

Before You Begin

Read this entire manual.

Before starting the installation, verify the job site dimensions and the dimensions of the delivered materials against the PFlow Industries, Inc. General Arrangement (GA) drawing. Review and verify the enclosure positions and attachment fit-up to the gate post enclosure angle. If the site conditions do not match the GA drawing, please consult the PFlow Industries, Inc. Customer Support Department.



! DANGER

Falling gate hazard! The installation of this equipment requires a qualified installer with extensive knowledge and experience on how to rig and erect structural steel. Make sure to properly support, tie off, or temporarily brace the gate posts, gate panels, and gate assembly during installation. Do not depend on the gate post feet to support the gate posts while the gate is being positioned or assembled. Final bracing of the gate assembly must be to the Vertical Reciprocating Conveyor (VRC) or building structure. The use of structural angle is recommended.



Falling Hazard! The gate panel safety latch may not be operational while the gate is being installed. If you must leave a gate or gate panel unattended, put up barriers and signs warning personnel to stay clear.

! CAUTION



Lifting hazard! Components and accessories are heavy. To prevent serious personal injury, use the appropriate lifting apparatus, tie offs, or help when moving, lifting or assembling the components or accessories.

NOTICE

A qualified person is defined as a person who, by possession of a recognized degree or certificate of professional standing, or by extensive knowledge, training, and experience, has successfully demonstrated his/her ability to solve problems relating to the subject matter and work.

Identify Components

Gate components, posts, panels, and header assembly have color coded tags. Each gate tag is a different color.

Level	Tag Color
1st (bottom)	Green
2nd	Yellow
3rd	Red
4th	Blue
Other	Cream

The preferred method of installing a gate is to pre-assemble the full gate assembly on the floor, secure the pieces, and then stand it up. If for some reason pre-assembly is not possible, use these instructions as a general guide for the assembling, positioning, and securing of the gates.

Gate Installation

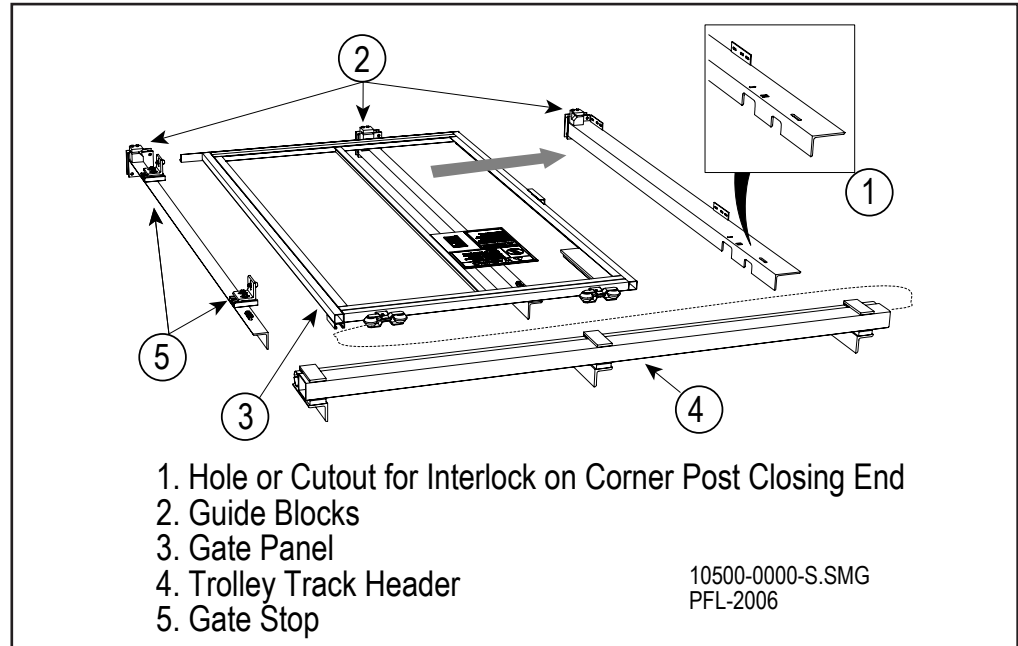
Sliding Gate



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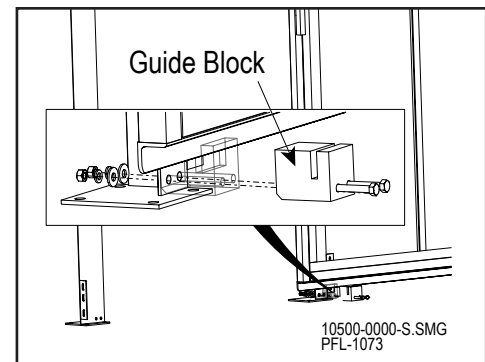
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Assemble the Sliding Gate



1. Lay the three (3) gate posts on the floor parallel to each other.
2. Position the gate post with the hole or cutout for the interlock on the closing end.
3. Position the post with two (2) guide block mounting holes near the base plate in the center. See Figure 1.
4. Position the third post (with gate stops) on the opening end.
5. Bolt the trolley track header to the gate posts.
6. Place the gate panel face down towards the ground and slide the gate panel into the trolley track header.
7. Bolt the guide block to the middle post. See Figure 2.
8. Slide the gate to its closed position.
9. Add the remaining guide blocks.

Sliding Gate Layout
Figure 1



Bolt Guide Block
Figure 2

Gate Installation

Sliding Gate



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Assemble the Sliding Gate (continued)

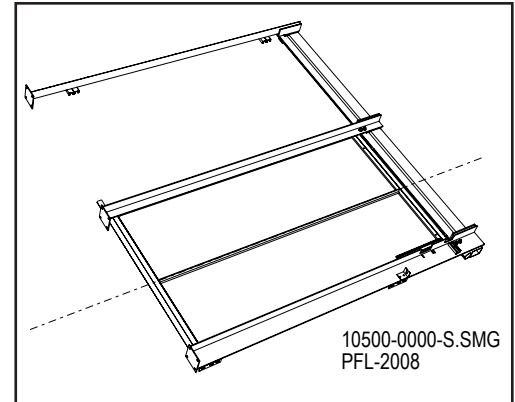
10. Locate and mark the center of the gate panel on the gate panel with a pencil. See Figure 3.
11. Measure the outside edge to the outside edge of the carriage and mark the center line with a pencil. See Figure 4.
12. Position a carpenter square on the edge of the carriage to extend the center line onto the floor 10" (254mm) away from the carriage. See Figure 4.
13. Mark a chalk line on the floor to ensure the center of the gate is on the center line of the carriage. See Figure 4.

NOTE *The ideal position of the gate panel is a maximum of 6" (152mm) from the inside of the gate panel to the front edge of the carriage. Local codes may have specific requirements concerning this distance.*

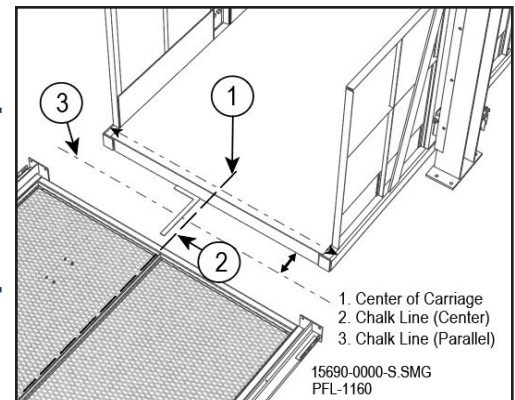
14. When the measurement from the gate panel to the carriage has been determined, snap a chalk line to identify the position of the gate panel parallel to the carriage. See Figure 5.

Install the Gate Post Extensions

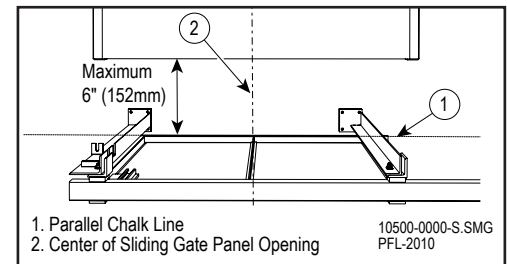
Gate post extensions (if supplied) are to be bolted to the bottom of the gate posts before the gate post is raised. Refer to Section 20 for instructions.



Mark Center Line of Sliding Gate Layout
Figure 3



Establish Center Line
Figure 4



Alignment
Figure 5

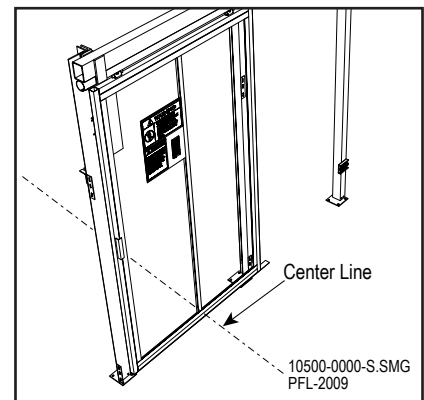


DANGER

Falling gate hazard! Be sure to properly support, tie off, or temporarily brace the gate posts, gate panels, and gate assembly during installation. Do not depend on the gate post feet to support the gate posts while the gate is being positioned or assembled. Final bracing of the gate assembly must be to the Vertical Reciprocating Conveyor (VRC) or building structure. The use of structural angle is recommended.

Raise and Secure the Sliding Gate

1. Raise and secure the gate assembly. The track and gate are to be facing away from the carriage.
2. Align the center of the closed gate to the center of the carriage. See Figure 6.
3. Align the inside of the gate panel on the parallel chalk line. See Figure 5.
4. Drill and anchor the gate post base plates to the floor with 3/8" anchors, 3-1/2" (89mm) long.



Align the Raised Gate Assembly
Figure 6

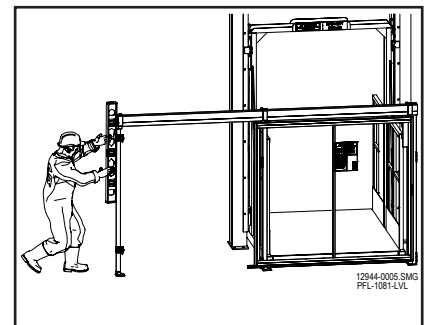
Anchor the Gate Post Base Plates

DANGER

Falling gate hazard! The anchor hole depth should always be deeper than the length of the anchor bolt. The recommended wedge anchor size is 3/8" diameter by 3-1/2" (89mm) long.

Plumb and Square the Gate

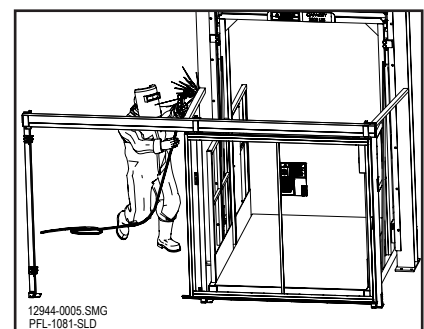
1. Plumb and square the gate posts using a plumb bob or a level that is 4' (1,22 m) or longer. See Figure 7.
2. Measure from the gate post to the Vertical Reciprocating Conveyor (VRC) column.
3. Cut two (2) 1-1/2" x 1-1/2" (38mm x 38mm) steel angle support braces and weld to each gate post and to the VRC columns or wall. See Figure 8.



Plumb the Gate
Figure 7

Install Support Braces

4. Tighten all bolts.
5. Verify that the gate slides easily from side to side.
6. Confirm that the gate is plumb and square.
7. Weld the trolley track header to the gate posts.
8. Make sure the gate opens and closes properly. Adjust the gate panel as necessary. Additional bracing may be necessary.



Weld Support Braces
Figure 8

Verify Gate Operation

Gate Installation

Sliding Gate



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Install the Gate Interlock

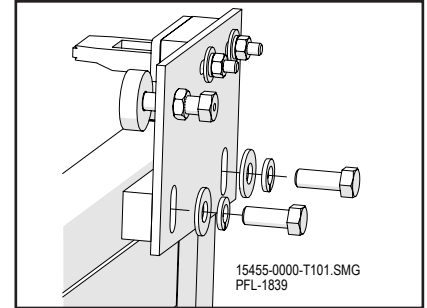
Install the gate panel interlock and interlock keeper assembly. See Figure 9. Refer to the interlock installation section in this manual.

Verify the Gate Interlock Operation

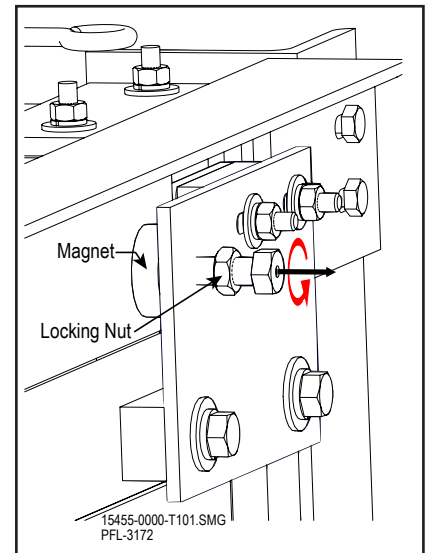
1. Verify that the gate panel slides smoothly.
2. Verify that the gate door opens when the carriage is present and does not open when the carriage is not present.
3. Verify that the gate panel remains locked when the carriage leaves the floor level.

Adjust the Interlock Keeper Assembly Magnet

1. With the VRC carriage on the same level as the gate, make sure that the interlock keeper assembly magnet holds the panel closed until the operator pulls open the panel. The magnet requires field adjustment to fine tune the panel “held closed” feature.
2. Adjust the panel position by backing off the magnet locking nut. See Figure 10.
3. Rotate the magnet hex head bolt to position the panel.
4. Secure the magnet position by tightening the magnet locking nut.



Install Interlock Keeper Assembly
Figure 9



Adjust Panel Position Figure 10

Gate Installation

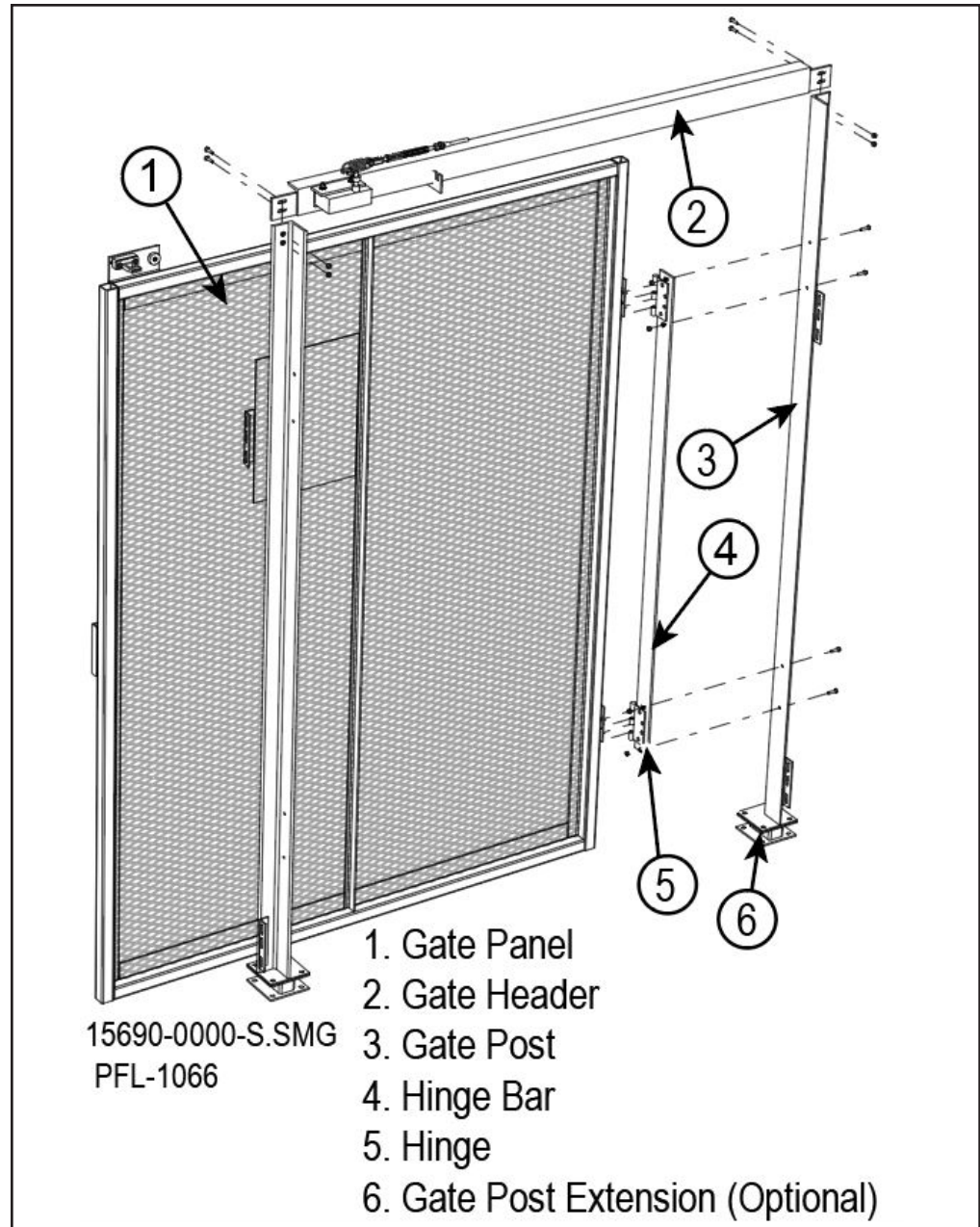
Swing Gate



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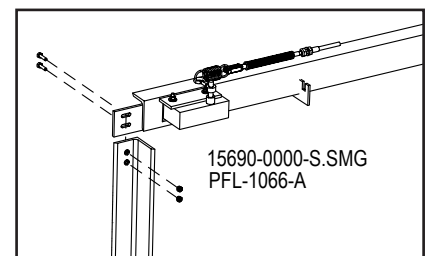
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Assemble the Swing Gate



1. Lay the gate posts on the floor parallel to each other. See Figure 11.
2. Place the gate header at the top of the gate posts and bolt in position with the hardware provided. See Figure 12.
3. Position the back side of the gate panel between the parallel gate posts and align with the hinge bars.

Swing Gate Layout
Figure 11



Place Gate Header
Figure 12

Assemble the Swing Gate (continued)

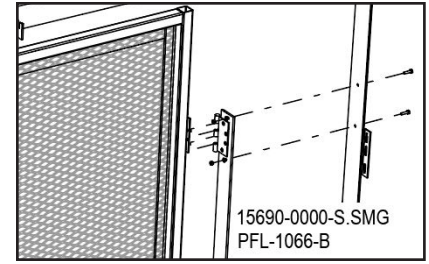
4. Bolt the gate post to the gate panel hinge bar. See Figure 13.
5. Locate and mark the center of the gate panel on the gate panel with a pencil. See Figure 14.
6. Measure the outside edge to the outside edge of the carriage to locate the center line. Mark the center line with a pencil on the top of the carriage deck. See Figure 14.
7. Position a carpenter square on the edge of the carriage to extend the center line onto the floor a distance of 10" (254mm) away from the carriage. See Figure 14.
8. Mark a chalk line on the floor to ensure the center of the panel is on the center line of the carriage. See Figure 14.

NOTE *The ideal position of the gate panel is a maximum of 6" (152mm) from the inside of the gate panel to the front edge of the carriage. Local codes may have specific requirements concerning this distance.*

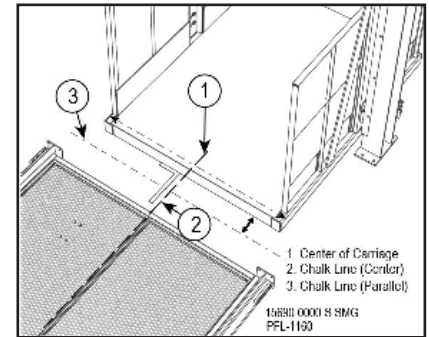
9. When the measurement from the back side of the gate panel to the carriage has been determined, snap a chalk line to identify the position of the gate panel parallel to the carriage. See Figure 14.

Install the Gate Post Extensions

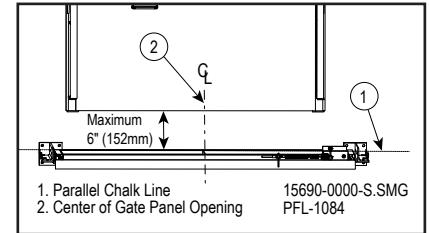
Gate post extensions (if supplied) are to be bolted to the bottom of the gate posts before the gate post is raised. Refer to Section 20 for instructions.



Bolt Gate Post to Hinge Panel
 Figure 13



Establish Center and Parallel Line
 Figure 14



Alignment
 Figure 15



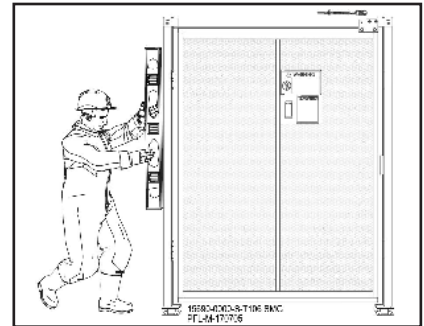
Raise and Secure the Swing Gate Assembly

Anchor the Gate Post Base Plates

DANGER

Falling gate hazard! Be sure to properly support, tie off, or temporarily brace the gate posts, gate panels, and gate assembly during installation. Do not depend on the gate post feet to support the gate posts while the gate is being positioned or assembled. Final bracing of the gate assembly must be to the Vertical Reciprocating Conveyor (VRC) or building structure. The use of structural angle is recommended.

1. Raise and secure the gate assembly.
2. Align the center of the gate to the center of the carriage. See Figure 15.
3. Align the back side of the gate panel on the parallel chalk line. See Figure 15.
4. Drill and anchor the gate post base plates to the floor with 3/8" anchors, 3-1/2" (89mm) long.

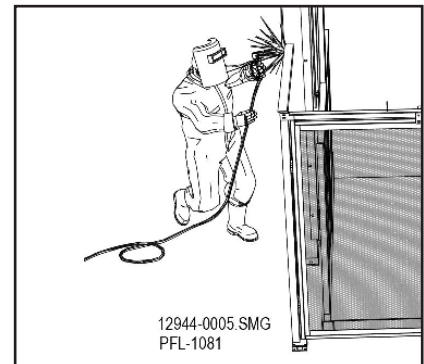


Plumb the Gate
Figure 16

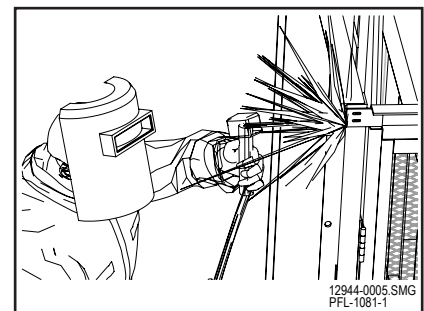
DANGER

Falling gate hazard! The anchor hole depth should always be deeper than the length of the anchor bolt. The recommended wedge anchor size is 3/8" diameter by 3-1/2" (89mm) long.

1. Plumb and square the gate posts using a plumb bob or a level that is 4' (1,22 m) or longer. See Figure 16.
2. Measure from the gate post to the Vertical Reciprocating Conveyor (VRC) column.
3. Cut two (2) 1-1/2" x 1-1/2" (38mm x 38mm) steel angle support braces and weld to each gate post and to the VRC columns or wall. See Figure 17.
4. Tighten all bolts.
5. Verify the gate panel swing for proper operation and site operational clearance.
6. Confirm that the gate is plumb and square.
7. Weld the gate header to the gate posts. See Figure 18.



Weld Support Braces
Figure 17



Weld Gate Header to Gate Posts
Figure 18

Plumb and Square the Gate

Install Support Braces

Verify the Gate Panel Swing

Gate Installation

Swing Gate



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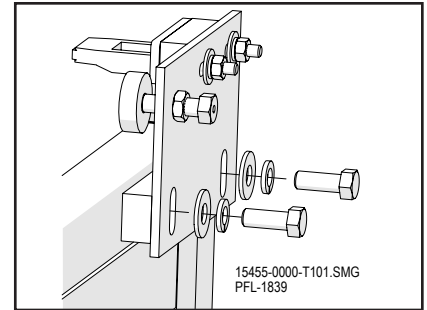
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Install the Gate Interlock

Install the gate panel interlock and interlock keeper assembly. See Figure 19. Refer to the interlock installation section in this manual.

Verify the Gate Interlock Operation

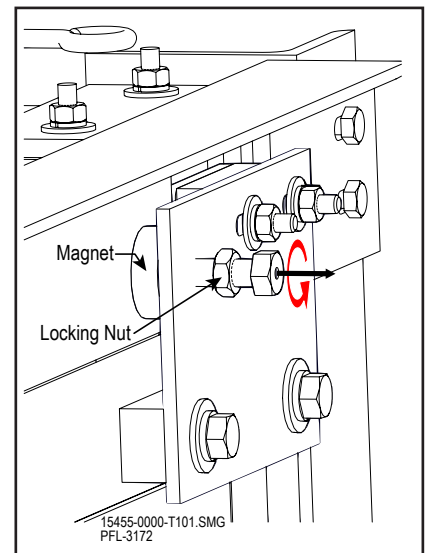
1. Verify that the gate panel swings smoothly.
2. Verify that the gate door opens when the carriage is present and does not open when the carriage is not present.
3. Verify that the gate panel remains locked when the carriage leaves the floor level.



Install Interlock Keeper Assembly
Figure 19

Adjust the Interlock Keeper Assembly Magnet

1. With the VRC carriage on the same level as the gate, make sure that the interlock keeper assembly magnet holds the panel closed until the operator pulls open the panel. The magnet requires field adjustment to fine tune the panel “held closed” feature.
2. Adjust the panel position by backing off the magnet locking nut. See Figure 20.
3. Rotate the magnet hex head bolt to position the panel.
4. Secure the magnet position by tightening the magnet locking nut.



Adjust Panel Position
Figure 20

Gate Installation

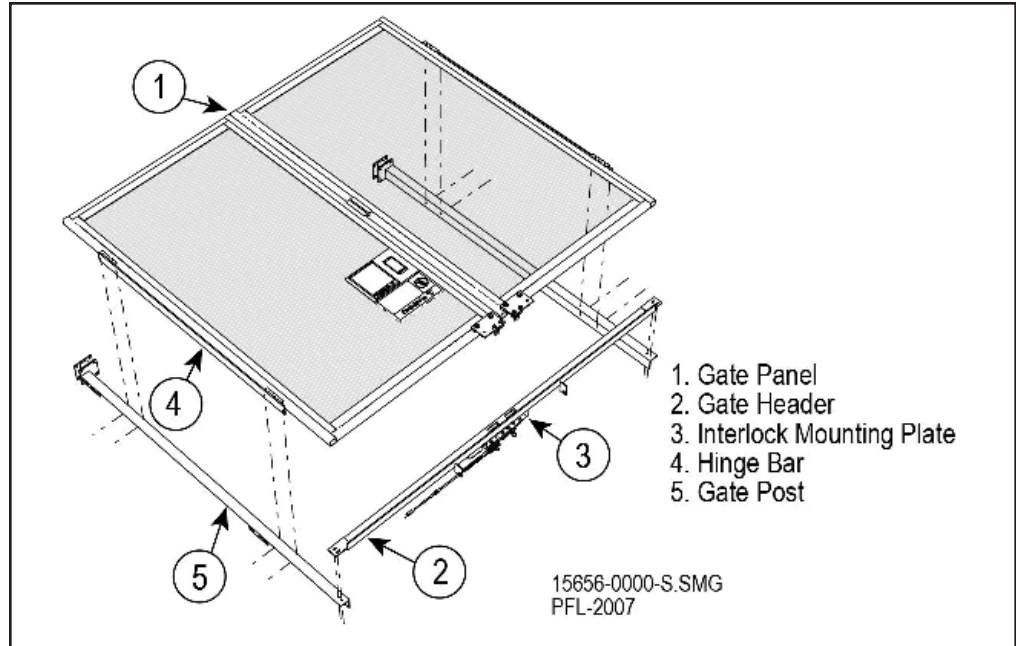
Bi-Parting Swing Gate



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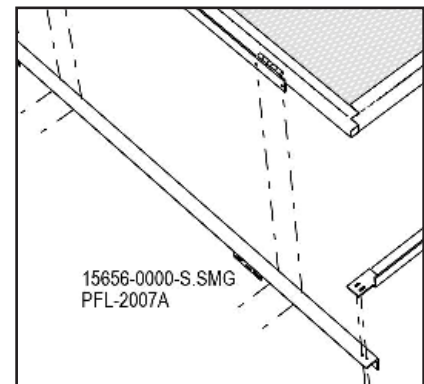
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Assemble the Bi-Parting Swing Gate



1. Lay the two (2) gate posts on the floor parallel to each other. See Figure 21.
2. Place the gate header at the top of the gate posts and bolt the gate header to each gate post. See Figure 22 for correct orientation.
3. Place the gate panels face up and position between the parallel gate posts and align with the hinge bars.
4. Bolt each hinge bar to its respective gate post. See Figure 22.

*Bi-Parting Swing Gate Layout
Figure 21*



*Bi-Parting Swing Gate Layout
Figure 22*

Assemble the Bi-Parting Swing Gate (continued)

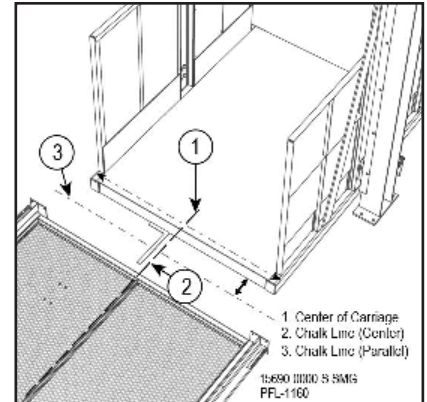
5. Locate and mark the center of the gate assembly on the gate assembly with a pencil (where the gate panels meet in the center.) See Figure 23.
6. Measure the outside edge to the outside edge of the carriage to locate the center line. Mark the center line with a pencil on the top of the carriage deck. See Figure 23.
7. Position a carpenter square on the edge of the carriage to extend the center line onto the floor 10" (254mm) away from the carriage. See Figure 23.
8. Mark a chalk line on the floor to ensure the center of the gate assembly is on the center line of the carriage. See Figure 16-23.

NOTE *The ideal position of the gate panel is a maximum of 6" (152mm) from the inside of the gate panel to the front edge of the carriage. Local codes may have specific requirements concerning this distance.*

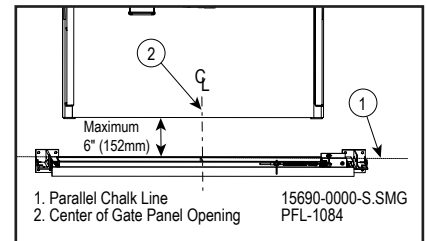
9. When the measurement from the gate panel to the carriage has been determined, snap a chalk line to identify the position of the gate panel parallel to the carriage. See Figure 23.

Install the Gate Post Extensions

Gate post extensions (if supplied) are to be bolted to the bottom of the gate posts before the gate post is raised. Refer to Section 20 for instructions.



Establish Center and Parallel Line
 Figure 23



Alignment
 Figure 24



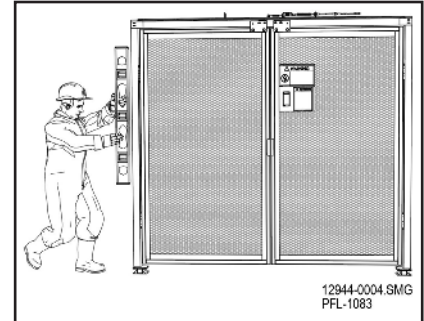
Raise and Secure the Gate Assembly

Anchor the Gate Post Base Plates

DANGER

Falling gate hazard! Be sure to properly support, tie off, or temporarily brace the gate posts, gate panels, and gate assembly during installation. Do not depend on the gate post feet to support the gate posts while the gate is being positioned or assembled. Final bracing of the gate assembly must be to the Vertical Reciprocating Conveyor (VRC) or building structure. The use of structural angle is recommended.

1. Raise and secure the gate assembly.
2. Align the center of the closed gate to the center of the carriage. See Figure 24 on the previous page.
3. Align the backside of the gate panels on the parallel chalk line. See Figure 24 on the previous page.
4. Drill and anchor the gate post base plates to the floor with 3/8" anchors, 3-1/2" (89mm) long.



Plumb the Gate
Figure 25

DANGER

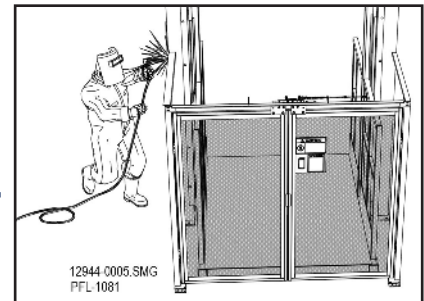
Falling gate hazard! The anchor hole depth should always be deeper than the length of the anchor bolt. The recommended wedge anchor size is 3/8" diameter by 3-1/2" (89mm) long.

Plumb and Square the Gate

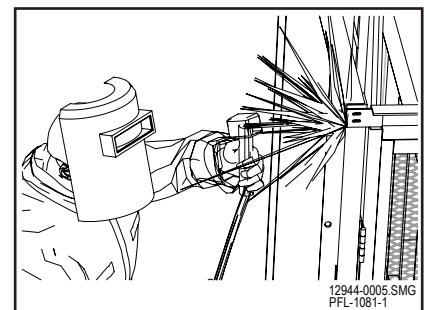
Install Support Braces

Verify the Gate Panel Swing

1. Plumb and square the gate posts using a plumb bob or a level that is 4' (1,22 m) or longer. See Figure 25.
2. Measure from the gate post to the Vertical Reciprocating Conveyor (VRC) column.
3. Cut two (2) 1-1/2" x 1-1/2" (38mm x 38mm) steel angle support braces and weld to each gate post and to the VRC columns or wall. See Figure 26.
4. Tighten all bolts.
5. Verify the gate panel swing for proper site operational clearance.
6. Confirm that the gate is plumb and square.
7. Weld the gate header to the gate posts. See Figure 27.



Weld Support Braces
Figure 26



Weld Gate Header to Gate Posts
Figure 27

Gate Installation

Bi-Parting Swing Gate



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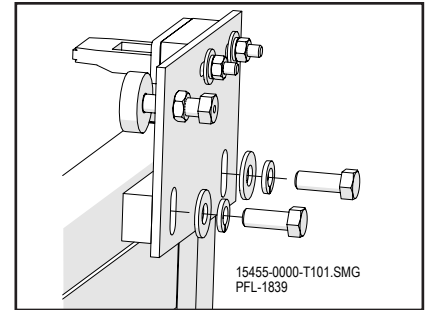
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Install the Gate Interlock

Install the gate panel interlock and interlock keeper assembly. See Figure 28. Refer to the interlock installation section in this manual.

Verify the Gate Interlock Operation

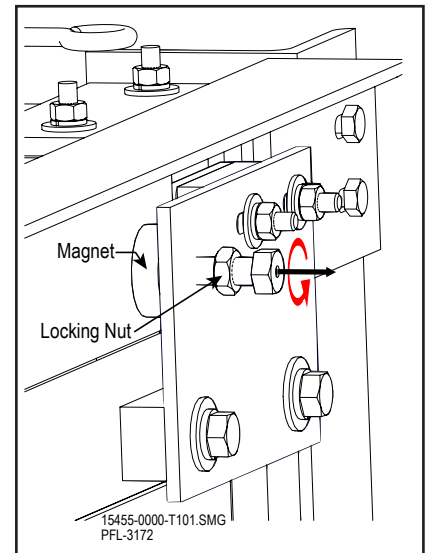
1. Verify that the gate panel swings smoothly.
2. Verify that the gate door opens when the carriage is present and does not open when the carriage is not present.
3. Verify that the gate panel remains locked when the carriage leaves the floor level.



Install Interlock Keeper Assembly
Figure 28

Adjust the Interlock Keeper Assembly Magnet

1. With the VRC carriage on the same level as the gate, make sure that the interlock keeper assembly magnet holds the panel closed until the operator pulls open the panel. The magnet requires field adjustment to fine tune the panel “held closed” feature.
2. Adjust the panel position by backing off the magnet locking nut. See Figure 29.
3. Rotate the magnet hex head bolt to position the panel.
4. Secure the magnet position by tightening the magnet locking nut.



Adjust Panel Position
Figure 29

Gate Installation

Sliding, Swing, and Bi-Parting Swing



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