

**TRANSMITTAL SHEET**

TO: All Bidders

DATE: February 13, 2025

TOTAL NUMBER OF PAGES (INCLUDING COVER PAGE): 20

FROM: Greg Moran TEL. #: (506) 650-0292  
*Utilities & Infrastructure Services*

IF YOU DID NOT RECEIVE ALL PAGES, OR FURTHER INFORMATION IS REQUIRED,  
PLEASE CONTACT THE SENDER

**MESSAGE:**

**TENDER NO: 2024-09**

**Lancaster WWTF Aeration System Renewal**

Please find attached a copy of **Addendum #1** for the above tender.

As of March 2021, please be advised that an ***Acknowledgement Form*** (historically sent as part of the City's addendum packages) confirming receipt of an Addendum is **no longer** included in the addendum package.

However, in accordance with Section 2.5.03 of the City's General Specifications, it remains a requirement that **each Addendum** will contain a signature page(s) which each Tenderer is **required to sign and include with its Tender submission.**



**UTILITIES & INFRASTRUCTURE SERVICES**  
Engineering Services  
175 Rothesay Avenue  
Saint John, NB, E2J 2B4

## ADDENDUM

**PROJECT TITLE:**

**LANCASTER WWTF AERATION SYSTEM RENEWAL**

**ADDENDUM NO:** 1

**DATE:** FEBRUARY 13, 2025

**PAGE:** 1 OF 19

**TENDER NO:** 2024-09

MAKE THE FOLLOWING MODIFICATIONS TO THE ABOVE PROJECT. INCLUDE IN THE AMOUNT OF THE TENDER ANY ADDITIONS TO OR DEDUCTIONS FROM THE COST OF THE WORK BY REASON OF THESE INSTRUCTIONS. THE DATE FOR RECEIVING TENDERS **IS EXTENDED TO: 2:30:00PM, THURSDAY, FEBRUARY 27, 2025.**

### **ADJUSTMENTS TO THE SPECIFICATIONS**

#### **Division 2 – Submission of Tender**

The City of Saint John is implementing adjustments to the tender submission procedure as follows:

#### **Section 2.6.01 Location of Tender Box for the Submission of Tender**

175 Rothesay Avenue, Saint John, New Brunswick

The tender box will be available at the main building entrance for submission of tenders by the Tenderer between the hours of 9:30 am and 2:30:00 pm only on the above tender closing date.

There will not be a public tender opening. Registered Bidders will receive an email invitation to view the Tender Opening using Microsoft Teams software. Email invitations will be sent to the address provided on the Official Bidder's List. The Tender Opening Committee will conduct the evaluation of the tenders and Compliant tenders will be included in the summary of bids on the City's Tenders & Proposals website within 1 business day following the tender closing.

#### **Division 3 – Particular Specifications**

#### **Section 3.1.18 – Sluice Gates**

The Orbinox MU Sluice Gate is an approved equivalent for this project. Please see the attached Technical Data Sheet.

**Inquiry regarding Section 3.1.22:**

**Q1:** Section 3.1.22.3 states that traveling inside the existing lagoon bottom or dikes with machinery (including, but not limited to, excavator, dozer, tandem truck, rollers, etc.) will not be permitted under this contract. Does this include compact equipment (tracked skid steer)?

**A1:** *A tracked rubber skid steer is acceptable; however, the sand layer needs to be maintained on top of the liner.*

**Appendix 3D – Technical Specifications**

**Section 10 81 01 - Supply and Installation of WWTF Aeration System**

**Replace 1.4.1.2** with the following:

Payment milestones for this work shall be as described below, subject to the approval of the Engineer that the required conditions have been met:

- .1 Submission of the acceptable aeration system stamped Design Brief and shop drawings: twenty percent (20%).
- .2 Delivery of floating lateral and submerged diffuser systems: fifty percent (50%)
- .3 Installation aeration system floating laterals and submerged diffuser systems and commissioning, training: twenty percent (20%)
- .3 Delivery of acceptable O & M Manuals: ten percent (10%)

**Replace 2.3.4** with the following:

The supplied aeration system shall be capable of treating untreated wastewater with the following parameters and treatment shall be effective 12 months per year (effective year-round):

- .1 Influent Parameters:
  - .1 Design Flow (Summer): 22,000 cu.m/day
  - .2 Design Flow (Winter): 15,250 cu.m/day
  - .3 Total BOD<sub>5</sub> (Summer): 180 mg/L
  - .4 Total BOD<sub>5</sub> (Winter): 120 mg/L
  - .5 TSS: 240 mg/L
- .2 Effluent Parameters:
  - .1 At end of Aerated Lagoon:
    - .1 Total soluble BOD<sub>5</sub>: 25 mg/L
  - .1 At end of Polishing Cell:
    - .1 Total BOD<sub>5</sub>: 25 mg/L

.2 TSS: 25 mg/L\*

.3 \* TSS 25 mg/L, year-round with the following exception: The system will be considered in compliance if excess of TSS occurs during the months of July, August, September or October, in accordance with the Wastewater Systems Effluent Regulations.

.4 Average results of three (3) consecutive months will be considered when determining effluent limit compliance for both BOD<sub>5</sub> and TSS based on effluent grab samples (except for effects of algae growth).

**Inquiry regarding Section 10 81 01:**

**Q2:** Section 10 81 01, Item 2.3.4.1 states influent design flow in the summer as 22,000 m<sup>3</sup>/d. This equates to approximately 5.4 days retention time in the aerated lagoons which is not sufficient for the lagoon biology to remove all of the BOD and still allow solids to settle. Can you please confirm the downstream settling pond is considered part of the treatment process and can be taken into account for BOD and TSS removal?

**A2:** *It is confirmed that the downstream settling pond is considered part of the treatment process and can be taken into account for BOD and TSS removal. Please refer to the replacement section for 2.3.4 noted above for updates to the effluent parameter requirements.*

**Section 10 90 00 – Air Piping Systems**

**Replace 2.1.4.1.12** with the following:

Acceptable Product: Series (31) Bray butterfly valve, Keystone Butterfly Valve Model F222 Lug or approved equivalent.

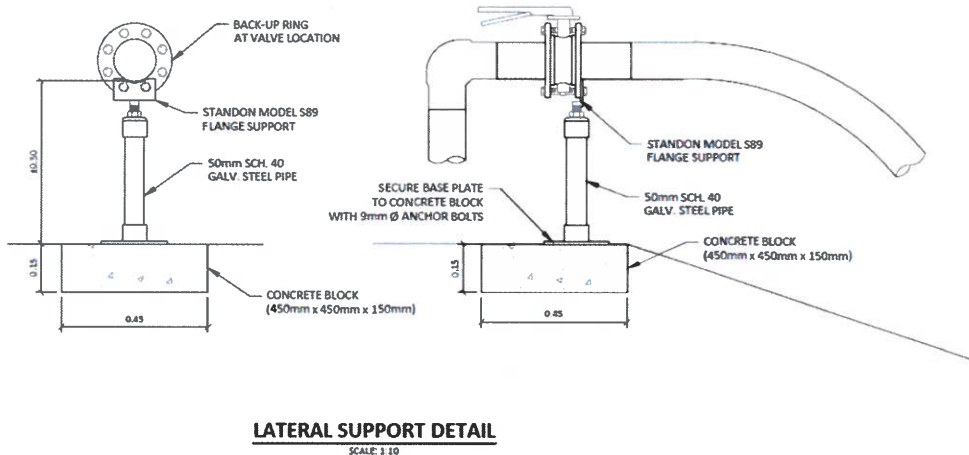
**Section 33 00 01 – Sludge Removal & Dewatering**

**Replace 1.2.2.2.8** with the following:

At the end of the removal process, the contractor will perform a new sludge survey to confirm that the sludge removal process was successful. This cost shall be included in the lump sum price for sludge removal.

## INQUIRIES REGARDING THE DRAWINGS

**Q3:** The drawings show a 1500mm butterfly valve support post that is driven into the ground. Alignment with the valve will be difficult for the contractors and instead it is requested the valve support post be modified as per the following drawing where a concrete block is used instead. Is this acceptable?



**A3:** *No, the City does not consider the above drawing, where a concrete block is used, as an equivalent alternative to the minimum 1500mm Support Post.*

**Q4:** Can you confirm the outer boundary limit of the liner?

**A4:** *The liner is to be installed to the edge of the berm as indicated on the Pad and Ditch Detail on Sheet 13 and shall be installed below all of the sludge drying bags.*

**Q5:** Is this an exposed liner?

**A5:** *Yes.*

**Q6:** Is geogrid required for the sludge?

**A6:** *No.*

**Q7:** How long will the Sludge Dewatering bags be left in place?

**A7:** *The City of Saint John will be responsible for the removal of the sludge bags under a separate contract as noted in Section 33 00 01, Part 1.2.2.2.9.*

**Q8:** The Drawings and Unit Pricing states DR11 but the Specifications Section 10 90 00, Part 2.1 states DR17, please clarify.

**A8:** *Please price DR17, as specified on the project Specification Section 10 90 00 and noted in the details on Sheet 09. Please see the corrected Division 4.5, Sheet 5 of 13 attached.*

**Q9:** What is the spec on the sand used in the bottom of the lagoon – in the case that some sand may need to be replaced?

**A9:** *Specification details for the material on top of the liner are not available and will need to be confirmed in the field following draining of the lagoon. The Contractor shall take extreme precautions not to damage or remove the material on top of the liner.*

**Q10:** Notes on the drawings, Sheet 6 of 14 states that “no work” can occur within the 15m buffer for the gas line, however the new fence installation is shown within this area, is the fence installation acceptable but no other work is?

**A10:** *The new fence is outside of the 15m buffer and located adjacent to the berm. The erosion and sediment control fence is shown slightly within the buffer for clarity, but can be moved to the proposed toe line, to avoid being within the 15m buffer.*

**Q11:** Does dust control apply to the access road, and if so, is the Contractor required to provide dust control there until Final Completion or is Dust Control still required if Final Completion has not been awarded due to Erosion and Sediment Control issues?

**A11:** *Yes, dust control does apply to the access road. Dust control is required until Substantial Completion is reached under the direction of the Engineer.*

**Q12:** The schedule of quantities includes a line item for sludge removal as lump sum. Given that the sludge survey was completed over two years ago (2022), how are we to determine how much sludge is currently in the cells?

**A12:** *The Contractor is to base the removal of sludge on an estimated quantity of 2,600 BDT as indicated in Section 33 00 01. The sludge pad was designed to account for this total measurement of sludge, based on the number of dewatering bags proposed.*

**Note:** Signed copy of the addendum **must** be enclosed in the tender documents, according to the Instructions to Tenderers and Tendering Procedures in Division 2 of the Contract Specifications.

BY:

  
*for*

CHIEF CITY ENGINEER

CONTRACTOR'S SIGNATURE

**TO BE SIGNED AND ATTACHED TO TENDER DOCUMENTS**

MODEL

MU



## GENERAL DESCRIPTION

The ORBINOX model MU is a flush bottom 4 sided sealing penstock. The gates are suitable for different types of applications with a highly versatile flow control for waste water treatment plants, irrigation, hydraulic works and hydro-electric power plants.

From sizes 150 mm x 150 mm to 1200 mm x 1200 mm, the MU model has a unique self adjusting seal design that can achieve minimal equal seating and unseating (bidirectional) leakage rates. Sizes 1300 mm x 1300 mm up to 4000 mm x 4000 mm are available in both uni-directional (only suitable for seating water heads) and bi-directional configurations. The maximum leakage rate is lower than the maximum allowable recommended by DIN 19569-4 (class 5) and AWWA C561 under normal conditions.

ORBINOX also designs and manufactures the MU model penstock in larger sizes and for more demanding service conditions.

For more information please contact an ORBINOX representative.



## DESIGN STANDARD

The MU penstock is manufactured in general accordance to DIN 19569-4. Other standards such as AWWA C561 and BS 7775 are also available.

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



Reserves the right to change specifications without notice

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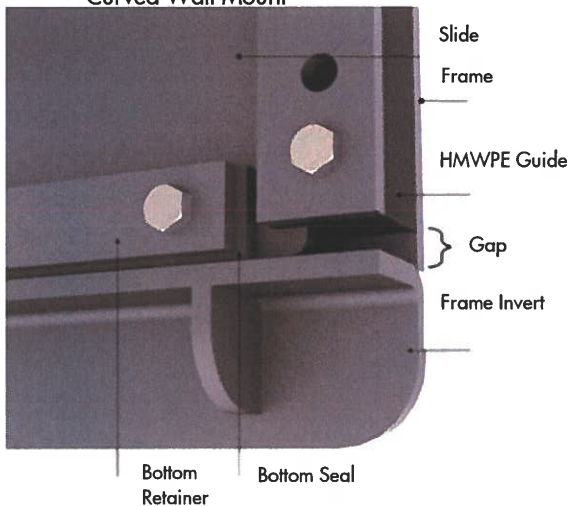
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7/19



**DESIGN FEATURES**

- Modular design allows for both Open Frame and Self-Contained configurations.
- Frame configuration options:
  - Square (standard)
  - Round & Rectangular opening
  - Round base
- Mounting configuration options:
  - Wall Mount (standard for sizes ≤ 1200 or unidirectional and sizes >1200)
  - Embedded in concrete (standard for bidirectional and sizes >1200)
  - Thimble Mount
  - Curved Wall Mount
- Option of Rising or Non-Rising stem configurations
- Flush bottom design allows for elevated or flush bottom installation
- Suitable for actuation with manual, electric, pneumatic or hydraulic actuators
- Self-cleaning HMWPE guides reduce the friction coefficient during operation, minimizing therefore the actuation thrust and extending the seal life
- Machined slot for slide on guides to prevent “seesaw” effect when opening and closing the slide
- Seal design is self adjusting (wedge-less design), thus reducing torque requirements
- Slide ribs are designed to avoid crevice corrosion
- Seal and guides bolting is completely separated from the frame anchoring
- ORBINOX penstocks are factory assembled and tested eliminating the need for on site adjustment
- All gate fasteners are stainless steel



**Self-cleaning guides**

**Leakage Allowance:**

The leakage rate on MU model is lower than the maximum allowable defined by different standards under normal conditions:

- DIN 19569-4 (class 5): 1,20 l/min per meter
- AWWA C-561: 1.24 l/min per meter

**Seating / Unseating Design Head:**

Size	UNI /BIDIRECTIONAL	Water Head	
		Seating head pressure	Unseating head pressure
<b>Std. Range 150x150-1200x1200</b>	BI-DIRECTIONAL	150-1000: 10 mWC 1100-1200: 6 mWC	150-1000: 10 mWC 1100-1200: 6 mWC
<b>1300x1300 - 4000x4000</b>	BI-DIRECTIONAL	Designed according to the project specification. Typically 6mWC of seating and unseating water head	
<b>1300x1300 - 4000x4000</b>	UNI-DIRECTIONAL	Designed according to the project specification. Typically 6mWC of seating water head	0 meters of water column

8/19

MODEL

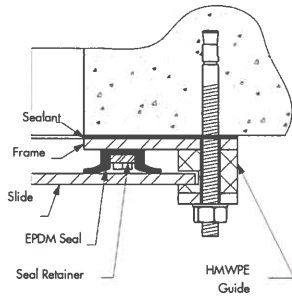
MU



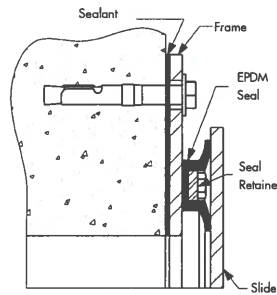
BI-DIRECTIONAL

Seal Design: sizes 150 mm x 150 mm to 1200 mm x 1200 mm

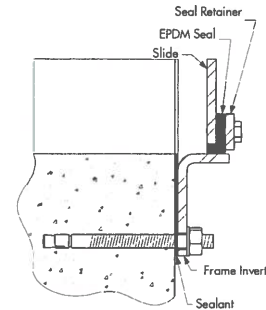
SIDE SEAL



TOP SEAL



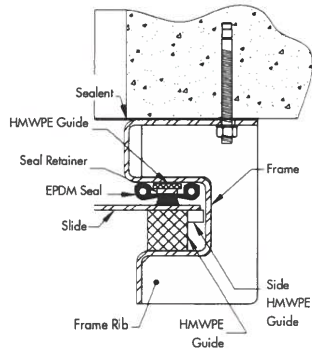
BOTTOM SEAL



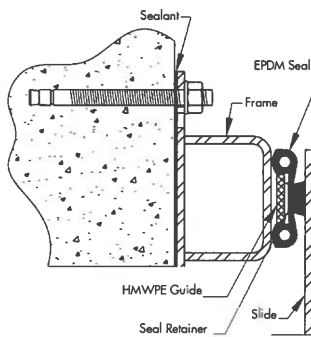
BI-DIRECTIONAL

Seal Design: sizes 1300 mm x 1300 mm to 4000 mm x 4000 mm

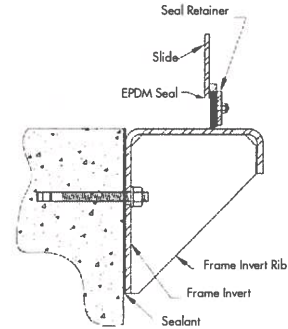
SIDE SEAL



TOP SEAL



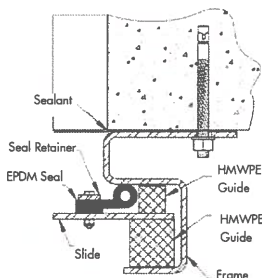
BOTTOM SEAL



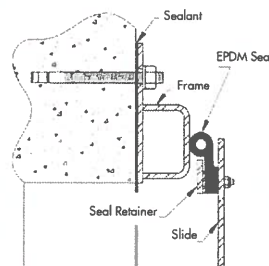
UNI-DIRECTIONAL

Seal Design: sizes 1300 mm x 1300 mm to 4000 mm x 4000 mm

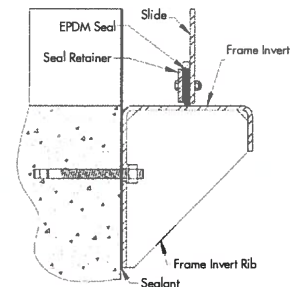
SIDE SEAL



TOP SEAL



BOTTOM SEAL



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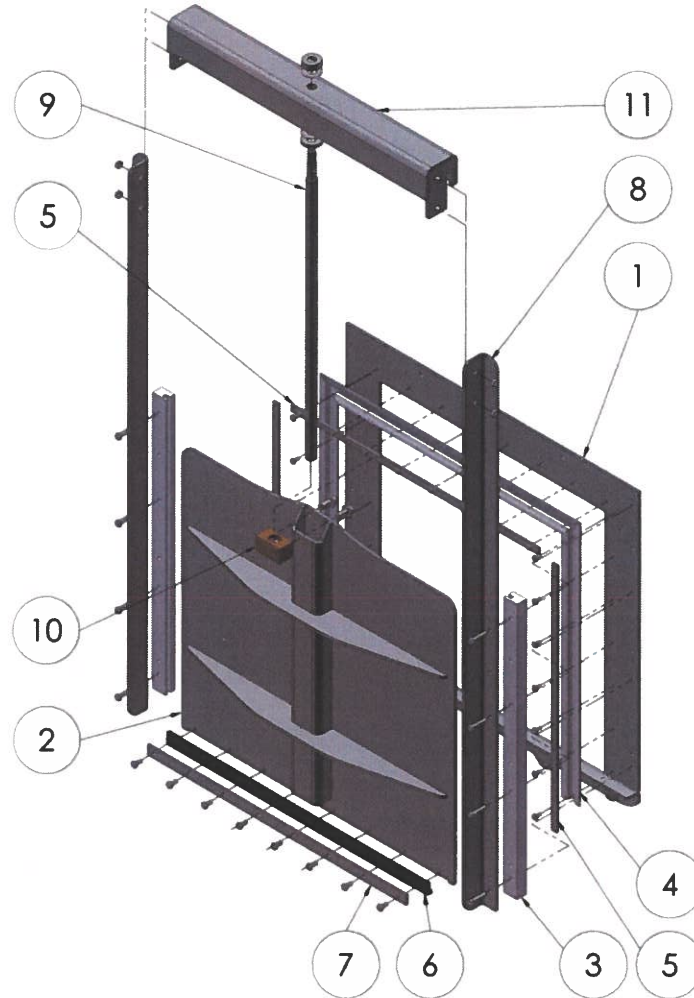
9/19

MODEL

**MU**

**STANDARD MATERIALS OF CONSTRUCTION**

From 150 mm x 150 mm to 1200 mm x 1200 mm



ITEM	DESCRIPTION	MATERIAL (standard)
1	Frame	Stainless Steel Type 304/304L or 316/316L
2	Slide	Stainless Steel Type 304/304L or 316/316L
3	Guides	High Molecular Weight Polyethylene (HMWPE)
4	Seal	EPDM
5	Seal Retainer	Stainless Steel Type 304/304L or 316/316L
6	Bottom Seal	EPDM
7	Bottom Seal Retainer	Stainless Steel Type 304/304L or 316/316L
8	Frame Guide	Stainless Steel Type 304/304L or 316/316L
9	Stem	Stainless Steel
10	Stem Nut	Bronze
11	Yoke	Stainless Steel Type 304/304L or 316/316L

NOTE: For materials other than the above, please consult an ORBINOX representative

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MU\_4

10/19

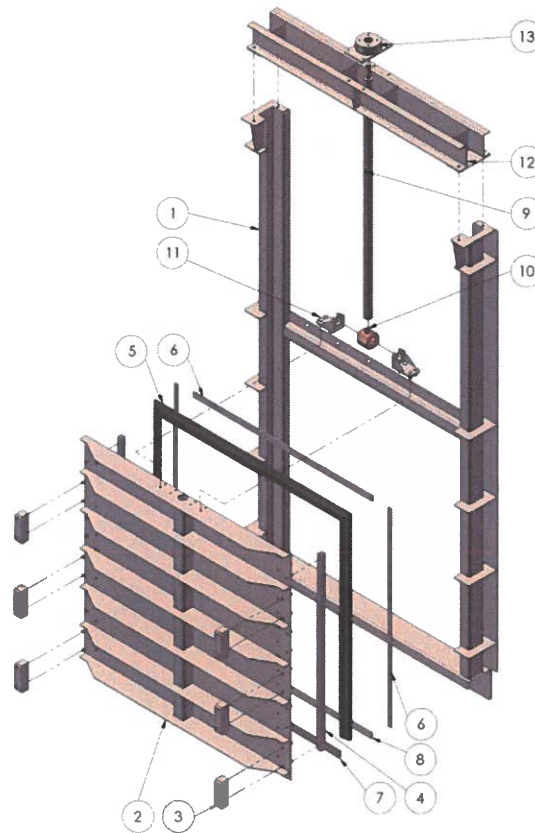
MODEL

MU



**STANDARD MATERIALS OF CONSTRUCTION**

**From 1300 mm x 1300 mm to 4000 mm x 4000 mm**



ITEM	DESCRIPTION	MATERIAL (standard)
1	Frame	Stainless Steel Type 304/304L or 316/316L
2	Slide	Stainless Steel Type 304/304L or 316/316L
3	Front Guides	High Molecular Weight Polyethylene (HMWPE)
4	Guides	High Molecular Weight Polyethylene (HMWPE)
5	Seal	EPDM
6	Seal Retainer	Stainless Steel Type 304/304L or 316/316L
7	Bottom Seal	EPDM
8	Bottom Seal Retainer	Stainless Steel Type 304/304L or 316/316L
9	Stem	Stainless Steel
10	Stem Nut	Bronze
11	Stem Nut Bracket	Stainless Steel Type 304/304L or 316/316L
12	Yoke	Stainless Steel Type 304/304L or 316/316L
13	Stem Coupling	Stainless Steel Type 304/304L or 316/316L

NOTE: For materials other than the above, please consult an ORBINOX representative

11/19

MODEL

MU

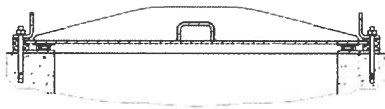


### MOUNTING OPTIONS

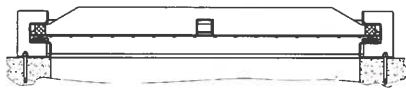
The following drawings show the most common mounting options for MU penstocks. For other types of mounts, please consult an ORBINOX representative

### WALL MOUNT (STANDARD)

From 150 mm x 150 mm to 1200 mm x 1200 mm

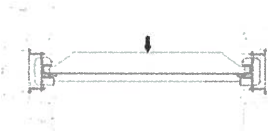


From 1300 mm x 1300 mm to 4000 mm x 4000 mm

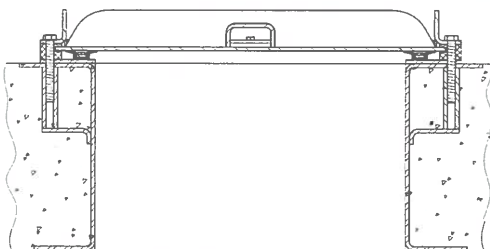


### EMBEDDED IN CONCRETE

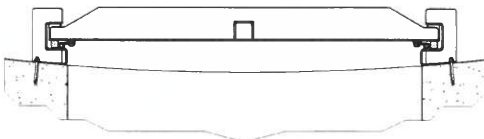
(Standard for bidirectional and > 1200)



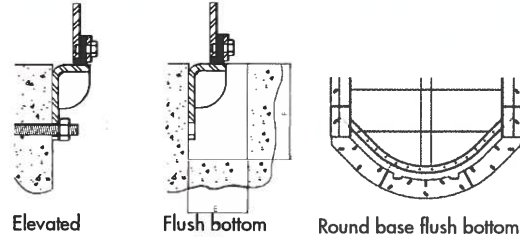
### THIMBLE MOUNT



### CURVED WALL MOUNT

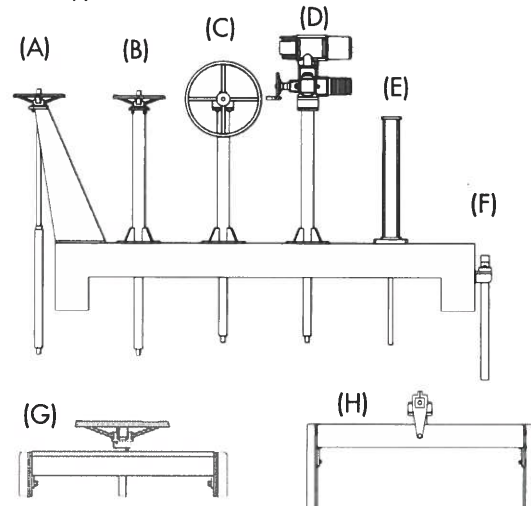


### FRAME INVERT MOUNTING OPTIONS



### ACTUATORS

All ORBINOX actuators can be yoke or pedestal mounted, below are some examples of the most common types



Various types of actuators as shown above:

- (A) Handwheel on inclined floor stand
- (B) Handwheel on straight floor stand
- (C) Bevel Gear operator on straight floor stand
- (D) Electric actuator on straight floor stand
- (E) Hydraulic or pneumatic actuator
- (F) Square nut (BS 5163-2, DIN 3223 or 2" sqr)  
(Only for Non-Rising stem)
- (G) Yoke mounted handwheel
- (H) Yoke mounted gear and crank

#### Accessories:

- Mechanical stops (for the completely closed position and manual actuator)
- Actuator manual overrides
- Positioners
- Limit / Proximity switches

12/19

MODEL

MU



## STEM EXTENSIONS

In most cases, the operating floor level is located substantially higher than the opening. In order to be able to operate the gate, stem extensions are necessary. Stem guides are used to limit the "unsupported" length of the stem extension in order to avoid any buckling failure.

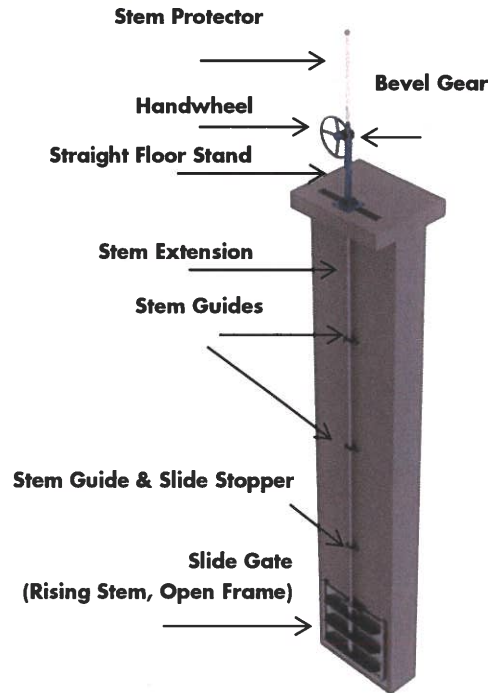
The stem guide has a HWMPE guide to reduce friction between the guide and the extension

### Non-Rising Stem Configuration

As standard, non-rising stem gate configurations are used with self-contained frame designs. Therefore, the stem extension does not support the axial load (only torque) and less wall brackets are required. As a general rule, a stem guide should be installed every 3 meters of unsupported stem extension

### Rising Stem Configuration

As standard, rising stem gate configurations are used with open-frame designs. Therefore, the stem extension has to support the axial load when the gate is operated to avoid any buckling failure. As a general rule, a stem guide should be installed every 2 meters of unsupported stem extension



## INSTALLATION, OPERATION AND MAINTENANCE

This section briefly describes the installation, operation and maintenance of MU penstocks. For more detailed information please refer to the "MU IOM Manual"

### Installation:

MU penstocks are installed by means of Anchor Bolts. Depending on the size and working conditions they shall be either of the mechanical or chemical type (see table below). In order to avoid leakage between the concrete wall and the frame, ORBINOX recommends the use of construction sealant equivalent to Sikaflex 11FC sealant (200ml per meter of opening perimeter)

The minimum concrete strength shall be 20.7 MPa. The tolerance of the concrete construction shall be in accordance to DIN 18202. For detailed information about type, size and quantity of the required anchor bolts at the installation, please refer to the notes on the "General Arrangement Drawing".

### Maintenance and Operation:

The MU penstocks need practically no maintenance. The stem shall be kept lubricated and seals shall be replaced if damaged. The MU penstock is closed by applying a clockwise rotation. Applying too much force when closing the gate may cause damage to the stem

Size	Water Pressure	Standard Mounting Type
<b>BI-DIRECTIONAL STANDARD RANGE</b> 150mm x 150mm - 1200 mm x 1200mm	Seating and Un-Seating (Bi-Directional)	Wall mount: • Stud Type Mechanical Anchor Bolts
<b>BI-DIRECTIONAL</b> 1300mm x 1300mm - 4000 mm x 4000mm	Seating and Un-Seating (Bi-Directional)	Embedded in concrete Optional wall mount + chemical anchor bolts
<b>UNI-DIRECTIONAL</b> 1300mm x 1300mm - 4000 mm x 4000mm	Seating (Uni-Directional)	Wall mount: • Stud Type Mechanical Anchor Bolts

Reserves the right to change specifications without notice

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13/19

MODEL

MU

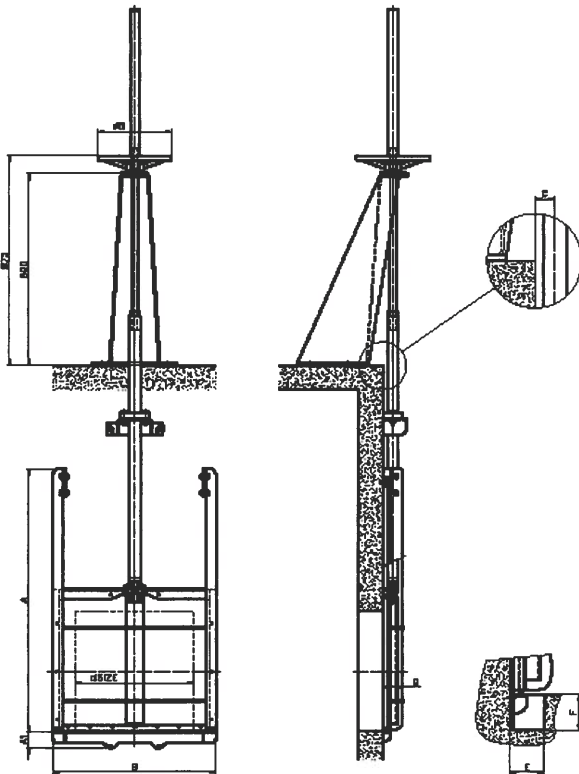


The following drawings show the most common frame and stem configurations and their dimensional charts. Note that any frame (open and self-contained), stem (rising and non-rising) and actuator combination can be manufactured for MU penstocks

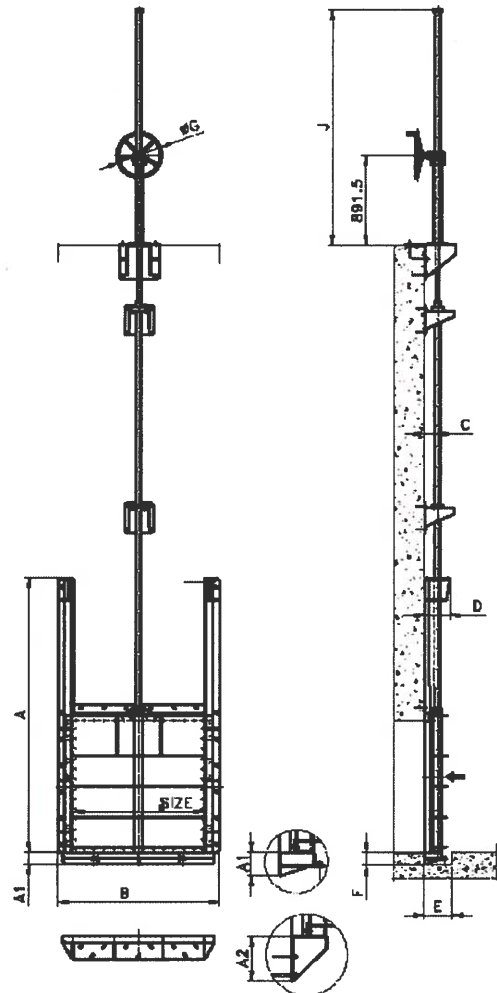
OPEN FRAME - RISING STEM - DIMENSION

STANDARD RANGE

From 150 mm x 150 mm to 1200 mm x 1200 mm



From 1300 mm x 1300 mm to 4000 mm x 4000 mm



14/19

**MODEL****MU**

## OPEN FRAME - RISING STEM - DIMENSION

**STANDARD RANGE From 150 mm x 150 mm to 1200 mm x 1200 mm**

SIZE (mm) opening	A	B	A1	C	D	ØG	E x F
200 x 200	504	380	70	41	82	225	70 x 75
300 x 300	704	480	70	41	82	225	70 x 75
400 x 400	905	580	70	42	85	310	70 x 75
500 x 500	1105	680	70	42	85	310	70 x 75
600 x 600	1307	780	70	42	115	310	70 x 75
700 x 700	1510	880	70	42	115	310	70 x 75
800 x 800	1710	980	70	42	125	310	70 x 75
900 x 900	1985	1100	82	56	136	350*	70 x 85
1000 x 1000	2185	1200	82	56	136	350*	70 x 85
1100 x 1100	2385	1300	82	56	136	350*	70 x 85
1200 x 1200	2585	1400	82	56	136	350*	70 x 85

\* Actuator with Bevel Gear- Handwheel

**From 1300 mm x 1300 mm to 4000 mm x 4000 mm**

### BI-DIRECTIONAL

SIZE (mm) opening	A	B	A1	A2	C	D	J	ØG	E x F
1300 x 1300	2816	1644	115	220	151	295	2450	450	280 x 150
1500 x 1500	3216	1844	115	220	151	295	2650	450	280 x 150
1600 x 1600	3416	1944	115	220	151	295	2750	650	280 x 150
1800 x 1800	3816	2144	115	250	151	295	2950	650	280 x 150
2000 x 2000	4216	2344	115	250	151	295	3150	650	280 x 150
2500 x 2500	5216	2844	115	250	151	295	3650	650	280 x 150
3000 x 3000	6216	3344	115	250	151	295	4150	650	280 x 150
4000 x 4000	8216	4344	115	250	151	295	5150	650	280 x 150

### UNI-DIRECTIONAL

SIZE (mm) opening	A	B	A1	A2	C	D	J	ØG	E x F
1300 x 1300	2906	1644	115	220	151	295	2450	450	280 x 150
1500 x 1500	3306	1844	115	220	151	295	2650	450	280 x 150
1600 x 1600	3546	1944	115	220	151	295	2750	650	280 x 150
1800 x 1800	3956	2144	115	250	151	295	2950	650	280 x 150
2000 x 2000	4378	2344	115	250	151	295	3150	650	280 x 150
2500 x 2500	5418	2844	115	250	151	295	3650	650	280 x 150
3000 x 3000	6500	3344	115	250	151	295	4150	650	280 x 150
4000 x 4000	8500	4344	115	250	151	295	5150	650	280 x 150

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

Reserves the right to change specifications without notice

ORBINOX S.A. Pol. Ind. s/n-20270 ANOETA (Spain) Tel.: +34 943 698030 - Fax: +34 943 653066 e-mail:orbinox@orbinox.com [www.orbinox.com](http://www.orbinox.com)  
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OBX 06/24

Rev.6  
MU\_9

15/19



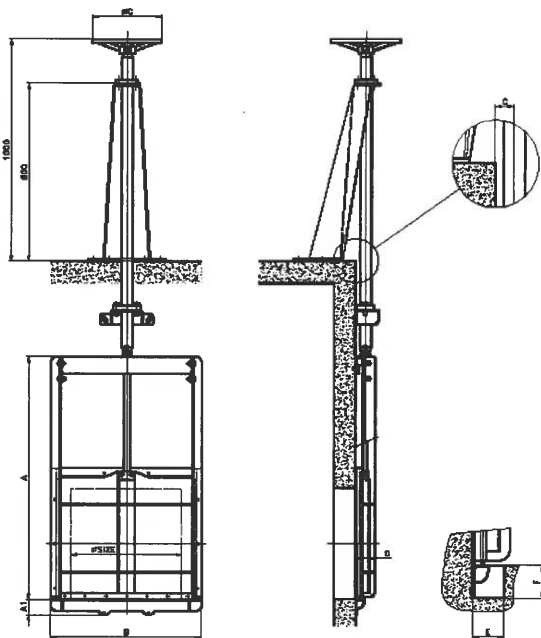
MODEL

MU

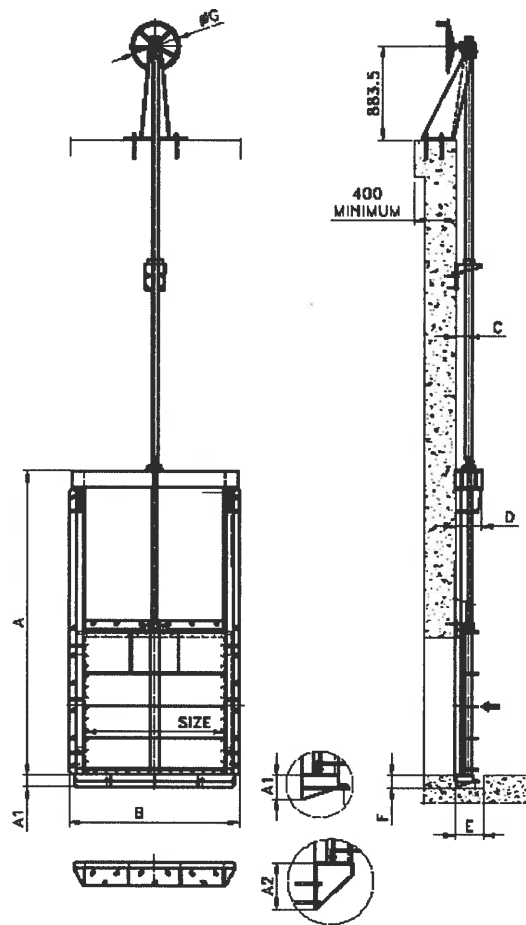
**CLOSED FRAME - NON RISING STEM - DIMENSION**

**STANDARD RANGE**

From 150 mm x 150 mm to 1200 mm x 1200 mm



From 1300 mm x 1300 mm to 4000 mm x 4000 mm



MODEL

**MU**



**CLOSED FRAME - NON RISING STEM - DIMENSION**

**STANDARD RANGE From 150 mm x 150 mm to 1200 mm x 1200 mm**

SIZE (mm) opening	A	B	A1	C	D	ØG	E x F
200 x 200	504	380	70	41	82	225	70 x 75
300 x 300	704	480	70	41	82	225	70 x 75
400 x 400	905	580	70	42	85	310	70 x 75
500 x 500	1105	680	70	42	85	310	70 x 75
600 x 600	1307	780	70	42	115	310	70 x 75
700 x 700	1510	880	70	42	115	310	70 x 75
800 x 800	1710	980	70	42	125	310	70 x 75
900 x 900	1985	1100	82	56	136	350*	70 x 85
1000 x 1000	2185	1200	82	56	136	350*	70 x 85
1100 x 1100	2385	1300	82	56	136	350*	70 x 85
1200 x 1200	2585	1400	82	56	136	350*	70 x 85

\* Actuator with Bevel Gear- Handwheel

**From 1300 mm x 1300 mm to 4000 mm x 4000 mm**

**BI-DIRECTIONAL**

SIZE (mm) opening	A	B	A1	A2	C	D	J	ØG	E x F
1300 x 1300	2816	1644	115	220	151	295	2450	450	280 x 150
1500 x 1500	3216	1844	115	220	151	295	2650	450	280 x 150
1600 x 1600	3416	1944	115	220	151	295	2750	650	280 x 150
1800 x 1800	3816	2144	115	220	151	295	2950	650	280 x 150
2000 x 2000	4216	2344	115	220	151	295	3150	650	280 x 150
2500 x 2500	5216	2844	115	220	151	295	3650	650	280 x 150
3000 x 3000	6216	3344	115	220	151	295	4150	650	280 x 150
4000 x 4000	8216	4344	115	220	151	295	5150	650	280 x 150

**UNI-DIRECTIONAL**

SIZE (mm) opening	A	B	A1	A2	C	D	J	ØG	E x F
1300 x 1300	2906	1644	115	220	151	295	2450	450	280 x 150
1500 x 1500	3306	1844	115	220	151	295	2650	450	280 x 150
1600 x 1600	3546	1944	115	220	151	295	2750	650	280 x 150
1800 x 1800	3956	2144	115	220	151	295	2950	650	280 x 150
2000 x 2000	4378	2344	115	220	151	295	3150	650	280 x 150
2500 x 2500	5418	2844	115	220	151	295	3650	650	280 x 150
3000 x 3000	6500	3344	115	220	151	295	4150	650	280 x 150
4000 x 4000	8500	4344	115	220	151	295	5150	650	280 x 150

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17/19

MODEL

MU



MU PENSTOCK SELECTION FORM

Customer: \_\_\_\_\_ Tag No.: \_\_\_\_\_ Date: \_\_\_\_\_
Order Number: \_\_\_\_\_ Qty.: \_\_\_\_\_

DESIGN

Units: mm [ ] Size | Wall Opening Width: \_\_\_\_\_
inch [ ] | Wall Opening Height: \_\_\_\_\_

Seating Water Head: \_\_\_\_\_
Unseating Water Head: \_\_\_\_\_
Invert to Operating Floor height: \_\_\_\_\_

- [ ] Non Rising Stem (NRS) [ ] UNI-DIRECTIONAL [ ] Closed Frame
[ ] Rising Stem (RS) [ ] BI-DIRECTIONAL [ ] Open Frame

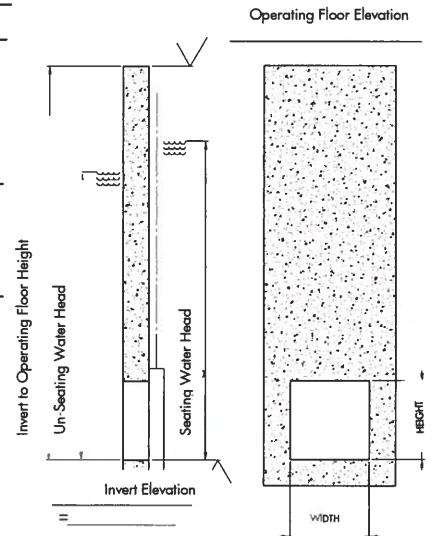
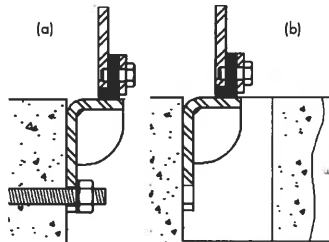
PENSTOCK MOUNTING

- [ ] Concrete Wall Mount
[ ] Wall thimble Mount
[ ] Embedded In Concrete

Frame Invert Mounting:

- [ ] Standard Wall Mount (a)
[ ] Flush Bottom Mount (b)

E= \_\_\_\_\_ F= \_\_\_\_\_

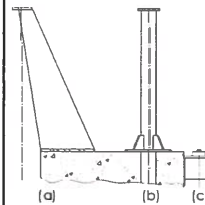
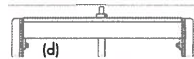


ACTUATORS

- [ ] Handwheel
[ ] Crank (w/ B.Gear and Sqr. Nut)
[ ] Square Nut (NRS Only)
[ ] Bevel Gear
[ ] Electric Motor
[ ] Pneumatic Cylinder
[ ] Hydraulic Cylinder

Actuator Mounting:

- [ ] Inclined Floor Stand (a)
[ ] Straight Floor Stand (b)
[ ] Wall Bracket (for Sqr.Nut) (c)
[ ] Frame Mounted (d)



Position Indicator: (For RS Only)

- [ ] Position Label
[ ] Limit Switch
[ ] Proximity Switch

MATERIALS

- [ ] Frame & Slide [ ] 304L SS [ ] 316L SS Other: \_\_\_\_\_
[ ] Stem [ ] 303 SS [ ] 316 SS Other: \_\_\_\_\_
[ ] Extension [ ] 304L SS [ ] 316L SS Other: \_\_\_\_\_
[ ] Floor Stand [ ] Carbon Steel [ ] 304L SS Other: \_\_\_\_\_
[ ] Seal [ ] EPDM Other: \_\_\_\_\_
[ ] Stem Cover [ ] Carbon Steel [ ] PVC Other: \_\_\_\_\_

REMARKS

Name: \_\_\_\_\_ Signature: \_\_\_\_\_

18/19

DIVISION 4

SCHEDULE OF QUANTITIES AND UNIT PRICES

UNIT PRICE TO BE EITHER  
TYPEWRITTEN OR PRINTED  
IN INK IN WORDS AND  
PRINTED NUMERICALLY

CONTRACT NUMBER 2024-09

TITLE: LANCASTER WWTF AERATION SYSTEM RENEWAL

ITEM NO.	DESCRIPTION	DIV. NO.	UNIT	EST. QTY.	UNIT BID PRICE		TOTAL (\$)
					WRITTEN	NUMERICAL	
C 1	<b>AERATION SYSTEM</b> <u>Supply &amp; Install</u>						
	a) Supply and install new Aeration System within the lagoon, all cells No.1, 2, 3, and 4, complete	10 81 01	LS	1			
	b) Supply and install new 300mm sch. 40 SS piping (c/w bends, tees, and other fittings). Complete	10 90 00	m	15			
	c) Supply and install new 200mm sch. 40 SS piping (c/w bends, tees, and other fittings). Complete	10 90 00	m	15			
	d) Supply and install new 300mm HDPE SDR-17 piping (c/w bends, tees, and other fittings). Complete	10 90 00	m	83			
	e) Supply and install new 200mm HDPE SDR-17 piping (c/w bends, tees, and other fittings). Complete	10 90 00	m	230			

19/19