

Bottle Grab Use Instruction

WARNING - Improper set up of Bottle Grab can lead to serious injury or death. Follow these steps to ensure safe use of Bottle Grab.

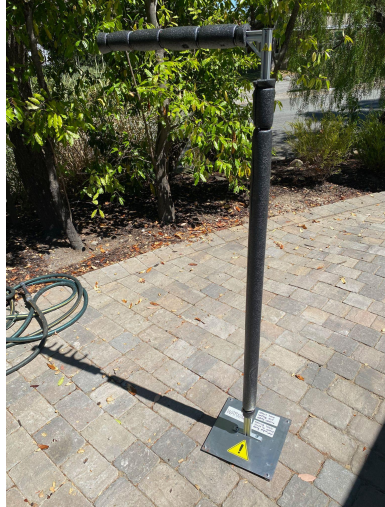
CAUTION - The sand bags are heavy and weigh between 25 and 35 lbs each. Pick up each sand bag with proper heavy lifting technique to avoid injury.

Find more info about Bottle Grab at drewmathews.xyz/bottle-grab/



Reference Info:

- Bottle Grab is a stand that hands-off bottles to cyclists while riding
- Bottle Grab is assembled with **three components: the frame, the base sandbag, and the safety sandbag**
 1. The Frame:
 - a. The frame is pre-assembled and composed of the base, the post, the arm, and the bottle hands.



- i. Base: contacts the ground and is connected to the post. The base sand bag rests on the base when Bottle Grab is in use



- ii. Post: the main body of the frame - a vertical / perpendicular to the ground aluminum bar that connects the base to the arm and is wrapped in protective foam padding



- iii. Arm: the arm is fastened parallel to the ground / horizontally and extends out into the course. 3 Bottle Hands are fastened to the arm, and the rest of the arm is wrapped in protective foam padding



- iv. Bottle Hands: the Bottle Hands hold and hand-off cycling bottles to riders. They are black 3D printed parts that have a U shape. They are made from an impact and UV resistant material. 3 Bottle Hands are fastened to the end of the arm and spaced out such that riders are easily able to grab an individual bottle without contacting another but close enough together that the inner most bottle is not too close to the post (which makes it difficult to grab while riding due to arm obstruction)



2. The base sandbag

- a. The base sandbag is a black donut shaped sand bag. The base sand bag has a clip that adheres both ends of the donut shape together. The base sand bag rests on the base in order to keep the stand steady. The base sandbag has a nylon handle for carrying.



3. The safety sandbag

- a. The safety sand bag prevents the Bottle Grab frame from tipping into the course in the event of a collision or impulse that would do so. The safety sandbag is composed of a double cylinder shaped sandbag fixed to a chain. The chain has two carabiners fixed to each end (one end it is fixed several links prior of the end). One carabiner is clipped to the double cylinder sandbag, and the other end performs the chain adherence to the top of the frame. The end of the chain is fed through a bracket that connects the post and the frame, and the carabiner on that end of the chain clips the chain to itself.



Set Up Instructions:

Set Up Demo Video: <https://youtu.be/KXJT0nRxylw?si=ssJ68KnuoIVqy8F3>

WARNING - Failure to properly adhere both the base sandbag and safety sandbag during Bottle Grab use is unsafe and can result in serious injury or death.

WARNING - Improper placement of frame base can be dangerous for riders.

1. Choose the locations in the feed zone to place each Bottle Grab
 - a. If possible, opt for spots with higher inclines or spots where riders will be travelling slower
 - b. Opt for sections away from where groups of individual feeders will be
 - c. Space out Bottle Grabs such that riders will be able to approach and ride away from an individual Bottle Grab without obstruction from another stand or causing hindrance to another rider

- i. Around 30 feet is a good rule of thumb, but use your discretion
- ii. The more space between each Bottle Grab the better, but consider leaving large sections of the feed zone dedicated for individual feeders



- 2. Lay down each frame flat on the ground in its desired location prior to adhering sand bags to ensure the frame does not tip over.
 - a. Use your discretion here. If it's windy, and the frames are placed upright and left without sand bags on them, they will probably tip over. This risks breaking the bottle hands (though they are tough and I will provide spares in the event that one or two break). In most other conditions, they will probably be able to stay upright while you bring the sand bags over to them.



3. Bring both the base sandbag and safety sandbag to each stand
4. Place frame upright in desired location and adhere base sand bag
 - a. You can micro-adjust the position of the base with the base sand bag on, though it is easier without
 - b. Orient the arm of the stand perpendicular to the road such that the U of the bottle hands points away from oncoming riders (bottle hands are fastened to the side of the arm that faces away from oncoming riders)
 - c. Place the base of the stand in a spot such that the arm extends into the course an appropriate amount such that riders are able to safely access it without obstructing the peloton
 - i. Don't place the base in a location that causes riders to ride very close (<6 inches) to the edge of the road
 - ii. Don't place the base in a location where the arm is so far into the road that riders who do not want a Bottle are obstructed or would be obstructed by riders going to the stand
 - d. Place the base of the stand in a flat spot, or if not possible, place cardboard provided under sections of the base to level it



- e. Clip the base sand bag around the post



- f. The warning label on the base should be covered by the base sandbag
- 5. Adhere the safety sandbag to the frame
 - a. Clip the chain already adhered to the safety sandbag to the bracket that connects the post and the arm
 - i. Feed the end of the chain through the bracket hole, and clip the chain to itself with the attached carabiner



- b. Place the double cylinder sandbag off the course perpendicular to the road at sufficient tension
 - i. The double cylinder sandbag should be placed in a spot that provides adequate chain tension such that the frame cannot significantly move in the direction of the course with moderate force. It should not be located so far from the base of the frame such that the top of the frame is being pulled away from its resting position



Example of Proper Chain Tension:



Example of Inadequate Chain Tension:



Example of Too Much Chain Tension:

6. Ensure no parts of the frame are loose
 - a. It should be obvious if something is loose and could fall free or lead to a bad situation.
 - b. Each stand has a 3 mm allen wrench taped to the top of the post such that if a part needs to be tightened, you can easily do so
 - c. The most common part that would come loose is the bottle hand

- i. If loose, tighten such that it cannot rotate on the arm
 - ii. Overtightening - providing excessive force will break the bottle hand
7. Place a container of bottles at the base of each assembled Bottle Grab
 - a. This makes reloading easy

Reloading Instructions:

CAUTION - Do not stand in close proximity to the Bottle Grab when riders are coming through the feed zone. Stands can make harsh movements when bottles are grabbed that can cause harm, and in the event a rider collides with a Bottle Grab, being close to one is dangerous.

1. Reload each bottle hand with the bottles located at the base of each stand
2. Approach each stand from outside of the course (ex: the side of the road)
3. Bottles are taken from the outside in, so not all bottles will be taken every time a field comes through
4. Take care to remain out of harms way from riders in the feed zone - do not walk into the course without ensuring it is clear

Disassembly Instructions:

CAUTION - Do not remove sandbags without holding or laying flat the frame. Otherwise, the frame can tip and cause harm

1. Remove chain from frame bracket
2. Remove clip from base sandbag
3. Hold frame while removing base sandbag from base
 - a. Put away frame directly after removing sandbags or lay flat
4. Put away sandbags one by one while adhering to proper lifting techniques