

Welding

Department H, Division 920

Superintendents - Lori Walla
Jr. Superintendent -

All metal welding process accepted. All welds exhibited in class 920001 or 920002 must be mounted on a 12" high x 15" long display board of thickness not to exceed 3/8". Attach each weld on a wire loop hinge or equivalent, so the judge can look at the bottom side of the weld when necessary. Each weld should be labeled with information stated 1) type of welding process (stick, MIG, TIG, Oxy-Acetylene, etc.) 2) kind of weld, 3) welder setting, 4) electrode/wire/rod size, and 5) electrode/wire/rod ID numbers. Attach a wire to display board so it can be hung like a picture frame. If no plans are included with welding article or welding furniture item will be disqualified.

Arcs and Sparks scoresheet SF281 all classes

H920001* Welding Joints-a display of one butt, one lap and one fillet weld.

H920002* Position welds-a display showing three beads welded in the vertical down, horizontal and overhead positions.

H920003* Welding article - any shop article or piece of furniture where welding is used in the construction. 60% of item must be completed by 4-Her and notes regarding laser welding or machine welding must be included. All plans, plan alternations, and a bill for materials must be attached to the article. Protect plans with a cover.

H920004* Welding furniture – (SF282) – any furniture with 75% welding is used in the construction. 60% of item must be completed by 4-Her and notes regarding laser welding or machine welding must be included. All plans, plan alternations, dimensions and a bill for materials must be attached to the article. Protect plans with a cover. May be displayed outside.

H920005 Plasma Cutter/Welder Design – Plasma cutters/welders allowed for detailed design(s) to butt cut into metal. 4Hers will create a notebook describing the design process to create the “artwork” to butt cut into metal. This exhibit not eligible for entry at the State Fair. In the notebook include:

- a) A photo (front and back) of the finished project. Also include detailed photographs of the project to allow judges to examine cuts.
- b) Instructions on how the design was created, this allows for replication of the project
- c) Lessons learned or improvements to the project

H920099 Other Welding Exhibit- Not eligible for State Fair or for County Fair Division Awards. Must meet guidelines stated in Project Manual.

*State Fair eligible

4-H Welding Project Tips and Suggestions for Class H920001

1. All welds should be made with the same electrode/wire/rod size and number.
2. Welds should be made only on one side of metal so penetration can be judged.
3. Welds should be cleaned with chipping hammer and wire brush. Apply a coat of light oil (penetrating oil) to the metal to prevent rusting. Wipe off excess oil.
4. It is suggested that all welds be on the same size and thickness of metal. These pieces, referred to as coupons, should be 1.5 to 2 inches wide and 3.5 to 4 inches long. A good way

to get this size is to buy new cold rolled strap iron and cut to length. The extra width is needed to provide enough metal to absorb the heat from the welding process and prevent the coupons from becoming too hot before the bead is completed. Narrower coupons will become very hot, making an average welder setting too cold at the bead start, just about right in the middle, and too hot at the end. The correct way to weld narrow strips is to make short beads and allow time to cool, however this project requires a full length bead.

Stick welding

Suggested coupon thickness - 1/4" if using 1/8" rod

Suggested rod-AC and DC straight or reverse polarity- first E-7014, second E-6013

MIG welding

Suggested coupon thickness - 1/4" if using .035 wire and 1/8" if using .023 wire

Oxy-Acetylene

Suggested coupon thickness - 1/8"

Suggested rod - 1/8" mild steel rod

4-H Welding Project Tips and Suggestions for Class H920002

1. It is suggested that all welds be on same size and thickness of metal. These pieces are referred to as coupons. The welds can be on one coupon that is about 4" x 4" or on individual coupons that are about 2" X 4" inch and 1/4" thick. Suggested rods for this class of position welds for AC and DC straight or reverse polarity is, first E-6013, second E-7014 and E-6010 for DC reverse polarity only.
2. Welds should be cleaned with a chipping hammer and wire brush. Apply a coat of light oil (penetrating oil) to the metal to prevent rusting. Wipe off excess oil.

4-H Welding Project Tips and Suggestions for Class H920003 & H920004

1. All welds should be cleaned and protected from rust with paint or light oil. Plans are to be complete enough that if they were given to a welding shop, the item could be made without further instructions. Bill of materials should include a cost for all items used including steel, electrodes, paint, wheels, etc.