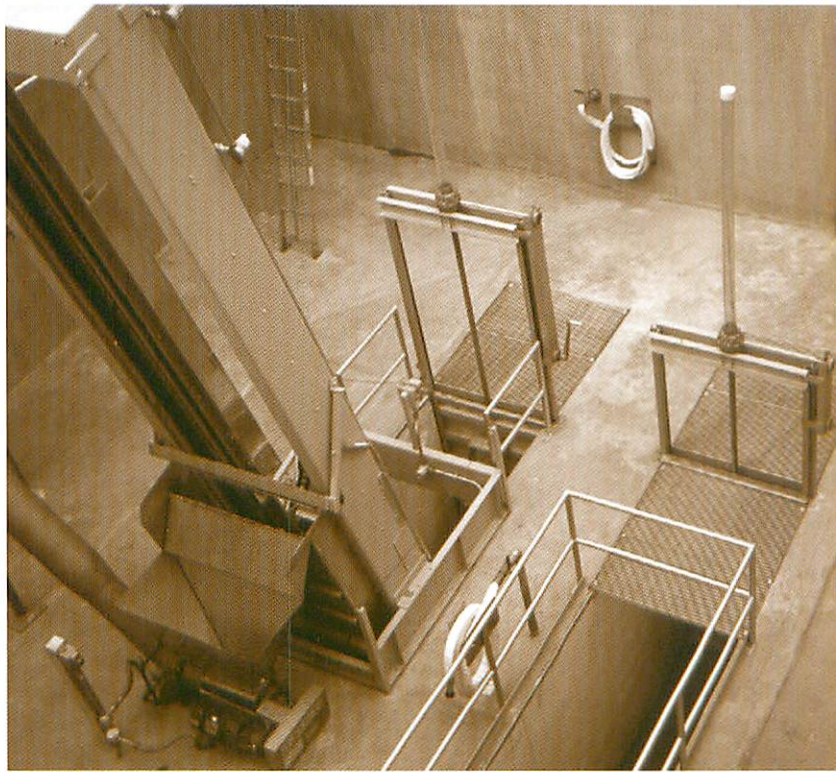
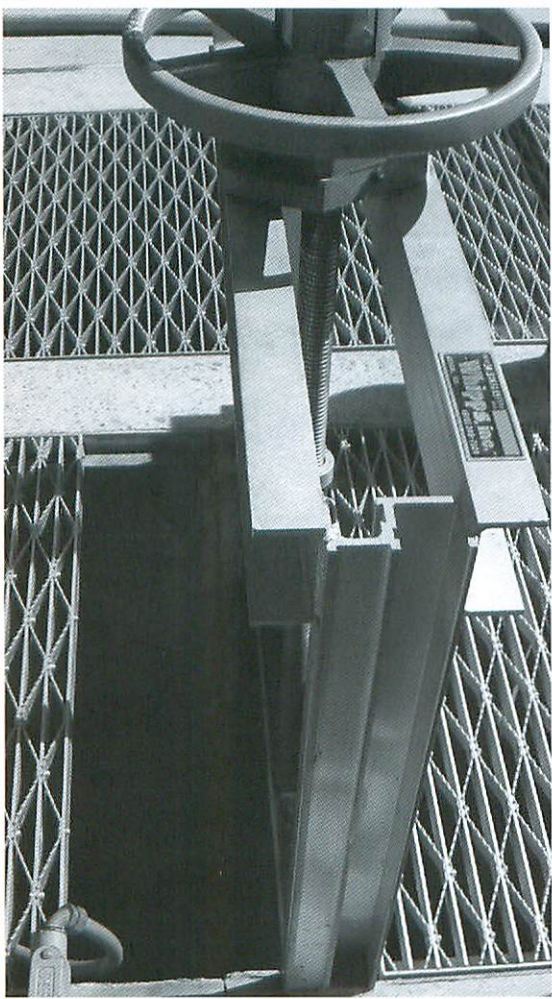
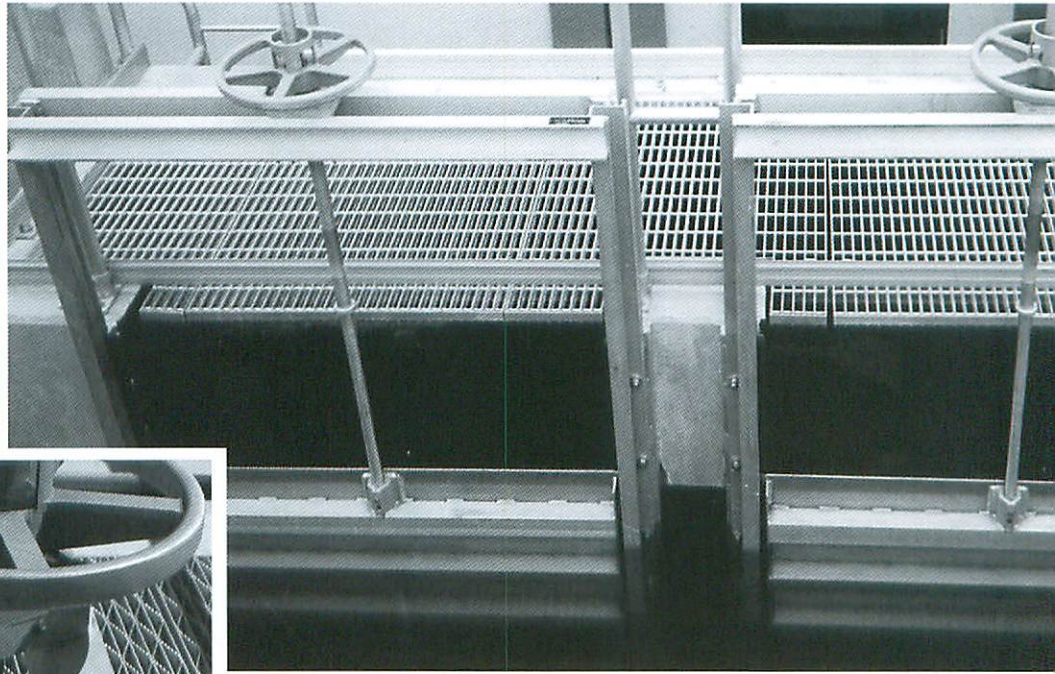


# Aluminum Gates

Series 800 AWWA® Compliant

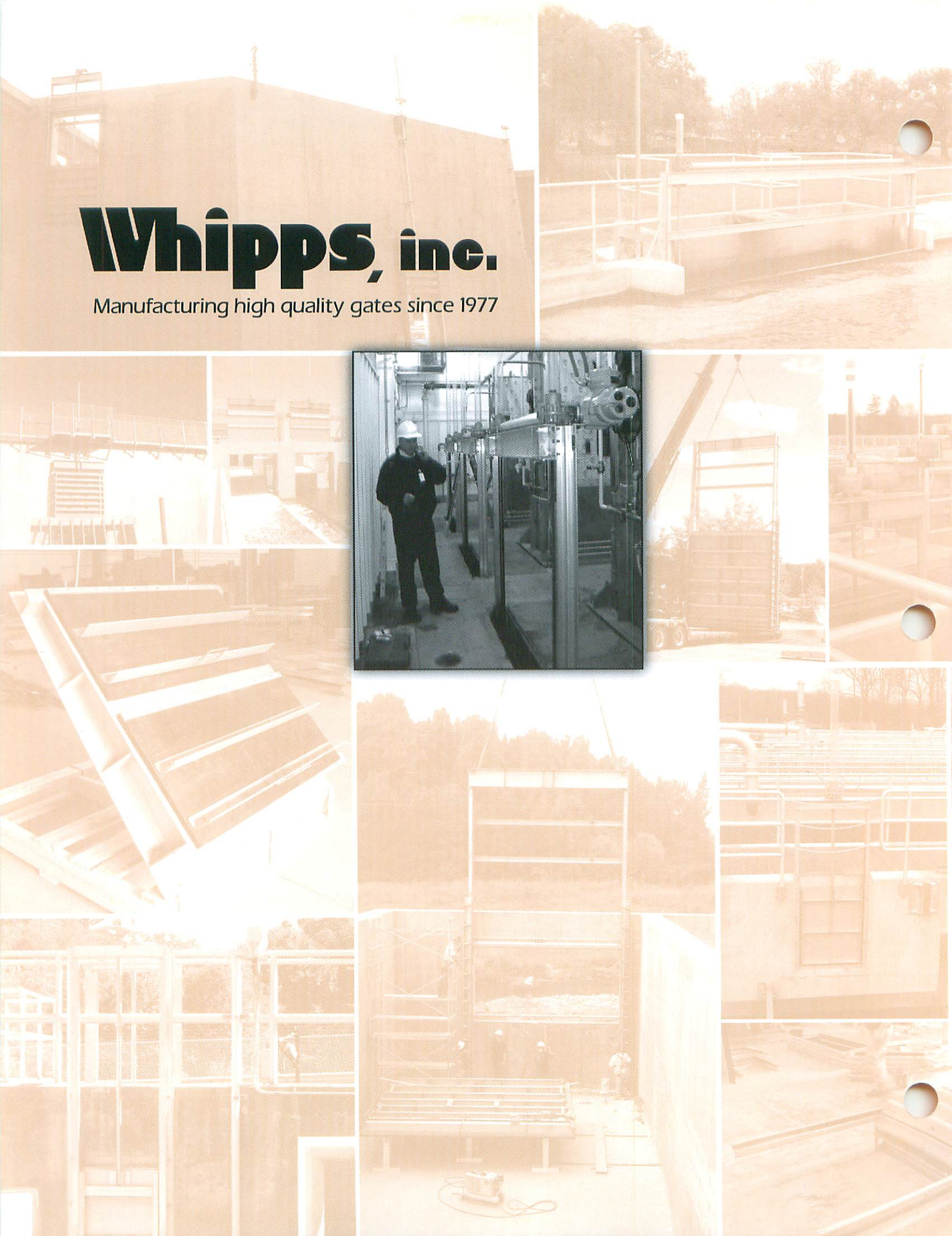


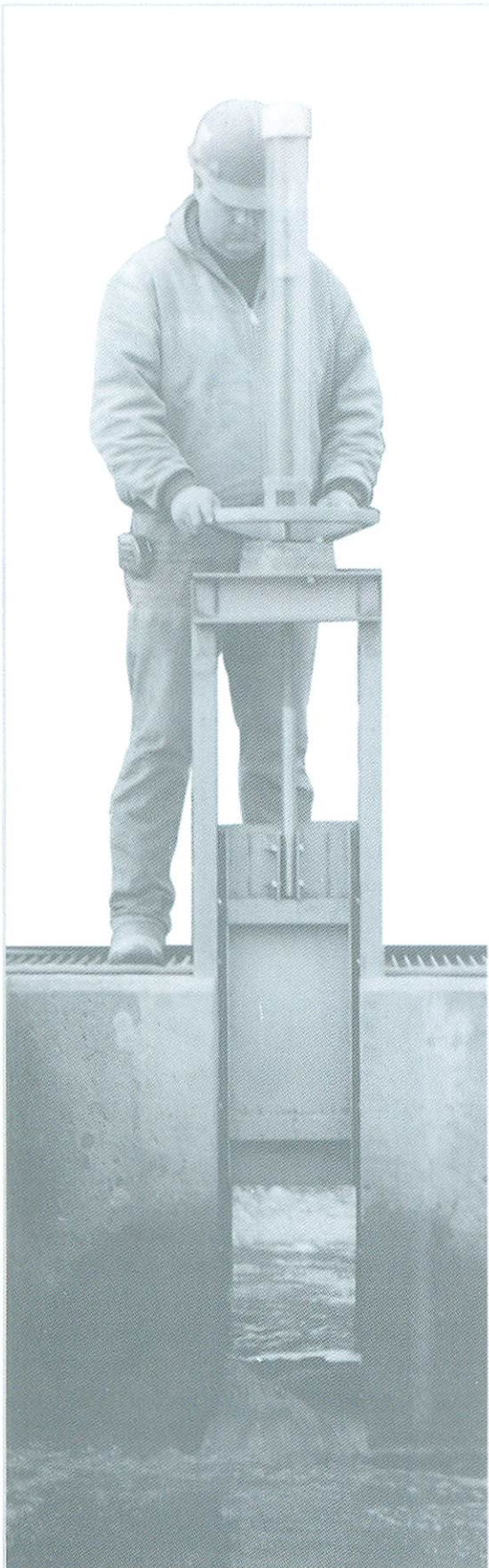
# Whipps, inc.

Manufacturing high quality gates since 1977

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## Aluminum Gates Series 800 AWWA® Compliant

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### Introduction

**Series 800 Aluminum Gates** offer high performance and long life in designs which accommodate a wide range of mounting arrangements and flow conditions. Rugged, reinforced aluminum construction is combined with tough, flexible ultra high molecular weight polyethylene (UHMW) seat/seals, to provide a heavy-duty assembly. Flush bottom closure is

provided by a resilient bottom seal. In addition to the wide range of standard gates, Whipps, Inc. can quickly and economically produce standard gates or gates customized for unusual applications. Whipps, Inc. Series 800 Aluminum Gates can be constructed of either 1/4" thick or 3/8" thick material.

### Advantages

**Superior Performance:** Whipps, Inc. guarantees lower leakage than that listed in AWWA C-501 - Cast Iron Sluice Gates or the latest revision, AWWA C-560 - Cast Iron Gates. Whipps, Inc. will guarantee leakage of no more than 0.10 gpm/ft of seal perimeter in seating head and unseating head conditions.

**Cost:** Fabricated aluminum gates almost always cost less than cast iron, stainless steel, or fiberglass gates.

**Durability:** Aluminum has proved to be a suitable material in most water and wastewater applications. (If concern exists about the suitability of aluminum, Series 900 Stainless Steel Gates are also available.) The uv stabilized UHMW seat/seals that are utilized on our aluminum gates are field proven to maintain shape and integrity in demanding applications. Whipps, Inc. tested the UHMW seat/seals to confirm the ability to withstand continuous operation in an abrasive environment. The testing consisted of 25,000 gate open/close cycles in an abrasive media while experiencing only negligible wear. (Actual testing performed on Series 900 Gate with similar UHMW seal systems. Test results available upon request.)

**Reliability:** The slide will not "freeze" to the frame after long periods of inactivity. Whipps, Inc. aluminum gates incorporate UHMW seat/seals to prevent any metal-to-metal contact between the slide and the frame.

**Delivery:** The fabrication process required to turn raw materials into an aluminum gate is relatively quick. Most materials are stocked at Whipps, Inc.

**Self-Adjusting Seals:** The Series 800 Aluminum Gates have a self-adjusting seal system that completely eliminates the need for field adjustment. This seal system was developed with the understanding that many gates are installed in locations where field adjustment is not practical or possible. Our UHMW seat/seals are much more durable than rubber J-seals or P-seals. While rubber seals can crack, flatten and/or adhere to the slide, our U.V. stabilized UHMW seat/seals will not. In addition, UHMW has a lower coefficient of friction than rubber and thus reduces the effort to operate the gate.

**Low Maintenance:** Aluminum gates do not require periodic painting, and require less operator attention compared to cast iron or steel gates.

### Advantages (continued)

**Ease of Repair:** In the unusual event that the seat/seals are damaged, they can be replaced in the field with common tools. The gate does not have to be removed from the wall. If the seating surface on a cast iron gate is damaged, the gate will have to be removed from the wall and shipped back to the manufacturer for re-manufacture.

**Range of Sizes:** The process to design and manufacture fabricated gates allows for a nearly unlimited range of sizes.

**Mounting Configurations:** Gate frames may be embedded in the channel walls, mounted to a wall with anchor bolts, or mounted to a pipe flange. Designs are available for gates to cover square, rectangular or round openings.

### Design Features

The following chart shows the gate features indicated by each model number. These models represent the most commonly used configurations.

Custom designs are available for applications which cannot be served by these standard models.

GATE FEATURES		GATE MODEL NUMBERS						
		821	823	823-C	823-D	823-D-I	824	825
GUIDE FRAME STYLE	Embedded	X						
	Face Mount		X		X	X	X	X
	Channel Mount			X				
SEALS	Side & Invert	X	X	X	X	X		
	Side, Invert & Top						X	X
ACTUATOR MOUNTING	Yoke	X	X	X	X	X	X	
	Pedestal							X

### Optional Features

*Gate size and service conditions determine the gate configuration required for each application. Overall gate widths, side frame sections and invert sections shown in this literature illustrate only a few of the many configurations available.*

**Downward Opening:** Most gate models can be specified for downward opening service by adding a "D" to the model number. Such gates are used where there is insufficient clearance to open an upward opening gate or where the gate is to be used as an overflow weir. Downward opening gates may be furnished with or without a top seal.

**Interconnected Actuators:** All models may be specified with two interconnected actuators by adding "I" to the model number. This arrangement is generally recommended for gates 72" or wider and having a width greater than twice the height.

**Non-Rising Stems:** All models may be specified with non-rising stems by adding "N" to the model number. This operating stem arrangement is normally selected for installations with low headroom.

### Gate Selection Criteria

**Gate Size:** In water and wastewater treatment plants, gates are most often sized to fit a pre-designed structure. In this regard, Whipps, Inc. aluminum gates offer great flexibility to accommodate any round, square or rectangular opening.

**Gate Mounting:** Series 800 gate frames may be embedded in the channel walls, mounted on the face of a wall, on the inside of an existing channel or on a pipe flange.

**Gate Material:** Series 800 gates are typically constructed of aluminum, alloy 6061-T6 with stainless steel stems and hardware.

**Actuator Selection:** The various types of actuators are shown in the actuator section. Operating loads are calculated as shown on the adjacent page. Manual operators should be selected to provide the calculated operating thrust with no more than 40 pounds effort on the handwheel or handcrank. (For information regarding the selection of powered actuators, consult the factory.)

### Gate Selection Criteria (continued)

*In either units, the operating load is taken as the greater of  $P_1$  and  $P_2$ :*

#### ENGLISH UNITS

1.  $P_1 = 35 h$   
 where  
 $P_1$  = operating load (pounds)  
 $h$  = gate height (inches)

#### METRIC UNITS

- $P_1 = 6129 h$   
 where  
 $P_1$  = operating load (newtons)  
 $h$  = gate height (meters)

2.  $P_2 = 12.48 AH$   
 where  
 $P_2$  = operating load (pounds)  
 $A$  = area of opening (sq. feet)  
 $H$  = head on gate centerline (feet)

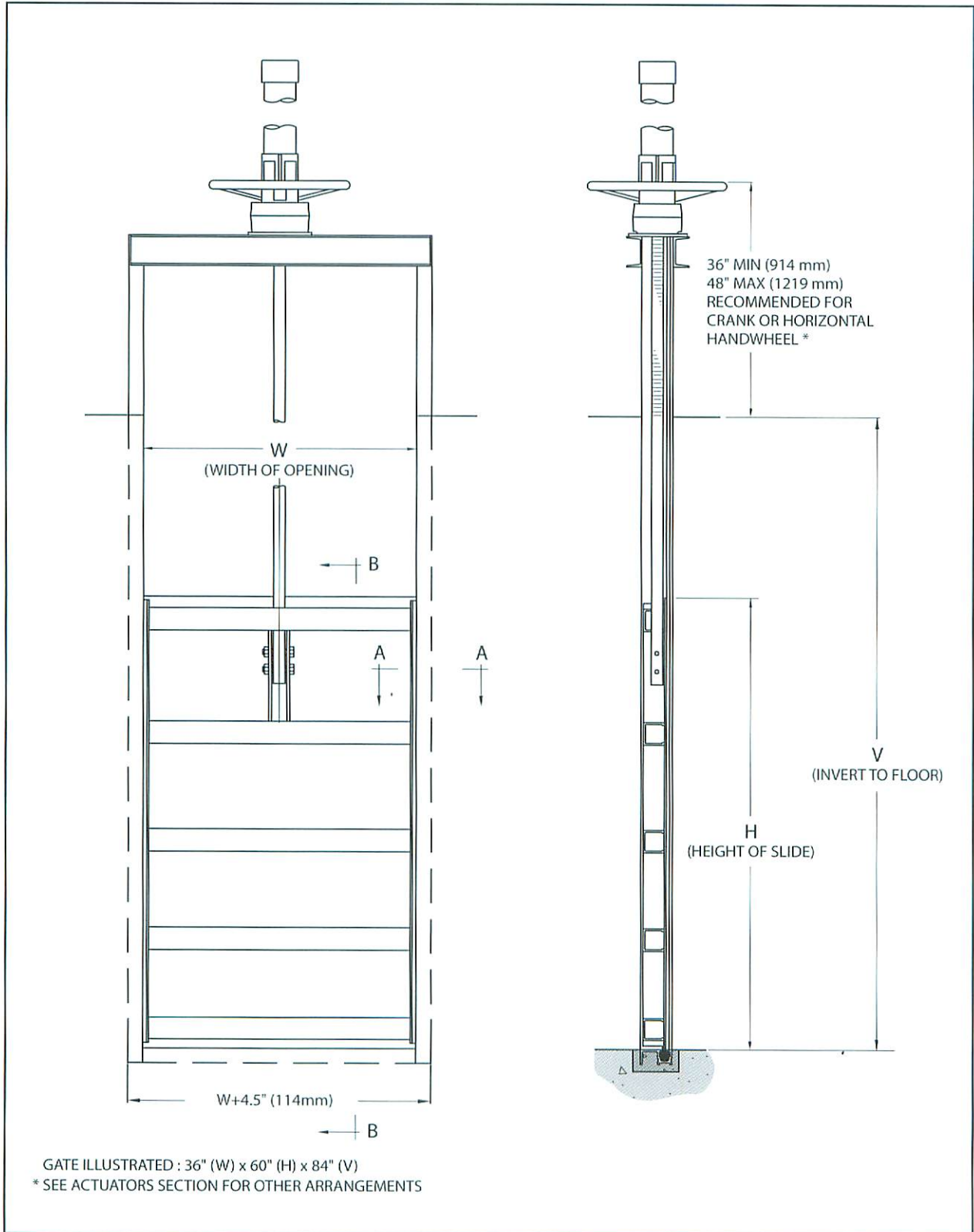
- $P_2 = 1961 AH$   
 where  
 $P_2$  = operating load (newtons)  
 $A$  = area of opening (sq. meters)  
 $H$  = head on gate centerline (meters)

**NOTE:** *Maximum operating loads are encountered during the first few inches of gate travel during opening and the last few inches of gate travel during closing. Loads diminish quickly from these extremes.*

resist the maximum output of the actuator (e.g., electric actuator at motor stall) which is necessarily greater than the operating load, sometimes much greater. Powered actuators use various devices to limit maximum output. However, the maximum output of manual actuators is only limited by the operating personnel's effort.

**Actuator loads transmitted to structures:** On non-self contained gates, the stem thrust of pedestal mounted actuators is resisted by the structure supporting the gate and actuator. The structure must be designed to

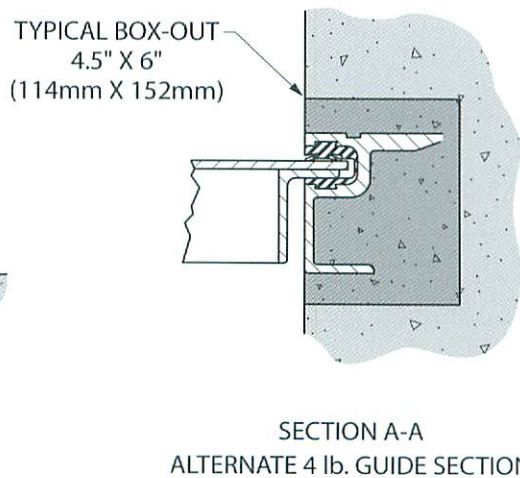
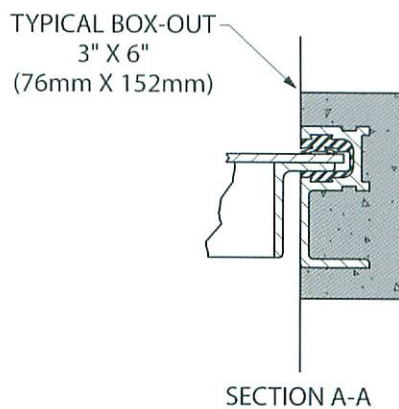
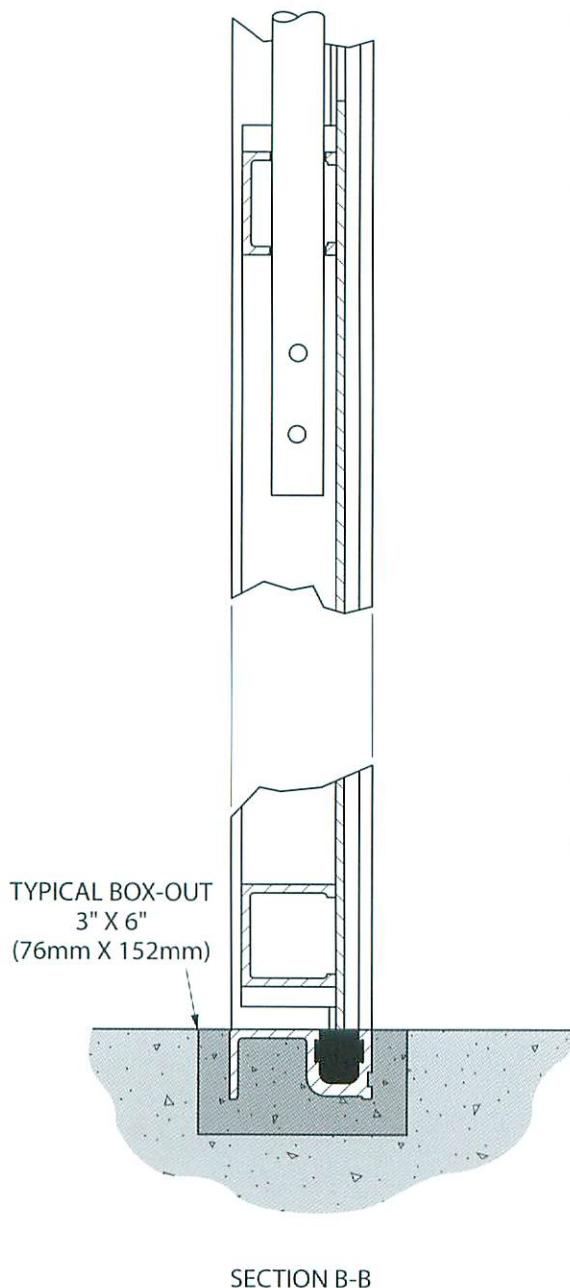
### Model 821 Slide Gate



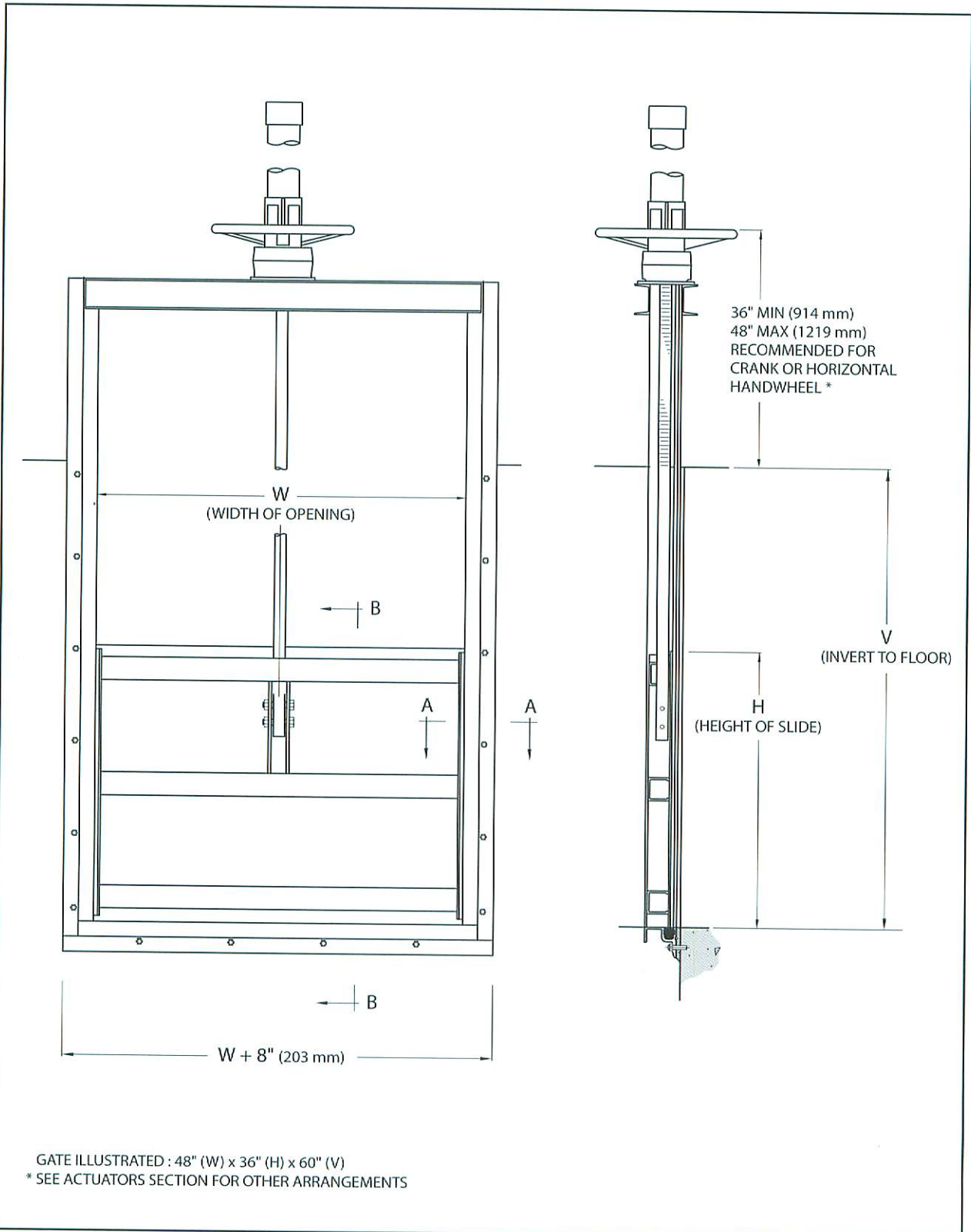


### Model 821 Features

- UHMW SEAT/SEALS
- LEAKAGE  $\geq$  THAN THAT ALLOWED BY AWWA SLIDE GATE STANDARDS
- EMBEDDED FRAME
- OPEN CHANNEL - NO TOP SEAL
- YOKE MOUNTED ACTUATOR
- RESILIENT INVERT SEAL (FLUSH BOTTOM CLOSURE)

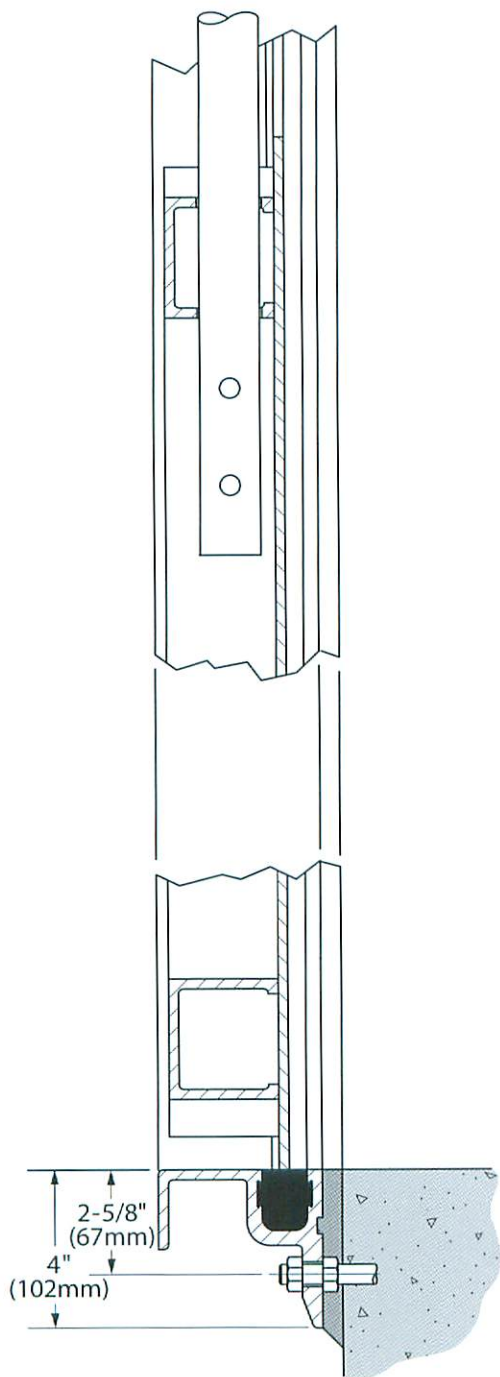


### Model 823 Slide Gate

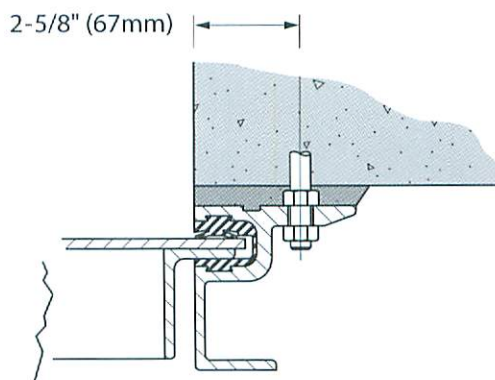


### Model 823 Features

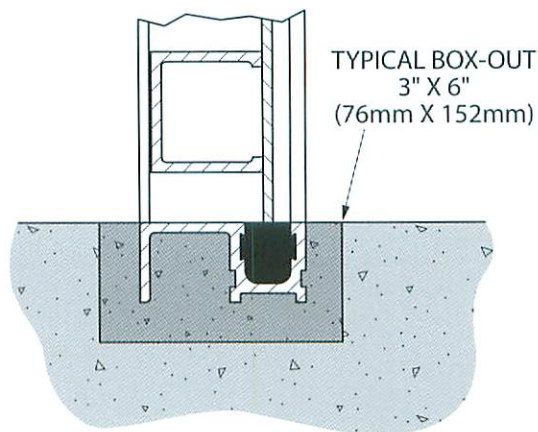
- UHMW SEAT/SEALS
- LEAKAGE  $\geq$  THAN THAT ALLOWED BY AWWA SLIDE GATE STANDARDS
- WALL MOUNTED SIDE FRAMES
- OPEN CHANNEL - NO TOP SEAL
- YOKE MOUNTED ACTUATOR
- RESILIENT INVERT SEAL (FLUSH BOTTOM CLOSURE)



SECTION B-B

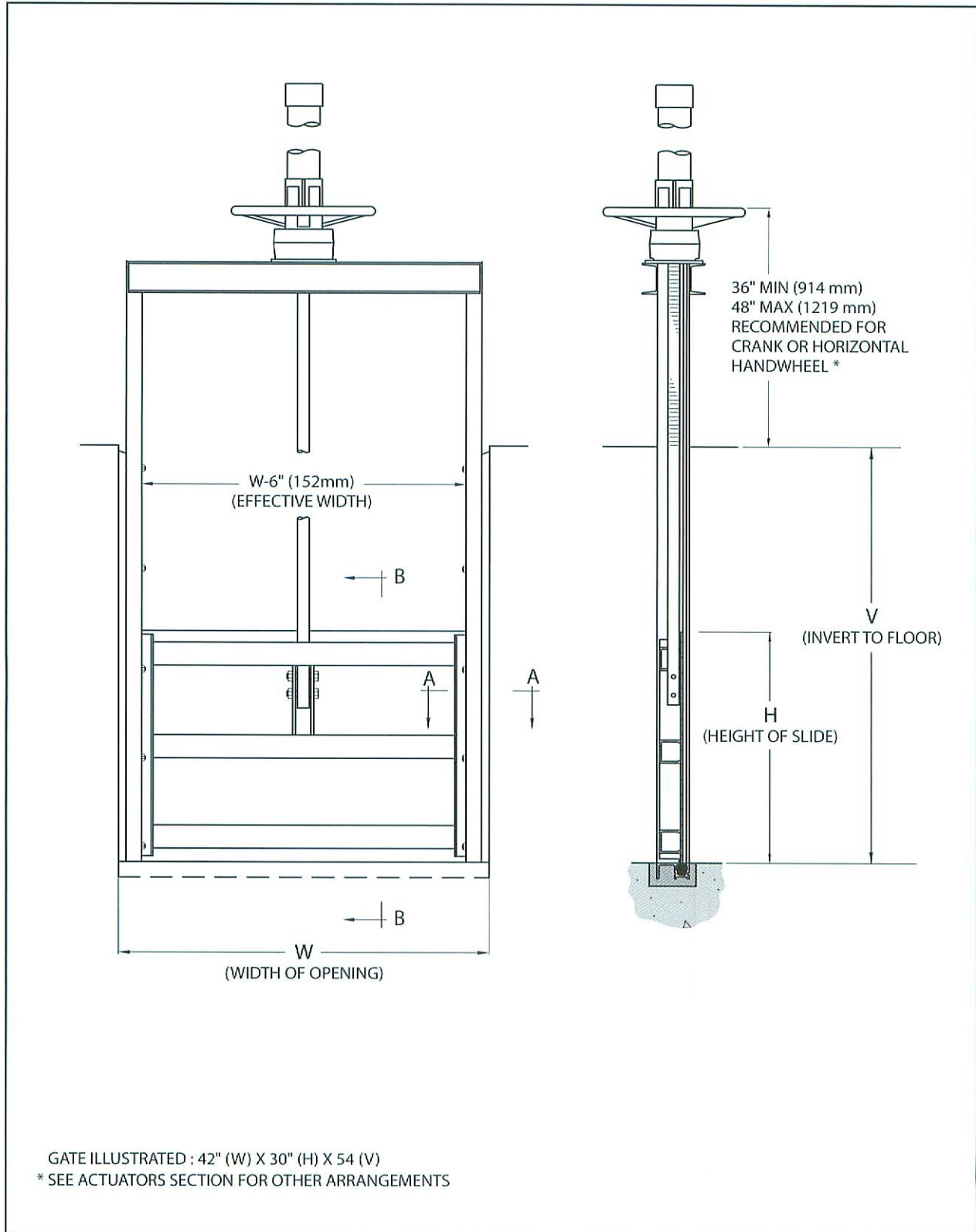


SECTION A-A



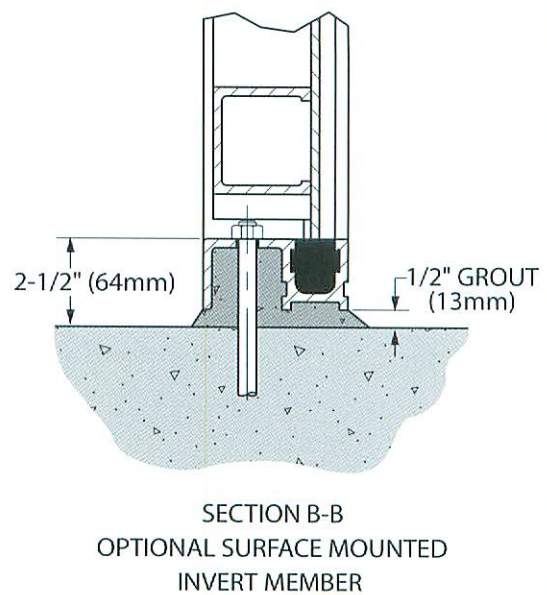
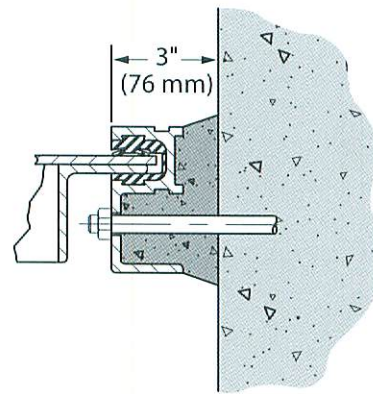
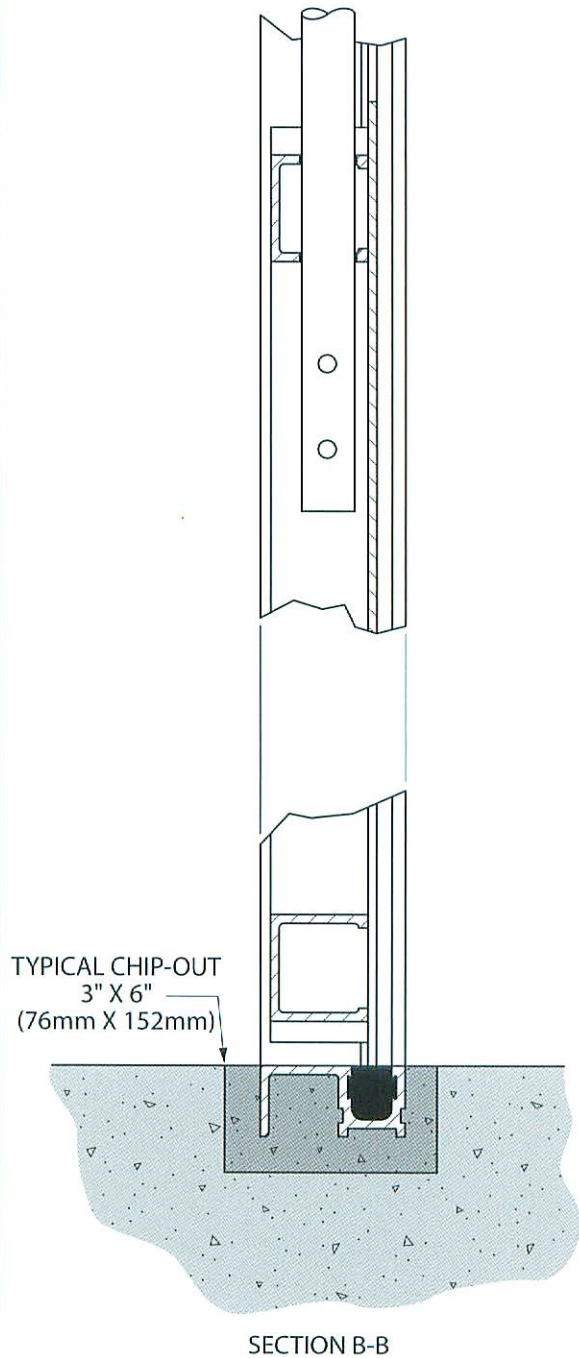
SECTION B-B  
OPTIONAL EMBEDDED INVERT MEMBER

### Model 823-C Slide Gate

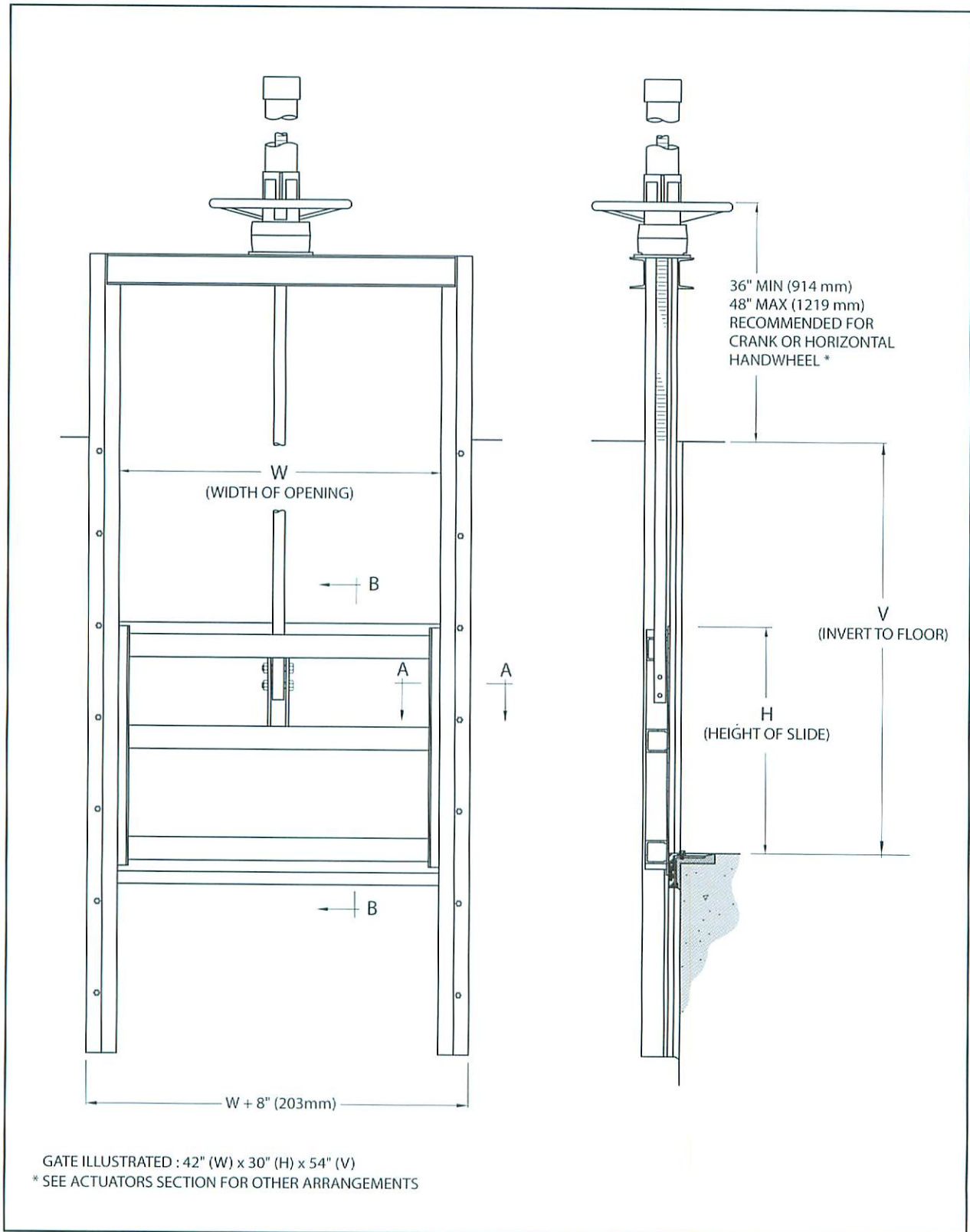


### Model 823-C Features

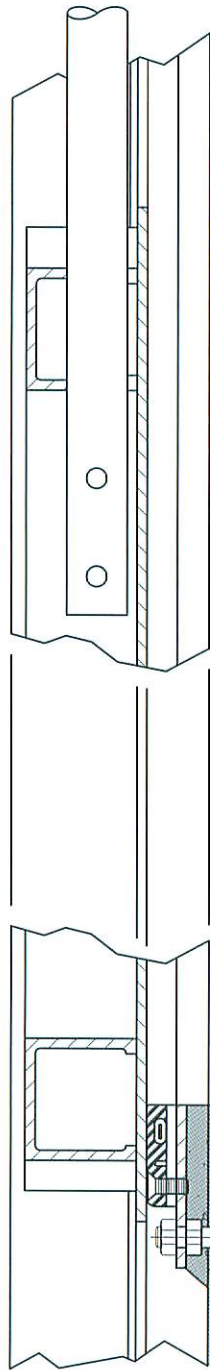
- UHMW SEAT/SEALS
- LEAKAGE  $\geq$  THAN THAT ALLOWED BY AWWA SLIDE GATE STANDARDS
- FRAME MOUNTS IN EXISTING CHANNEL
- OPEN CHANNEL - NO TOP SEAL
- YOKE MOUNTED ACTUATOR
- RESILIENT INVERT SEAL (FLUSH BOTTOM CLOSURE)



### Model 823-D Weir Gate

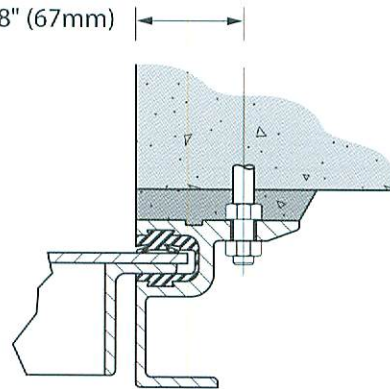


### Model 823-D Features



- UHMW SEAT/SEALS
- LEAKAGE  $\geq$  THAN THAT ALLOWED BY AWWA SLIDE GATE STANDARDS
- WALL MOUNTED SIDE FRAMES
- DOWNWARD OPENING
- OPEN CHANNEL - OPTIONAL TOP SEAL
- YOKE MOUNTED ACTUATOR

2-5/8" (67mm)

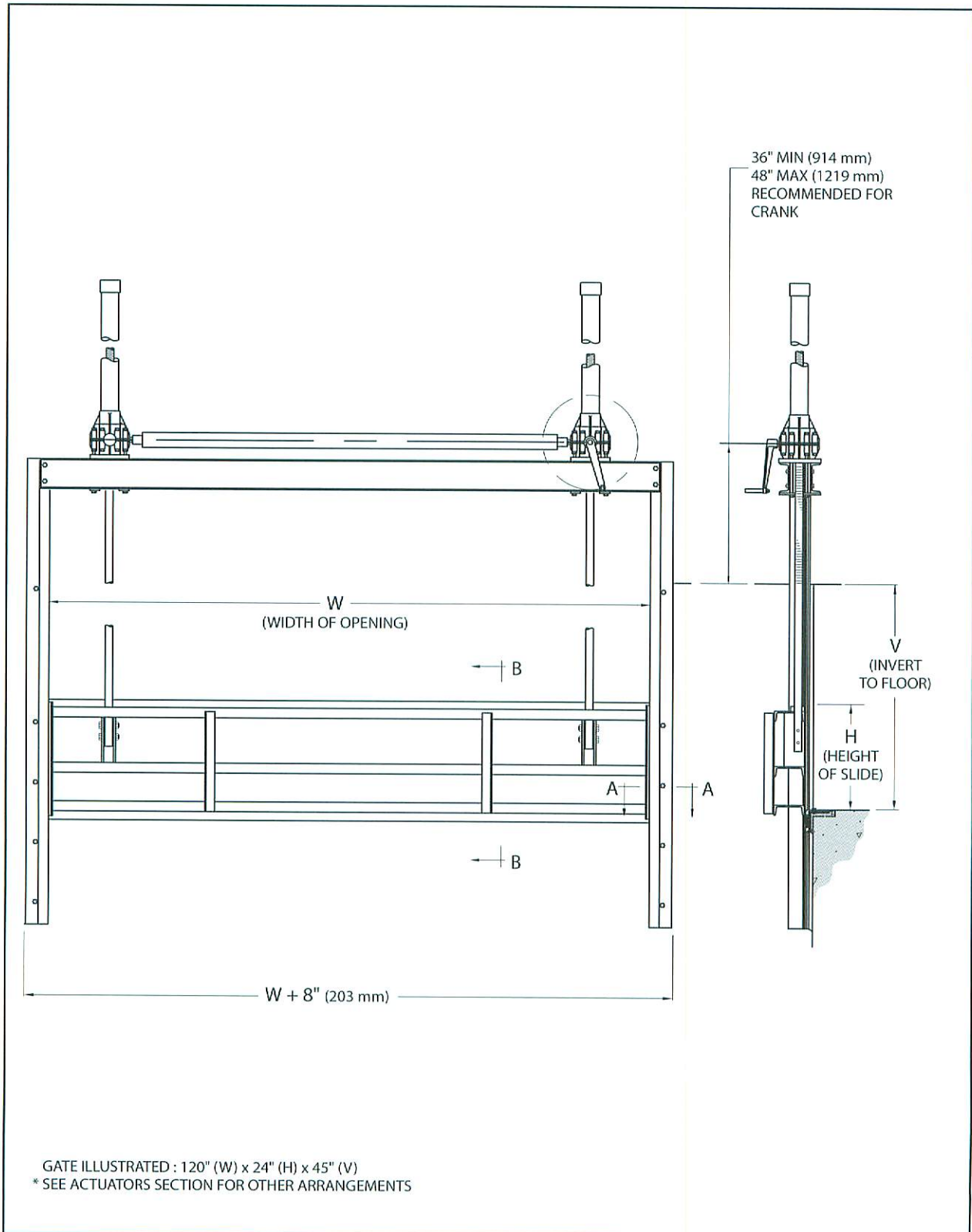


SECTION A-A

3-1/4"  
(83mm)

SECTION B-B

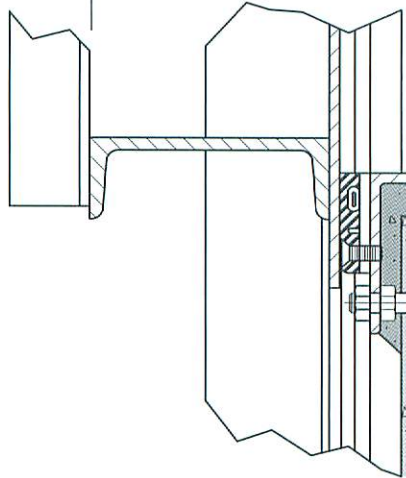
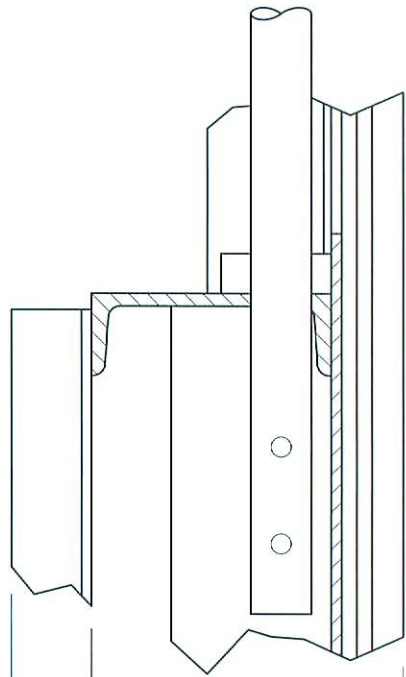
### Model 823-D-I Weir Gate





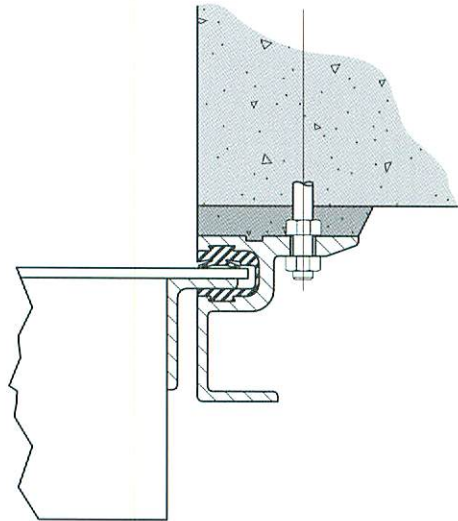
### Model 823-D-I Features

- UHMW SEAT/SEALS
- LEAKAGE  $\geq$  THAN THAT ALLOWED BY AWWA SLIDE GATE STANDARDS
- WALL MOUNTED SIDE FRAMES
- DOWNWARD OPENING
- OPEN CHANNEL - OPTIONAL TOP SEAL
- YOKE MOUNTED INTERCONNECTED ACTUATORS



SECTION B-B

2-5/8" (67mm)

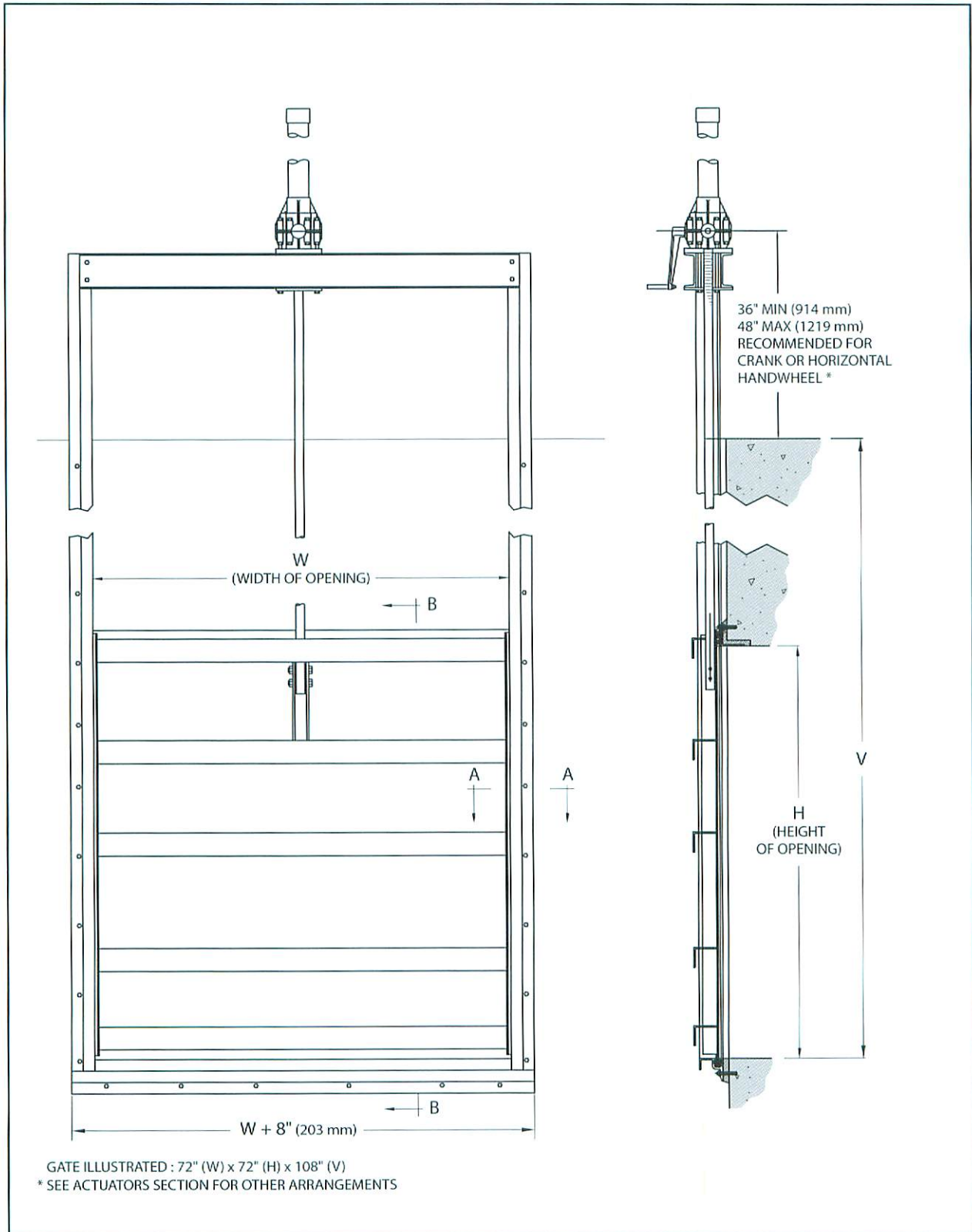


SECTION A-A

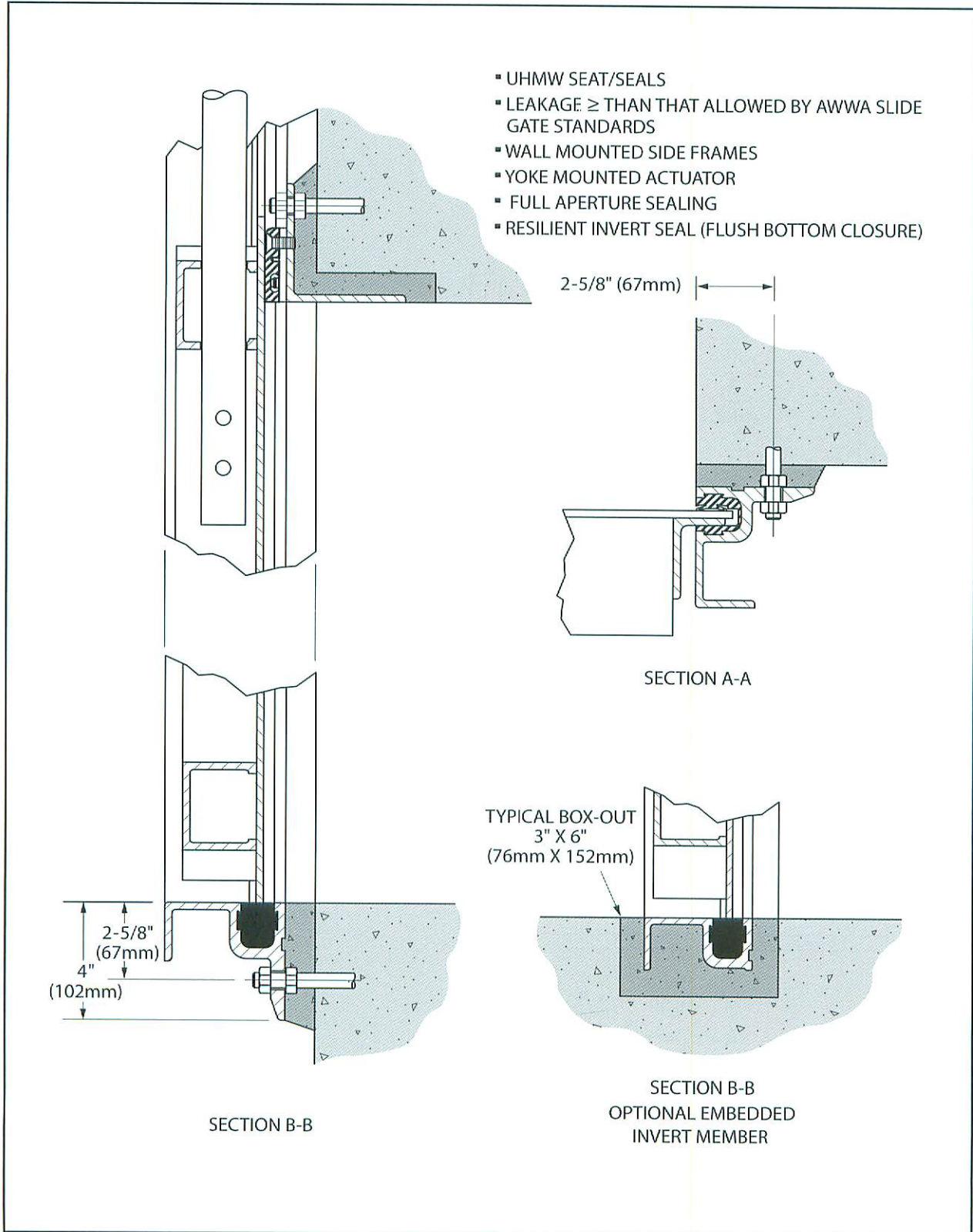
3-1/4"  
(83mm)



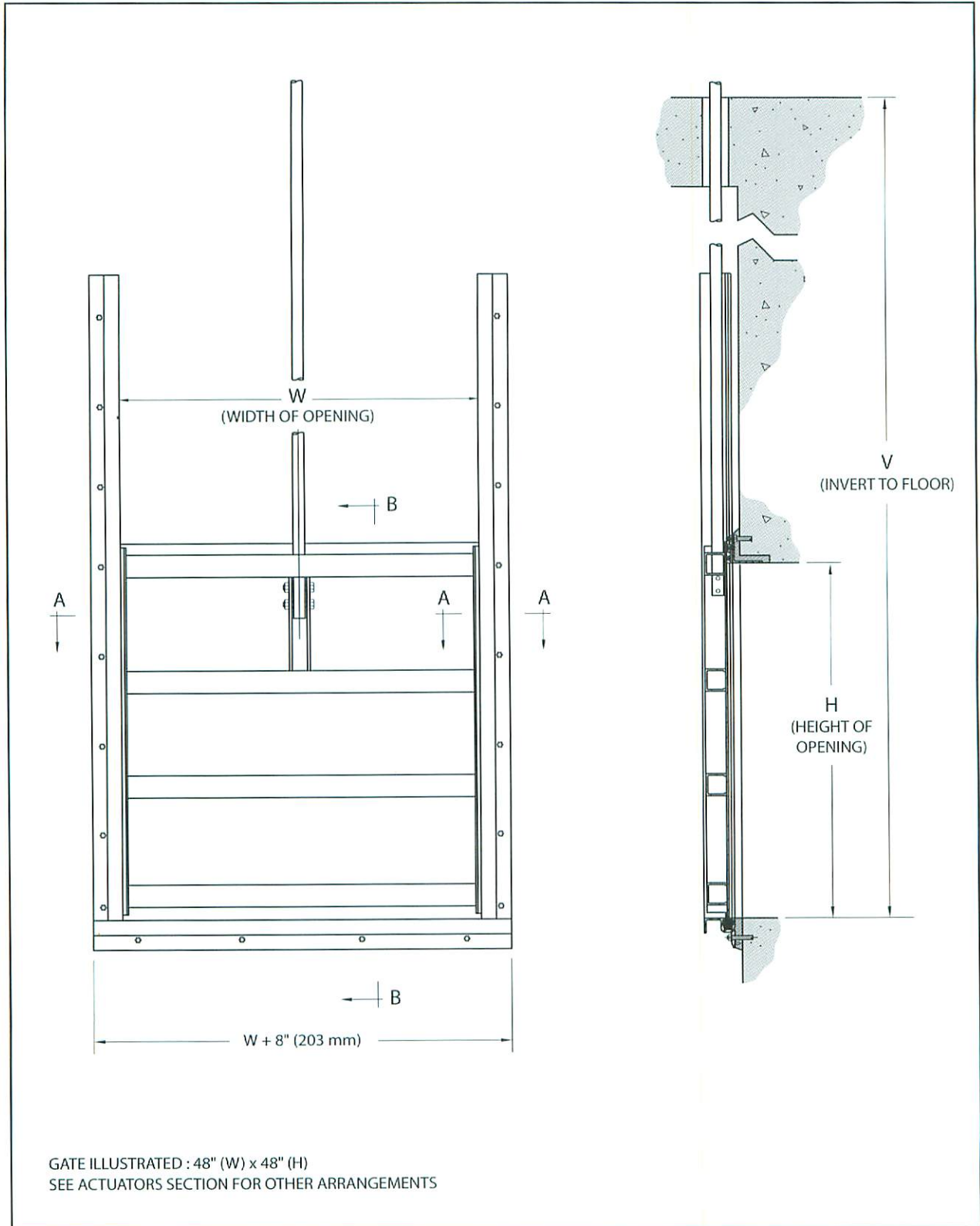
### Model 824 Slide Gate



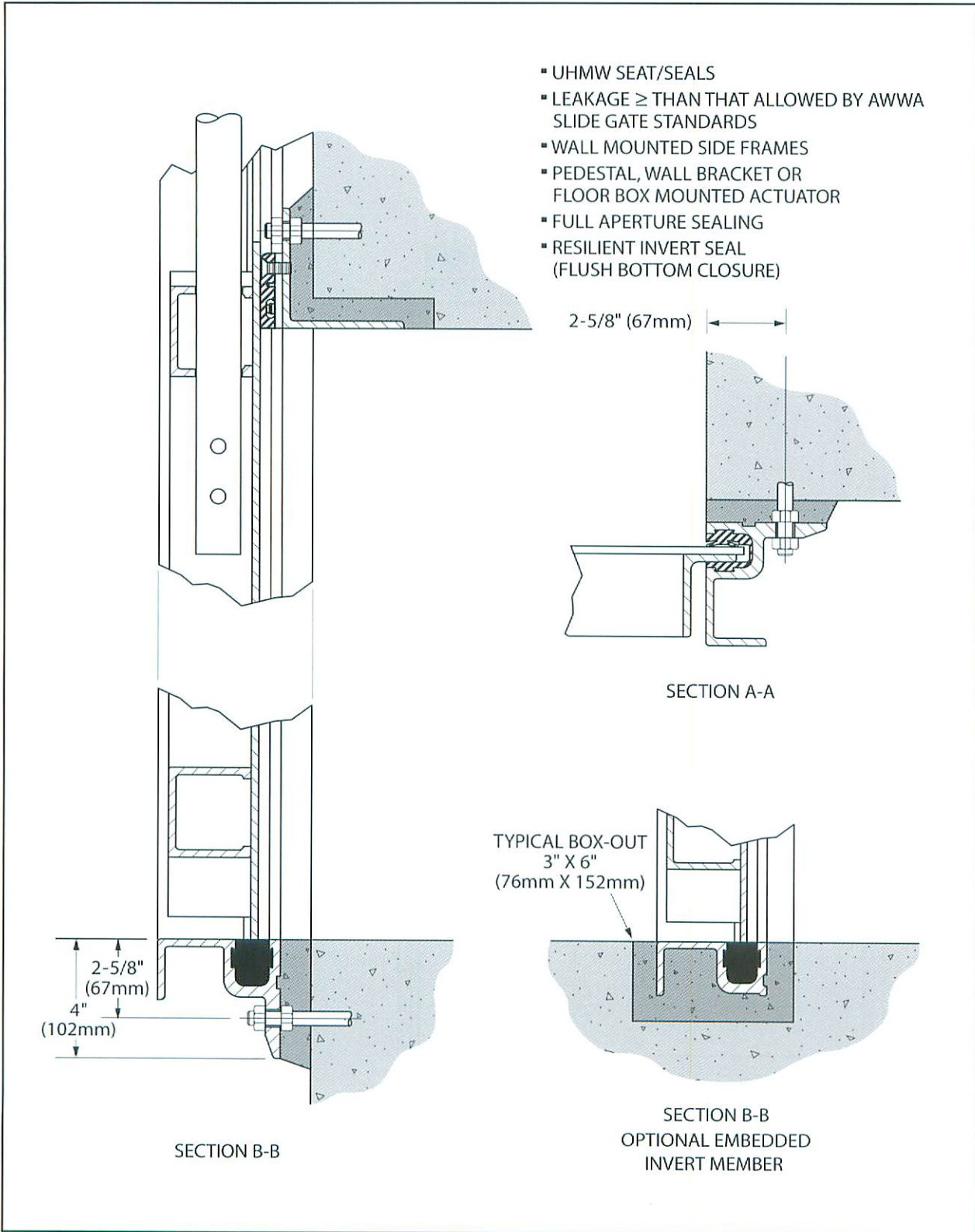
### Model 824 Features



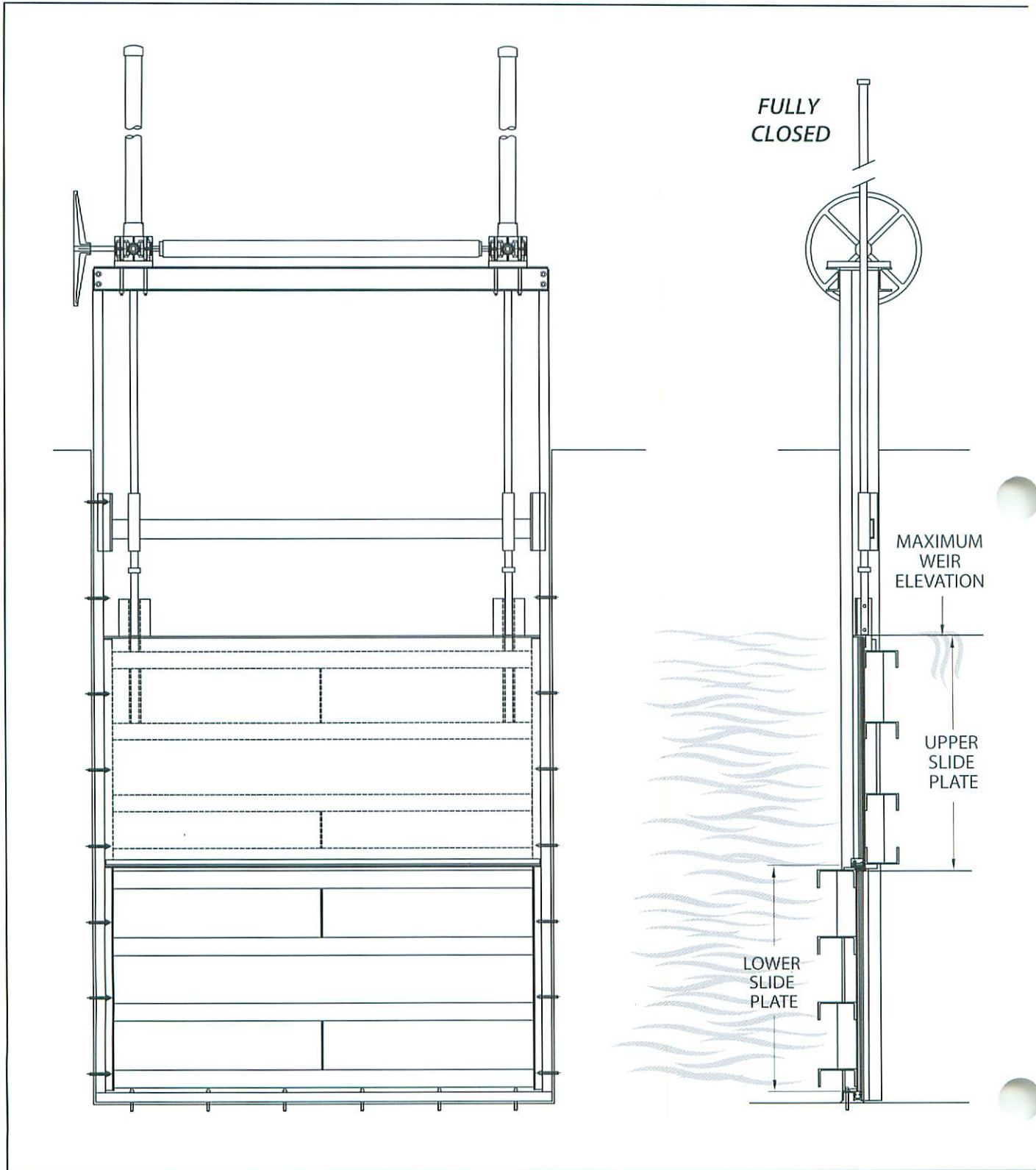
### Model 825 Slide Gate



### Model 825 Features



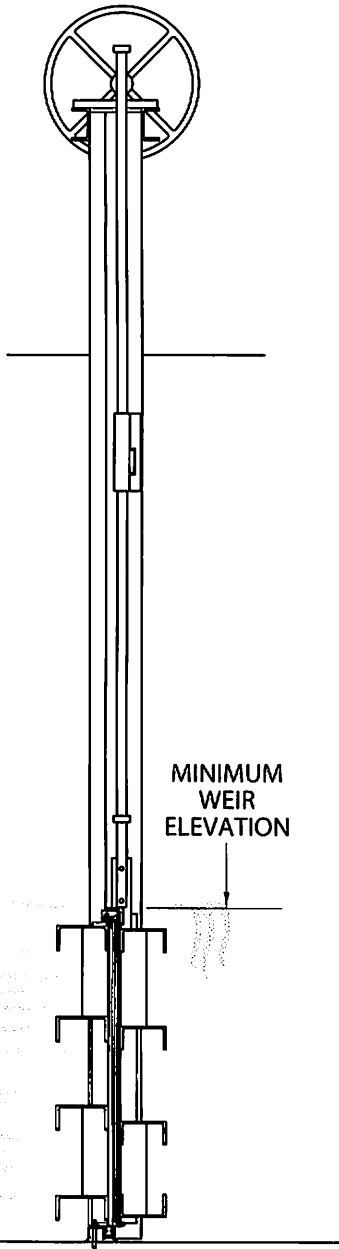
## Model 823 C-I Multiple Disc Slide Gate



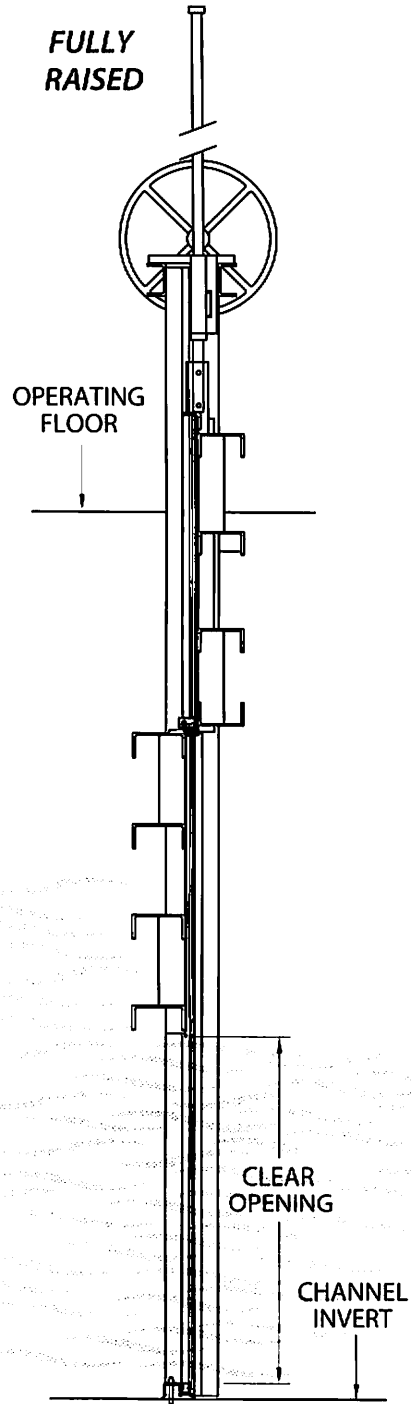
The Multiple-Disc Slide Gate is one example of our custom designs. This gate can serve two purposes. First, it can be used to control the level in a tank or pond. Second, both sides can be

raised to flush the channel invert or completely drain the structure. Please consult the factory for assistance when designing gates for unusual applications.

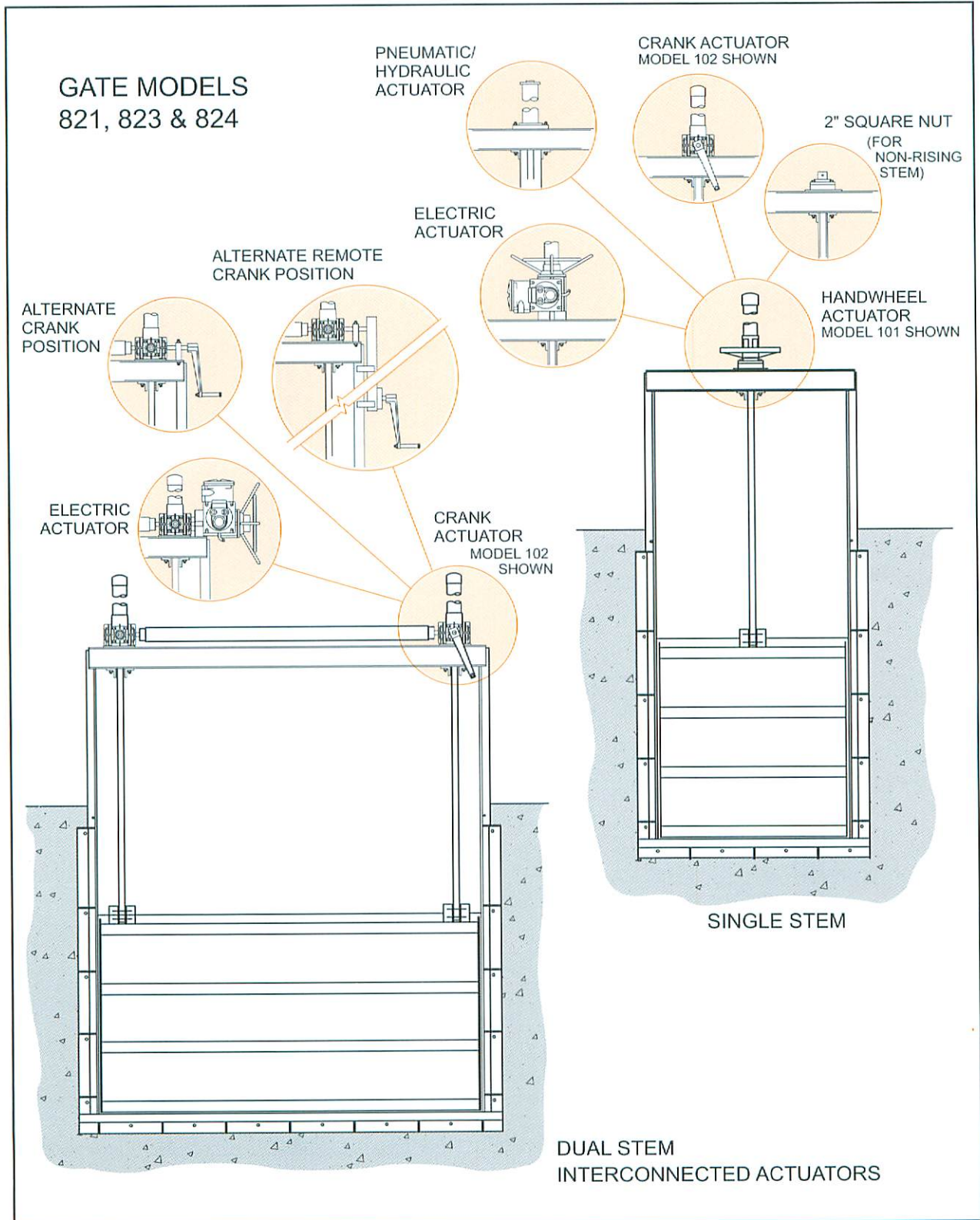
**FULLY LOWERED**



**FULLY RAISED**

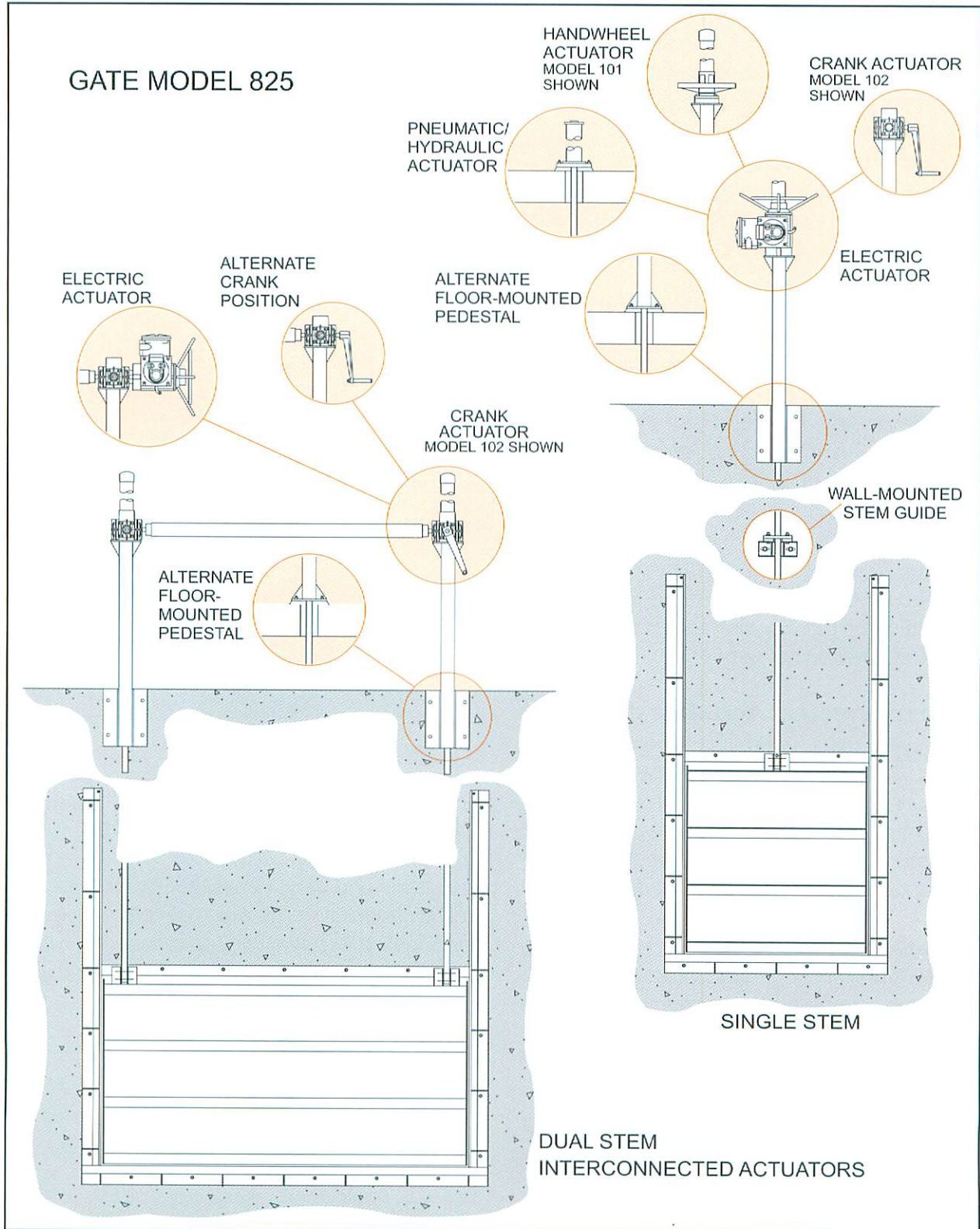


### Actuators — Self Contained Gates





### Actuators – Non-Self Contained Gates



### Actuators – General Information

**Manual Actuators:** Manual actuators (handwheel or crank type) are used where operating loads are relatively low, where operation is infrequent or where electric power is unavailable.

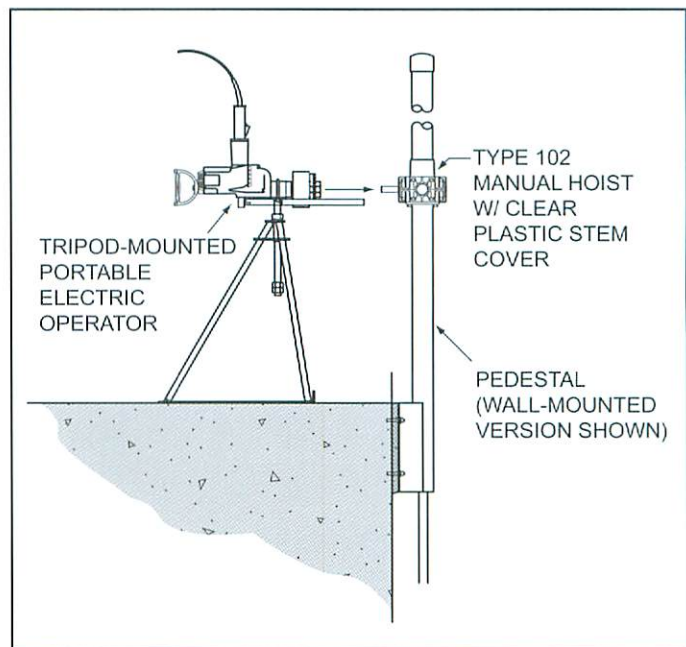
The term “handwheel type” is used to denote an actuator with a handwheel directly attached to the operating nut, concentric with the stem. This drives the nut at a one-to-one ratio.

The term “crank type” is used to denote an actuator with a horizontal input shaft which drives the operating nut through a right angle gear set. Drive ratios are available to operate virtually any gate, but it should be noted that at high ratios, e.g., greater than 8:1, the time and effort to manually operate a large gate is substantial. When crank type manual actuators are to be frequently used, or when they require many turns for full gate travel, portable operators should be considered (see comments in Portable Operators section below).

**Interconnected Actuators:** For gates with a large width relative to their height, as is common with overflow weirs, interconnected crank type actuators with a common input provide accurate positioning and smooth operation. These assemblies may be manually operated or electrically driven.

**Portable Operators:** Electric or gasoline powered portable operators of various configurations can be provided to drive crank type actuators. Consult the factory for details.

**Electric Actuators:** Electric actuators are used for higher loads, higher operating speed (12” -24” per minute), or when gates are operated with relative frequency. Electric actuators can provide remote control of gate position and can be integrated into automatic control systems.



### Hydraulic Cylinder Actuators:

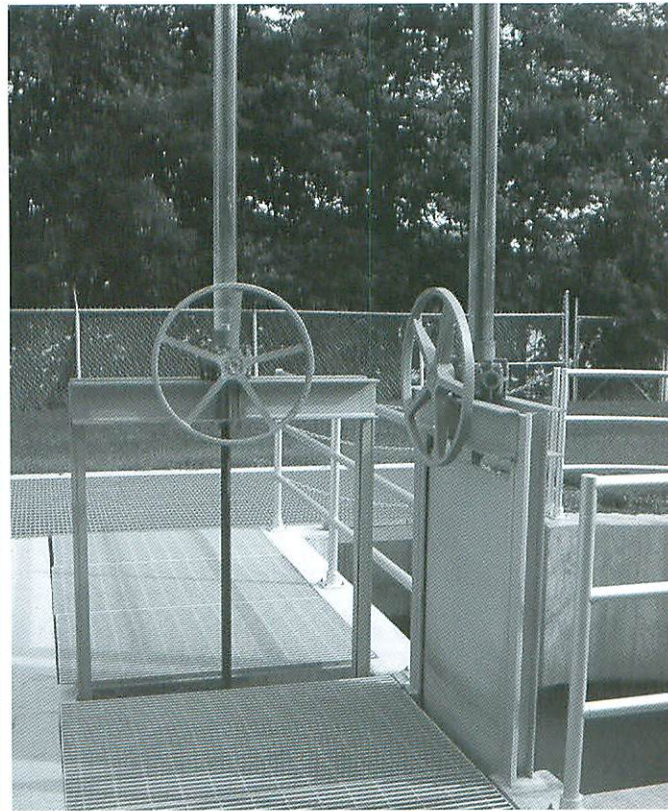
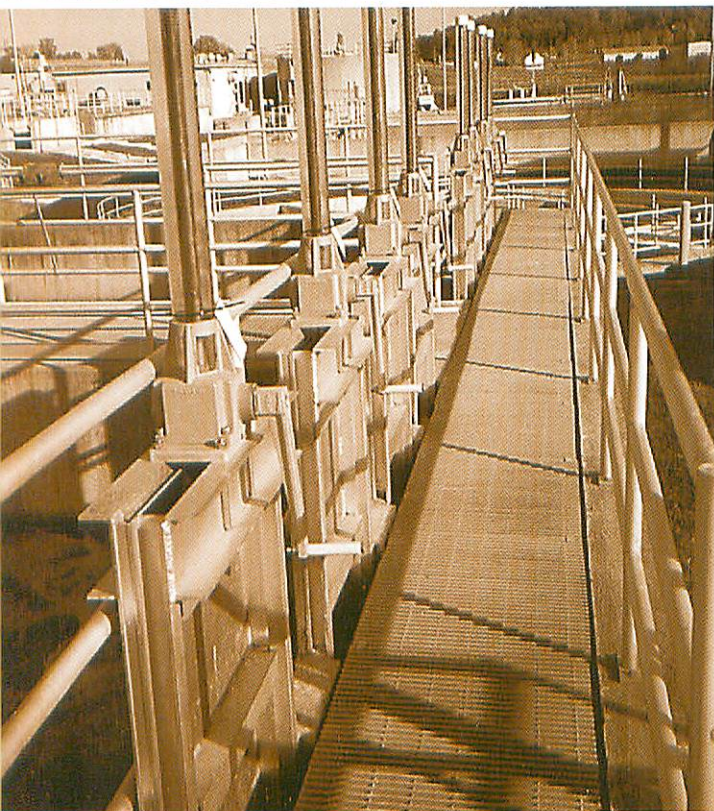
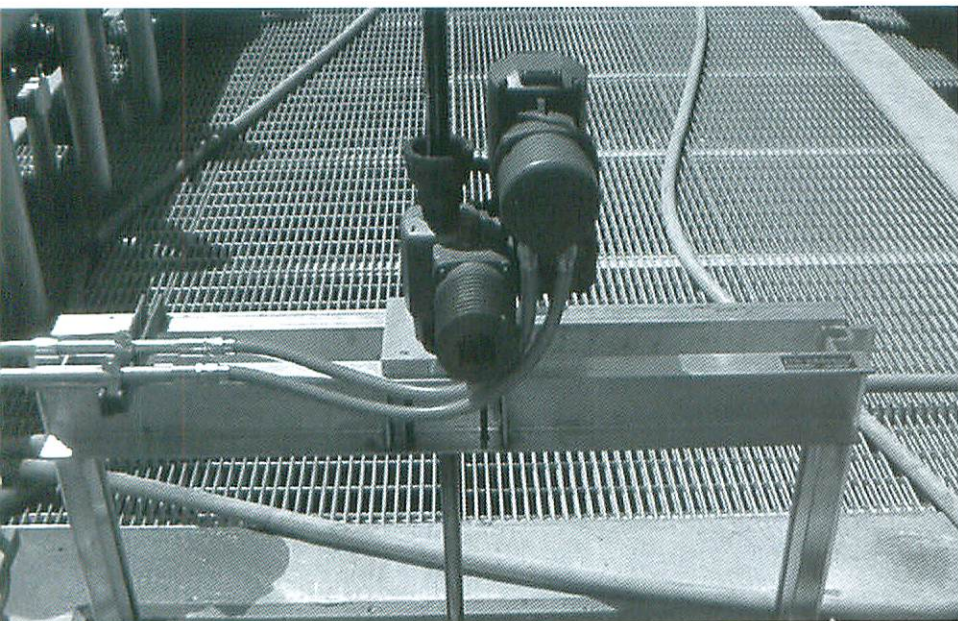
Hydraulic cylinders can provide smooth and fast operation and they are well suited for automatic control systems which generate frequent cycling of the gate. Hydraulic cylinder actuators can be designed to provide automatic gate positioning upon electric power failure.



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