



*Maximum leakage rate is less than half of the AWWA allowable
Can be adapted to any channel
Low-maintenance gates*

General Description

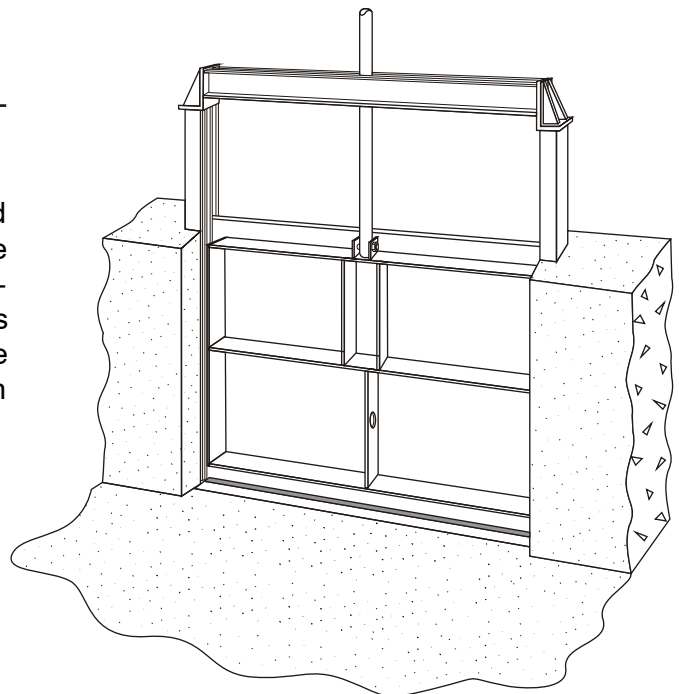
The Fontaine SERIES 25 gate is designed to control water flows in channels. It is the same construction as the SERIES 20 with the exception that it is not equipped with a top seal. The maximum allowable leakage is 0.05 U.S. gpm per foot (0.60 l/min per meter) of perimeter in seating and unseating head conditions (head conditions taken is equal to the height of the slide). It is available in sizes up to 120" (3048 mm).

Stainless Steel Construction

Because of its stainless steel construction, the SERIES 25 has a very good corrosion and erosion resistance and can be operated many years with a minimum maintenance. The stainless steel construction allows a very large design flexibility, the result being a lighter weight and easier-to-install channel gate.

AWWA Standards

The SERIES 25 gates are designed to meet and exceed all AWWA C513 standards with the exception of the material. The result is a high-quality gate with a very long life expectancy. As specified in the AWWA standard, most Fontaine SERIES 25 water gates are tested for operation before shipping.



Stainless Steel Frame

The stainless steel frame on the SERIES 25 is offered in flange back type for installation on a concrete wall at the end of a channel. It is also available for installation in an existing channel or embedded into the walls of a new channel. The frame can be either open (no yoke) or self-contained configurations, providing a solid one-piece gate. The open frame is usually used for the manual gates (no operator). In the case of an open frame with operator, an operating floor located over the channel to support the pedestal is necessary. The inferior section is available in flush-bottom frame (embedded or wall mounted) or conventional seating (existing channel).

No.	Part	Material
1	Frame	Stainless steel ASTM A-240 Type 304L or 316L
2	Guides	Ultra high molecular weight polyethylene (UHMWPE) ASTM D-4020
3	Compression cord	Nitrile ASTM D-2000 M6BG 708, A14, B14, E014, E034
4	Bottom seal	Neoprene ASTM D-2000 Grade 2 BC-510
5	Slide	Stainless steel ASTM A-240 Type 304L or 316L
6	Yoke	Stainless steel ASTM A-240 Type 304L or 316L

Reinforced Slide

The slide consists of a stainless steel plate reinforced with horizontal members welded to the plate, making it a solid single piece.

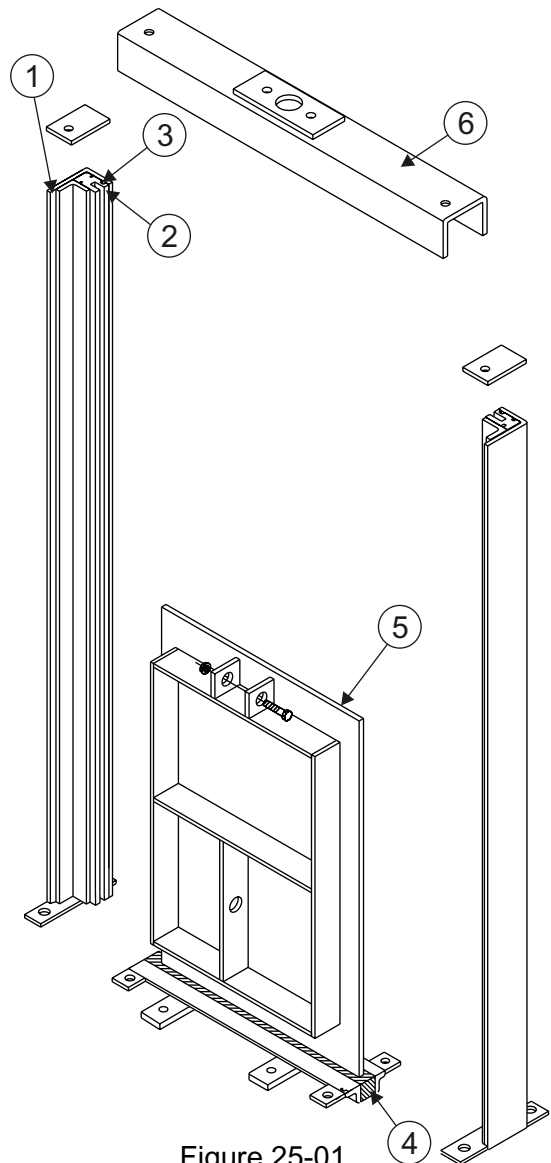


Figure 25-01
Exploded view shown : embedded frame, self-contained (Model 253)

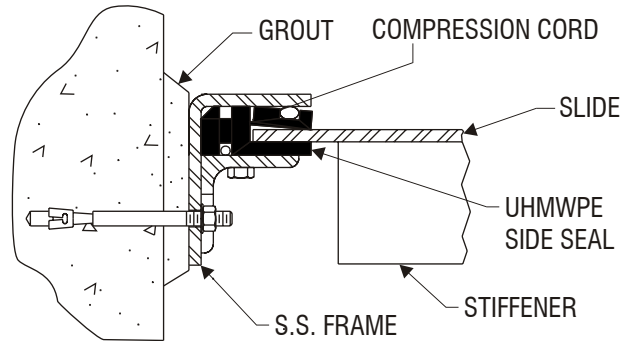


SERIES 25
WATER CONTROL AND STOP GATES

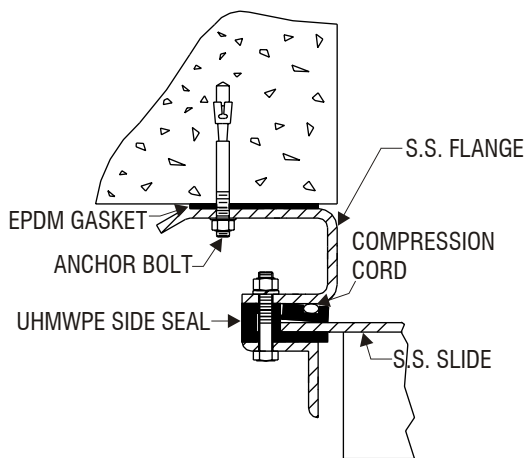
UHMWPE Seals
(U.S. and Canadian Patents)

The unique side seals of the SERIES 25 are the same as on the SERIES 20 and allow no metal-to-metal contact. They are made of a self-lubricating ultra high molecular weight polyethylene (UHMWPE). With a friction coefficient of 0.2, the seals make the gate easy to open even when not operated for a long period. The self-adjusting quality is obtained by a compression cord that guarantees a perfect watertight seal between the slide and the frame in both seating and unseating conditions. The seals extend all the way to the top of the frame making the SERIES 25 a water control gate in addition to having the characteristics of a channel gate.

The SERIES 25 is designed for many applications. Details 25-01, 02, 03 show the three most common mountings.



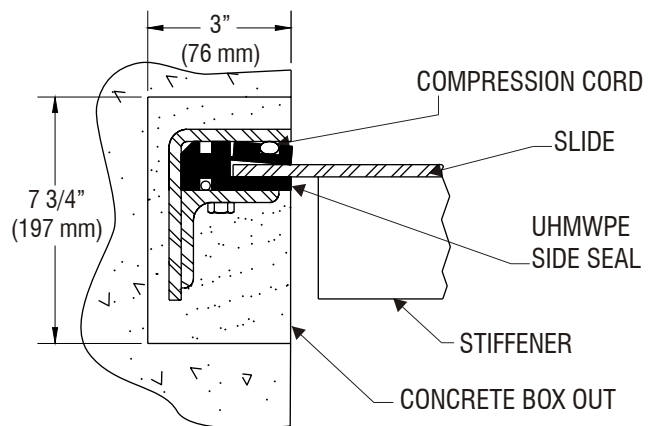
Detail 25-02
Side section of an existing channel-mounted gate (EC)
(Model shown has frame less than 54" (1372 mm) projecting above operating floor.)



Detail 25-01
Side section of a wall-mounted gate (CW)

(Details 25-01, 02 and 03 refer to figures 25-02, 03 and 04 on pages 5, 6 and 7)

(*) All these frames can be adapted to one another to fit in any channel.



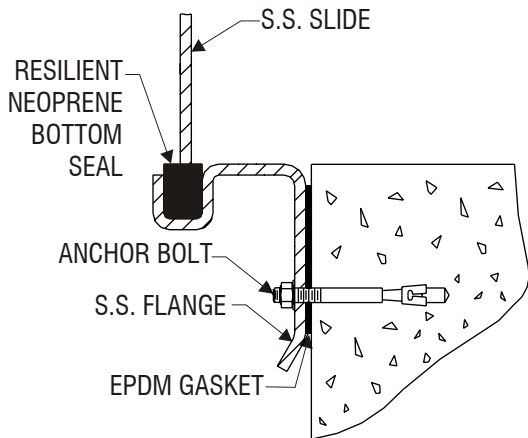
Detail 25-03
Side section "A-A"
of an embedded frame gate (FE)
(Model shown has frame less than 54" (1372 mm) over operating floor.)



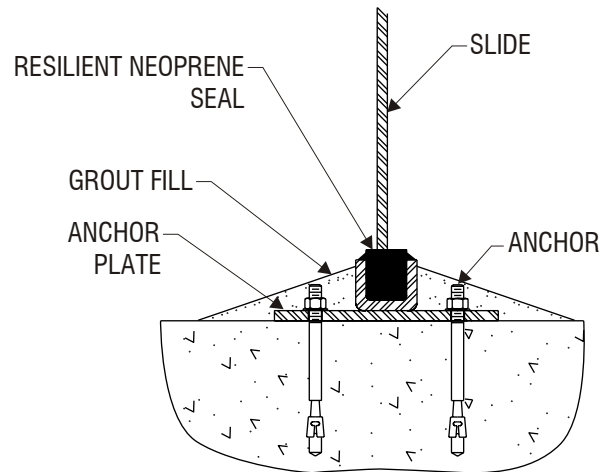
SERIES 25
WATER CONTROL AND STOP GATES

The flush-bottom seal, made of resilient neoprene, leaves the opening unobstructed when the slide is in the open position.

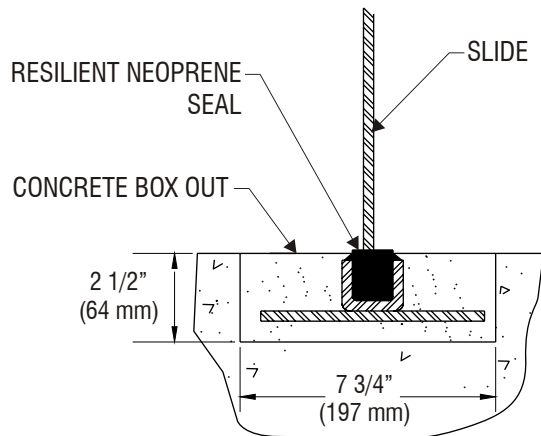
Figures 25-04, 05, 06 show the bottom section of the channel gate installed on different kinds of channels.



Detail 25-05
Bottom section of a concrete wall-mounted channel gate (CW.)



Detail 25-04
Bottom section of an existing channel mounted gate (EC)
(Model shown has frame less than 54" (1372 mm) projecting above operating floor.)



Detail 25-06
Bottom section "B-B"
of an embedded frame channel gate (FE)
(Model shown has frame less than 54" (1372 mm) projecting above operating floor.)

(Details 25-04, 05 and 06 refer to figures 25-02, 03 and 04 on pages 5, 6 and 7)

(* All these frames can be adapted to one another to fit in any channel.

Frame and Stem Configurations

The following Figures 25-02, 03 and 04 are the most common frame and stem configurations.

(See page 3 and 4 for sections A, B)

Model 253

Frame-embedded (FE)
with yoke-mounted
gear box and crank
operator (MNE)
Rising stem (RS2)

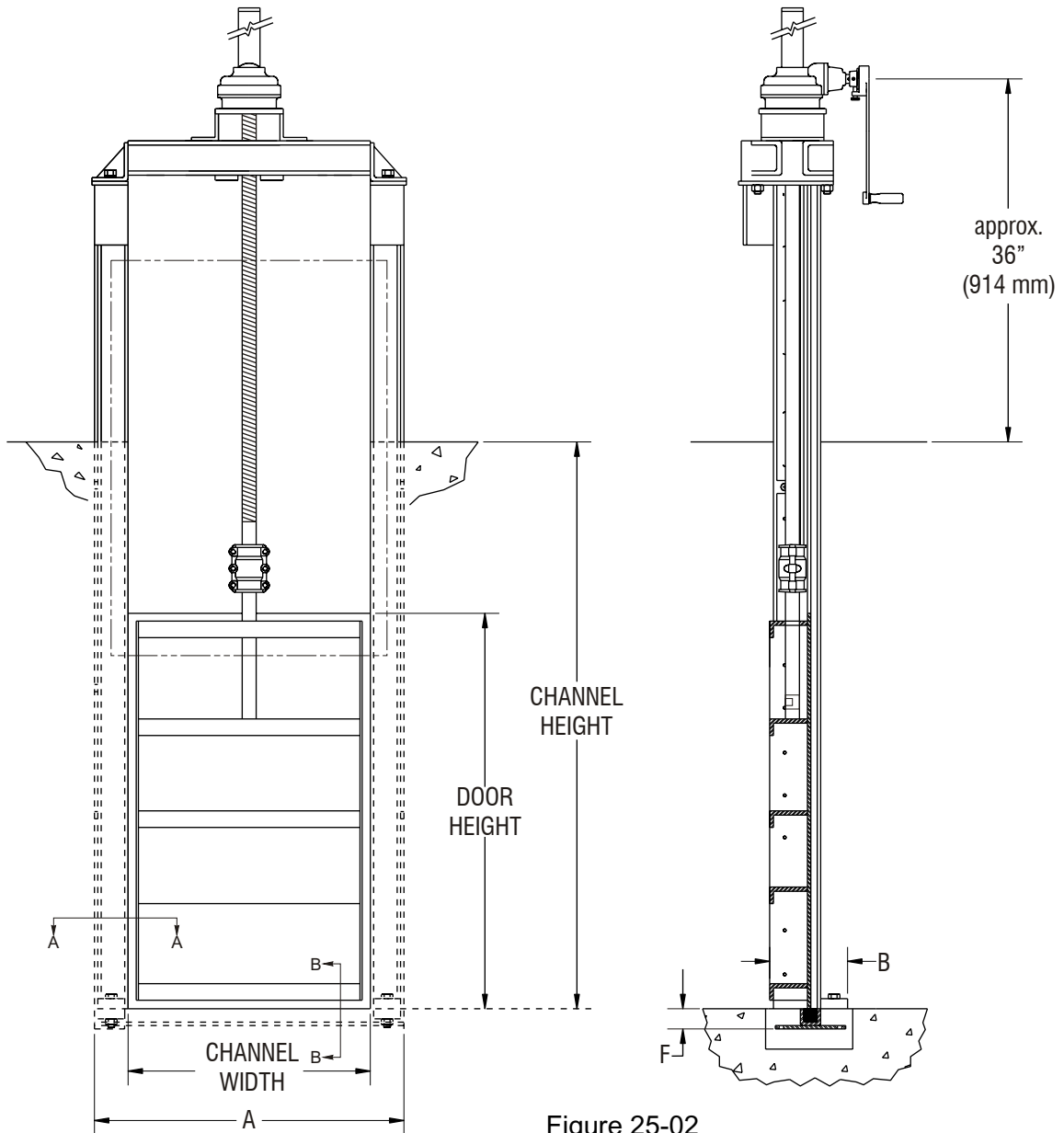


Figure 25-02

* For special applications, refer to "Frame and Stem Configurations" in the Introduction section.

Frame and Stem Configurations

Model 253

Wall mounted (CW)
with yoke-mounted
handwheel operator (V)
Rising stem (RS2)

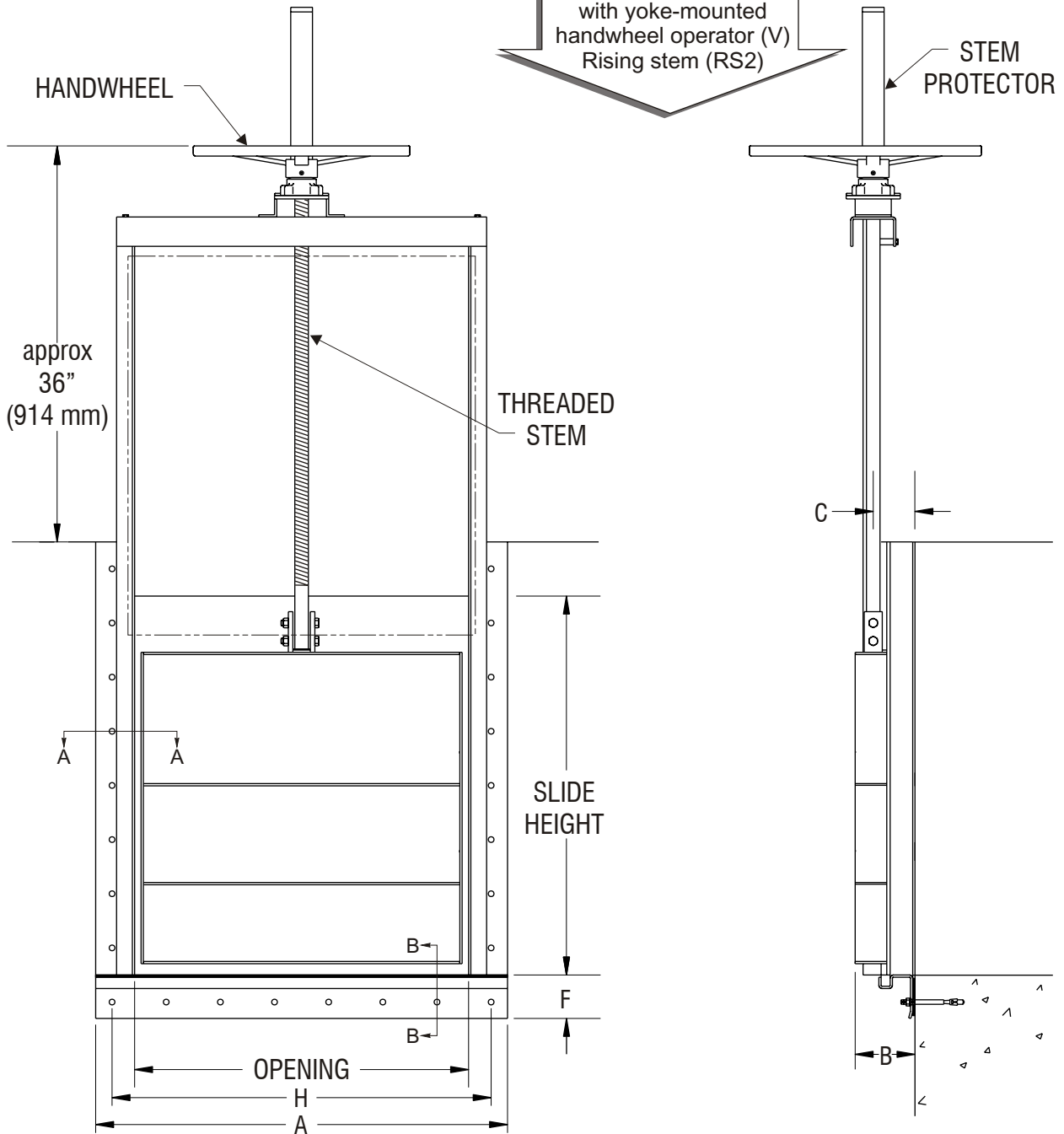


Figure 25-03

(See page 3 and 4 for sections A, B)

* For special applications, refer to "Frame and Stem Configurations" in the Introduction section.



SERIES 25
WATER CONTROL AND STOP GATES

Frame and Stem Configurations

(See page 3 and 4 for sections A, B)

Model 253

Inside an Existing Channel (EC) with yoke-mounted gear box and crank operator (MNE) Rising stem (RS2)

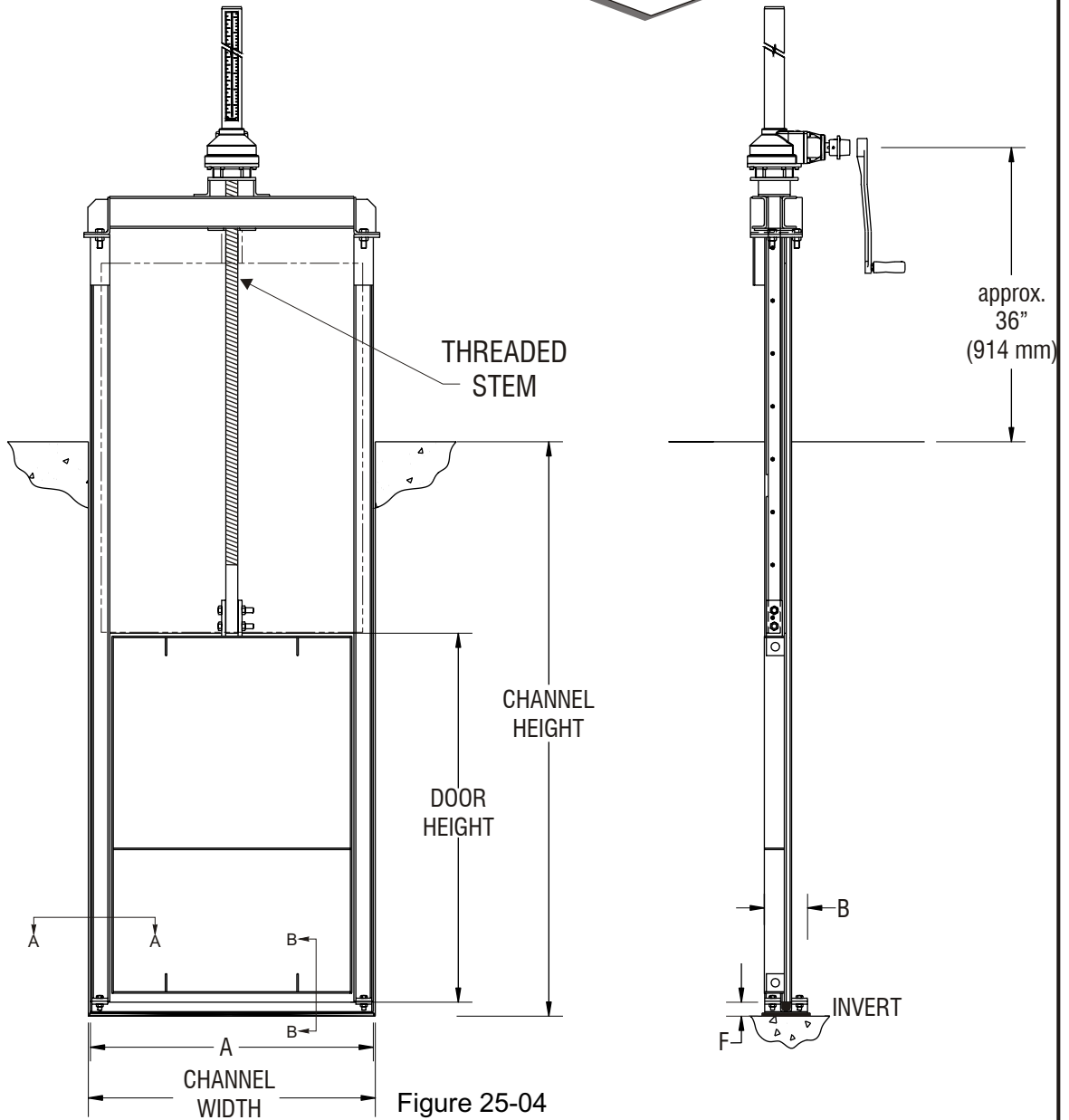


Figure 25-04

(See page 3 and 4 for sections A, B)

* For special applications, refer to "Frame and Stem Configurations" in the Introduction section.



SERIES 25
WATER CONTROL AND STOP GATES

Dimensional Chart*

DO NOT USE FOR SELF-CONTAINED GATES WITH FRAME EXTENDING MORE THAN 84" (2134 mm) OVER OPERATING FLOOR

FE MODEL

Gate size (**) (in / mm)	A	B	F
12 x 12	16 7/8	5 9/32	1 3/8
300 x 300	424	134	35
16 x 16	20 7/8	5 9/32	1 3/8
400 x 400	524	134	35
21 x 21	25 7/8	5 5/16	1 3/8
500 x 500	624	135	35
24 x 24	28 7/8	5 5/16	1 3/8
600 x 600	723	135	35
30 x 30	34 7/8	5 5/16	1 3/8
750 x 750	874	135	35
32 x 32	36 7/8	5 5/16	1 3/8
800 x 800	924	135	35
36 x 36	40 7/8	5 5/16	1 3/8
900 x 900	1024	135	35
40 x 40	44 7/8	5 5/16	1 3/8
1000 x 1000	1124	135	35
42 x 42	46 7/8	5 5/16	1 3/8
1100 x 1100	1224	135	35
48 x 48	52 7/8	6 5/16	1 3/8
1200 x 1200	1323	160	35
54 x 54	58 7/8	6 5/16	1 3/8
1400 x 1400	1523	160	35
60 x 60	64 7/8	6 5/16	1 3/8
1500 x 1500	1624	160	35
72 x 72	76 7/8	6 13/16	1 3/8
1800 x 1800	1924	173	35
84 x 84	88 7/8	7 13/16	1 3/8
2000 x 200	2123	198	35
96 x 96	100 7/8	8 13/16	1 3/8
2400 x 2400	2527	224	35
108 x 108	112 7/8	9 13/16	1 3/8
2800 x 2800	2923	249	35
120 x 120	124 7/8	10 5/16	1 3/8
3000 x 3000	3124	262	35

EC MODEL

Gate size (**) (in / mm)	A	B	F	Clear opening
12 x 12	11 1/2	5 9/32	1 3/8	6 5/8
300 x 300	287	134	35	163
16 x 16	15 1/2	5 9/32	1 3/8	10 5/8
400 x 400	388	134	35	264
21 x 21	20 1/2	5 5/16	1 3/8	15 5/8
500 x 500	488	135	35	364
24 x 24	23 1/2	5 5/16	1 3/8	18 5/8
600 x 600	587	135	35	463
30 x 30	29 1/2	5 5/16	1 3/8	24 5/8
750 x 750	737	135	35	613
32 x 32	31 1/2	5 5/16	1 3/8	26 5/8
800 x 800	787	135	35	663
36 x 36	35 1/2	5 5/16	1 3/8	30 5/8
900 x 900	888	135	35	764
40 x 40	39 1/2	5 5/16	1 3/8	34 5/8
1000 x 1000	987	135	35	863
42 x 42	41 1/2	5 5/16	1 3/8	36 5/8
1100 x 1100	1087	135	35	963
48 x 48	47 1/2	6 5/16	1 3/8	42 5/8
1200 x 1200	1187	160	35	1063
54 x 54	53 1/2	6 5/16	1 3/8	48 5/8
1400 x 1400	1387	160	35	1263
60 x 60	59 1/2	6 5/16	1 3/8	54 5/8
1500 x 1500	1487	160	35	1363
72 x 72	71 1/2	6 13/16	1 3/8	66 5/8
1800 x 1800	1787	173	35	1663
84 x 84	83 1/2	7 13/16	1 3/8	78 5/8
2000 x 200	1987	198	35	1863
96 x 96	95 1/2	8 13/16	1 3/8	90 5/8
2400 x 2400	2391	224	35	2267
108 x 108	107 1/2	9 13/16	1 3/8	102 5/8
2800 x 2800	2787	249	35	2663
120 x 120	119 1/2	10 5/16	1 3/8	114 5/8
3000 x 3000	2987	262	35	2863

Note :

EC gates are designed to fit inside channel with a grout finish to fill the remaining gap.

(*) These dimensions are for information only. Do not use for installation or submittal purposes.

(**) Fontaine Gates are also available for rectangular openings and in sizes other than those specified in this chart.



Dimensional Chart*

DO NOT USE FOR SELF-CONTAINED GATES WITH FRAME EXTENDING MORE THAN 84" (2134 mm) OVER OPERATING FLOOR

CW MODEL

Gate size (**) (in / mm)	A	B	C	F	H
12 x 12 300 x 300	21 1/2 541	6 152	4 11/16 119	4 3/4 121	18 452
16 x 16 400 x 400	25 1/2 642	6 152	4 11/16 119	4 3/4 121	22 553
21 x 21 500 x 500	30 1/2 742	6 152	4 3/4 121	4 3/4 121	27 653
24 x 24 600 x 600	33 1/2 841	6 152	4 3/4 121	4 3/4 121	30 752
30 x 30 750 x 750	39 1/2 991	6 152	4 3/4 121	4 3/4 121	36 902
32 x 32 800 x 800	41 1/2 1041	6 152	4 3/4 121	4 3/4 121	38 952
36 x 36 900 x 900	45 1/2 1142	6 152	4 3/4 121	4 3/4 121	42 1053
40 x 40 1000 x 1000	49 1/2 1241	6 152	4 3/4 121	4 3/4 121	46 1152
42 x 42 1100 x 1100	51 1/2 1341	6 152	4 3/4 121	4 3/4 121	48 1252
48 x 48 1200 x 1200	57 1/2 1441	7 178	4 3/4 121	4 3/4 121	54 1352
54 x 54 1400 x 1400	63 1/2 1641	7 178	4 3/4 121	4 3/4 121	60 1552
60 x 60 1500 x 1500	69 1/2 1741	7 178	5 127	4 3/4 121	66 1652
72 x 72 1800 x 1800	81 1/2 2041	7 1/2 191	5 127	4 3/4 121	78 1952
84 x 84 2000 x 200	93 1/2 2241	8 1/2 216	5 1/4 133	4 3/4 121	90 2152
96 x 96 2400 x 2400	105 1/2 2645	9 1/2 241	5 1/4 133	4 3/4 121	102 2556
108 x 108 2800 x 2800	117 1/2 3041	10 1/2 267	5 1/2 140	4 3/4 121	114 2952
120 x 120 3000 x 3000	129 1/2 3241	11 279	5 1/2 140	4 3/4 121	126 3152

(*) These dimensions are for information only. Do not use for installation or submittal purposes.

(**) Fontaine Gates are also available for rectangular openings and in sizes other than those specified in this chart.



Typical Specifications

1. GENERAL CONDITIONS

1.1. SCOPE. This section covers Stainless Steel Channel Gates and operators.

1.2. GENERAL. 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 unless exceptions are noted by the engineer.

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 water control gates.

Gates supplied under this section shall be Series 25 Stainless Steel Channel Gates as manufactured by H.Fontaine Ltd.

1.3. GOVERNING STANDARDS. Except as modified or supplemented herein, all gates and operators shall conform to the applicable requirements of AWWA C513, latest edition.

1.4. QUALITY ASSURANCE

1.4.1. The manufacturer shall have experience in the production of substantially similar equipment, and shall show evidence of satisfactory operation in at least 50 installations. The manufacturer's shop welds, welding procedures and welders shall be qualified and certified in accordance with the requirement of the latest edition of ASME, Section IX.

1.4.2. Gates shall be shop inspected for proper operation before shipping.

1.4.3. The manufacturer shall be ISO 9001 : 2000 certified.

1.5. SUBMITTALS. The manufacturer shall submit, for approval by the purchaser, drawings showing the main dimensions, general construction and materials used in the gate and lift mechanism.

2. PERFORMANCE

2.1. LEAKAGE. Channel gates shall be substantially watertight under the design head conditions. Leakage shall not exceed 0.05 U.S. gallon per minute per foot (0.60 l/min per meter) of seal periphery under the design seating head and unseating head.

2.2. DESIGN HEAD. The slide gates shall be designed to withstand the maximum design head (maximum design head shall be taken as the height of the slide unless otherwise shown in the schedule).

2.3. SEAL PERFORMANCE TEST. The gate's sealing system should have been tested through a cycle test in an abrasive environment and should show that the leakage requirements are still obtained after 25,000 cycles with a minimum deterioration.

3. PRODUCT

3.1. CHANNEL GATES

3.1.1. GENERAL DESIGN. Gates shall be either self-contained or non-self-contained and of the rising stem or non-rising stem configuration, as indicated on the gate schedule.

3.1.2. FRAME. The gate frame shall be constructed of structural members or formed plate. The frame shall be suitable for mounting on a concrete wall (CW) at the end of a channel, embedded inside a channel (FE) or mounted on the channel surface (EC). The guide slot shall be of UHMWPE (ultra high molecular weight polyethylene). The frame configuration shall be of the flush-bottom type.

3.1.3. SLIDE. The slide shall consist of a flat plate reinforced with formed plates or structural members to limit its deflection to 1/720 of the gate's span under the design head.



SERIES 25

WATER CONTROL AND STOP GATES

3.1.4. GUIDES AND SEALS. Guides shall be made of UHMWPE (ultra high molecular weight polyethylene) and shall be of such length as to retain and support at least two thirds (2/3) of the vertical height of the slide in the fully open position.

Side seals shall be made of UHMWPE (ultra high molecular weight polyethylene) of the self-adjusting type. A compression cord shall ensure contact between the UHMWPE guide and the gate in all positions. The sealing system shall maintain efficient sealing in any position of the slide and let the water flow only in the open part of the gate.

Seals shall maintain the specified leakage rate in both seating and unseating conditions. The bottom seal shall be made of resilient neoprene set into the bottom member of the frame and shall form a flush-bottom.

3.2. OPERATORS AND STEM

3.2.1. STEM AND COUPLINGS. The operating stem shall be of stainless steel designed to transmit in compression at least two (2) times the rated output of the operating manual mechanism with a 40 lbs (178 N) 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 machine cut threads of the Acme type.

Where a hydraulic, pneumatic or electric operator is used, the stem design force shall not be less than 1.25 times the output thrust of the hydraulic or pneumatic cylinder with a pressure equal to the maximum working pressure of the supply, or 1.25 times the output thrust of the electric motor in the stalled condition.

3.2.1.1. For stems in more than one piece and with a diameter of 1 3/4 inches (45 mm) and larger, the different sections shall be joined together by solid bronze couplings. Stem with a diameter smaller than 1 3/4 inches (45 mm) shall be pinned to an extension tube.

The couplings shall be grooved and keyed and shall be of greater strength than the stem.

3.2.1.2. Gates having width equal to or greater than two times their height shall be provided with two lifting mechanisms connected by a tandem shaft.

3.2.2. STEM GUIDES. Stem guides shall be fabricated from type 304L (or 316L) stainless steel. The guide shall be equipped with a UHMWPE bushing. Guides shall be adjustable and spaced in accordance with the manufacturer's recommendation. The L/r ratio shall not be greater than 200.

3.2.3. STEM COVER. Rising stem gates shall be provided with a clear polycarbonate stem cover. The stem cover shall have a cap and condensation vents as well as a clear mylar position indicating tape. The tape shall be field applied to the stem cover after the gate has been installed and positioned.

3.2.4. LIFTING MECHANISM. Manual operators of the types listed in the schedule shall be provided by the gate manufacturer.

All bearings and gears shall be totally enclosed in a weather tight housing. The pinion shaft of crank-operated mechanisms shall be constructed of stainless steel and supported by roller or needle bearings.

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 lbs (178 N) on the crank or handwheel and shall be able to withstand, without damage, an effort of 80 lbs (356 N).

The crank shall be removable and fitted with a corrosion resistant rotating handle. The maximum crank radius shall be 15 inches (381 mm) and the maximum handwheel diameter shall be 24 inches (610 mm).

3.2.5. YOKE. Self-contained gates shall be provided with a yoke made of structural members or formed plates. The maximum deflection shall be 1/360 of the gate's span.



SERIES 25
WATER CONTROL AND STOP GATES

4. MATERIALS

Part	Material
Frame, yoke, stem guides, slide, stem extension	Stainless steel ASTM A-240 Type 304L or 316L
Guides, side seals, stem guide liner	Ultra high molecular weight polyethylene (UHMWPE) ASTM D-4020
Compression cord	Nitrile ASTM D-2000 M6BG 708, A14, B14, E014, E034
Bottom seal	Neoprene ASTM D-2000 Grade 2 BC-510
Threaded stem	Stainless steel ASTM A-276 Type 303 MX or 316
Fasteners	ASTM F593 and F594 GR1 for type 304 and GR2 for type 316
Pedestal, handwheel, crank	Tenzaloy aluminum
Gasket (between frame and wall)	EPDM ASTM 1056
Stem cover	Polycarbonate ASTM D-3935
Lift nut, couplings	Manganese bronze ASTM B584 UNS-C86500

5. SCHEDULE

Gate Identification		
Gate Type		
Size Width x Height		
Operating Floor Elevation		
Invert Elevation		
Head (Seating / Unseating)		
Mounting		

Gate Type: Open or self-contained

Mounting: CW- Mounted on a concrete wall at the end of the channel
 FE- Frame embedded inside the channel
 EC- Mounted on the surface of the channel

6. EXECUTION

6.1. INSTALLATION. Gates and appurtenances shall be handled and installed in accordance with the manufacturer's recommendations.

6.2. FIELD TESTS

6.2.1. Following the completion of each gate installation, the gates shall be operated through at least two complete open/close cycles. If an electric or hydraulic operator is used, limit switches shall be adjusted following the manufacturer's instructions.

6.2.2. Gates should be checked for leakage by the contractor (refer to the "Performance" section for approval criteria).