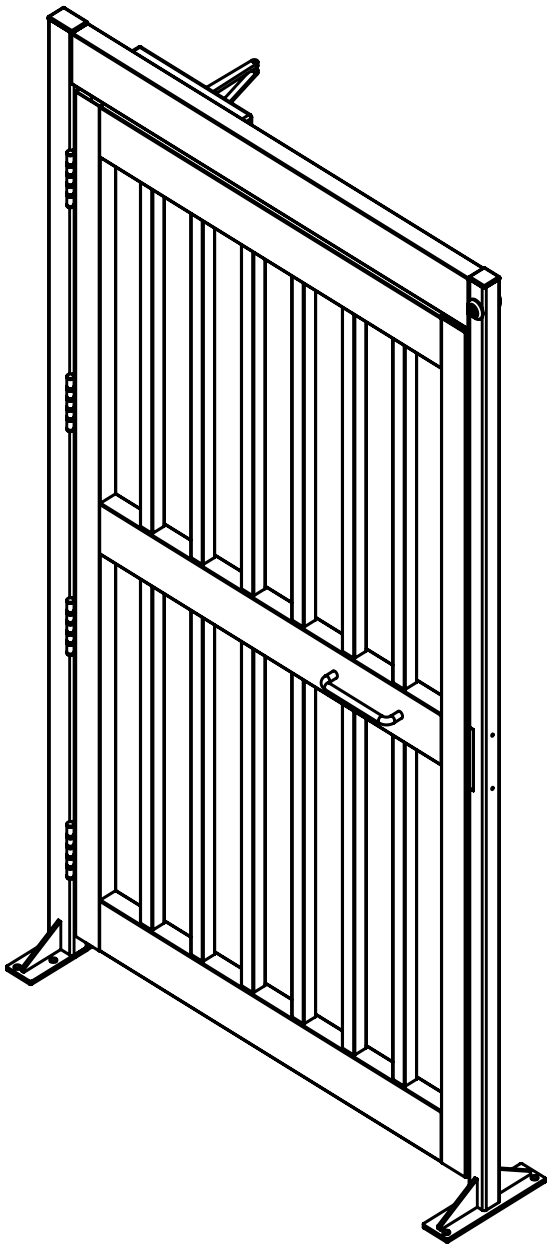
ALVARADO

protecting assets and controlling the flow of people

Full Height Maximum Security Gate

(MSG / MSG-1 / MSGX / MSGX-PX / MSGX-E / MSGX-S)



Installation and Maintenance Instructions

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Please read this entire manual <u>before</u> installing or operating the product.

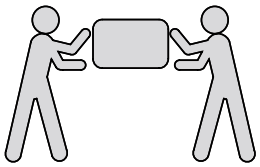
Safety Icons

The following symbols are used throughout the manual to highlight important information and potential risks when installing, servicing or using the gate covered in this manual.

⚠ WARNING This symbol is used in this manual to warn installers and operators of potential harm. Please read these instructions very carefully.

⚠ CAUTION This symbol is used in this manual to designate potential conditions that may pose a risk to pedestrians, personnel, property and equipment. Please read these instructions very carefully.

NOTE This symbol is used in this manual to designate useful information for the installer and operator. Please read these instructions.



A minimum of two people is required to complete the installation of this product.

☎ For further assistance, please contact Alvarado's Technical Support Department at +1(909) 591 - 8431 or visit www.alvaradomfg.com and select the "Support" tab.
Support hours are Monday - Friday 7am - 4pm Pacific Time (excluding USA holidays).
Be prepared to accurately describe the problem and provide the serial number of the gate; this is printed on a tag attached to the inner frame of the gate.

Safety Precautions

⚠ WARNING Always follow the installation and operating precautions, including the following:

- Read this manual in its entirety before installing or operating the gate. If there are questions, you may contact Alvarado at (909) - 591 - 8431, Monday through Friday, 7:00AM to 4:00PM PST.
- Use only skilled individuals to install and service the gate.
- The gate is not a toy. Do not allow children to play on or near the gate.
- Follow a proper maintenance schedule using skilled individuals.
- Do not operate the gate if it has been damaged, or is functioning incorrectly, in any manner. Have the gate repaired by a skilled service person before placing back in use.
- Do not modify or alter the gate.
- Use only Alvarado parts when repairing or maintaining the gate.
- In access control applications, train all personnel that will be using the gate in the proper method of operation. Ensure that new users are properly trained.

SAVE THESE INSTRUCTIONS

Upon completion of the installation process, it is the installer's responsibility to provide the project or site manager with this Installation and Maintenance Instruction manual.

Common Terms

- Fail Safe - Gate unlocks in the event of power loss. The gate will relock when power is reapplied. All magnetic locks are Fail Safe. Fail Safe electric strike locks are available as an option.

- Fail Lock - Gate remains locked when power is removed (or lost). The gate will unlock only when both power and an activation contact are supplied. All electric strike locks are Fail Lock unless otherwise specified. Magnetic Locks are not available in Fail Lock mode.

- Activation - Alvarado's gates require the use of a timed contact switch to lock and unlock. The gate will not re-engage until the switch is released and the gate is closed.

- Mesh Infill - The mesh infill is a diamond pattern steel mesh that is attached to the interior portion of the gate. The purpose is to prevent persons from reaching through the gate. This component is available for all models.

- Microswitch Push Bar - This is an electrically operated mechanical push bar . If there is power loss, the bar will default to the condition specified for the lock in use. This component is not available for the MSG or MSG-1 models.

- Mechanical Push Bar - Mounted on the exit side, when the bar is pushed in the exit direction, the latching bolt is mechanically retracted allowing the user to exit. This allows emergency exiting at any time through the gate regardless of power conditions. This option is available only on: MSG-1, MSGX-E, and MSGX-S models.

- Dead Bolt Lock - A keyed lockset that is used to lock the gate in a closed position. A key is required to unlock the gate on either the entry or exit side of the gate.

- Magnetic Lock - Magnetic lock offers up to 1200 pounds of holding force. Power (low-voltage 12VDC) is supplied to the lock to energize the magnetic lock. When the gate is closed, the latch plate (mounted to the gate) is held against the magnetic lock (mounted on the gate frame) when power is applied. The gate is unlocked by removing power from the magnetic lock and the patron pulls the gate open in the entry direction or pushes the gate open in the exit direction. This is standard only on the MSGX and MSGX-PX models.

- Electric Strike Lock - A lock where power (low-voltage 12VDC) is supplied to the lock to release the mechanism to allow the gate to open. Power is then removed to allow the strike to be in the lock position. This lock is standard on the MSGX-E and MSGX-S models.

- Universal Card Reader Mounting Plate - A mounting plate is attached to the latch post of the gate on the entry, exit, or both sides.The mounting plate is a universal style plate that an additional device specific plate may be added in order to fit the reader that is required. This option is available on: MSGX, MSGX-PX, MSGX-E, and MSGX-S models.

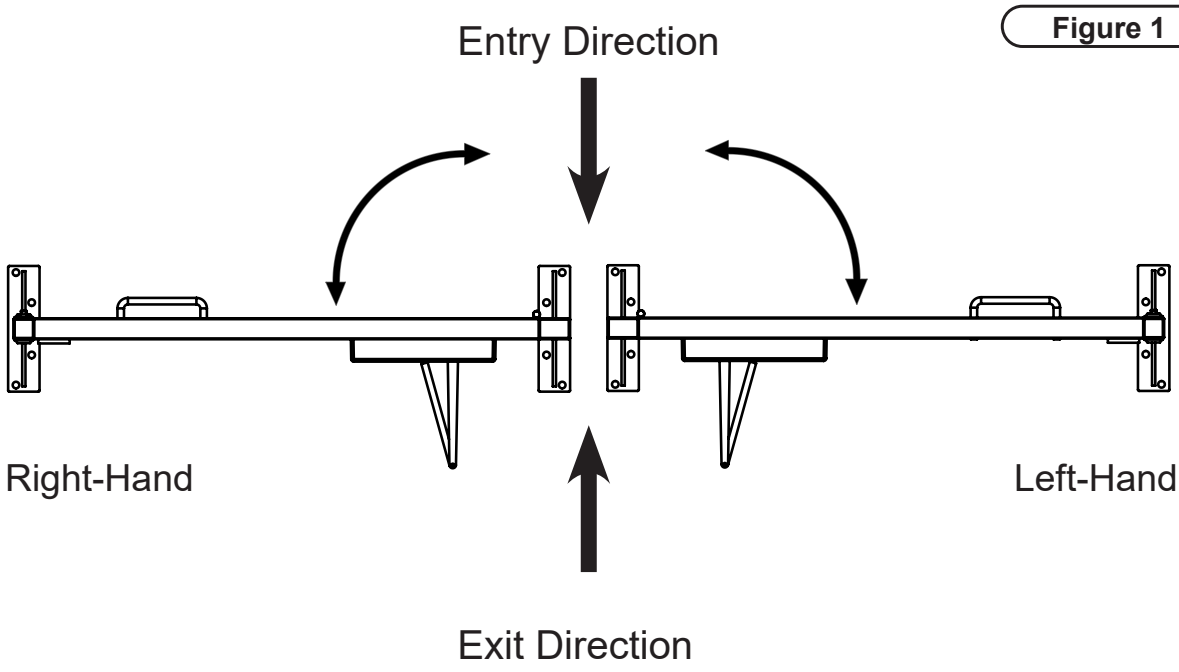
- Push-To-Exit Remote Button Switch - A 3.15in square switch box assembly constructed of stainless steel with a DPDT (double pole double throw) push button switch. The switch is field wired into the strike or magnetic lock power cable to unlock the gate from a remote position such as a guard shack. This optional component is available for: MSGX, MSGX-PX, MSGX-E, and MSGX-S models.

- Magnetic Sensor Switch - A two piece switch magnet mounted on the gate and the latch post. It is used to monitor whether the gate is open or closed. The switch is a SPST (single pole single throw) contact supplied with two lead in wires for field connection. This option is available for all MSG models.

Configurations Available

The Maximum Security Gate models are available in a left-hand or right-hand swing directions. See below to determine the entry and exit direction for both swing directions.

Figure 1



Configurations Available (Cont.)

Alvarado gates in this manual come in the following configurations. Please read each model description carefully to ensure you understand the functionality of the gate you are installing.

Model	Entry Hardware	Exit Hardware	Operation
MSG	Pull handle	No hardware	Gate swings in one direction
MSG-1	Key lock control with pull handle	Mechanical push bar	Gate swings in one direction. Gate includes stop gap. Infill mesh to prevent activation through push bar.
MSGX	Magnetic lock (Fail Safe) with pull handle	No hardware	Gate swings in one direction.
MSGX-PX	Magnetic lock (Fail Safe) with pull handle	Microswitch push bar	Gate swings in one direction. Infill mesh to prevent activation though push bar.
MSGX-E	Electrc strike (Fail Lock), key lock control with pull handle	Mechanical push bar	Gate swings in one direction. Gate includes stop gap. Infill mesh to prevent activation through push bar.
MSGX-S	Electric strike lock (Fail Lock) and pull handle	No hardware	Gate swings in one direction. Gate includes stop gap.

Tools Required

- Heavy Duty Drill or Rotary Hammer
- 5/8" Concrete Drill Bit
- Torque Wrench (ft-lbs)
- Shop Vac
- Tape Measure
- Chalk Line
- Safety Glasses
- Angle Grinder

Parts List

- Gate in frame
- This installation guide
- Power supply (for select models)
- Push bar or handle (optional)
- Anchor package:
  - 3/8" anchors (2" length - Qty 8)
  - 3/8-16 x 2 1/2" HHSC (Qty 8)
  - 3/8" Flat washers (Qty 8)

Installation Overview

The overall steps to correctly install the Maximum Security Pedestrian Gate are below:

1) Determine gate location; taking into account power and activation wiring stub requirements (if applicable).

2) Anchor the gate and attach the closing arm hinge.

3) Connect activation wiring (if applicable).

4) Connect low-voltage power (if applicable).

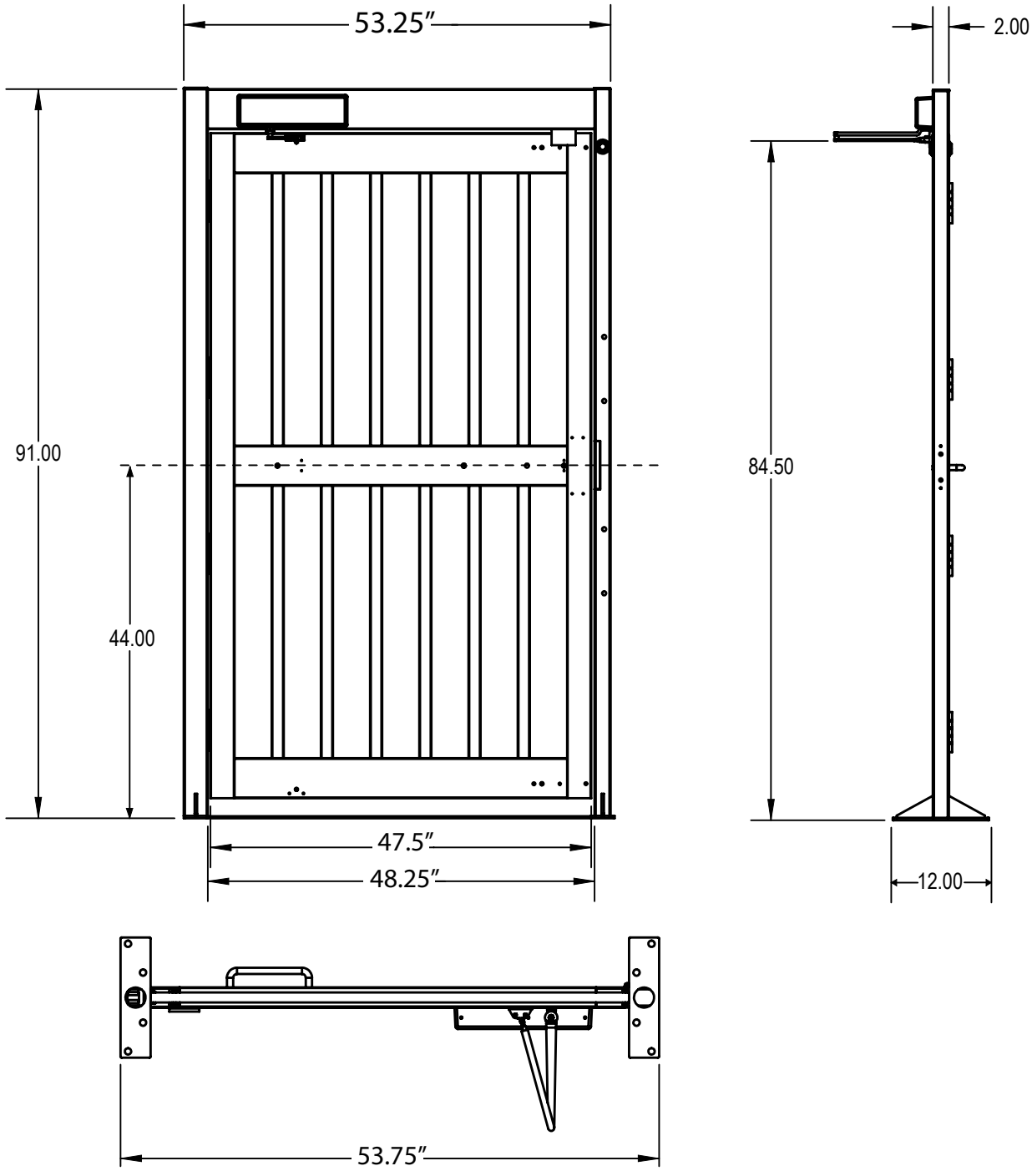
Slab Requirements

The must be installed on a level concrete pad with a minimum thickness of 4 inches.

⚠ WARNING DO NOT INSTALL ON ASPHALT.

Drawings and Dimensions

Figure 2



Anchoring Instructions

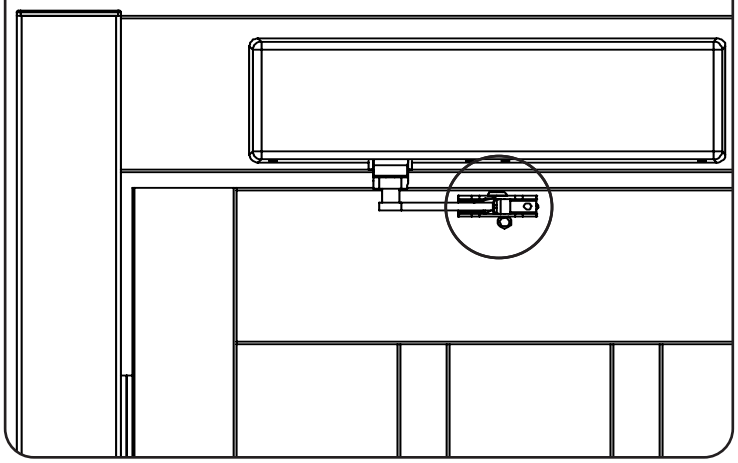
1) The hydraulic arm is detached from the gate for ease of shipping. Before removing the gate the from the shipping crate, reattach the hydraulic arm hinge to the gate using (2) 1/4" machine screws. [Figure 3].

2) Determine the installation location of the gate, taking into consideration the minimum width opening required; refer to *Drawings & Dimensions* section on Pg. 7 for minimum installation requirements.

   Once the installation location is confirmed, snap a chalk line on the floor to mark the centerline of the gate. The chalked centerline should be at least 6" longer than the overall width of the gate.

3) Set the gate on the chalk line, facing in the correct direction of operation.

Figure 3



⚠ CAUTION

Care must be exercised when moving the gate The gate weighs approximately 400lbs. Until the gate is securely fastened to the concrete foundation, secure the gate / frame assembly to prevent the unit from falling.

NOTE

The gate should swing in the exit direction. Refer to *Configurations Available* on Pg. 5 if there is any uncertainty of orientation.

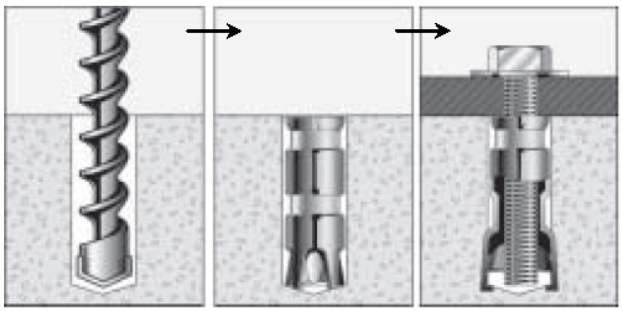
4) Mark the center locations of the (4) four anchor holes in each of the frame's base plates.

5) Move the gate to the side and drill a 5/8" diameter hole to a depth of 3" at the center of each marked location. For terrazo, ceramic tile, or brick veneer installations, add the thickness of the finished floor material to anchor the hole depth.

6) Vacuum out the holes thoroughly. If the holes are not clean, the anchors will not tighten.

7) Insert one anchor into each drilled hole. Ensure the anchors are flush with the concrete floor or finished surface and the threads are down as shown in [Figure 4].

Figure 4



Drill hole. Clean hole. Vacuum debris.

Insert the anchors with the thread side down. The anchors must be a with the surface.

Insert the washer. Insert the bolt. Tighten bolt.

NOTE

It is recommended to brace the top of the gate with supplemental products or with exisiting structure to increase rigidity and support.

Anchoring Instructions (Cont.)

8) Using an angle grinder, cut and remove the metal strip at the base of the door frame.

9) Return the gate back over the anchor holes. Anchor both sides with four (4) each 3/8-16 x 2 1/2" HHCS bolts and flat washers. Make sure the bolts are snug to keep gate secure.

10) Verify the gate is level in all directions. Adjust and shim as necessary.

11) Torque all anchor bolts (8 total) to 25 ft-lbs. Verify that the gate is level.

This completes the physical installation of the Maximum Security Gate.
Proceed to next section for wiring diagrams for electrically controlled models.

Magnetic / Electric Strike Lock Wiring

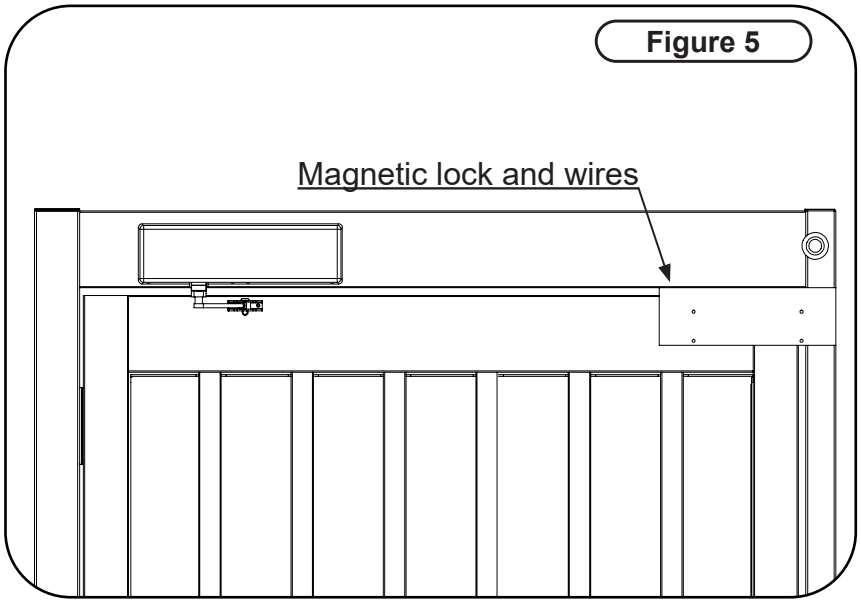
Magnetic Lock Specifications

If a magnetic lock is used, the lock and wires are located on the gate frame towards the top of the gate door. [Figure 5]

Magetic Lock (Standard):

Voltage: +12VDC
Current: 0.25A
Switch Contact: Normally Closed
Holding Force: 1200lbs.
Wire Lead:
- **Red** - +12VDC Input
- **Black** - Ground

Figure 5



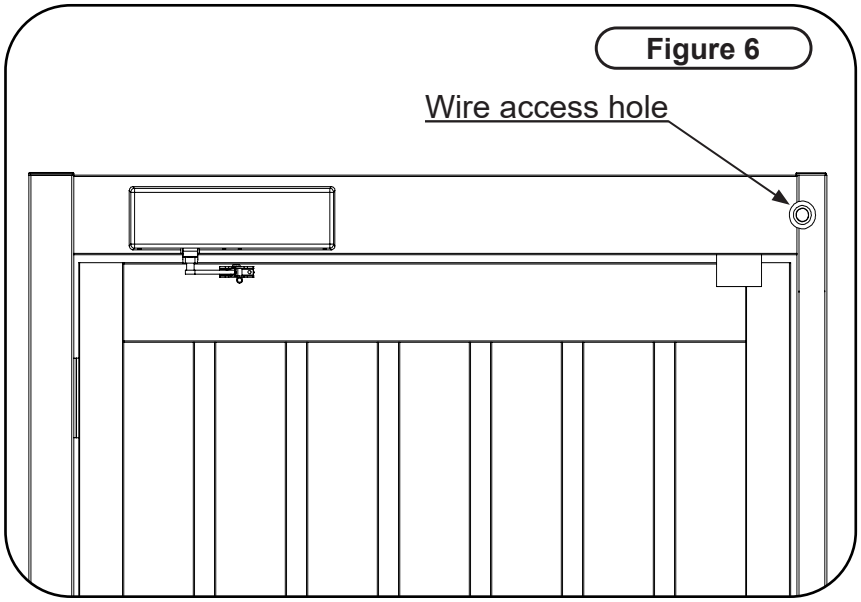
Electric Strike Lock Specifications

If an electric strike lock is used, (2) two white wires attached to the lock will be coming out of the wire access hole. Either side of the access hole can be plugged if necessary. A 1/2" pipe thread hole plug is supplied. [Figure 6]

Electric Strike Lock (Standard):

Voltage: +12VDC
Current: 0.25A
Switch Contact: Normally Open
Normally Closed
Wire Lead:
- **Red** - +12VDC Input
- **Black** - Ground

Figure 6



NOTE

- Normally Open refers to Fail Lock & Normally Closed refers to Fail Safe.
- Cable runs are not to exceed 50 feet.

Magnetic / Electric Strike Lock Wiring (Cont.)

Power Supply Specifications

	120V		220V
Input:	120VAC, 60Hz, 17W	**Input:**	220VAC, 50Hz, 20W
Output:	+12VDC, 1.0A	**Output:**	+12VDC, 1.25A

The power supply is to be installed near the gate location. Ensure power supply enclosure is weatherproofed.

Wiring Instructions

⚠ WARNING Ensure primary power to the unit is off before any wire connections are made.

1. Pull 18 gauge cable through the conduit (if used) from the power supply and switch location to the wire access hole located at the top corner of the gate door on the push side of the gate frame post. [Figure 6]

2. Identify the wiring diagram appropriate for your locking device on *Wiring Instructions (Cont.)*.
   Refer to Figure 7 for Magnetic Lock / Fail Safe Electric Strike wiring diagram and Figure 8 for Fail Lock Electric Strike wiring diagram.

3. At the gate, connect the POSITIVE (+) RED wire coming out of the lock device to the common terminal of the device providing the sustained activation signal (access switch, push button, etc.) Connect the NEGATIVE (-) BLACK wiring coming out of the lock device to the NEGATIVE (-) BLACK power supply lead wire.

4. Connect the POSITIVE (+) BLACK/WHITE DASHED STRIPE wire coming out of the power supply to the appropriate terminal of the device providing the sustained activation signal (access switch, push button, etc.).

5. Plug the power supply into appropriate power source. For both Fail Lock and Fail Safe units, the gate should lock when power is supplied (if wired correctly). Press and hold the gate activation button: if the gate is functioning correctly, the lock will release and the gate will unlock.

Wiring Instructions (Cont.)

Figure 7 Maglock / Fail Safe Electric Strike Wiring Diagram

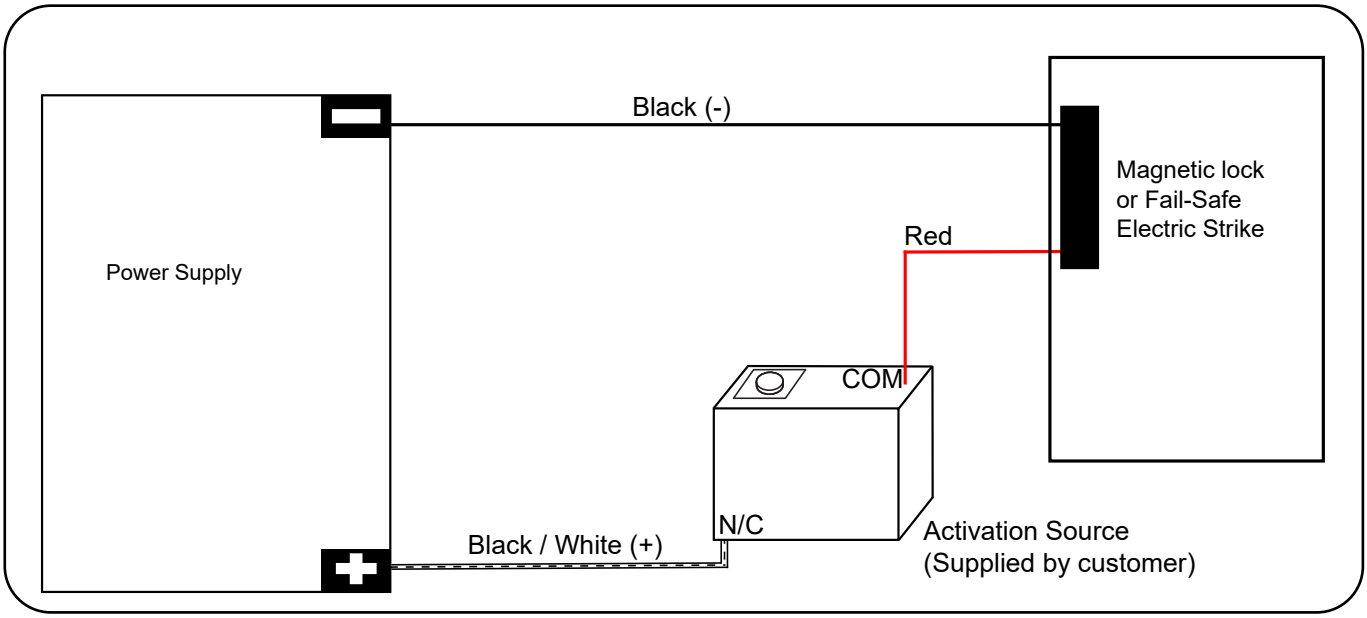
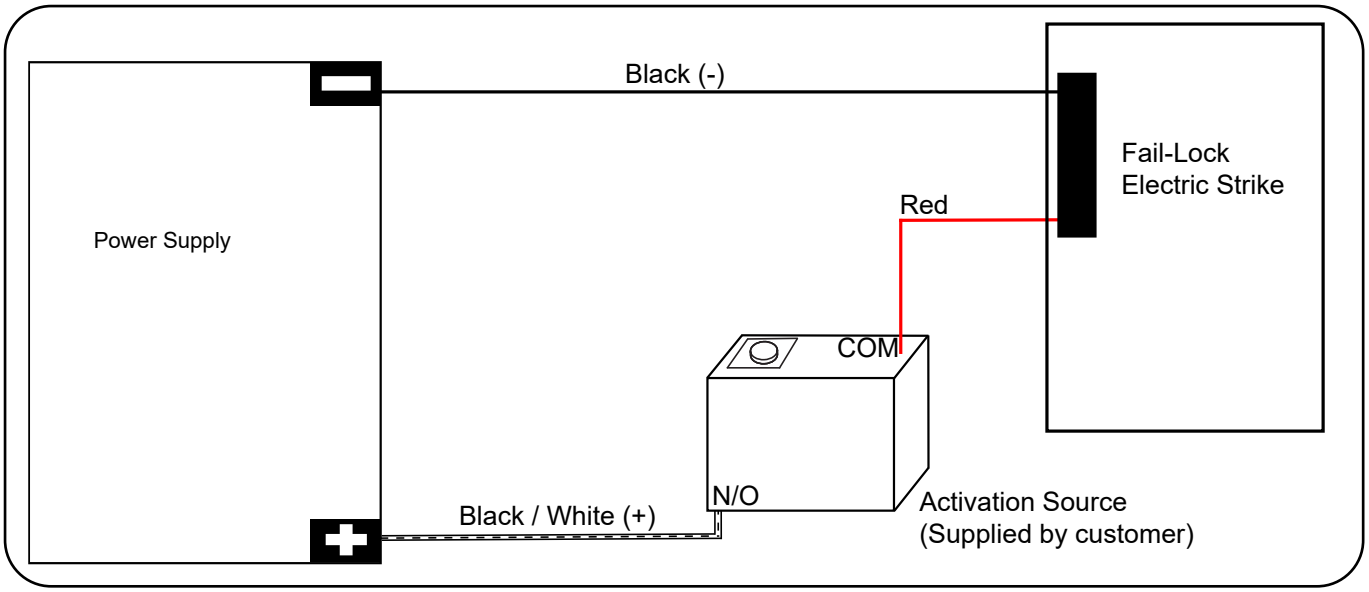


Figure 8 Fail Lock Electric Strike Wiring Diagram



NOTE

- Normally Open refers to Fail-Lock & Normally Closed refers to Fail-Safe.

Microswitch Push Bar Wiring Instructions

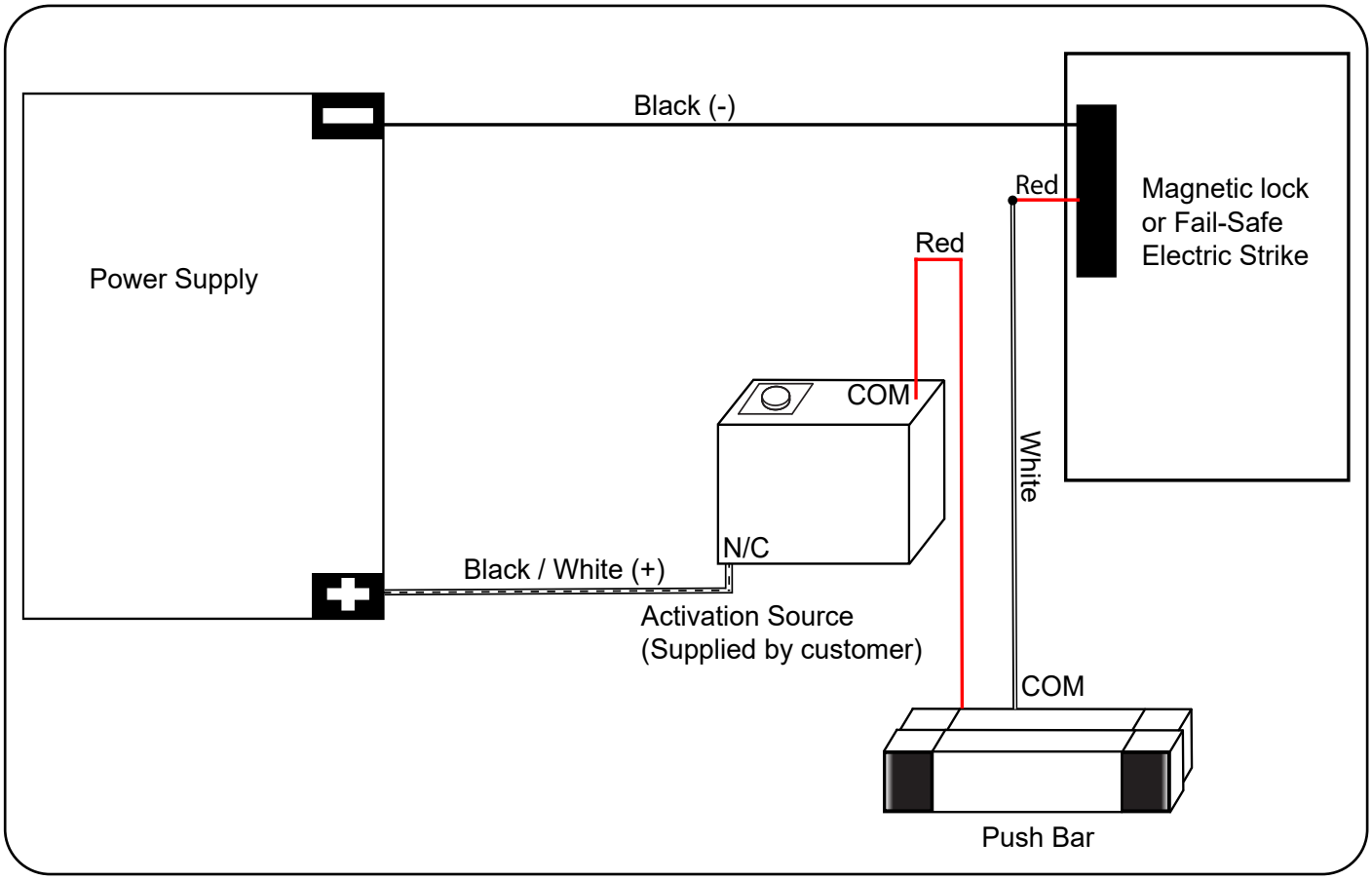
⚠ WARNING Ensure primary power to the unit is off before any wire connections are made.

1. The push bar is wired in series with the gate activation switch. To acomplish this, connect the RED wire from the push bar to the POSITIVE (+) conduit lead wire on the power supply side of the conduit.

2. Connect the WHITE wire from the push bar to the POSITIVE (+) RED lock wire. The RED and WHITE wires from the push bar as well as RED lock wire can be found coming out of the wire access hole located at the top of the gate frame. [Figure 6]

3. Plug the power supply back into the appropriate VAC power source. If the push bar is functioning correctly, the gate should open when the bar is pressed.

Figure 9 Magnetic Lock / Fail Safe Electric Strike with Push Bar Wiring Diagram



NOTE Microswitch Push bar can also be used for multiple applications, reference below to determine wire configuration.

Switch 1

White - Common (COM)

Black - Normally Open (NO)

Red - Normally Closed (NC)

Switch 2

Green - Common (COM)

Blue - Normally Open (NO)

Yellow - Normally Closed (NC)

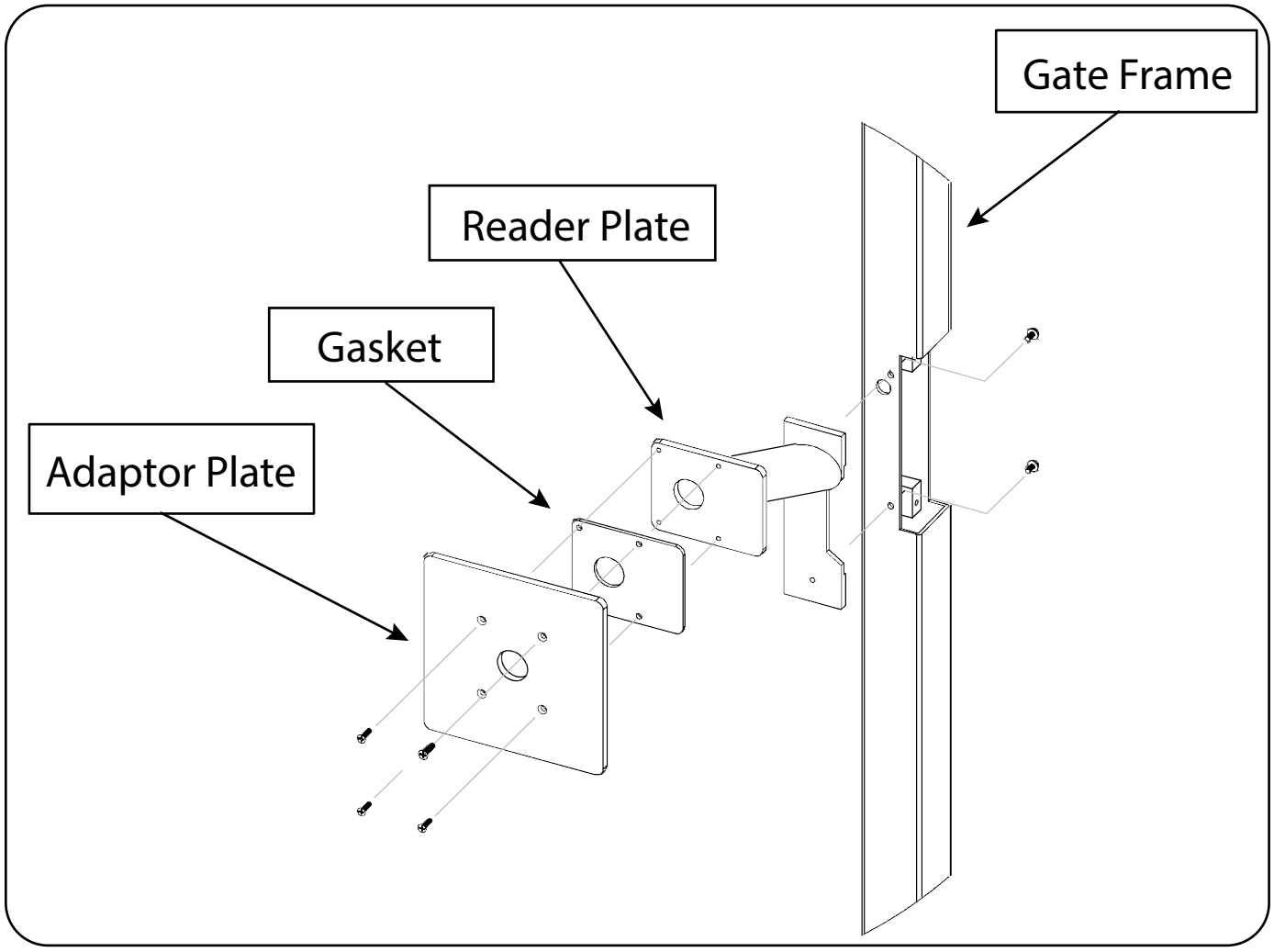
Card Reader Adapter and Assembly

The reader plate is already attached to the gate frame. The reader plate is attached to the gate frame by (2) two screws secured from the inside of the gate frame. The lock mechanism will need to be removed in order to access the reader plate screws. The rest of the card reader hardware, adaptor plate, gasket, and mounting screws (4), are supplied detached from the reader plate.

To attach the card reader, drill and tap holes into the adaptor plate. Feed wires through the adaptor plate, gasket, and reader plate into the gate frame vertical tube. The adaptor plate and card reader are attached with (4) four screws through the gasket and into the reader plate. [Figure 10]

Connect the card reader and test for proper functionality as per manufacturers documentation.

Figure 10



Hydraulic Closing Arm Adjustment Instructions

1. Unscrew the two (2) screws on the top of the plastic cover and remove the cover to gain access to the hydraulic closing arm.

2. The following adjustments can be made:

- **Power Adjustment Nut** - Adjusts the closing power of the mechanism using an 11/16" wrench or socket. To increase power, turn the power adjustment nut clockwise for a maximum of 15 turns. The closing arm is default setting is 7 turns. The adjustment nut is located at the end tip of the closing arm. [Figure 11a]

- **Latch Adjustment Valve** - Adjust the speed at which the door closes within the last 10 degrees of motion using a 1/8" hex key. Turn clockwise for slower speeds, and turn counterclockwise for faster speeds. The valve is located on the side of the closing arm and is labeled with the letter "L". [Figure 11b]

- **Sweep Adjustment Valve** - Adjust the speed at which the door closes in the first 80 degrees of motion using a 1/8" hex key. Turn clockwise for slower speeds, and counterclockwise for faster speeds. The valve is located on the side of the closing arm and is labeled with "S/D". [Figure 11b]

- **Backcheck Position Adjustment Valve** - Adjusts the door angle where backcheck cushioning starts with a 1/8" hex key and is shipped with the valve normally closed. Turn counterclockwise to increase the angle. The valve is located on the side of the closing arm and is labeled with the letter "P". [Figure 11b]

- **Backcheck Adjustment Valve** - Adjusts the hydraulic resistance to door opening with a 1/8" hex key. Turn clockwise to increase the resistance and counterclockwise to decrease the resistance. **Never close this valve completely - it is not to provide a positive stop**. The valve is located on the side of the closing arm and is labeled with the letter "B". [Figure 11b]

3. Replace and secure the hydraulic closing arm cover. Test the gate door for the desired adjustments.

Figure 11a

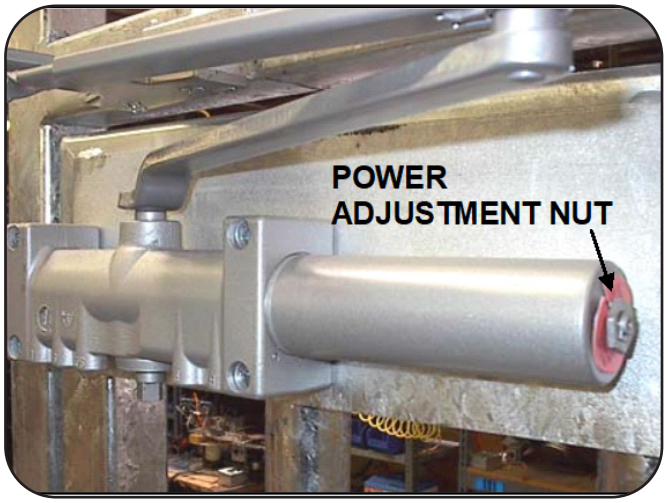
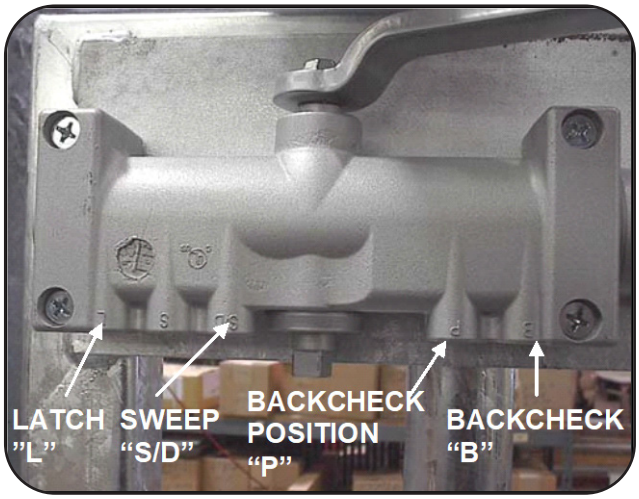


Figure 11b



Maintenance

The frequency of interior maintenance will depend how often the gate is used, the type of personnel using the gate, and the environment the gate is installed in. The gate should be inspected during the first 30 days after installation. Follow the maintenance schedule below after the first 30 days. This schedule is based on what's called a "typical installation" - which is a temperate climate where weekly use is up to 300 activations. If use exceeds this threshold, personel are abusive to the gates, or if the gates are installed in harsh environments, such as coastal areas, chemcial or refinery plants, very hot or cold locations, or extremely dusty environments, consider increasing the frequency of maintenance to a level suitable for your application.

Operational Care

General - Check gate levelness and the tension of the anchors. Tighten to approximately 25 ft-lbs. Clean away accumulated dust and dirt.

Wiring - Inspect all wires and contacts for any signs of wear, abrasions, or exposure to any metal parts that may lead to a short.

Hinges - Lubricate the door hinge points with 3-in-1 oil and verify that the gate door moves and self closes freely.

Closure - Lubricate the closure hinge points with 3-in-1 oil and verify that the gate door moves and self closes freely.

Gate Finish Care

The finish on your gate will look better if it is maintaned. The frequency of maintenance depends on three factors: 1. the installation location, 2. environmental factors, and 3. the customers interest in how the gate looks. We suggest cleaning the exterior of the gate every three (3) months.

Hot Dipped Galvanized Finishes -

A hot dipped galvanised finish is an industrial coating designed to provide corrosion protection. Aesthetic considerations are secondary. Finish irregularities are a natural result of the hot dipped galvanizing process. The apperance of a hot dipped galvanized coating can vary depending on the size and shape of the coated object. Various apperances for hot dipped galvanized steel (all acceptable under appropriate ASTM standards) include bright and shiny, spangled or mottled, matte gray, or a combination of various conditions. In most instances, the apperance of hot dipped galvanized material has no effect on the primary purpose of the finish (corrosion protection) and over time and exposure to the environment, all galvanized finishes will take on a uniform matte gray apperance.

Periodic cleaning of galvanized finishes is recommended. To clean galvanized finishes, use a neutral (non-alkaline) detergent, such as a car shampoo, clean warm water and a soft brush. Abrasive cleaners, steel wool, and chemical cleaning products should not be used. Rinse the surface after cleaning.

Damaged galvanized areas can be treated or touched up with zinc-rich paint. Use an organic cold galvanizing compound following the manufacturer's instructions. An explanatory document describing the ASTM recommended repair process is available from the American Galvanizer Association website.

Gate Finish Care (Cont.)

Stainless Steel Finishes:

Stainless steel is a corrosion resistant chromium/nickel alloy steel that is strong and durable. However, it is not rustproof, particularly in harsh environments. In addition to actual damage, stainless steel can appear to rust when contaminated through contact with carbon steel. This contact can come from tools, adjacent mild steel, fasteners, particulate, or through contact with hard water (which can leave spotting and staining on stainless steel). The most common method of contamination in windy, dusty, and/or industrial environments in the form of steel and mineral particles that "land" on the stainless material. Mild steel naturally adheres to a stainless steel surface (due to iron-to-iron affinity). Grained material and welds are common areas where foreign particles become trapped. In these cases, it is generally the steel residue, not the stainless steel material itself, which rusts initially. If left untreated, however, damage to the stainless steel surface itself can occur.

Regular cleaning is the best way to maintain any stainless steel finish. The goal of a cleaning program should be to clean the surface, keeping the stainless steel's protective chromium oxide layer intact. The frequency of cleaning will depend on the environment.

Regular cleaning can be accomplished by rinsing the stainless steel surface with fresh water to wash away accumulated chemicals, materials and particulates. Wipe dry with a clean cloth. Clean equipment immediately after coming in contact with chlorides (chlorine powder, salt melt, seawater, etc.).

For embedded deposits, use a neutral detergent, such as a car shampoo, clean warm water, and a soft brush. Rinse the surface after cleaning. Never use steel wool. MAAS makes an excellent stainless steel cleaner in spray form, *MAAS Stainless Steel & Chrome Cleaner*, available from the MAAS website (www.maasinc.com). All products listed can also be used for general cleaning.

For stubborn stains, heavy spotting, and rust, our recommendation is *MAAS Metal Polish* (in liquid form). Follow the manufacturer's directions but in brief: 1. wipe down excess dirt from the gate, 2. apply polish to the metal, 3. polish in the direction of the grain with a super fine (0000) or fine (000) synthetic steel wool (depending on the level of tarnish), 4. wipe clean, 5. repeat steps 2 - 4 until clean. Again, never use steel wool.

Highly damaged areas may require chemical passivation. To chemically passivate stainless steel, Alvarado recommends the use of a citric acid product, *CitriSurf2310*. This product is formulated to clean and passivate stainless steel and can be used in the field.

Even with periodic cleaning, it is possible that periodic chemcial passivation will be required to maintain stainless steel in especially harsh environments.

Powder Coat Over Galvanized Finishes:

To clean the powder coat finish, use a neutral detergent, such as car shampoo, and rinse with clean water. In the event that the powder coat finish is chipped and bare metal is showing, seal the area as soon as possible, If the area is not sealed, the underlaying metal will rust, which could eat away the powder coat and cause flaking. Touch up paint is also available from Alvarado.

Troubleshooting

Symptom	Possible Cause	Solution
Gate does not lock.	The gate is not powered (**Fail-Safe** units only).	• Confirm the power supply is plugged into the appropriate VAC power source. • Confirm the transformer output is 12VDC.
	The gate is still receiving an activation signal from the gate activation switch.	• Ensure that the gate activation switch is properly connected to the gate activation leads.
	The lock mechanism is misaligned.	• Verify that the gate door and frame installations are level. • Adjust and realign the lock plate on the gate door.
	The lock surfaces are obstructed or damaged.	• Verify the lock surfaces on the gate door and frame are free of debris. • If the lock surfaces have been damaged, replace the damaged components.
	The lock mechanism is defective.	• Test and replace the lock mechanism as necessary.
	The gate activation switch is defective.	• Test and replace the gate activation switch as necessary.
Gate does not unlock.	The gate is not powered (**Fail Lock** units only).	• Confirm the power supply is plugged into the appropriate VAC power source. • Confirm the transformer output is 12VDC.
	The gate is not receiving an activation signal from the gate activation switch.	• Ensure that the gate activation switch is properly connected to the gate activation leads.
	The strike lock is sticking or binding in the locked position. (Electric Strike units only).	• Verify that the gate door and frame installations are level.
	The lock surfaces are obstructed or damaged.	• Verify the lock surfaces on the gate door and frame are free of debris. • If the lock surfaces have been damaged, replace the damaged components.
	The lock mechanism is defective.	• Test and replace the lock mechanism as necessary.
	The gate activation switch is defective.	• Test and replace the gate activation switch as necessary.

Troubleshooting (Cont.)

Symptoms	Possible Cause	Solution
The holding force of the lock mechanism is reduced (Magnetic lock units only).	The gate is not powered.	• Confirm the power supply is plugged into the appropriate VAC power source. • Confirm the transformer output is 12VDC.
	The lock mechanism is misaligned.	• Verify the gate door and frame are level. • Adjust and realign the lock plate on the end of the gate door.
	The lock surfaces are obstructed or damaged.	• Verify the lock surfaces on the gate door and frame are free of debris. • If the lock surfaces have been damaged, replace the damaged components.
	The lock mechanism is defective.	• Test and replace the lock mechanism as necessary.
The gate door does not self close and return to its center position.	The gate is not properly lubricated.	• Clean and lubricate the hinge points as described in the Maintenance section of this document.
	The hydraulic closing arm settings are not set correctly.	• Adjust the arm settings as described on Page 15 of this document.
The gate door slams / closes too quickly.	The hydraulic closing arm settings are at a fast setting.	• Adjust the arm settings as described on Page 15 of this document.

Revision	Date	Author	Description
4-0	3/18/2020	C. Maynez	Revised original document to new style and layout.



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