

MODEL

SL STOP LOGS



GENERAL DESCRIPTION

The Orbinox model SL Stop Log is designed for open channel installations in waste treatment plants, irrigation, hydraulic works and hydro-electric power plants.

The slide is formed by several logs that fit on top of each other in the frame. By adding or removing logs, the SL model allows the user to control the flow in a channel. The sealing system is incorporated on both laterals and bottom area of each log, resulting in a substantially watertight seal. From sizes 6" x 6" (150mm x 150mm) to 80" x 80" (2000mm x 2000mm), the SL model has a unique "lip" type seal design.

The frame of the SL model is typically embedded in concrete, but can also be designed to be wall mounted or face mounted in an existing channel.

Orbinox can also design and manufacture the SL model Stop Log in larger dimensions and for higher service conditions while maintaining a low leakage rate. For more information, please contact an Orbinox representative.



DESIGN CONSTRUCTION

The standard SL model is manufactured in stainless steel which has a higher corrosion resistance in many applications which results in a higher life cycle with little or no maintenance. Other materials of construction are available upon request, such as AISI 904L, Duplex stainless, etc.



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DESIGN FEATURES

- Stainless steel fabricated modular design (corrosion resistance).
- Mounting options: Embedded In Concrete, Wall Mount and Face Mount In Existing Channel.
- Option of Uni-Directional and Bi-Directional sealing.
- Self adjusting seal design.
- The log is designed to seal at the bottom due to its weight.
- Interchangeable log design.
- Orbinox Stop Logs are completely factory assembled and tested eliminating the need for on site adjustment.
- All fasteners are stainless steel.

Allowable Leakage:

The SL model is designed to be substantially watertight.

Seating and Unseating Design Head:

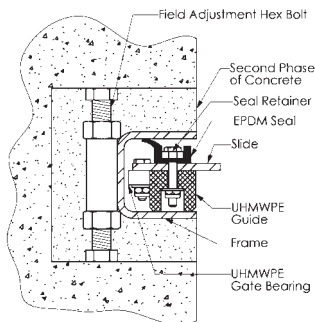
The SL model is designed to withstand a water pressure equal to the height of the logs. The uni-directional stop log is very appropriate for seating head pressure conditions, offering a very economical solution. The bi-directional stop log is designed for both seating and unseating head pressure conditions.

Seal design:

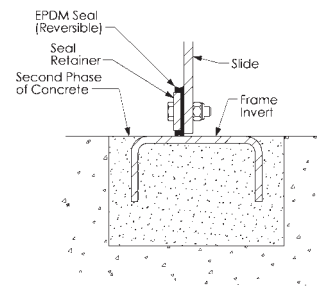
The SL model has a unique seal design. The self-adjusting “lip-design” side seals ensure a watertight performance. This allows the EPDM seals to be installed on the slide and allows easy access to reverse or replace the bottom seal or change the side seals if damaged resulting in a cost savings in maintenance time. The UHMWPE guides and bearings ensure no metal-to-metal contact between the frame and slide which reduces the friction during operation and extends seal life.

Seal Design: SL Uni-Directional and Embedded In Concrete

SIDE SEAL

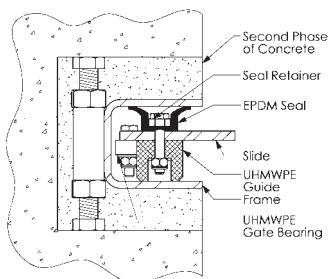


BOTTOM SEAL

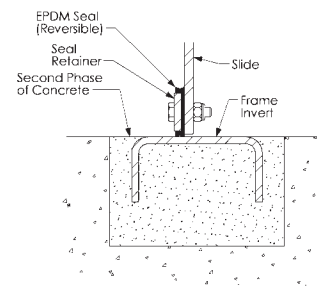


Seal Design: SL Bi-Directional and Embedded In Concrete

SIDE SEAL



BOTTOM SEAL



MODEL

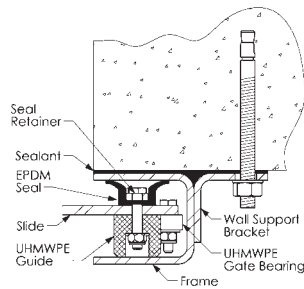
SL STOP LOGS



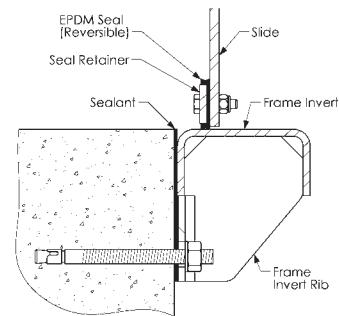
DESIGN FEATURES

Seal Design: SL Bi-Directional and Wall Mounted (Uni-Directional optional)

SIDE SEAL

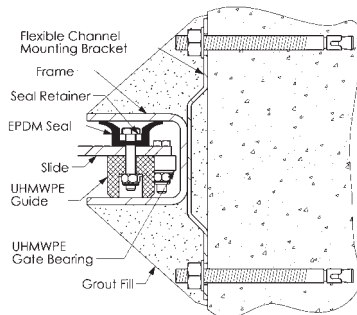


BOTTOM SEAL

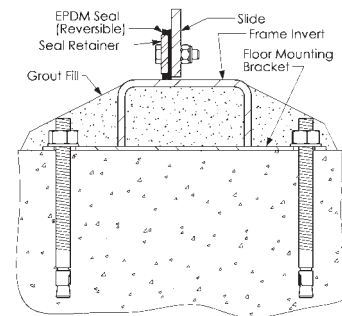


Seal Design: SL Bi-Directional and in Existing Channel (Uni-Directional optional)

SIDE SEAL

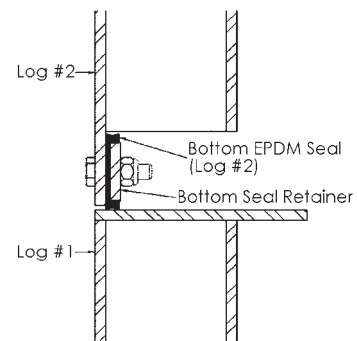


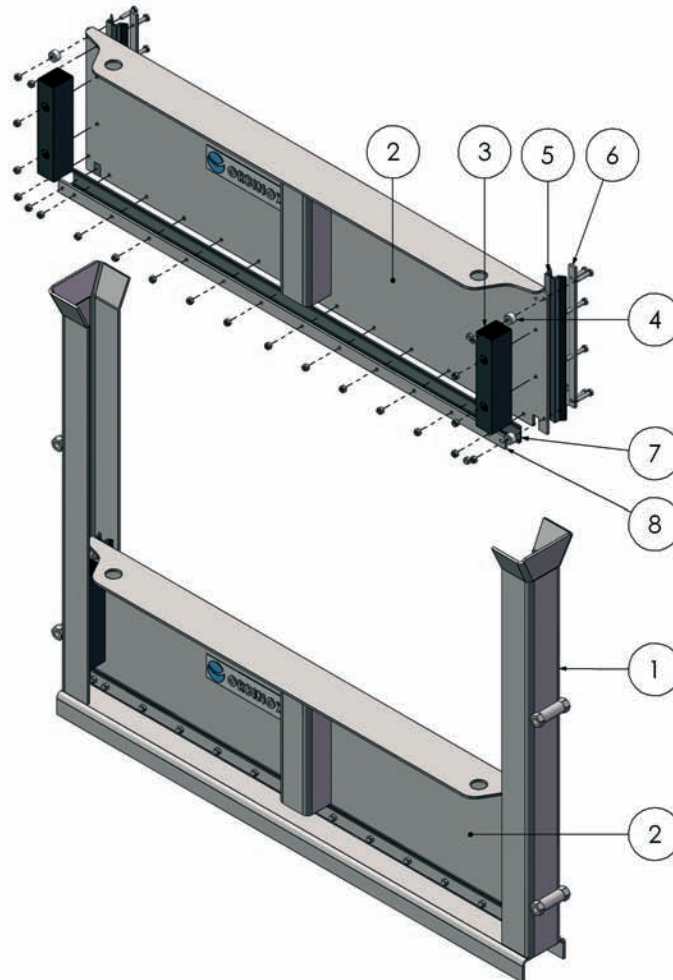
BOTTOM SEAL



Seal Design between Logs

The sealing system between the different logs is designed to work due to the weight of the log. Each log has a rib on the top, creating a flat surface for the bottom seal of the log on top of it, ensuring a substantially watertight performance.



MODEL**SL STOP LOGS**
STANDARD MATERIALS OF CONSTRUCTION


ITEM	DESCRIPTION	MATERIAL (standard)
1	Frame	Stainless Steel ASTM A-240 / Type 304L or 316L
2	Log	Stainless Steel ASTM A-240 / Type 304L or 316L
3	Guides	Ultra High Molecular Weight Polyethylene (UHMWPE) ASTM D-4020
4	Gate Bearings	Ultra High Molecular Weight Polyethylene (UHMWPE) ASTM D-4020
5	Seals	EPDM
6	Seal Retainer	Stainless Steel ASTM A-240 / Type 304L or 316L
7	Bottom Seal	EPDM
8	Bottom Seal Retainer	Stainless Steel ASTM A-240 / Type 304L or 316L

Note: For materials other than above, please contact an Orbinox representative.

MODEL

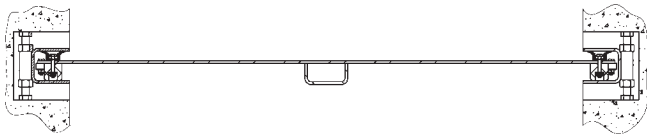
SL STOP LOGS

MOUNTING OPTIONS

The following drawings show the most common mounting options for SL Stop Logs. For other mounting options please contact an ORBINOX representative.

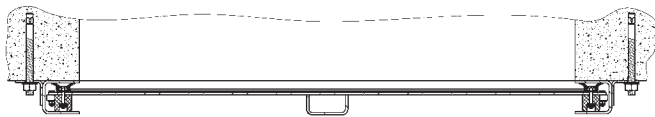
EMBEDDED IN CONCRETE (EC)

Model: SL-EC



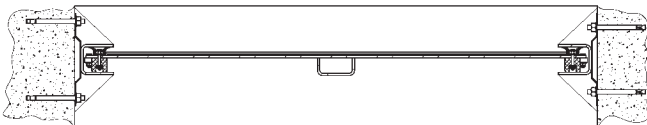
WALL MOUNTED (WM)

Model: SL-WM



FACE MOUNTED IN EXISTING CHANNEL (FM)

Model: SL-FM

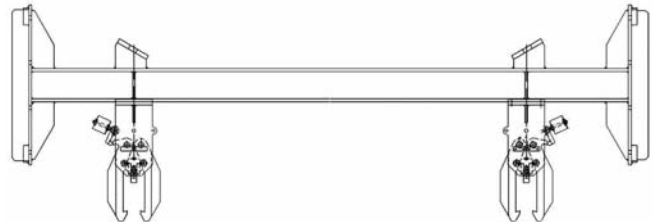


LIFTING MECHANISM

In order to lift the logs, Orbinox can design different lifting mechanisms. For the smaller sizes, logs are lifted manually with the help of a hook. For larger gates, it can be designed to be lifted using an overhead hoist.

Lifting Device

When required, a stainless steel lifting device can be supplied. The lifting device fits into the frame and hooks and releases the logs automatically using a spring mechanism.



Pull Out Force

The necessary force to be able to pull out the slide can be calculated approximately with the following formula:

$$POF = [(W \times H) \times WC \times 0.433] \times f + [(W \times H \times t) \times D]$$

Where:

- POF: Pull Out Force (pounds)
- W: Slide Width (inches)
- H: Slide Height (inches)
- WC: water column (Ft. WC)
- f=0.3 (friction factor)
- t=0.25 (thickness of log, inches)
- D=0.289 (density of 304 SS, lb/inch³)

MODEL

SL STOP LOGS



INSTALLATION, OPERATION AND MAINTENANCE (IOM)

This section briefly describes the installation, operation and maintenance of SL Stop Logs. For more detailed information please refer to the IOM Manual.

Installation:

A) Embedded in Concrete (EC): Field adjusting bolts are supplied to center the gate frame in the appropriate position prior to embedding in concrete.

B) Wall Mount (WM): The SL Stop Log is installed by means of mechanical anchor bolts (Hilti Kwilt 3 or equivalent) and construction sealant (Sikabond or equivalent).

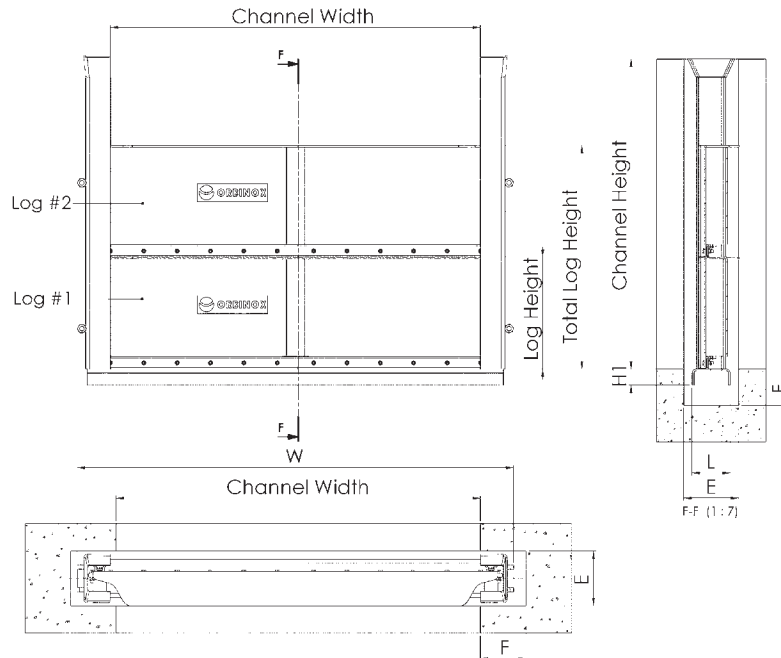
C) Face Mounted in Existing Channel (FM): The SL Stop Log is installed by means of mechanical anchor bolts (Hilti Kwilt 3 or equivalent). All the gaps shall be grout filled afterwards and shaped in order to assure a smooth transition.
The minimum concrete strength shall be 3,000 PSI (20.7

MPa). The tolerance of the concrete construction (flatness, levelness and plumbness) shall be in accordance to ACI 117-10 standard.

For detailed information about the type, size and quantity of the required anchor bolts or other installation materials, please refer to the notes on the "General Arrangement Drawing".

Maintenance and Operation:

The Orbinox SL Stop Logs need practically no maintenance. Seals should be replaced in case of damaged.

MODEL**SL STOP LOGS****SL-EC · BI-DIRECTIONAL · DIMENSIONS****SIZES: 6" x 6" (150 mm x 150 mm) to 80" x 80" (2000 mm x 2000 mm)**

SIZE Channel Width	SIZE Slide Height	W	L	H1	E x F
6"	6"	13 1/16	3 9/16	1 3/4	4 3/4 x 3 15/16
8"	8"	15 1/16	3 9/16	1 3/4	4 3/4 x 3 15/16
12"	12"	19 1/16	3 9/16	1 3/4	4 3/4 x 3 15/16
16"	16"	23 1/16	3 9/16	1 3/4	4 3/4 x 3 15/16
20"	20"	27 1/16	3 9/16	1 3/4	4 3/4 x 3 15/16
24"	24"	31 1/16	3 9/16	1 3/4	4 3/4 x 3 15/16
28"	28"	35 1/16	3 9/16	1 3/4	4 3/4 x 3 15/16
32"	32"	39 1/16	3 9/16	1 3/4	4 3/4 x 3 15/16
36"	36"	43 1/16	3 9/16	1 3/4	4 3/4 x 3 15/16
40"	40"	47 1/16	3 9/16	1 3/4	4 3/4 x 3 15/16
44"	44"	51 1/16	4 5/16	2 9/16	9 3/16 x 4 15/16
48"	48"	55 1/16	4 5/16	2 9/16	9 3/16 x 4 15/16
52"	52"	59 1/16	4 5/16	2 9/16	9 3/16 x 4 15/16
56"	56"	63 1/16	4 5/16	2 9/16	9 3/16 x 4 15/16
60"	60"	67 5/8	5 1/2	4	9 3/16 x 4 15/16
64"	64"	71 5/8	5 1/2	4	9 3/16 x 4 15/16
68"	68"	75 5/8	5 1/2	4	9 3/16 x 4 15/16
72"	72"	79 5/8	5 1/2	4	9 3/16 x 4 15/16
76"	78"	83 5/8	5 1/2	4	9 3/16 x 4 15/16
80"	80"	87 5/8	5 1/2	4	9 3/16 x 4 15/16

Note: For dimensions other than above, please contact an Orbinox representative.
 These dimensions are for information only. Do not use for installation or submittal purposes.

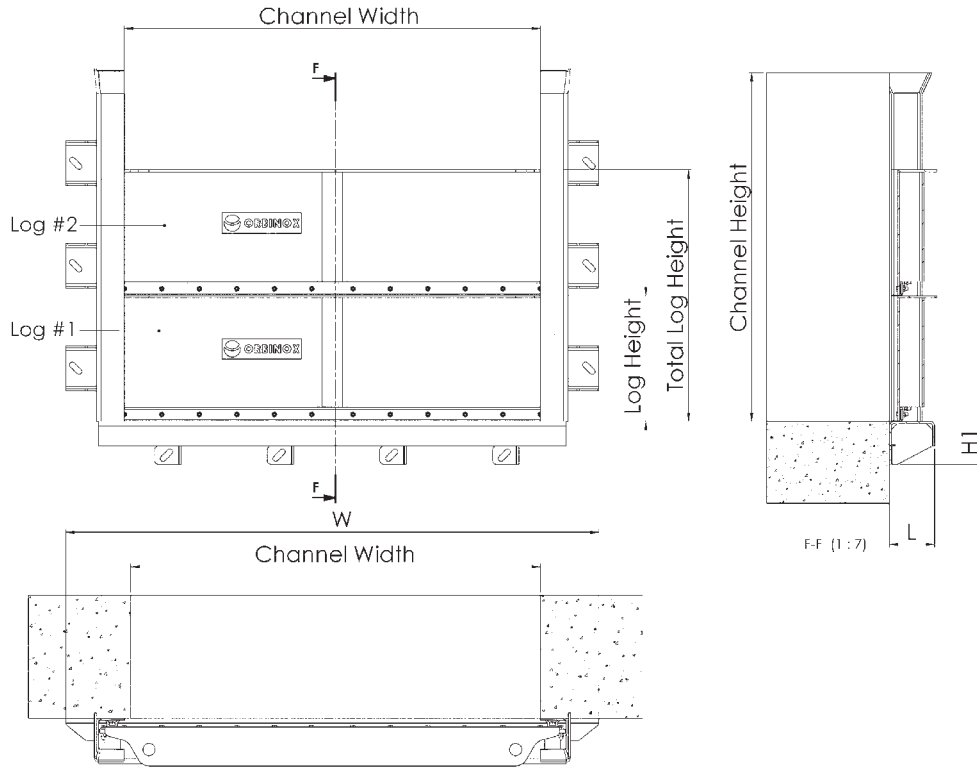
MODEL

SL STOP LOGS



SL-WM • BI-DIRECTIONAL • DIMENSIONS

SIZES: 6" x 6" (150mm x 150mm) to 80" x 80" (2000mm x 2000mm)



SIZE Channel Width	SIZE Slide Height	W	D	L	H1
6"	6"	15 1/4	13 5/16	3 9/16	4 1/16
8"	8"	17 3/4	15 5/16	3 9/16	4 1/16
12"	12"	21 1/4	19 5/16	3 9/16	4 1/16
16"	16"	25 1/4	23 5/16	3 9/16	4 1/16
20"	20"	29 1/4	27 5/16	3 9/16	4 1/16
24"	24"	33 1/4	31 5/16	3 9/16	4 1/16
28"	28"	37 1/4	35 5/16	3 9/16	4 1/16
32"	32"	41 1/4	39 5/16	3 9/16	4 1/16
36"	36"	45 1/4	43 5/16	3 9/16	4 1/16
40"	40"	49 1/4	47 5/16	3 9/16	4 1/16
44"	44"	53 1/4	51 5/16	4 5/16	4 1/8
48"	48"	57 1/4	55 5/16	4 5/16	4 1/8
52"	52"	61 1/4	59 5/16	4 5/16	4 1/8
56"	56"	65 1/4	63 5/16	4 5/16	4 1/8
60"	60"	69 13/16	67 7/8	5 1/2	6 1/4
64"	64"	73 13/16	71 7/8	5 1/2	6 1/4
68"	68"	77 13/16	75 7/8	5 1/2	6 1/4
72"	72"	81 13/16	79 7/8	5 1/2	6 1/4
76"	76"	85 13/16	83 7/8	5 1/2	6 1/4
80"	80"	89 13/16	87 7/8	5 1/2	6 1/4

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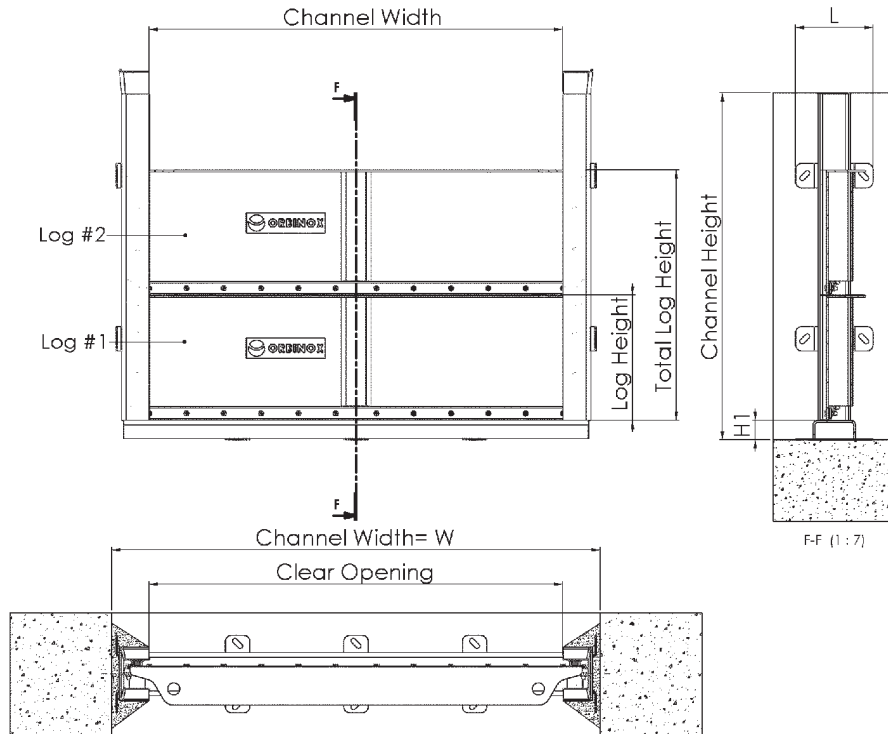
MODEL

SL STOP LOGS



SL-FM • BI-DIRECTIONAL • DIMENSIONS

SIZES: 6" x 6" (150mm x 150mm) to 80" x 80" (2000mm x 2000mm)



SIZE Channel Width	SIZE Slide Height	W	Clear Opening	L	H1
6"	6"	6	5/16	7 1/2	1 15/16
8"	8"	8	2 5/16	7 1/2	1 15/16
12"	12"	12	6 5/16	7 1/2	1 15/16
16"	16"	16	10 5/16	7 1/2	1 15/16
20"	20"	20	14 5/16	7 1/2	1 15/16
24"	24"	24	18 5/16	7 1/2	1 15/16
28"	28"	28	22 5/16	7 1/2	1 15/16
32"	32"	32	26 5/16	7 1/2	1 15/16
36"	36"	36	30 5/16	7 1/2	1 15/16
40"	40"	40	34 5/16	7 1/2	1 15/16
44"	44"	44	38 5/16	7 1/2	2 1/2
48"	48"	48	42 5/16	7 1/2	2 1/2
52"	52"	52	46 5/16	7 1/2	2 1/2
56"	56"	56	50 5/16	7 1/2	2 1/2
60"	60"	60	53 11/16	8 7/8	4 1/16
64"	64"	64	57 11/16	8 7/8	4 1/16
68"	68"	68	61 11/16	8 7/8	4 1/16
72"	72"	76	65 11/16	8 7/8	4 1/16
76"	78"	78	69 11/16	8 7/8	4 1/16
80"	80"	80	73 11/16	8 7/8	4 1/16

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STANDARD SPECIFICATION

Model SL Stop Log 6" x 6" - 80" x 80" (150mm x 150mm - 2000mm x 2000mm)

GENERAL CONDITIONS

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 fabricated gates.

Gates supplied under this section shall be Model SL Stainless Steel Stop Logs as manufactured by ORBINOX.

QUALITY ASSURANCE. 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.

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

PERFORMANCE

LEAKAGE. Stop Logs shall be substantially watertight under the design head conditions. Leakage shall not exceed 0.1 U.S. gallon per minute per foot (1.24 l/min per meter) of perimeter for the rated seating head.

DESIGN HEAD. The stop log shall be designed to withstand the design head shown in the schedule.

PRODUCT (STOP LOG)

GENERAL DESIGN. Stop Logs shall be self-contained (open frame) as indicated on the gate schedule. All components of the gate shall be designed to withstand the maximum head indicated on the drawings in both seating and unseating directions. The minimum thickness of log shall be 1/4".

FRAME. The gate frame shall be constructed of structural members or formed plate welded to form a rigid one-piece frame. The frame shall be suitable for mounting embedded in concrete (EC), wall mounted (WM) or face mounted in a existing channel (FM).

The frame configuration shall be of the flush-bottom type and shall allow the replacement of the seals without removing the gate frame from the concrete.

The design stress shall not exceed the lesser of 50% of the yield strength or 25% of the ultimate strength of the materials for maximum load conditions.

LOG. The log shall consist of a flat plate reinforced with formed plates or structural members to limit its deflection to 1/360 of the gate's span under the design head.

The design stress shall not exceed the lesser of 50% of the yield strength or 25% of the ultimate strength of the materials for maximum load conditions.

GUIDES, BEARINGS AND SEALS. The guides and bearings shall be made of UHMWPE (ultra high molecular weight polyethylene). Side seals and bottom seal shall be made of EPDM and the design shall be able to obtain the same leakage rate on both seating and unseating head pressure as per the schedule.

The seals shall be attached to the logs with stainless steel retainers.

LIFTING DEVICE. When required, a stainless steel lifting device shall be supplied for each log width. The lifting device shall fit into the frame. The lifting mechanism shall fit into the frame. The lifting mechanism shall hook and release the logs automatically.

MODEL**SL STOP LOGS****STANDARD SPECIFICATION****MATERIALS**

Part	Material
Frame, Log, Seal Retainer and Yoke	Stainless Steel ASTM A-240 / Type 304L or 316L
Guides and Front Guides	Ultra High Molecular Weight Polyethylene (UHMWPE) ASTM D-4020
Side Seal and Bottom Seal	EPDM
Hardware	ASTM F593 and F594 GR1 for 304L Frame and GR2 for 316L Frame

SCHEDULE**Gate Identification****Size (Channel Width x Total Log Height)****Number of Logs****Height of Each Log****Invert Elevation****Operating Floor Elevation****Seating Head****Unseating Head****Mounting Type**

- EC: Embedded in Concrete
- WM: Wall Mounted
- FM: Face Mounted in Existing Channel

EXECUTION**INSTALLATION:**

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

MODEL

SL STOP LOGS



SL STOP LOG SELECTION FORM

Customer: _____ Tag No.: _____ Date: _____
 Order Number: _____ Qty.: _____

STOP LOG DESIGN (Size= Channel Width x Logs Height)

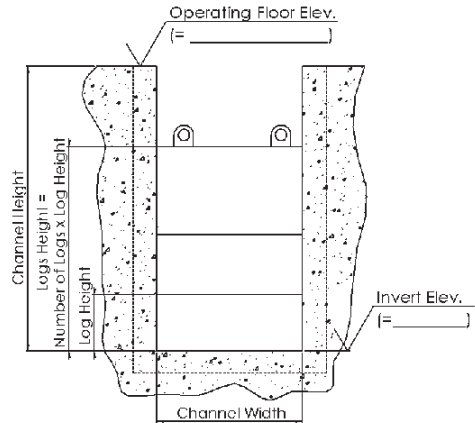
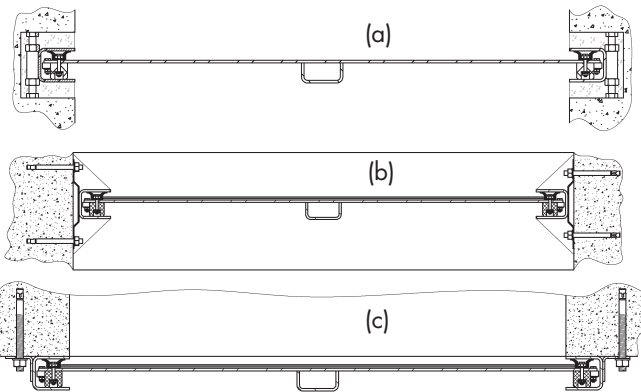
Units: mm inch
 Channel Width: _____ Channel Height: _____
 Log Height: (=Number of Logs x Log Height) _____

Number of Logs: _____
 Height of each log: _____

Max. Seating Water Head: _____
 Max. Unseating Water Head: _____

STOP LOG MOUNTING

- Embedded in Concrete (a)
- Face Mounted In Existing Channel (b)
- Wall Mounted (c)



Frame Invert Mounting:

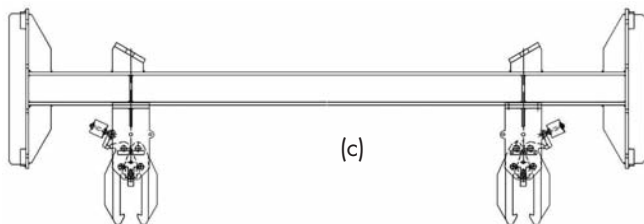
- Embedded in Concrete
- Face Mounted In Existing Channel
- Wall Mounted

LIFTING MECHANISM

- Hand pull
- Prepared for external crane
- Lifting device (c)

$$POF = [(W \times H) \times WC \times 0.433] \times f + [(W \times H \times t) \times D]$$

- Where:
- POF: Pull Out Force (pounds)
 - W: Slide Width (inches)
 - H: Slide Height (inches)
 - WC: water column (Ft. WC)
 - f=0.3 (friction factor)
 - t=0.25 (thickness, inches)
 - D=0.289 (density of 304 SS, lb/inch³)



MATERIALS

Frame & Slide 304L SS 316L SS Other: _____
 Seal EPDM Other: _____

REMARKS

Name: _____

Signature: _____