



DISTINCT FROM FORGE TO FINISH.

## *INFINITY ALUMINUM®*

## *INSTALLATION GUIDE*



Revised 2/2015



***\*\*PLEASE NOTE – All installations have a varying degree of ‘uniqueness’ to them. The following instructions are meant to be general guidelines in a normal post-in-ground installation. If you are installing your fence in a different manner or have any questions that this guide does not answer, please contact us via phone or email. \*\****

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## **Before You Start**

Before you get started with your installation, ensure you have done the following items first:

### **Mark Your Fence Layout**

In preparation for installation and for permit approval purposes (if required), you will want to mark the outline of where the fence will be installed. This can be done with a string line, marking spray paint or flags. If you are installing over or on concrete, you can mark the outline with chalk.

### **Obtain a Fence Permit (if Required)**

Call your local Building/ Engineering Department and ask if a permit needs to be obtained. Obtaining a fence permit typically requires filling out a form, paying a small fee and having a local inspector take a look at where your fence is going to be installed based on your marked layout.

### **Have Your Utilities Marked**

Even if you are not required to obtain a fence permit, call to have your utilities marked. It is important to know what's buried below before you begin digging post holes. Simply dial '811' and they will get you in contact with your local utility provider to come out and mark any buried lines at no charge. They will typically come out within 24-48 hours and will mark any buried utilities with flags or spray paint. You can visit [www.call811.com](http://www.call811.com) for more info on how the process works.

### **Gather the Required Tools**

To install your aluminum fence, you will typically need the following tools:

- String Line
- Shovel and Post Hole Digger (manual or powered) for post holes
- Tub, wheelbarrow or powered mixer for cement
- Measuring Tape
- Level
- Rubber Mallet and Regular Hammer
- Hacksaw or Sawzall for trimming panels (if necessary)
- Drill or power driver
- Socket and/or wrench set for installing supplied gate hardware



## **Purchase Concrete and Miscellaneous Supplies**

The following building materials will need to be purchased from your local hardware store unless they are noted as optional:

### **Concrete Mix**

- Any standard concrete mix will work. You can utilize reinforced or fast setting concrete if you like, but it is not required.
- The number of concrete bags required will vary based on the size and length of post being buried. You can find concrete calculators online to help determine how many bags you will need. You will need to know the following to utilize the online calculators:
  - Size of your posts
  - Diameter of the hole (usually 3x the post size)
  - Depth of the hole
  - Number of posts

### **Large Size Gravel (optional)**

- While this is optional, adding gravel to the bottom of your post hole will allow for drainage of moisture and less chance of post heaving/ sinking due to freezing ground or excessive water. It is also beneficial to use if you accidentally over dig the depth of a post hole.

### **High Visibility Spray Paint (optional)**

- This can come in handy when marking where to dig your post holes as you determine their location in the layout.

### **3-4ft Steel Rebar Pieces**

- These will be tapped in ground and your string line wrapped around them when marking your layout for installation.



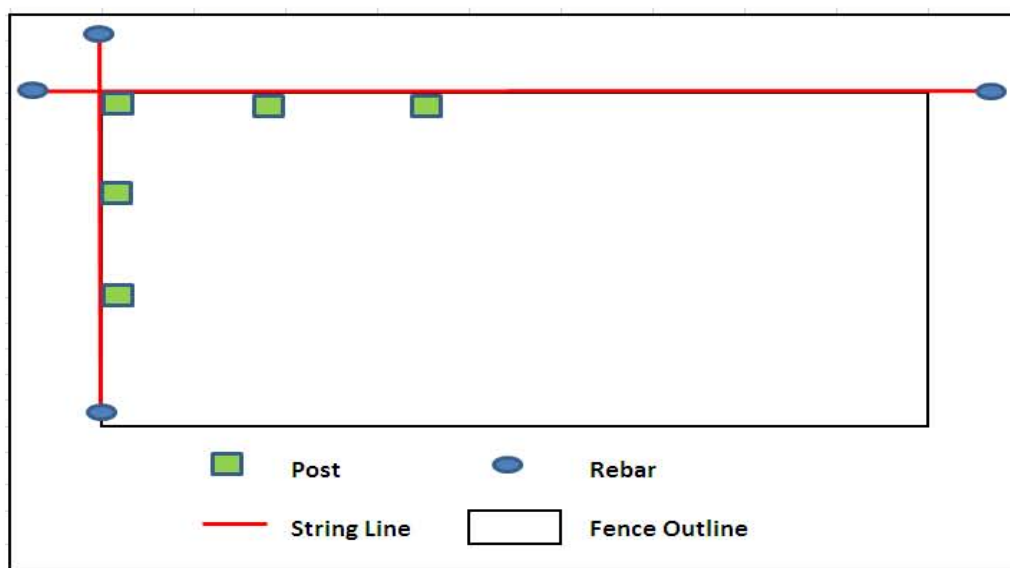
## Digging Your Post Holes

The following steps are to guide you through post placement, post hole digging and setting the posts in the ground in concrete. If you are not setting your posts in ground in concrete or are hanging your fence/ gates from different posts/ pillars, consult your Iron Fence Shop® salesperson for how the installation may differ.

## Run Your String Line

If you ran a string line when you marked the fence layout initially, you can skip this step. The purpose of the string line is to make sure all of your posts remain in a straight line as you install the fence.

- Purchase a string line that is bright and easily visible. This can commonly be found at any local hardware store, but any string that will be easily visible and able to be pulled taught will work.
- When tapping your rebar in ground and running your string line, keep in mind that the string line should be the outside edge of your post and **NOT** the center of the fence line. For corners and ends, have the rebar be a foot or more outside the fence layout. This will ensure that the string is your guide and the rebar is not in your way when you dig the post hole.



**Figure 1 –Example of a String Line Layout**



## Fence Panel Post Spacing

Our Infinity Aluminum® fence panels come in either a 6' or 8' width.

- **6' Aluminum Fence Panels:**

- Physically 72.5" wide, but that includes the portion of the rail that slides inside the post.
- 71" of fence panel will be visible between the posts when installed.
- The 'on-center' post measurement is 72" (6ft) when installed.

- **8' Aluminum Fence Panels:**

- Physically 95" wide, but that includes the portion of the rail that slides inside the post.
- 93.5" of fence panel will be visible between the posts when installed.
- The 'on-center' post measurement is 96" (8ft) when installed.

- The easiest way to determine where your post will go is to use the 'on center' measurement for your fence panel as noted below. This measurement is basically the dead center of where the post will be installed.

### **6' Fence Panels – 72" on center post measurement**

### **8' Fence Panels – 96" on center post measurement**

- Based on your 'on center' post measurement, begin marking your post holes in the grass (spray paint works for well for this). Start in a corner or at the end of a run. Mark the end or corner, measure out your 'on center' post measurement and mark again in the grass. Continue doing this until you have marked where all your post holes will need to be dug up in the layout.

## Walk and Driveway Gate Post Spacing

Since gates come in multiple widths and with options for hinge and latch hardware, we will need to determine the 'on-center' post measurement for our gates individually. Before you can calculate the 'on-center' post measurement for the gate, you will need to note the following items:

- The width of the gate
- The width needed for the hinges
- The width needed for the latch



- First, let's determine which style of hinge was supplied in your order. If you are unsure which hinge you have, you can refer to your itemized invoice or refer to Figure 3 below. Once you know which hinge your gate is utilizing, note the single (one leaf) or double (two leaf) gate width measurement in the table below:

Hinge Name	Use	Adjustable	Single Gate Width	Double Gate Width
5.5" J-Bolt Hinge*	Walk Gates	Yes	3"	6"
7" J-Bolt Hinge*	Driveway Gates	Yes	3" to 4"	6" to 8"
Safetech Self-Close Hinge**	Walk Gates	No	3/4"	1.5"

**Figure 2 - Hinge Width Table**

\* NOTE – revised parts with additional adjustability available late 2015.

\*\* NOTE – Covers all models of Safetech self-closing hinge.



**Figure 3 – 5.5" J-Bolt Hinge / 7" J-Bolt Hinge/ Safetech Self-Close Hinge**





- Next, let's determine which style of latch was supplied in your order. If you are unsure which latch you have, you can refer to your itemized invoice or look in Figure 5 below. Once you know which latch your gate is utilizing, note the width measurement in the table below:

Latch Name	Key Lockable?	Target Width Between Mounting Points
Gravity Latch	No	1"
Safetech Cobra Latch*	Yes	3/4"
Safetech Pool Latch	Yes	3/4"
Locinox w/ Ext Kit	Yes	1/2"

Figure 4 - Latch Width Table

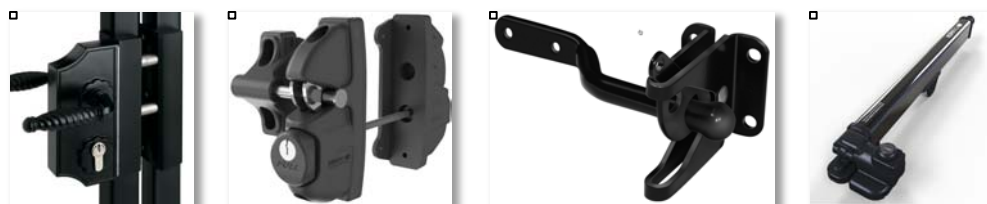


Figure 5 - Locinox / Safetech Cobra / Gravity Latch / Safetech Pool Latch

- Now that you have all of your width measurements (gate, hinges, latch), we are going to add all of those together plus the width of **ONE** post to get the 'on-center' post measurement:

$$\text{Gate Width} + \text{Hinge Width} + \text{Latch Width} + 1 \text{ Post Width} = \text{Gate Post On-Center}$$

- Using that equation, let's calculate the gate post 'on-center' measurement for the following situation:
  - 48" Wide Single Gate (one leaf)
  - 3" for 5.5" J-Bolt Hinge
  - 1" for Gravity Latch
  - 2" Posts Being Used

$$48" \text{ Gate} + 3" \text{ Hinge} + 1" \text{ Latch} + 2" \text{ Post} = 54" \text{ On-Center for Gate Posts}$$





- If you were installing a double walk gate or double driveway gate (two leafs make up the total width) then you would need to use double gate width hinge measurement in the Figure 2 table since you will have two sets of hinges instead of one. Let's look at that same equation with a double gate:
  - 10ft (120") Arched Double Driveway Gate (two 5' leafs)
  - 8" for 7" J-Bolt Hinges (4" each side of the gate)
  - 1" for Gravity Latch
  - 4" Posts Being Used

***120" Gate + 8" Hinges + 1" Latch + 4" Post = 11'1" (133") On-Center for Gate Posts***

- If the hinges or latch you are utilizing can work at multiple widths (adjustable), you want to utilize the middle number of the adjustment range so that you have left/ right adjustment available to you.

### Digging Your Post Holes

- Once you have marked the 'on-center' post spacing for your fence and gates posts throughout your entire layout, its time to start digging post holes. These instructions apply to either manually digging your post holes or using powered equipment.
- Begin with an end or corner post in your layout. The 'on-center' location you marked should be the center of your hole. Dig outwards from there. Your posthole should be situated so that when you place the post in the center, its outer edge is touching against the string line.



**Figure 6 - Post Hole Should be Positioned so That The Centered Post Will Contact Your String Line**



- Be sure to dig your post hole as straight down as possible. If you live in an area that freezes heavily in the winter, digging a post hole that is wider at the top than the bottom will allow the frost to push on the concrete footing and 'heave' your post.
- The rule of thumb is that a post hole should be roughly three times the diameter of the post you are setting. So if you were setting a 2x2 post, the hole should be at least 6" across (2x3 = 6). A wider hole will not hurt anything, but it will require more concrete.
- Before digging your post hole, be sure to account for the height of the post that needs to remain above ground. To determine how much post you need above ground vs buried in ground, take the following into consideration:
  - The height of your fence panels
  - How much of a gap you want under each panel for grass trimming/ landscaping (ideally 1-3")
  - The style of fence panel being used (flat top or finial tipped)
- **EXAMPLE** - Let's say we have a 4' tall fence panel style with finial tips on top, 6' long posts and we want a 2" gap at the bottom of the fence. You would set your post so that 4'2" was sticking up above ground and your post hole was 1'10" deep (4'2" above ground + 1'10" buried = 6' post length).
- **EXAMPLE** - Let's say we have a 4' tall fence with a flat top style, 6' long posts and we want a 2" gap at the bottom. You would set your post so that 4'3" was sticking up above ground and your post hole was 1'9" deep (4'3" above ground + 1'9" buried = 6' post length). That way we can have the 2" gap at the bottom of the panel and the 1" gap from the top of the post on flat top styles accounted for.
- Once you have determined the depth of your post holes, it's time to start digging. Be sure to check your post hole depth and width as you go. Keep loose dirt away from the top of your hole. You can utilize a flat object at the top of your post hole and a tape measurer to monitor the depth as you proceed.
- If you accidentally dig too deep, add gravel (not loose dirt) to the bottom of the hole. It can actually be beneficial to over dig your post hole by 2-3 inches and add gravel at the bottom, but it is not required. The gravel will allow for water to drain away and unlike loose dirt it will not compact over time. It also makes fine tuning your above ground post height much easier.



## Installing the Fence Panels and Posts

Your aluminum fence panels and posts will be installed together and set in concrete at the same time. Before you begin mixing concrete, you will want to familiarize yourself with the different post types and set them by the post holes in your layout.

### Determining Post Type

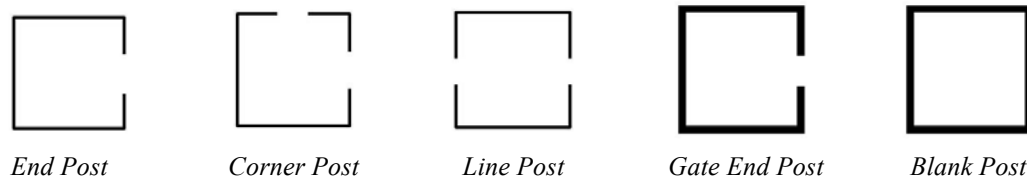
- As you begin unpacking your aluminum posts, you will notice they have routed punches in different locations on the face of the post. The location of those punches will determine what kind of post it is and where it will be used in the layout. See Figure 7 for an example of what the routed post punch will look like.



**Figure 7 - Routed Post Punches**



- There are 5 types of aluminum fence posts determined by the locations of the routed post punches and the thickness of the post:
  - **End Post** – Has one punched post face. Used where a fence terminates or ends.
  - **Corner Post** – Has two punched post faces. Used where two fence panels come together at a 90-degree angle in the corner of a layout.
  - **Line Post** – Has two punched post faces. Used in the middle of a fence run with a panel on each side running in a straight line.
  - **Gate End Post** – Has one punched post face. Same as an End post, but has thicker walls and will be noticeably heavier than the other posts. Used on each side of a gate
  - **Blank Post** – Has no punched faces. Not typically used in most installations. Blank posts are normally only used in special situations such as severe grade where the fence panel will be secured with a bracket instead of sliding into a post. It is a noticeably heavier like the Gate End post.
- Figure 8 shows where the punches are located on each post type if you were looking down the top of a post.



**Figure 8- Post Punch Location By Type**

- Once you have determined your post types, place them around your layout next to the post holes they correspond with (corner posts next to corner holes, line post next to line holes, etc.). This will help prevent accidentally using a post in an incorrect location (such as using an End post around a gate instead of a Gate End post).



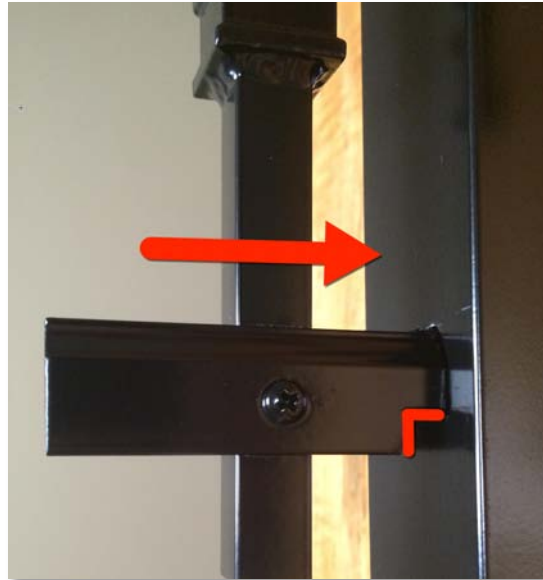
### Setting Your Fence Panels and Posts

- Begin by mixing your concrete. We recommend following the manufacturer's mixing guidelines and NOT using the 'dry bag' method of placing dry concrete mix in the ground and pouring water on top.
- You want to mix your concrete on the dry side. The concrete should roughly have the consistency of chunky peanut butter so that it will hold the post upright in the hole without additional support.
- Once your concrete is mixed, start on a corner or end in your layout and fill the post hole 1/2 way up. Take your post and push it into the concrete at the center of the post hole.
- Take one of your fence panels and insert the horizontal railing into the routed post punch. Push the fence railing in until the indentation stops the rail from going any further. Refer to Figures 9, 10 and 11.



**Figure 9 - The Fence Railing Will Insert Into the Routed Post Punch**





**Figure 10 - Insert the Fence Rails Into the Post Until the Indentation Stops It From Going Further**



**Figure 11 - Example of a Fence Rail Fully Installed Into the Post**



- **IMPORTANT** – The aluminum fence panels have screw heads visible on only one side of the fence railing. Make sure you orient the fence panels the same way throughout your installation so that all the screw heads either face inward or outward of your property.
- Once the fence panel is installed into the post finish filling the post hole with concrete. Stop about 2-3" from the top of the hole. This way you can back fill the remainder with dirt later on so grass can grow back.
- Move to the next post in line and repeat the same process of putting the post and concrete in the hole before inserting the other end of the fence panel rails into the next post. Make sure you don't forget about your under panel gap. You can place a piece of wood the same thickness as your gap under your fence pickets to keep it elevated to the proper height.



**Figure 12 - Use a Piece of Wood Under Your Fence Panel to Preserve Your Desired Under Panel Gap**

- Once you have both ends of a fence panel supported by a post, use your level to make sure its plumb on both faces of the post (inside and outside) and is contacting your string line.
- Continue this process until you have hung all of your fence panels.





- **IMPORTANT** – Make sure that you go back and check that everything is remaining level as you progress through the fence post and panel installation. Since it is installed while the concrete is still wet, any shaking or jostling of the fence could cause the posts to move slightly and no longer be level. While the concrete is still wet, use a rubber mallet to tap your posts back to level if anything has shifted.
- Once the concrete in your post holes has hardened to the point you cannot move the post anymore, go back and back dirt into your post hole. Mound the dirt above the yard line so that you do not end up with a depression around the post once the dirt settles.
- The final step will be to secure your fence panel rails to the post permanently using the supplied self-tapping screws. The number of self-tapping screws used per panel will be based on the number of horizontal rails on your fence panel. Each rail will have a screw drilled into both ends. So if you had a fence panel with 3 horizontal rails, you would need 6 self-tapping screws (2 per rail x 3 rails = 6).
- Place the self-tapping screw against the post in a position that is roughly a 1/2" up from the bottom of the rail and roughly 3/8" of an inch in from the edge of the post so the screw will go through the post and into the fence railing tying everything together.
- Slowly begin running the drill until it gets a bite into the metal then speed up the drill to drive the screw in. Be careful to not over tighten the screw and strip out the threads in the hole.
- If you are having difficulty getting the self-tapping screw to drill into the post, a small center punch tool can help. Put it against the post where you want the screw and give it a solid tap with a hammer. The indentation it leaves will help the self-tapping screw to bite into the post metal and begin drilling in. The final product should look like Figure 13.

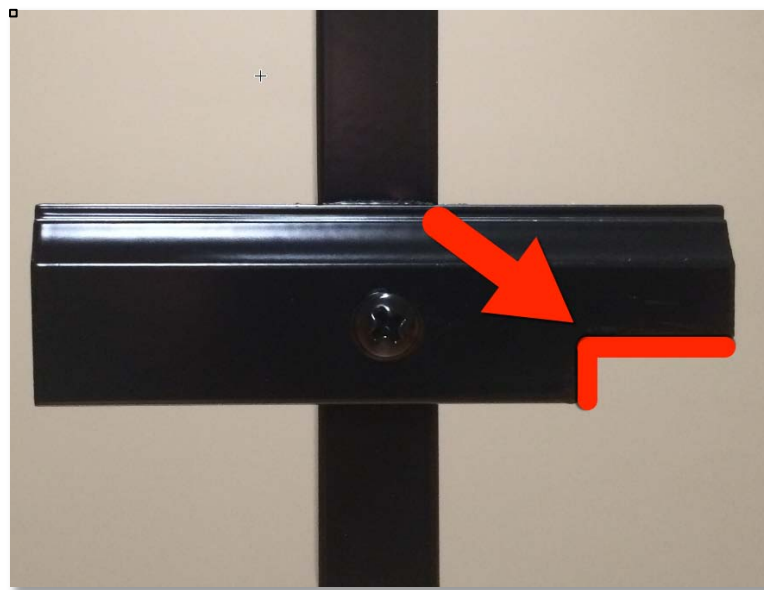


**Figure 13 - Self-Tapping Screw Installed Into Post and Rail**



### Trimming a Fence Panel

- Its fairly typical that at least one fence panel will need to be trimmed for width in your layout. This could be due to gate placement or coming to the end of a run.
- Trimming fence panels for width is an easy process. We recommend using a simple hacksaw since it has the most control. You can also use power tools to cut the panel to width, but be sure to have another person hold both sides of your cut as violent shaking of the panel by power tools like reciprocating saws (sawzalls) could damage the panel.
- Determine the panel width you need. Measure along the horizontal rails and mark where the cut needs to be made. If your measurement lands on a picket, you may need to trim from both sides of the panel to line everything up.
- An optimal cut will be one that you can make up against a picket. This preserves the spacing between the pickets and gives a cleaner look to the installation. If your cut needs to be tighter, make sure you at least have 1.5" of rail sticking out from a picket. After marking the location, use your selected tool and cut through the horizontal rail.
- Before you can install the cut end of the rail, you will need to notch the lower corner of the rail so it can fit inside the post punch. You need to notch a 1/4" tall x 3/4" deep section of the rail out.



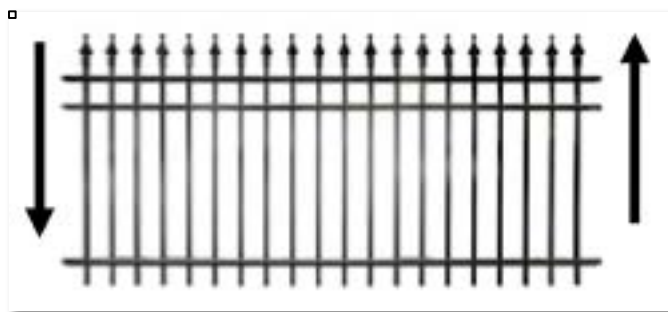
**Figure 14 - Notch Lower Portion of the Cut Rail 3/4" x 1x4"**



- The notch can be made with a hacksaw or Dremel type tool. Be sure to file or grind down any burrs or edges from the cuts. Test fit the rail into the post. If it fits, apply touch-up paint to the bare metal and install the panel after it dries. Final installation of the cut panel will be the same as a regular full size panel.

### Installing Fence Panels in a Sloped Yard

- There is usually some slope to a yard that may need to be compensated for during installation. While there is no reason that the yard needs to be totally level underneath the fence, you may want to adjust the fence installation so that its aesthetically pleasing to you or tight enough at the bottom to keep animals in or out of the yard.
- The aluminum fence panels can be 'racked' to follow grade. What this entails is essentially pushing down on one end of the fence panel and up at the other end. This will angle the rails so they are no longer perpendicular to the pickets, but instead angled while the fence panel pickets remain upright.



**Figure 15 - To Rack a Fence Panel, Push Up on One End and Down on the Other**

- If you need to rack a fence panel, it should be done as you install the fence panels and posts, but BEFORE you put the self-tapping screw through the post into the rail.
- The aluminum fence panels will rack between 8"-10" per panel. So for every 6' or 8' fence panel width, you will be able to compensate for a rise or drop of 8"-10".



**Figure 16 - Aluminum Fence Panels Racked to Follow Grade Down**

- If you have more than 8"-10" of drop per 6' or 8' fence panel you will need to address it in one of the following ways:
  - Leave a larger gap under the fence.
  - Backfill the area with soil or landscaping stones.
  - Utilize specialized swivel brackets to mount the fence panel outside of the post punch.



## Installing Walk Gates and Driveway Gates

- **IMPORTANT** – Gates can exert a lot of leverage force on concrete post footings. Make sure your post have fully dried and cured before hanging your gates. Consult the concrete manufacturer for drying/ curing time required before use.
- **NOTE** - The following steps cover installing a walk or driveway gate utilizing our gate hardware and installing the gate on posts. If you are utilizing other gate hardware or mounting the gate to a surface other than our posts (such as a wood post or masonry pillar), please consult your Iron Fence Shop® salesperson for assistance on installation.

### Determine Your Gate Hardware

We offer several options in hinges and latches for our walk and driveway gates. Consult figures 17 and 18 below to determine which hinges and latches you are utilizing:

#### Gate Hinges



Figure 17 – 5.5" J-Bolt Hinge / 7" J-Bolt Hinge / Safetech Self-Close Hinge

#### Gate Latches

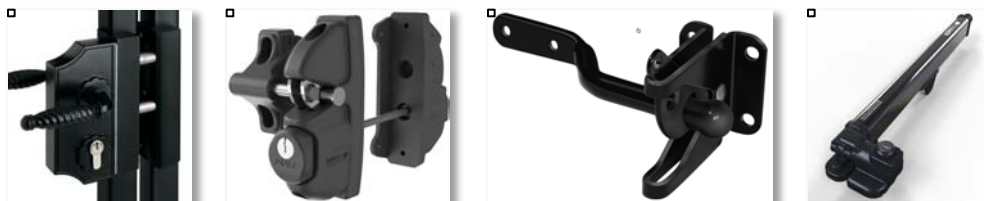


Figure 18 - Locinox / Safetech Cobra / Gravity Latch / Safetech Pool Latch



### Install the Gate Hinges

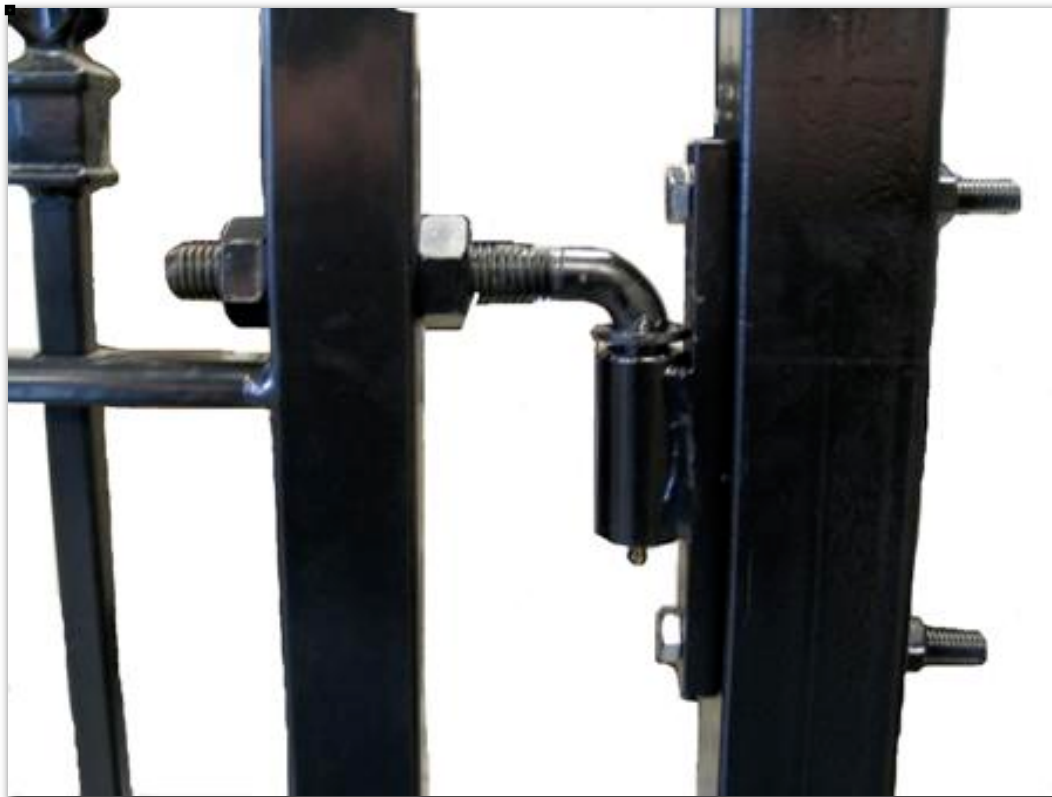
- There is no standard spacing for where the hinges need to be mounted vertically on the gate frame and post. You generally want to install them a third of the way down the gate frame top and bottom so that they are not too far inward or outward.
- When determining hinge placement on the gate frame and post, be sure to account for the gap at the bottom of the gate. There is no standard bottom gap height, but you want to ensure the gate can freely swing all the way open and shut without contacting the ground.
- So long as the area around the gate is flat, most installations will match the bottom gate gap with the bottom gap of the fence panels. So if your fence panels are mounted 2" off the ground, you can mount your gates with the same bottom gap.
- Make sure that your chosen hinge mounting location will not interfere or come in contact with any horizontal rails or decorative features of the gate.

### Safetech Self-Closing Hinges

- If you are utilizing Safetech self-closing hinges, consult the installation instructions included in their package.

### J-Bolt Hinges (5.5" and 7")

- Installation of the j-bolt hinges is the same whether you are using the 5.5" for a walk gate or the larger 7" version for a driveway gate.
- The flat plate part mounts against the post and the threaded J-portion with the two adjusting nuts will be mounted through a hole you drill in the gate frame (see Figure 19)



**Figure 19 – An Installed J-Bolt Hinge. The Gate is on the Left and the Post is on the Right Side**

- Determine the mounting location of your J-bolt hinge in relation to both the post and gate frame. Mark your post and gate frame for drilling. Be sure to measure and line up your drilling points as both the gate frame and post will be drilled on two sides of the post and the holes need to be level.
- Use the supplied drill bit (or a quality cobalt tip) to drill your holes in the post first. Clean any burrs in the hole and apply a small amount of touch-up paint to the hole.
- Mount the flat portion of the j-bolt against the post using the supplied hinge hardware kit bolts. These will be the silver bolts of varying length in the clear bag. (**NOTE** – You will not use all of the bolts in the bag. There are enough bolts for a set [two] of j-bolt hinges and in every length to accommodate post sizes from 2” up to 6”).
- When installing the bolt and washer from the hinge hardware kit, a small smear of grease on the bottom of the bolt head and the washer for the nut will make sure that the contact points on the hinge and post do not have their finish marred or stripped when the hardware is tightened down.





- With the j-bolt hinge mounted on the post, lift your gate up to ensure your marked location on the gate frame still lines up with the bottom gap and top of gate as you planned. If everything looks good, drill the gate frame. Clean up any burrs and put a shot of touch-up paint in the hole.
- Take the outer (at the end of the threads) adjusting nut off the threaded portion of the j-bolt. Feed the thread through the hole you just drilled in the gate frame and then re-thread the nut on the outside to secure the threaded portion to the gate frame. Use the two adjusting nuts to move the gate frame left/ right if adjustments are necessary.
- **NOTE** – If you are installing a larger gate, the threaded portion of the j-bolt and the backing plate will separate so that you can install them separate and then lift the gate up dropping arm back in the plate portion. Just be careful not to lose the ball bearing that is down in the grease of the mounting point.



**Figure 20 - The J-Bolts Will Separate at the Swivel Point**

### Install the Gate Latch

- There is no specific place you need to mount the latch on your gate. Most latches are normally mounted in the 40-42" height range.

### Safetech Cobra Latches

- See the installation instructions included with the latch



### Safetech Pool Latch

- See the installation instructions included with the latch

### Locinox Latch

- See the installation instructions included with the latch

### Gravity Latch

- The clasp portion will go on the post (in a double gate setup it will go on the adjoining gate half in the center) with the larger padlock hole facing the bottom. Use the smaller supplied self-tapping screws to mount the clasp portion to the post.
- The arm portion will go on the gate frame. Line it up to intercept the clasp and affix to the gate frame using the smaller self-tapping screws provided.

### Drop Rod (Double Gates Only)

- If you have a double gate to be manually opened, you will need to install a drop rod on one or both leafs to keep it the gate stationary in the center. Do not rely on a latch alone to hold a double gate shut.
- Mount the drop rod brackets on the inside (property side) of the gate frame using the supplied hardware. Install the brackets so that the curved part of the drop rod can rest on the top bracket with the rod also in full contact with the ground.
- If you are mounting over grass drive a small piece of pipe one size larger than the drop rod into the ground as a more solid stop for the rod.
- If the drop rod is being installed over concrete, you will need to drill out a small hole in the concrete with a masonry bit to give the drop rod a place to catch. You can also epoxy a small piece of pipe in the hole that the rod will fit into to prevent the concrete chipping around the hole from use.



## Project Completion and Maintenance on Your Fence and Gates

- Be sure to fill out your warranty sheet and email or mail it in to us.
- When you are finished installing your fence and gates, be sure to go back and touch up any scuffs or scratches that occurred during shipping or installation using the supplied touch-up paint.
- Inspect your fence yearly for any damage that went to bare metal. If you find areas with damaged finish down to bare metal, simply use a wire brush to clean the area of dust/ dirt and then use satin black paint with rust-inhibitor to touch the area up.
- If you have gates, grease or oil the hinges as needed. Key lockable latches may require a shot of graphite every couple of years to ensure continued smooth operation.