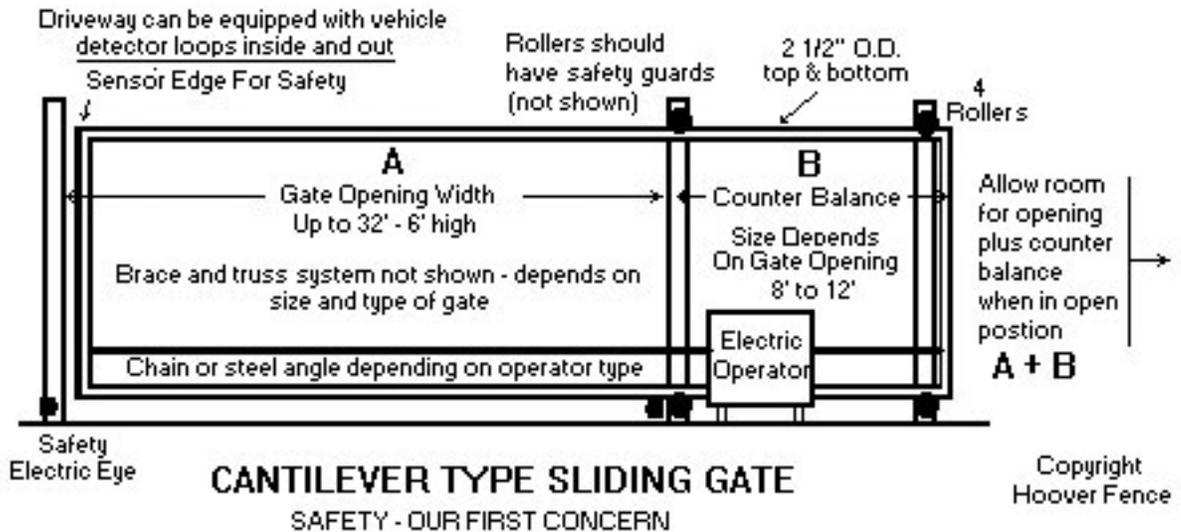


Chain Link Cantilever Gate Installation Manual



Introduction to Cantilever Gates:

A cantilever gate is unique in that it 'cantilevers' itself to close an opening while being supported from only one end. Cantilever gates move in a linear motion, or straight line, without requiring any lateral space as a swing gate would require. Due to its cantilevered design, these gates are typically built larger in width than the opening they are designed to close; this allows a portion of the gate to remain outside of the opening, often unobtrusively behind the adjacent fence line. This portion of the gate is called the counterbalance.

The gate counter balance should be 1/2 the length of the gate opening. Minimum counter balance should be 4' long. If an automatic operator is to be installed, the counter balance may need to be longer so the operator can 'pull' the gate shut by the rear of the counter balance. Always choose the operator and gate before construction begins. Traditionally, a cantilever gate is 'sandwiched' between two top rollers and two bottom rollers and mounted on two posts as shown above. A leading edge wheel is not required in most cases due to its cantilevered design. Another type of hardware system other than gate rollers may be employed. One such system employs a track which is mounted near the top of the gate between roller posts. The gate hangs suspended from the track with trolleys. There are guide rollers mounted to the bottom of the roller posts which prevent the bottom portion of the gate from being pulled away from the posts.

A cantilever gate should not be confused with other types of slide gates such as 'V-groove type track gates', 'overhead gates', or 'rolling gates' as they are often called. These type gates have a track in the gate opening and/or a leading edge wheel attached to the latch side of the gate which rides on the ground. A V-groove type track gate has an inverted piece of angle iron imbedded in the drive on which a specially notched wheel attached to the gate frame can ride. An overhead gate usually hangs suspended by trolleys with steel bracing, truss rods, and truss cables from an overhead I-beam which extends over the gate opening. Lastly, a rolling gate typically has a pipe track mounted to the adjacent fence on which the back portion of the gate may ride with a pipe track rear wheel. A leading edge wheel is mounted to the latch side of the gate which simply rolls on the ground.

Cantilever Gate Construction:

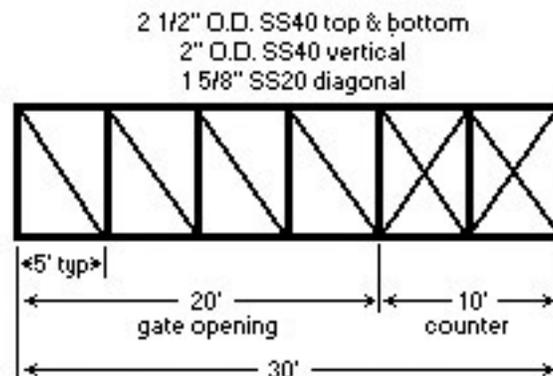
The vertical bracing should be spaced 4 to 6' apart. If 2-1/2" sch. 40 pipe or comparable is used 5' spacing is adequate. The rollers ride on the horizontal outside frame. Support for the top and bottom of the frame is essential. Only the 'opening' portion of the gate is stretched with chain link, or need fascia applied. The counterbalance usually slides behind a fence line and is designed for structural integrity only.

Post sizes are important. In general, chain link cantilever gates require 3" O.D. (outside diameter) roller posts for widths up to 10' opening size. Use 4" O.D. posts up to 20' and 6 5/8" O.D. posts up to 32'. These specifications are for 6' high gates and shorter. For taller gates increase post sizes at each step and use 8 5/8" O.D. posts for 32' gates.

Concrete footers need to be significant. 18" diameter x 42" deep is recommended for 3-4" O.D. posts, 24" diameter x 42" for 6 5/8" O.D. posts and 30" diameter x 48" for 8 5/8" O.D. posts. Increase bottom diameters 6"; creating a bell shaped hole. The up and down stress with these type gates will 'work' even the largest posts out of the ground. Poor soil conditions, such as sand, will require larger footers.

Hoover Fence Co. manual cantilever gate kits basically consist of the gate, two roller posts, a latch post, and the hardware: four cantilever rollers, safety roller covers, and a latch for gate*. An automated cantilever gate kit will also include a basic gate operator package. You will want to review other gate operator controls to suit your application such as key-pads, card readers, or intercoms for entry. Consider an exit wand, pushbutton, or a loop and detector for exit. Lastly and most importantly, consider a loop and detector for safety, safety edge and wireless transmitter/ receiver kit, and/or photo-beam for safety.

*Hardware supplied in Hoover Fence Co.'s kits may vary per size and style. Specifications subject to change without notice.



CANTILEVER GATE EXAMPLE

Before You Begin:

1. Obtain necessary zoning and building permits. There may be local zoning or deed restrictions pertaining to height and type of fence and/or gate. Check out property line setback requirements. Find surveyors pins if the fence is to be located near property lines or have the lot surveyed.
2. Measure fence footage and locate gate placement.
3. Call before you dig. Notify your local or state utilities protection service to locate potential buried utilities. There is usually no charge to locate utilities, however a hefty charge could exist for repairing buried utility lines, not to mention a potential injury to yourself.
4. Purchase fence, gates, and hardware direct from HooverFence.Com:

Related Images:



6'H x 20'W Single Gate



6'H x 30'W Double Gate



6'H x 18'W Single Gate



6'H x 20'W Single Gate

Step 1: Receiving Your Products

Check to make sure you have received the proper parts within 5 days of receiving your Hoover Fence Co. cantilever gate kit using your packing list enclosed with your shipment and a copy of your order.

Step 2: Layout

Drive two wooden or steel stakes into the ground to be used to attach string line to (Fig. A). Drive stakes a foot or two away from where you want gate posts to be located; this will allow you to drill/ dig holes without obstructions. It may also allow you to 'drop' the string line while excavating holes. Be careful not to bump or move stakes.

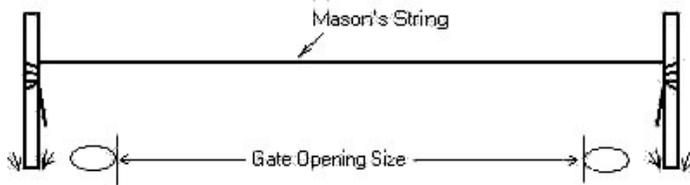


Fig. A

Stretch masonry guide string tight between these stakes; be sure the string is on the same side of each of the stakes when wrapping. This string will represent the location of the gate and serve as a guide string as you set posts. Posts will be set in concrete 1/8"-1/4" from string line even though the gate & latch posts could be of differing diameters (Fig. A-1).

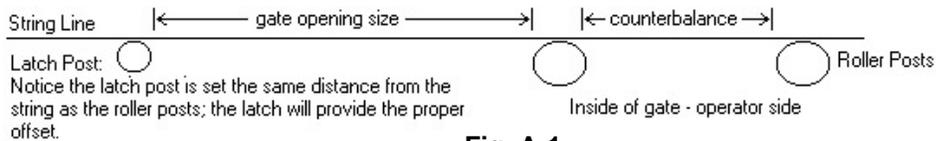


Fig. A-1

The gate hardware is designed to make up the difference and cantilever gate latches will compensate for the offset the rollers/ posts cause. Keep in mind, once the rollers are mounted the gate will actually slide a few inches on the inside of these posts and on the inside of the fence (Fig. A-2). This is several inches from the string line.

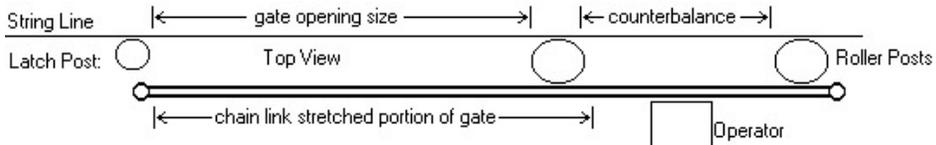


Fig. A-2

Make sure the masonry string is tight and free of obstructions. Adjust stakes and string line if necessary. If you remove the string to excavate holes, take care to restretch the string line back the way it was prior to removing.

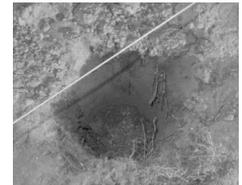
Related Images:



Cantilever gates are normally shipped on a flat bed truck. Forklift will be useful, but man power will do. Gates can be in excess of 500 lbs.



Upside Down Paint comes in handy for marking post positions. Be sure to account for auger and post diameters when marking.



Check hole location prior to filling with concrete mix. The hole should not be centered perfectly under string line; it should be offset slightly so that the post will be centered in the concrete footer. If necessary put post in empty hole and check with a level. The post should be plumb to the string with approximately 1/8"-1/4" clearance.

Step 3: Setting Posts:

Cantilever gates typically require three posts which make them unique; two are used to mount the rollers and gate and a third is required as a latch post. The two roller posts will be the same size and typically larger than the latch post. Important: although the latch post is smaller in diameter, you will set it in concrete the same distance from your guide string as the roller posts. The cantilever latch makes up for the offset once the gate is installed. Cantilever gates only have chain link stretched on the 'opening' portion of the gate. The portion of the gate which is stretched with chain link is typically 6" more than the 'opening' to provide security where the rollers will offset the gate. The counterbalance is not stretched with chain link as it is typically behind the rest of the fence. Set your gate posts according to the 'opening' size of the gate you've ordered. In example, a 20' wide 'opening' size gate opening should have exactly 20' from inside to inside of the latch post and first roller post Fig A-1. If you must error, error on the small side by setting posts too close together. Since the gate overlaps the opening, posts set to close together will not make much difference.

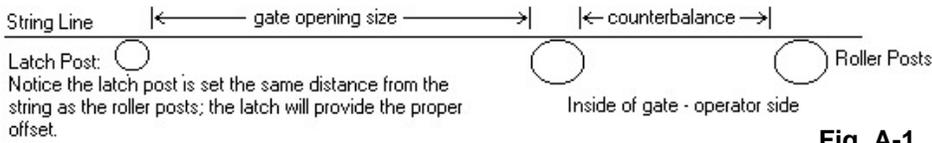


Fig. A-1

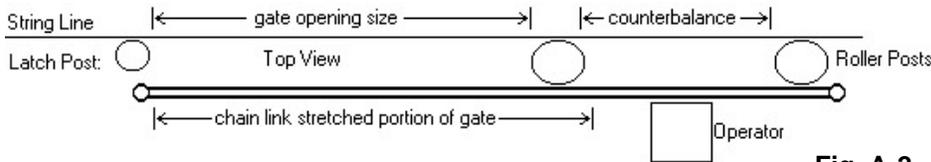


Fig. A-2

Cantilever gates are large and heavy as are their posts. Consult local building practices and codes for proper depth and diameter of holes and concrete footings. In general, footers should be three times the diameters of posts installed. The depth for fence post footers is often recommended to be 1/3 it's length and below frost. You can further anchor posts and concrete footers by digging the hole diameter larger at the bottom of the hole compared to the top. This will result in a 'bell-shaped' hole in contrast to a 'carrot-shaped' hole.

For locating placement of the last roller post, you'll need to measure the stretched portion of your gate and counterbalance to confirm proper fit Fig. A-3. In general, the stretched portion of the cantilever gate is 6" more than the opening to assure it overlaps any gaps caused by the offset of the rollers. Hardware varies therefore it is always best to take measurements once you receive your gate to plan installation.

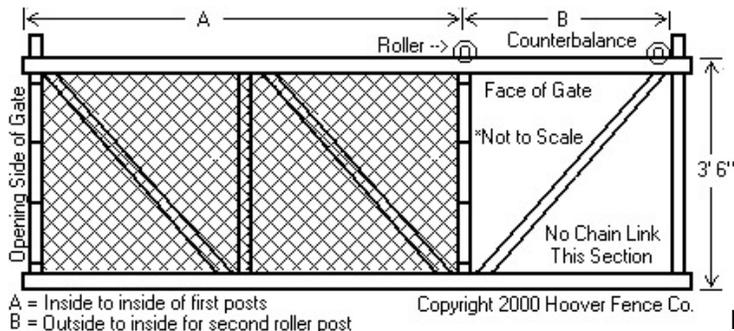


Fig. A-3

Related Images:



Measuring Wheel



Measuring Tape - Large



Measuring Tape - Small



Sledge Hammer



Marking Paint

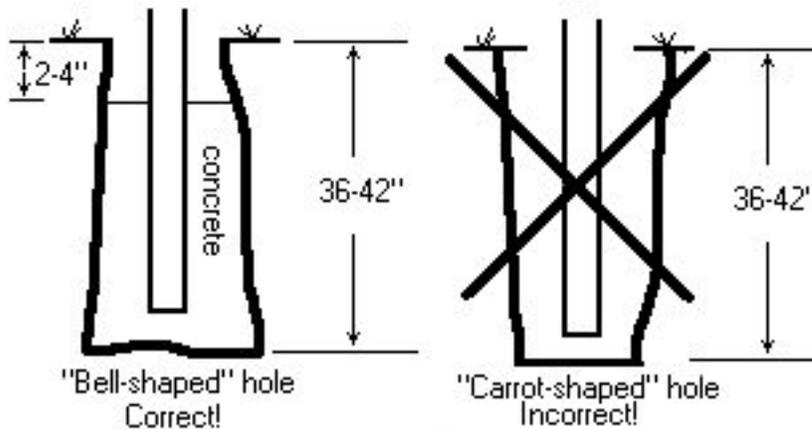


Small Auger



Large Auger

Step 3: Setting Posts (cont):



To set gate posts, dig holes 12-30" in diameter and 42-48" deep. The depth and diameter of the concrete footers vary depending on your location. The hole size above works well in areas with freezing ground. Holes should be "bell-shaped" not "carrot-shaped" Fig. B. Next, fill hole(s) with concrete and "stick" the post into the wet concrete and plumb post with a level. Make sure your concrete consistency is not too wet or soupy. Concrete should be of a plastic-like consistency, dry enough so the post will not sink to the bottom of the hole. The gate post should NOT extend to the bottom of the hole; there should be concrete under the post as well as all around it. You will want to leave the concrete level approx. 2-4" below grade or the ground level especially in areas which freeze, back fill with dirt. Replumb post. When the ground freezes it can cause the concrete footer to "heave" if you fill the concrete to the top of the hole. Leave the post(s) alone for approx. 24 hours or a sufficient amount of time for the concrete to harden.

Related Images:



Post Hole Diggers - Large



Post Hole Diggers - Small



Shovels



Sledge Hammer



Level

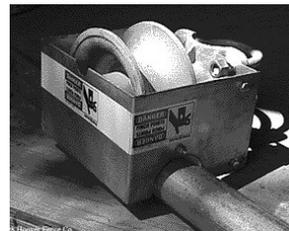
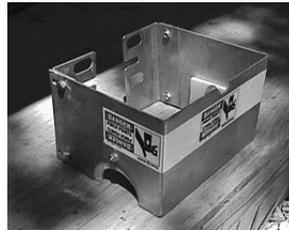
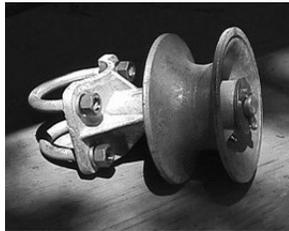


Spud Bar

Step 4: Install Cantilever Rollers & Covers:

After the concrete has hardened, you may install the two bottom cantilever rollers to the two roller posts, one per post, using provided U-bolts. Install the roller on the highest grade first if terrain is uneven. Care should be taken that cantilever rollers are not installed too low where snow, ice, and freezing ground could impede performance. A straight uniform length of tubing, or pipe may be used to level the second roller to the first by placing it across the top of the rollers. Firmly tighten all nuts on cantilever roller U-Bolts.

Cantilever gate rollers are available in steel and nylon. Steel or nylon roller covers are highly recommended to help protect pinch points.



Steel cantilever rollers are available with a grease fitting. Available sizes include 3", 4", and 6-5/8". Steel or nylon covers are available.



Nylon rollers have sealed bearings which do not require maintenance. Nylon rollers are available for square and round stock in many different sizes. Steel or nylon covers are available.

Related Images:



DAC-5800 Cantilever Roller



DAC-5975-B Bottom Cover



Top View - Roller w/Cover



Install cantilever roller on highest grade first



Install second bottom slide gate roller level with first



Tighten bottom gate rollers securely

Step 5: Hang Cantilever Slide Gate:

Hanging a cantilever gate usually requires a few extra hands. Start by carrying slide gate to gate roller posts and lying flat on ground behind roller posts face up. Roughly center the entire gate width with the roller posts. With the gate in a horizontal position, rest bottom rail of gate directly on bottom gate rollers.

Next, layout top gate rollers and covers. Depending on make, you may be able to loosely install gate top rollers and covers near the top of roller posts; this allows you to simply slide gate rollers down and into place once the gate is in the upright position. Lift slide gate into the upright position with it's weight centered on the roller posts. Hold firmly or attach safety straps to prevent the gate from falling. Slide top rollers onto gate frame and tighten U-bolts. Allow 1/4-1/2" space between roller and top gate rail to allow for smooth operation and to prevent binding.

Slide gate back and forth a few times to check operation. Make sure cantilever gate is free of any binding that could be caused by rollers being installed too tight to the gate frame. Check gate for level installation. Check all U-Bolts are securely tightened.



Related Images:



Center gate on bottom rollers before lifting upright



Bottom rollers must be level and securely fastened before lifting slide gate into upright position



When installing top rollers, allow a small space of 1/4"-1/2" between rollers and top gate member



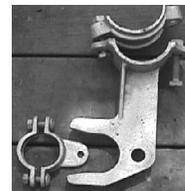
Firmly tighten all nuts to U-bolts and adjust covers to prevent rubbing

Step 6: Install Cantilever Slide Gate Latch:

The next step is to install the cantilever slide gate latch. Most cantilever slide gate latches are unique in that the 'fork' portion of the latch, or receiver of the latch, is installed on the gate latch post, not the gate. The smaller portion of the latch is then installed to the leading edge of the slide gate. When the two meet, the latch is padlockable. Cantilever gate latches simply install with nuts and bolts. Choose and install at a convenient height.



Related Images:



Standard Cantilever Gate Latch



Automatic Slide Gate Latch



Close-up Standard Latch Installed



Standard Cantilever Gate Latch Closed

Step 7: Install Operator:

The process for installing a slide gate operator varies depending on which make and model you will install; carefully read instructions with your gate operator thoroughly before proceeding. Following are some general guidelines that apply to most makes of gate operators, however your installation manual will be your definitive resource during installation.

Most slide gate operators will allow for a post mount or pad mount design. Post mounted gate operators usually mount to round or square steel posts which are embedded in concrete footers below frost. The gate operator is 'sandwiched' by these posts and attached with bolts. Most gate operators also allow for a pad mount installation which means the gate operator will rest on a concrete pad. In either case, the first step is usually to set the gate operator posts or pour the pad. Usually the operator will be placed centered between the two roller posts. A chain is attached to the leading edge, or latch side of the gate and extends clear to the opposite end. Brackets will attach to the uprights of the gate and the chain will insert with lock pins.



Related Images:



Small Slide Gate Operator



Post Mounted Operator



GTO SL-2000B Slide Gate Operator w/Brake



GTO R4222 Safety Photobeam