Installing a new GC123 Gutter

1. Configuration

Use the Bracket Configuration Table found at the end of this document to determine the number and location of rotating brackets required based on the gutter length. Mark the rotating bracket locations found in the table on the gutter.

2. Install End Caps

Install end caps on both ends of the gutter in the normal manner.

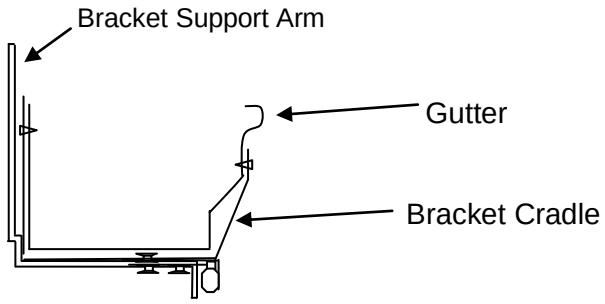
3. Install Rotating Brackets on the Gutter

Beginning at either end use the bracket locations marked previously and install the first rotating bracket up against the gutter from underneath. With the cradle firmly against the gutter floor, drive two short gutter screws through the two mounting holes in the cradle back to secure the gutter firmly to it.

Then drive two short gutter screws the mounting holes in the cradle face to secure the gutter to it.

Repeat this installation process for each rotating bracket along the gutter.

Rotating Bracket with Gutter Installed



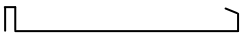
4. Install Aluminum Hidden Brackets

One aluminum bracket is installed at the approximate center of each span between adjacent rotating brackets.

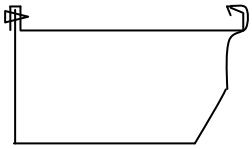
A hidden aluminum bracket profile is shown below at left. The curved-up end interlocks into the gutter front wall and the folded-over section slides down on the back wall.

A short gutter screw is driven into the mounting hole in the bracket and through the gutter back wall to secure the bracket to the gutter as shown below.

Hidden Bracket



Hidden Bracket installed in the gutter



When this step is complete there will be a bracket every 2 feet (rotating, hidden, rotating etc.) along the gutter except possibly at each end where the distance from the bracket to the gutter end varies according on the gutter length as shown in the Configuration Table.

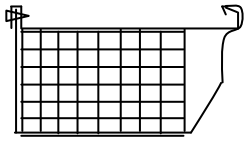
.5. Gutter Drain

The location of the downspout needs to be known to complete this step.
A drain hole is made in the gutter floor at the point directly over the downspout location.
A large diameter drill or punch is used to make a 2-3/8” hole in the gutter floor centered evenly between the front and back walls of the gutter.

6. Install Gutter Drain Screen

To prevent leaves and debris from entering the Straight Collector Box (installed later) and the downspout, a drain screen is installed over the gutter drain hole.
The drain screen is made of 1/2” mesh of galvanized steel or aluminum, formed in the shape of a rectangle.
The open bottom of the screen is centered over the drain hole and pushed down against the gutter floor.
A hidden bracket is placed over the screen and secured in place as described in Section 4.
The bracket gently compresses the screen which keeps it in place.

Gutter Drain Screen installed in the Gutter



7. Check the Fascia Board

The fascia board should be checked for integrity at this time. Any soft or rotted sections should be replaced before proceeding.

If the fascia is in good shape then check for any nails, screws, wood defects that stick out from the fascia board. If any are present they need to be removed, driven in, or smoothed out so that they do not interfere with smooth gutter rotation.

8. Check for Gutter clearance

Determine the location along the fascia board where the first bracket on the gutter at the non-drain end will be. Take a rotating bracket and place it against the fascia board at this location with top edge of the bracket support arm even with the top of the fascia board.
Rotate the bracket forward and check to see if it clears the shingles.

If it clears the shingles, then the top of the first bracket support arm can be installed even with the top of fascia board (zero offset).

If it does hit a shingle, move the bracket down until it clears the shingle and note the distance from the bracket arm top edge to the top of the fascia board and use this offset when securing the first bracket to the fascia board.

9. Install the Gutter

Unless the gutter is very short this step will require two people.
The gutter is raised and using the offset distance, if any, determined in the previous step, the first bracket at the non-drain end is secured to the fascia board.

1-1/4” exterior flat head screws are used to secure the mounting bracket to the fascia board.
If the gutter is installed in the upright position only the upper mounting hole is accessible and the remaining screws can only be installed when the gutter is rotated over.

The second bracket is secured to the fascia board using offset of the first bracket plus 1/8”.
Each succeeding bracket is secured to the fascia board with an offset increased by 1/8” inch.
This increasing offset give the gutter proper pitch in order to move rain water toward the gutter drain.

If you were installing seven rotating brackets the last bracket at the downspout end would be offset 3/4“ down from the first bracket at the non-drain end.

10. Check Bracket Alignment

Rotate the gutter over and site along the line of bracket ends near the top of the fascia board and check that they are roughly along a straight line as old fascia boards may have bowed down over

time. As long as the gutter back wall distance from the fascia board is fairly uniform along the entire gutter and it can rotate over and back without obvious buckling or bowing the bracket positioning is good.

If any bracket is out of vertical alignment, remove the bracket mounting screws and rotate the gutter upright. A disconnected bracket usually self aligns and this can be verified by observing that the distance of the gutter wall to the fascia is in line with the rest of the gutter. If it isn't, move the bracket up and down which moves the gutter back wall in and out from the fascia. When it is aligned with the rest of the gutter, mark the bracket location on the fascia. Rotate the gutter over and line the bracket to the mark. Then install both bracket mounting screws.

11. Install Straight Collector Box (SCB)

Set the gutter in the upright position and slide the open top of the SCB is up against the gutter floor and center it on the drain hole.
Drive a 1-1/4 exterior screw through the upper most hole in the SCB back wall, which is visible above the gutter. Then rotate the gutter over and install the remaining screws.

12. Install the Downspout

The downspout is run between the SCB and the ground and secured to the building wall with downspout brackets. The upper end of the downspout slides over the SCB outlet and held in place with a short screw driven through the downspout and outlet.

13. Check Shingle Overhang

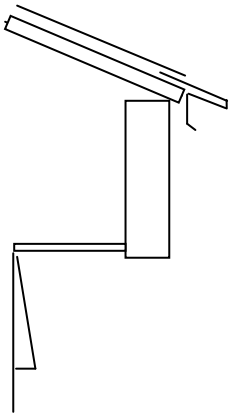
Short shingle overhang occurs where the shingle edges line up vertically with the back wall of the gutter. In moderate to heavy rains the rainwater will arc into the gutter, while in *very* light rain, water tends to fall straight down and can miss the gutter.

At the other extreme, long overhanging shingles can droop down enough to interfere with smooth gutter rotation.

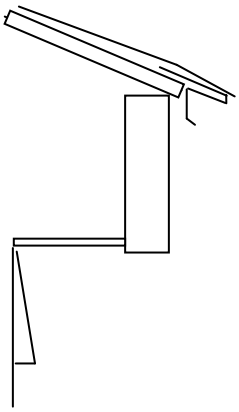
These overhang conditions usually do not occur along an entire section of gutter. Where they do occur *Drip Edge* is installed to correct the condition. Drip Edge is a thin metal flashing sold in home improvement stores in 10' lengths.

Drip Edge Profile

Drip Edge extends short overhang



Drip Edge pushes up long overhang



14. Verify Gutter Operation

Never stand directly under the gutter to rotate it for two reasons.

First, it is not designed to be pulled straight down but rather at a slight angle.

Second, any debris in the gutter which is sometimes wet, will fall right on top of you.

Rotate Gutter Over

Stand at least 6 feet in front of the center of the gutter. Never rotate a gutter except at the center of the gutter.

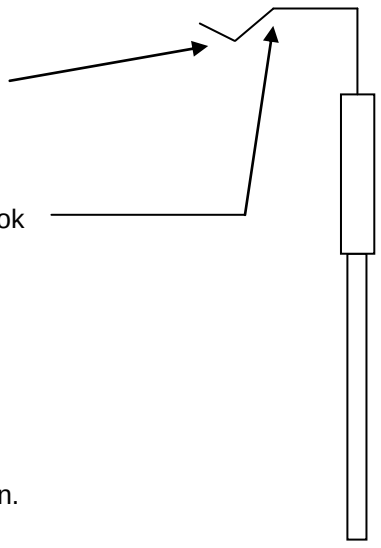
Hook the front wall of the gutter with the Hook Tool and pull it downward. The gutter should rotate completely over to the upside down position.

Push Gutter Upright

Place the outer up-hook end of the hook tool on the back wall of the inverted gutter and push it up. The gutter should move up over and firmly back into the upright position.

Push gutter up with up-hook

Pull gutter over with down-hook



This completes the Installation.

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The Bracket Configuration Table below shows the placement and spacing of *rotating brackets* and *hidden aluminum brackets* for various gutter lengths.

Rotating brackets (RB) are installed every 4 feet along the gutter with no bracket more than 2 feet from the end of the gutter.

A **Hidden aluminum bracket (HB)** is installed midway between rotating brackets. These brackets fortify the gutter during rotation and prevent gutter collapse in the event a ladder is placed against it just as they do in fixed gutters.

From the table the spacing for a 12 foot gutter is 2 r 4 r 4 r 2 where the numbers represent feet and 'r' represents a rotating bracket.

- Beginning at the left end, bracket 1 is two feet from the left end of the gutter.
- Bracket 2 is four feet from bracket 1 with a hidden bracket centered between them.
- Bracket 3 is four feet from bracket 2 and two feet from the right end of the gutter with a hidden bracket centered between them.

Bracket Configuration Table

Gutter Length(ft)	Rotating Bracket Spacing (ft)	# of RB	# of HB
2	0.5 r 1 r 0.5	2	1
3	1 r 1 r 1	2	1
4	1 r 2 r 1	2	1
5	1 r 3 r 1	2	1
6	1 r 4 r 1	2	1
7	1.5 r 4 r 1.5	2	1
8	2 r 4 r 2	2	1
9	0.5 r 4 r 4 r 0.5	3	2
10	1 r 4 r 4 r 1	3	2
11	1.5 r 4 r 4 r 1.5	3	2
12	2 r 4 r 4 r 2	3	2
13	0.5 r 4 r 4 r 4 r 0.5	4	3
14	1 r 4 r 4 r 4 r 1	4	3
15	1.5 r 4 r 4 r 4 r 1.5	4	3
16	2 r 4 r 4 r 4 r 2	4	3
17	0.5 r 4 r 4 r 4 r 4 r 0.5	5	4
18	1 r 4 r 4 r 4 r 4 r 1	5	4
19	1.5 r 4 r 4 r 4 r 4 r 1.5	5	4
20	2 r 4 r 4 r 4 r 4 r 2	5	4
21	0.5 r 4 r 4 r 4 r 4 r 4 r 0.5	6	5
22	1 r 4 r 4 r 4 r 4 r 4 r 1	6	5
23	1.5 r 4 r 4 r 4 r 4 r 4 r 1.5	6	5
24	2 r 4 r 4 r 4 r 4 r 4 r 2	6	5
25	0.5 r 4 r 4 r 4 r 4 r 4 r 4 r 0.5	7	6
26	1 r 4 r 4 r 4 r 4 r 4 r 4 r 1	7	6
27	1.5 r 4 r 4 r 4 r 4 r 4 r 4 r 1.5	7	6
28	2 r 4 r 4 r 4 r 4 r 4 r 4 r 2	7	6

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Gutter lengths between whole lengths use the spacing values of the longer whole length gutter with a small end distance reduction of 1" for each 2" of gutter length below the whole gutter length.

For example, gutters between 12' to 11' in length reduce the 24” (2’) end distance of a 12’ foot gutter as shown below.

Gutter Length	End Distance
12' 0"	24" (2’)
11' 10"	23"
11' 8"	22"
11' 6"	21"
11' 4"	20"
11' 2"	19"
11' 0"	18" (1.5’)

The bracket spacing for an 11’6” gutter is 21" r 4' r 4' r 21"