SERIES C
CHANNEL GATES

INSTALLATION AND MAINTENANCE MANUAL
(Révision 1)
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2. INTRODUCTION

This manual is intended to provide all the necessary information for the installation, operation and maintenance of Fontaine Aquanox Gates. It is intended for contractors responsible for the installation, for owners and operators of the equipment, for preventive maintenance supervisor and potential repairers to clearly diagnose problems and make to proper basic adjustments.

2.1. WARNINGS

⚠️ It is important to read this manual before starting any work on the gates.

⚠️ It is very important not to exceed the 178N (40 lb) on the gate actuator, either to open or close the gate.

⚠️ The seals are factory adjusted. Any changes to this setting will void the warranty.

⚠️ When installing the equipment, always apply an anti-seize on the stainless steel fasteners. Use PTFE based pipe joint compound if gates are installed in drinking water.

⚠️ Reduce as much as possible the contact between stainless steel and carbon steel to prevent corrosion contamination. See 0 for additional information on contamination of stainless steel.

⚠️ At all times when working on gates, make sure to comply with local safety standards and wear personal protective equipment.
3. RECEIVING

Despite all the precautions taken during packing, some damage may have occurred during transportation of the goods to their destination. We recommend that you follow the following instructions when receiving your equipment.

Ensure the conformity of the delivered goods before signing the bill of lading. **Look for any anomaly concerning the delivery** (damage, missing items in relation to bill of lading, broken pallet, parcel damaged, dented part, deformed pipe, etc.) as this may be a sign of events that may have caused greater damage. Indicate on the bill of lading any abnormality detected, otherwise no claim will be accepted.

After the reception of the goods, and within 5 working days, verify with the bill of lading that all equipment has been received. Also verify the equipment tag. They must match the items listed on the bill of lading. **No claims for missing parts will be accepted after the period of 5 working days.**

⚠️ Contact Fontaine Aquanox to report any anomalies found or missing parts.

4. STORAGE

Cover and protect all equipment that will not be installed immediately.

- Leave the equipment attached to the pallet;
- Cover with a canvas or tarp;
- Store in a dry, and flat area;
- Do not stack the gates;
- Place the stems and pipes on wooden blocks;
- Place the other parts in a safe place;
- Protect from dust and sand;
- Avoid exposure to UV rays;
- For long-term storage, place inside at room temperature in a dry area;
- Refer the electric actuator documentation for specific storage instruction for this equipment.
5. GLOSSARY FOR RISING STEM (MODEL C21)

Figure 1
6. GLOSSARY FOR NON-RISING STEM (MODEL C22)

Figure 2
7. PREPARATION FOR INSTALLATION

7.1. NEW CONCRETE CHANNEL WITH BOXOUTS

Verify the straightness of the channel and boxouts where the gate will be installed. A plumb line, a laser and/or a straight edge can be used.

1. First verify the channel depth against the submittal drawing. A variation of ± 25mm (1") is acceptable.
2. Verify the boxouts position. They must be aligned and face to face within ± 6mm (1/4"). Measure the boxout depth using a plumb line as shown on figure 3.
3. Measure the boxout width, making sure they are at least 50mm (2") larger than the gate frame.
4. Measure the channel width at the bottom and mark the channel center on both sides of the boxout in the channel bottom slab. The channel width should be the same as the gate clear opening inside the frame.
5. Measure the overall width of the frame. From the channel center previously marked, place another mark in the boxouts equivalent to half of the frame overall width. Repeat the other side. The outside of the frame will be positioned to those marks.
6. Drop the plumb line into the groove at the mark locating the outside of the frame. There should be a gap of at least 16mm (5/8"), for the whole channel depth. (see Figure 3)

![Diagram of channel with boxout and plumb line](image)

**Figure 3**

7. Make sure the boxout is straight and perpendicular to the flow direction within ± 20mm (3/4") for the whole channel depth.
8. Repeat points 6 & 7 on the other side of the channel.

⚠️ If corrective work is needed, please have it done by a skilled professional.

7.2. EXISTING CONCRETE CHANNEL (SURFACE MOUNT)
Verify the straightness of the channel walls and floor where the gates will be installed. A plumb line, a laser and/or a straight edge can be used.

1. First, measure the channel width. It must be larger than the overall gate’s frame by at least 32mm (1-1/4”).
2. Verify the channel depth. A maximum difference of ± 25mm (1”) vs the depth indicated on the approved submittal drawing is acceptable and will not impact the gate installation or operation.
3. Locate the position of the gate on one side of the channel. The gate must be installed perpendicular to the channel wall. Pull a straight line at 90° across the channel and mark the gate position on the opposite side. A tolerance of ± 6mm (1/4”) is acceptable. (see Figure 4)

⚠️ If corrective work is needed, contact a qualified professional.

4. Drop a plumb line on one side of the channel where the gate will be installed. Pull the line toward the wall until the nearest point for the whole channel depth is at 16mm (5/8”) from the wall. Mark the position on the bottom. (see Figure 4)
5. Drop the plumb line on the other side of the channel from the position located at point 3. Repeat the process to locate the bottom position at 16mm (5/8") from the wall.

![PLUMB LINE](image1)

![NEAREST POINT = 16mm (5/8)](image2)

![MARK (EACH SIDE)](image3)

![CHANNEL WIDTH](image4)

![CHANNEL HEIGHT](image5)

![INSTALLATION POINT MARK](image6)

![MARK (EACH SIDE)](image7)

6. Measure precisely the distance between the 2 marks at the bottom of the channel. That dimension must be equal or greater to the overall width of the frame. Draw a line on the channel floor reaching both marks.
7. Measure and mark the center of the line. That will locate the center of the gate.

For an installation on an existing concrete wall, make sure that the quality of the concrete meets the minimum installation requirements.

- Verify if there is any concrete spalling;
- Verify the porosity of the concrete;
- Verify the existence of cracks that may compromise the structural integrity of the installation or may create leaks;
- Verify the concrete resistance (refer to the installation drawing to validate the required strength and type of anchor to use).
If corrective work is needed, please have it done by a skilled professional.

Finally, non-shrinking grout will be needed to seal between the frame and the concrete wall. At the position of the gate, check the roughness of concrete for proper grout adhesion. If needed, create roughness using the appropriate tool. Refer to the instructions from the grout supplier.
8. ASSEMBLING THE OPERATING COMPONENTS (WHEN NEEDED)

Because of transportation constraints, it may happen that the gate is shipped without the operating elements fully assembled. It is strongly recommend completing the assembly before the gate is lowered into the channel, unless the lifting height is not sufficient or if the total length of the assembly exceeds 6m (20').

Always apply an anti-seize on the stainless steel fasteners.

For the following steps, please refer to Figure 1 and Figure 2.

1. The gate should lay on the ground on a flat surface. Make sure to have enough free space around for circulation and installation of the operating components. Once fully assembled, the gate will need to be raised in vertical position and lowered into the channel.

2. Assemble the frame extensions using the flanges at the end, each side of the gate frame.

3. Bolt the top cross member (yoke) on which the operating mechanism will be installed. The yoke slides between the upper ends of the two frame extensions.

4. If the installation drawing shows one or more stem guide(s) across the frame, they can be installed at this time.

5. If the installation drawing shows a stem extension (pipe), it must be bolted to the slide.

6. The threaded stem can now be put in place.
   a. Rising stem (Figure 1). Slide the stem through the center hole of the yoke, the non-threaded portion down toward the slide. Bolt the stem to the slide (or to the stem extension).
   b. Non-rising stem (Figure 2). Slide the stem thru the yoke. The end with keyway is at the top. The bronze lift nut is installed on the slide at the factory. Screw in the stem in the nut approximately 6 turns.

7. The operating system (gearbox or electric actuator) can now be installed on the stem and yoke. In general, the operator will be shipped already bolted on a stainless steel mounting plate. Manually engage and turn the operator onto the stem until the mounting plate is close enough to be bolted to the yoke.

   Be careful to solidly hold the actuator until the drive nut threads are fully engaged on the stem.

8. Loosely fix the mounting plate on the yoke with the bolts, washers and nuts.

9. Using the crank or handwheel to turn the drive nut until the mounting plate is in full contact with the yoke. Tighten the bolts.

10. At this stage, the alignment of the operating mechanism is not critical. Final alignment will be done when the gate is in place in the channel. All bolts and nuts must be sufficiently tight to securely lift the gate and move it to its position in the channel.
9. C21 & C22 GATES EMBEDDED FRAME INSTALLATION

⚠️ The side seals are factory adjusted. Any modification of this adjustment will void the warranty.

⚠️ Always apply an anti-seize on the stainless steel fasteners.

1- Measure the gate free opening width and mark the center.

2- Lower the gate into the boxouts. (see Figure 5). Align the center of the gate with the center of the channel (previously marked).

3- Place a calibrated 24" or 48" spirit level on the sill of the gate. Uses stainless steel shims to correct level as needed. For the gates of 1500mm (60") or more width, uses a calibrated laser level.

4- Place a plumb line on both side of the channel near the frame. Check and adjust verticality of the frame sides in both axes along the whole channel depth. Tolerance on verticality is ±3mm (1/8") on the channel depth. Maintain the frame sides in position using temporary wood shims. (Figure 6)

5- Make sure to maintain a minimum gap of 16mm (5/8") between all parts of the frame and the boxouts to allow proper grouting. If needed, reposition the gate while maintaining the sill level and verticality of the sides.

6- Mark and drill the anchor holes on the bottom frame (sill). Install the anchors (see Figure 5).

⚠️ See Appendix 1
Apply anti-seize on each anchor rods.

7- Check squareness of the gate free opening using a straight-edge or a tight string from one corner to the other. A variation of 2mm or less is acceptable. Correct if needed by tightening the intermediate anchor and/or adding shims.

8- Drill the 2 anchor holes, each side of the frame, closest to the top of the door. Install the anchors.

9- Measure across the channel, the distance between the UHMWPE guides at the top and bottom. The distance at the top and bottom should be the same. Adjust if needed. (Figure 7)

10- Place stainless steel shims behind the frame, close to the anchors, before tightening. (Figure 8) The frame must remains in position.

11- The maximum distance between each pair of anchors is 1m (40’). If necessary, add intermediate anchors. For each additional pair of anchors, the distance between the UHMWPE guides must be verified. Adjust as needed with the shims and anchors making sure the distance is the same as at the sill.

12- Operate the gate for a complete open close cycle. Check the contact between the door and bottom seal. With the door slightly open, place 3 thin plastic paper sheets on the bottom seal, one on each side and one in the center. Close the door without using more than 270N (60 lbs) on the handwheel or crank. The three plastic sheets should be solidly locked between slide and bottom seal.

Stem alignment as described at section 11 must be completed before grouting the frame.
13- Cover the operating components (stem, actuator, etc) with plastic sheeting protection. It is necessary to do so prior to grouting.

14- Taking precautions not to displace the frame, install wooden forms to close the boxouts and pour the grout. Be careful to avoid spilling grout inside the grooves of the UHMWPE slides.

15- With clear water, clean the slides and bottom seal to remove any dirt (grout, metal, etc.), Make sure the area where the gates are installed is clean from any residue that could interfere with proper operation of the gate.

10. C21 & C22 GATES IN CHANNEL SURFACE INSTALLATION

⚠️ The side seals are factory adjusted. Any modification of this adjustment will void the warranty.

⚠️ Always apply an anti-seize on the stainless steel fasteners.

1- Measure the gate free opening width and mark the center on the bottom frame.

2- Lower the gate into the channel. Align the center of the gate with the center of the channel (previously marked). (see Figure 5).

3- Place a calibrated 24” or 48” spirit level on the sill of the gate. Use stainless steel shims to correct level as needed. For the gates of 1500mm (60") or more width, use a calibrated laser level.

4- Place a plumb line on both sides of the channel near the frame. Check and adjust verticality of the frame sides in both axes along the complete channel depth. Tolerance on verticality is ±3mm (1/8") on the channel depth. Maintain the frame sides in position using the crane or other method depending on the available tools.

5- Make sure to maintain a minimum gap of 16mm (5/8") between all parts of the frame and the sidewalls to allow enough clearance to pour the grout. If needed, reposition the gate while maintaining the sill level and verticality of the sides.

6- Mark and drill the anchor holes on the bottom frame (sill). Install the anchors (see figure 9).

Figure 9

⚠️ See Appendix 1

⚠️ Apply anti-seize on each anchor rods.
7- Check straightness of the gate bottom frame (sill) using a straight-edge or a tight string from one corner to the other. A maximum variation of 2mm (1/16") or less is acceptable. Correct if needed by tightening the intermediate anchor(s) and/or adding shims.

8- Drill the 2 anchor holes, on each side of the frame, closest to the top of the door. Install the anchors.

9- Measure across the channel, the distance between the UHMWPE guides at the top and bottom. The distance at the top and bottom should be the same. Adjust if needed. (Figure 7)

10- Place stainless steel shims behind the frame, close to the anchors, before tightening. The frame must remain in position while the anchors are tightened.

11- Install the intermediate anchors on the frame sides. All intermediate anchors must be installed, since the frame is not embeded. The distance between the UHMWPE guides must be verified at each pair of intermediate anchors. Adjust as needed with the shims and anchors making sure the distance is the same as at the sill.

12- Operate the gate for a complete open close cycle. Check the contact between the door and bottom seal. With the door slightly open, using 3 thin plastic sheets, place one each sides and one in the center. Close the door without using more than 270N (60 lbs) on the handwheel or crank. The three plastic strips should be locked firmly between the slide and bottom seal.

**Stem alignment as described at section 11 must be completed before grouting the frame.**

16- Cover the operating components (stem, actuator, etc) with plastic sheeting protection. It is necessary to do so prior to grouting.

17- Taking precautions not to displace the frame, install the forms to close the boxouts and pour the grout. Be careful to avoid spilling grout inside the grooves of the UHMWPE slides.

18- With clear water, clean the slides and bottom seal to remove any dirt (grout, metal, etc.). Make sure the area where the gates are installed is clean from any residue that could interfere with the proper operation of the gate.
11. FINAL ADJUSTMENTS OF LIFTING COMPONENTS

11.1. STEM ALIGNMENT

Figure 10

1. Close the gate and remove all compression stress on the stem by starting the opening rotation until there is no compression or tension on the stem.
2. The actuator must be properly aligned with the stem attachment point on the door to prevent any lateral stress or bending the stem or stem extension. In the upstream-downstream direction, the actuator position is adjusted by the yoke bolting position in the slotted holes at each ends. Sideways, the adjustment can be made by the position of the mounting plate on the yoke (slotted holes).

3. Adjustment is done by slacking the bolts just enough to allow movement of the yoke in the upstream-downstream directions and lateral movement of the mounting plate.

4. Drop a plumb line from the yoke, beside the stem, down to the door. Adjust the actuator position until the stem is vertical in both axes within a tolerance of 1mm per meter (0.012"/ft). Maximum 10mm (3/8") total.

5. Once satisfied with the alignment, the yoke must be levelled in both directions using a calibrated 24" or 48" spirit level. Use the mounting plate to check level sideways. Level can be checked on the yoke in the upstream-downstream direction.

6. After levelling the yoke, re-check the stem alignment with the plumb line. Re-adjust if needed.

7. Tighten the bolts on the mounting plate and yoke. The bolts holding the yoke with the frame sides must be tighten with a torque of 136 N.m (100 lb-ft).

11.2. INSTALLATION OF THE STEM GUIDES (IF NEEDED)

1. If one or more stem guides must be installed, the first step is to apply tension on the stem with one of the following methods:
   a. Hold the door in closed position using a clamp on the door and bottom frame.
   b. Open the door until it reaches the mechanical stoppers.

2. Apply a thrust of 178 N (40 lb) on the actuator to make sure all the operating components are in tension.

3. Mark the guide(s) position on the wall, starting from the invert. (Refer to the installation drawing.)

4. Install the stem guide(s) at the position previously marked. See Appendix 1.

5. Once the stem guides are anchored to the wall, proceed with final alignment and tighten in place.
11.3. STOP NUT INSTALLATION

⚠️ The stop nut is required for manual gates with rising stems.

⚠️ Not installing or not installing properly the stop nut can cause excessive leakage or damage to the gate components.

1- Fully close the gate to install the stop nut using one of the following two methods:

   A. Closing the gate under dry condition
      1- Place on the gate bottom seal a thin strip of plastic (the thickness of a plastic bag) of about 50 mm (2") wide at each corner.
      2- Using the actuator, close the slide until to two plastic strips are well jammed between the slide and the bottom seal.
      3- Continue to close the gate slide 2 to 3mm (1/8in) to compress the bottom seal.

      The gate is now fully closed

   B. Closing the gate with water pressure
      1- Using the actuator, close the gate until the water flow stops. Never apply more than 178 N (40lb) on the actuator.

      The gate is now fully closed

2- Using the depth measuring blade of a Vernier caliper, measure the distance A1 between the end of the gate stem and the contact surface (top of the lifting nut) (ref.: Figure )

3- Open the gate about 300mm (12po).

4- Screw the stop nut on the stem until the distance from the top of the stem and the bottom of the stop nut is equal to distance A1.

5- Secure the stop nut into position by tightening the set screws.

6- Lower the gate into the closed position until the stop nut sits on the contact surface of the lifting nut and rechecks the distance A1. Do not apply a force greater than 178 N (40lb) on the actuator. Reposition the stop nut if necessary.
11.4. DRIVE KEY INSTALLATION (NON-RISING STEM)

1- Rotate the actuator until the drive nut and stem keyways are aligned.
2- Insert the key and bolt in position.
3- Install the cap on top of the actuator (if applicable).
4- To prevent infiltration of water into the actuator, seal the cap with a silicone joint.

11.5. LIFTING STEM LUBRICATION AND CLEANING

5- Open the gate to expose the stem threads (rising stem). For a non-rising stem, close the gate.
6- Thoroughly clean the stem threads using a plastic or stainless steel brush to prevent contamination of the stem. See 0 for additional information on stainless steel contamination.
7- Lubricate the stem threads with the proper grease (ref.: 0 APPENDIX 2 Stem lubrication).

11.6. STEM COVER INSTALLATION

A ) ON A GEAR BOX OR ELECTRIC ACTUATOR:
1- Close the gate. Screw the stem cover on the actuator.
2- To prevent water from entering the actuator, seal the base of the tube fitting with silicone.

B ) ON A HAND WHEEL WITH THRUST BEARING:
1- To prevent water from entering the actuator and to maintain the stem cover in position, apply silicone on the inside face of the hand wheel hub.
2- Insert the stem cover and allow drying without moving.

11.7. GRADUATED RULER INSTALLATION (RISING STEM)

1- Fully close the gate
2- Clean the stem cover with mild soap (⚠️ do not use solvent).
3- Let dry.
4- Apply the adhesive ruler on the stem cover. The "0" of the ruler must align with the upper end of the gate stem when the gate is fully is closed.
## 12. TROUBLESHOOTING

Never use excessive force on the actuator, permanent damage to seals and lifting equipment may result.

<table>
<thead>
<tr>
<th>Symptoms</th>
<th>Cause</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Leakage</strong></td>
<td>Wood, concrete or other foreign materials on the seals.</td>
<td>Carefully remove what is causing the leak. Check for damage to the seals.</td>
</tr>
<tr>
<td></td>
<td>Gate not properly mounted on the anchors.</td>
<td>Tighten the anchor bolts according to anchor manufacturer's recommendations.</td>
</tr>
<tr>
<td></td>
<td>Top seal anchors too tight.</td>
<td>Partially reduce the tension on the top seal anchors.</td>
</tr>
<tr>
<td></td>
<td>Excess of epoxy around the base of the anchor that prevents a proper compression of the wall gasket.</td>
<td>Remove the gate and remove the excess of epoxy around the bases. Replace the gate.</td>
</tr>
<tr>
<td></td>
<td>Cracks, crumble or porosity in the concrete wall that bypass the seal.</td>
<td>Repair and seal cracks, crumble or porosity.</td>
</tr>
<tr>
<td></td>
<td>The side seal bolts are not well adjusted.</td>
<td>The side seals are factory adjusted. The setting torque is measured to the optimized the ratio between the operation force and leakage rate. Therefore, contact <strong>Fontaine Aquanox</strong> before adjusting the side seal bolts.</td>
</tr>
<tr>
<td></td>
<td>Stop nut not properly adjusted.</td>
<td>Refer to the installation section to reposition the stop nut.</td>
</tr>
<tr>
<td><strong>Excessive operating force</strong></td>
<td>Stem or lift nut dirty or dry.</td>
<td>Clean and lubricate the threads.</td>
</tr>
<tr>
<td></td>
<td>Wood, concrete or other foreign materials on the seals.</td>
<td>Carefully remove what is causing the leak. Check for damage to the seals.</td>
</tr>
<tr>
<td></td>
<td>Misalignment of the lifting components.</td>
<td>Verify and adjust alignment.</td>
</tr>
<tr>
<td></td>
<td>The gate frame improperly installed or warped.</td>
<td>Verify the frame squareness, contact <strong>Fontaine Aquanox</strong> if the frame is warped.</td>
</tr>
</tbody>
</table>

If there are problems in the operation of a gate and troubleshooting described above offers no solution, contact **Fontaine Aquanox** (see section 15) and have, if possible, the following information:
• Equipment serial number
• Detailed description of the situation (eg. leakage rate measured on site is considered excessive)
• Photos or videos that can help understand and address the situation

12.1. GATE SETTING

The gate seals were adjusted and tested at the factory and do not require any adjustment after installation. However, the electric actuators need to be field adjusted after the installation. Refer to the electric actuator manual.

13. INSPECTION AND MAINTENANCE

In order to maintain the gates performances at its best, Fontaine Aquanox recommends the following procedure.

13.1. INSPECTION FREQUENCY

Initial inspection: after 25 operation cycles or two weeks after start up, whichever comes first.
Second inspection: 50 cycles after the initial inspection or six months after start up, whichever comes first.
Subsequent inspections: Every 100 operation cycles or every six months, whichever comes first.
If the gate is used intensively or in extreme conditions, perform inspection every three months.
One complete operation cycle corresponds to the opening and closing of the gate.

13.2. GATE MAINTENANCE

Clean the gate with clean water to get rid of any deposit.
Verify whether the guides and seals are in good condition.

13.3. STEM MAINTENANCE

Verify the stem and lift nut thread conditions in order to detect excessive wear.
Open the gate to expose the stem threads.
Thoroughly clean the stem thread using a plastic or stainless steel brush to prevent contamination of the stem. See 0 for additional information on stainless steel contamination.
Lubricate the stem threads with the proper grease. Refer to 0 APPENDIX 2 Stem lubrication.
Verify all bolts and fasteners on the stem.
Gate and stem maintenance should be performed at each inspection.

14. WARRANTY

ISE Metal inc. warrants that the series 25 Slide Gates it manufactures and delivers to the Buyer are free from defects in material, workmanship and fabrication for a period of 60 months from the date of receipt of the equipment at their installation location. To benefit from this warranty, the Buyer shall promptly report in writing any failure during the warranty period. Provided that the buyer has stored, installed, maintained and used the equipment in a workmanlike manner and has complied with the manufacturer’s instructions and recommendations put forth in the Installation, Operation and Maintenance Manual, at its discretion,
ISE Metal will either correct the defect at its factory or provide the required parts. Shipping costs from the factory to the installation site and/or labor on the equipment installation site are not covered by this warranty. Accessories and equipment supplied by ISE Metal inc. with the gates, but manufactured by others will be protected by the warranty offered to ISE Metal by the manufacturers of the equipment which are transferable to Buyer. ISE Metal inc. will not be held responsible for any direct, indirect, consequential, contingent or incidental damages, repairs, replacements or other fixes and adjustments to the equipment nor any labor costs incurred by the Buyer or its subcontractors or others without the prior written consent of ISE Metal Inc. The effects of corrosion, erosion and normal wear and tear are specifically excluded from this warranty. The Buyer shall not use equipment that is considered defective without first obtaining a written consent of ISE Metal inc., otherwise the Buyer uses the equipment at their own risk and responsibility.

ISE Metal Inc. provides no other warranty or makes no other express or implied representation and any implied warranty of fitness for a particular purpose is declared non-existent.

Corrections by ISE Metal inc. of non-compliance described above constitute complete fulfillment of its responsibility in this manner.

15. CONTACT FONTAINE AQUANOX

If needed, Fontaine Aquanox can be contacted with the following methods:

Web site:  http://www.ISequanox.com
Phone:  (819) 769-0157 or toll free: 1-855-769-0157
Mailing address:  20 route de Windsor, Sherbrooke (Quebec), Canada, J1C 0E5
APPENDIX 1  CAUTION FOR CHEMICAL ANCHORING

Always ensure compliance with the hole diameters and depths recommended by the manufacturer because the cavity becomes the mixing chamber for the resin/hardener according to the volume of the epoxy bag. A non-compliant hole will result a partial or invalid epoxy curing.

Use an impact wrench when installing the anchor to obtain a homogenous mixture of the two epoxy components. To do so, use a nut, a washer and a lock nut (see Figure 11).

It is very important to stop the impact wrench when the anchor rod reaches the bottom of the hole, because if the rod continues to rotate, the threads will evacuate the epoxy out of the hole. Be sure to wait for the curing time recommended by the manufacturer (proportional to the concrete temperature) before tightening.

Injectable chemical anchor

Always remove the gate before installing the injectable chemical anchors.

Hold the anchor rod centered into the hole and make sure to remove all excess of epoxy around the base of the anchor, because once cured, it will act as a shim and will prevent proper compression of the wall gasket. Be sure to wait for the curing time recommended by the manufacturer (proportional to the concrete temperature) before tightening.

APPENDIX 2  STEM LUBRICATION

<table>
<thead>
<tr>
<th>Type of grease</th>
<th>Type use</th>
<th>Standard</th>
<th>Frequent</th>
<th>Frequent submerge</th>
<th>Food industry</th>
<th>Non toxic</th>
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<td>Esso Unirex EP2</td>
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* Equivalent greases are also acceptable.
APPENDIX 3  DECONTAMINATION AND PASSIVATION

Contact between stainless steel and carbon steel such as the tooling used during the installation (hammer, wrenches, chain hoist, grinding operation nearby, etc.) may locally contaminate stainless steel creating traces of corrosion. Note that these traces of corrosion are more of an aesthetic nature and generally do not affect the structural integrity of the equipment.

Contamination by nails left on the surface

Contamination caused by grinding nearby

It is possible to remove these traces using a passivation product designed for this purpose on the market. These products are often acid-based, certain precautions must be taken for their use and their possible contact with the sealing system of the gate.

Contact Fontaine Aquanox for more information on this manner.