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## Link Lock™ Weld-On Installation Guide

Welcome to the installation guide for the Link Lock™ safety chain system! The patented Link Lock™ system (U.S. Patent 10,703,150) is designed to make length adjustment of trailer safety chains a cinch. Once you have used Link Lock™ to adjust your trailer chains, you won't want to tow a trailer without them! The Link Lock™ system can be either welded or bolted to the tongue. The both the 5/16" and 3/8" Link Lock™ has been tested with Grade 70 chain and is stronger than the chain. When properly installed and used, all models of the Link Lock™ can be rated as high as the rating of the lower of the chain, hook or tow vehicle chain attachment, as follows. The 5/16" Link Lock™ exceeds a Class 4 rating (up to 10,000 pounds GTW for weight carrying hitches and 14,000 pounds GTW for weight distributing hitches). The 3/8" Link Lock™ exceeds a Class 5 rating (up to 12,000 pounds GTW for weight carrying hitches, 17,000 pounds for weight distributing hitches). The grade 70 chain actually breaks before any Link Lock™ catastrophically fails. Grade 70 chain meeting NACM specifications has a minimum breaking strength of 18,800# and 26,400# for 5/16" and 3/8" chain respectively.

### **⚠ DANGER**

- Failure to have proper welds could cause chains to become disengaged from trailer causing death or serious injury. Link Lock™ must be installed by an experienced welder. Welds must have good penetration with minimal undercut.
- The bolt on version of the Link Lock™ shall not use the same bolts for attachment to the tongue as the coupler. Using the same bolts could cause the chains to become disengaged from the trailer causing death or serious injury.
- Never install Link Lock™ sleeves to the bottom of the tongue. In the event of a primary decoupling, they may get ground off. This could cause the chains to disengage from the trailer causing death or serious injury.

### **⚠ WARNING**

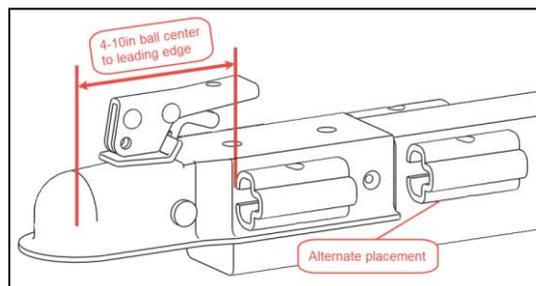
- If the Link Lock™ is to be welded to a galvanized trailer, zinc oxide fumes will be expelled into the air. While zinc oxide fumes are considered to be non-toxic and non-carcinogenic they can cause "metal fume fever." See the following for more information: <http://www.sperkoengineering.com/html/articles/WeldingGalvanized.pdf>

### Additional Information

Link Lock™, LLC has an online tool to aid in determining if your safety chains are appropriately configured to prevent the trailer tongue from hitting the ground in a decoupling event. You may also check out state and federal law regarding trailer chains. To access this information go to: <https://www.linklock.net>. Link Lock™, LLC has also compiled state by state laws regarding safety chains. You can contact one of our safety chain specialists with any questions about installation at the phone number or email above.

### Positioning Instructions

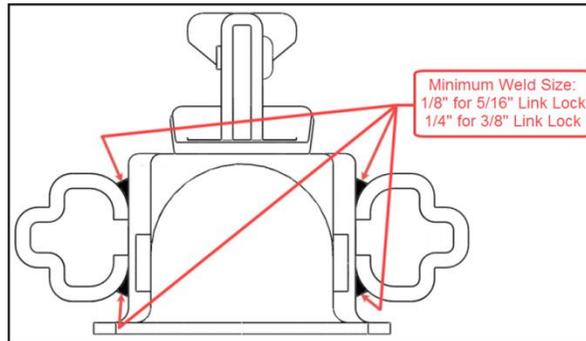
While the Link Lock™ system will allow for adjustment of the chains when mounted anywhere along the tongue, mounting the front of the Link Lock™ sleeve 4"-10" behind the center of the ball is best. Mounting the Link Lock™ this close to the ball provides the best opportunity for the chains, when crossed under the tongue and connected to the hitch, to cradle the tongue without the tongue hitting the ground. This is a state law in many states. It gives the best chance of controlling the trailer, not grinding the chains off and keeping the trailer from running into and damaging the tow vehicle in the event of a primary coupling failure. If the coupler is welded to the tongue, the Link Lock™ may be welded to the coupler after assuring that the coupler is adequately welded to the tongue. We have tested the 5/16" Link Lock™ welded to material as thin as 0.14" thick and were still able to keep the 14,000 pound rating. Before welding, clamp both Link Lock™ sleeves in place. Insert the Link Lock™ pin into the hole to make sure there is nothing blocking it from complete insertion. Next, insert the 5/16" safety chain with the chain link welds away from the tongue. Make sure the chain will slide smoothly through the Link Lock™ sleeve without anything blocking it. Be sure that the welding will not damage wiring or anything else running inside the tongue.



CONTINUED ON OTHER SIDE

## Welding Instructions

See warnings above. With the Link Lock™ sleeves clamped in place as above, they can now be welded to the tongue. Each Link Lock™ sleeve is welded fully across the top and bottom with a 1/8" minimum weld for the 5/16" Link Lock™ and 1/4" weld for the 3/8" Link Lock™ using E70xx weld wire or stick or better for steel sleeves, or 5356 or 4043 for aluminum sleeves, as shown below. Do not weld across the ends or allow weld splatter inside the sleeve as it will interfere with the smooth operation of the chain. Take care not to get weld in the pin hole as it may keep the pin from being inserted.



## Chain Installation Instructions

After the Link Lock™ sleeves have been painted or have received other protective coating, the chains can be installed. We suggest 5/16" Grade 43 High Test Chain or better for Class 1 (2,000 pound GTW or less trailers), Class 2 (3,500 pound GTW or less trailers) and Class 3 (5,000 pound GTW or less trailers). We also suggest 5/16" Grade 70 Transport Chain for Class 4 (10,000 pound GVWR or less trailers). These chains will be embossed with a 4, 43, or 430 for Grade 43 and a 7, 70, or 700 for Grade 70 chain at least every foot along the chain. While we have tested many 5/16" chains with the Link Lock™, there is no standard for the width of grade 43 or 70 chain, so check to make sure the chain you would like to use slides easily through the Link Lock™ sleeve and that the pin will fit through the link when in the Link Lock™ sleeve. We also suggest gated hooks, each with the same or better rating as the class of trailer. While it will depend on the specific installation, 2 to 3 feet of safety chain is usually adequate, when the sleeves are installed as suggested. Those using weight distributing hitches will tend to need safety chains toward the longer side. Those with folding tongues, call for assistance.

## Installing the pin onto the chain

Clamp the bent portion of the pin in a vice with protective jaws. Put the **SECOND** link from the end of the chain onto the pin. Our testing showed putting the pin in the second link to be much stronger if the user forgets to put the pin into the Link Lock™ sleeve. Make sure that for one chain the chain link weld is on the left side of the pin and for the other chain the chain link weld is on the right. Put the small loop of the keeper cable on the pin. Then put the washer on. The push washer can be best installed using a 1/2" PVC pipe cut to 2 1/2" long for the 5/16" sleeve or 3" long for the 3/8" sleeve. Place the toothed washer on top of the pin with the teeth angling upward. Place the proper length PVC pipe centered on the toothed washer and pound on the end of the PVC pipe to push the washer onto the pin. Continue until the pin is at the top of the PVC pipe. Install the "R" pin on the other end of the keeper cable. Install the chains from the rear side of the sleeve, pushing the links through toward the front (remember that the link welds are away from tongue!). Install the hook on the front end of the chain. Bend the cotter key over with pliers. Repeat for the other chain. Your new Link Lock™ system is ready to go!

