

How to Build a Metal Welding Table

A steel, welding table is a basic necessity for any welder's workspace, since welding on a wooden surface can present a very real fire hazard. In addition, with a steel table, the welder's work clamp can be attached to it, and parts placed on the table will be electrically connected with the table's surface. This provides the advantage of keeping the work clamp and its cable out of your way while welding. Finally, building your own welding table will allow you to stand upright and place smaller projects at the right height for welding.

Following are instructions for building your own metal welding table. All of the items, with the exception of the metal plates needed for the shelves, can be found readily available at your local home improvement store. The steel plates can be purchased from a local steel supplier easily found in your local yellow pages. Expect to complete this project in less than four hours. The estimated cost for the materials to build this welding table is \$50.

Required Tools

- [Lincoln Electric Pro-MIG 135™](#) or other similar MIG welders available at a retailer nears you. 120-volt household current powers the Pro-MIG 135.
- Lincoln SuperArc® L-56 .025-inch solid wire
- Gas regulator and hose
- Shielding gas with a 75% argon, 25% carbon dioxide mixture
- Wire cutters
- Tape measure
- Square
- Speed square
- C-clamps (3)
- Reciprocating saw with metal-cutting blade or chop saw with metal cutting disc with miter capability
- Cleaning solvent - Can be flammable. Keep away from your work area while you weld.
- Rust resistant spray paint - Can be flammable. Keep away from your work area while you weld.

Required Materials

- 1/8" standard steel angle iron (*sizes chosen to accommodate 4-foot lengths angle iron is available in*):
 - 4-1/8" x 1" x 1" - 18" in length mitered at 45 degrees
 - 4- 1/8" x 1" x 1" - 30" in length mitered at 45 degrees
 - 4-1/8" x 1-1/4" x 1-1/4" - 36-inches in length (legs)
- 2-1/8" thick mild steel plates measuring 17-1/2" x 29-1/2"
- 4 - casters with threaded shafts and matching nuts
- 4 - coupler nuts used to fasten threaded rod together
- 4 - lock washers to fit caster shafts
- 1 - steel tubing 3" in length, 1-1/4" inside diameter

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1 Check your materials. Lie out the materials in your work area and check to make sure you have everything required to complete the project. Don't forget your safety equipment and fire extinguisher. If you haven't already, cut your angle bar using your speed square to mark miters. Check the reference chart on the inside of the door of the welder to ensure you are using the right settings for the thickness of steel you are about to weld (standard on most Lincoln Electric compact wire feed welders). Test your settings by welding on a piece of scrap before you start.



2 Welding the two frames for the tabletop and shelf. Using the square on the outer edge, place one piece of 30-inch angle iron and one piece of 18-inch angle iron together, mitered side down, making sure they are perfectly square.

Attach your work clamp to one of the pieces of metal. With your welding face shield in place, tack weld the corners on the inside edges. The rest of the weld will be completed later.

Using another piece of 30-inch angle iron and another piece of 18-inch angle iron, repeat this step to create the opposite corner of your frame. It is important to weld the opposite corners first to ensure right angles and a perfect fit.

Now bring the two sections of your rectangular frame together and tack weld the remaining corners.

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3 Welding the tabletop to the frame. Position your frame flat side up. Place one of the pieces of steel plating on top of the frame and center it. Attach the work clamp to a piece of scrap steel and lay it on top of the table (see photo). Tack weld around the plate. Do not make full welds at this point to minimize distortion caused by heat. Tack the corners and one or two tacks per side. When all tacks are complete, weld over each tack weld placing a weld with a finished length approximately 3/4-inch long. Finish welding the corners from underneath. Both shelves should be assembled the same way.

4 Squaring the shelves and attaching the first leg. Stand up one of the shelves on the long edge. Using the square to make sure it is at a 90-degree angle to the ground, attach one of the legs to the shelf with a C-clamp to hold it upright, like a kickstand on a bicycle (See photos). Position the second shelf parallel to the first and attach another one of the legs in the same manner (see photo). The shelves on our welding table are 28-inches apart. You can adjust that distance to accommodate your specific needs. Place one of the legs on the bottom shelf corner and place the top of the leg in the inside corner of the table's top. Tack weld it in place. Next, weld both edges of the leg to the top and shelf. Each of these welds will be approximately 1-inch long. Be sure to weld each side.

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5 Attach the remaining legs. Repeat the instructions on attaching the leg in step 5. Check to make sure you completed all welds on both sides of each leg before standing the table on its own weight.



6 Attaching the caster coupler nuts and casters. Place a coupler nut in the inside corner of the angle iron, flush to the bottom of the leg. Make a 3/4-inch weld on each side of the nut. Repeat this step on each leg. Let cool. Place a standard nut onto each caster stem as far as it will go. Place one lock washer on each caster stem and thread the stem into the coupler nut attached to the table leg. Adjust the height of the casters to level the table. Then, tighten the nuts to lock the casters vertically in place.

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7 Attach the welding gun holder. With a clamp, attach the 3-inch length of steel tubing to the right front corner of the top shelf of the table (if right-handed; be sure to switch to the left side if you are left-handed). Attach it at approximately a 45-degree angle with the front facing up to accommodate holding the gun (see photo). Tack weld the tube and remove the clamp. Make a 1-inch finish weld on the topside of the tube.



8 Stand back, admire your handiwork and start on your next welding project. You may want to paint the welding table with a rust-resistant paint, but DO NOT PAINT THE TOP OF THE TABLE. You will want this to remain bare steel so metal parts placed on the tabletop for welding are in contact with the work. Before painting, clean the entire table with a cleaning solvent to remove machining oils. Mask off the top with masking tape and newspaper. Paint.