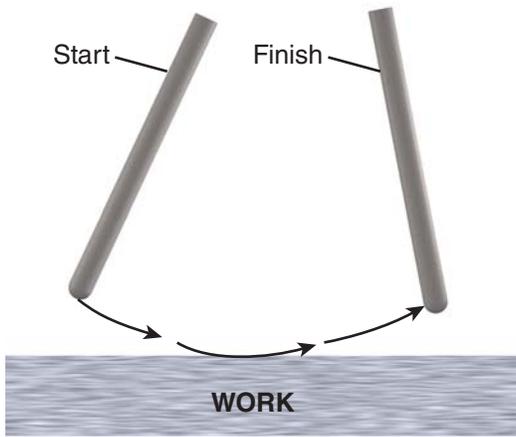
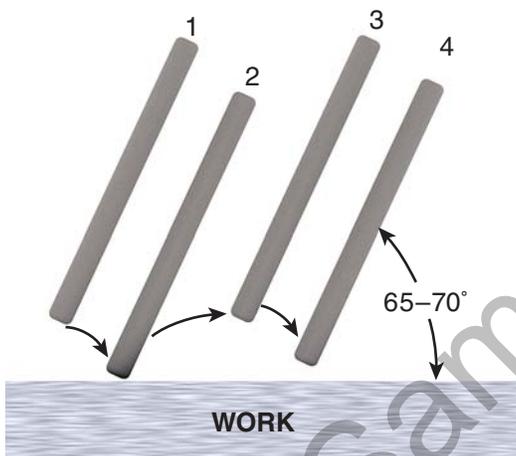


Welding Lab Work

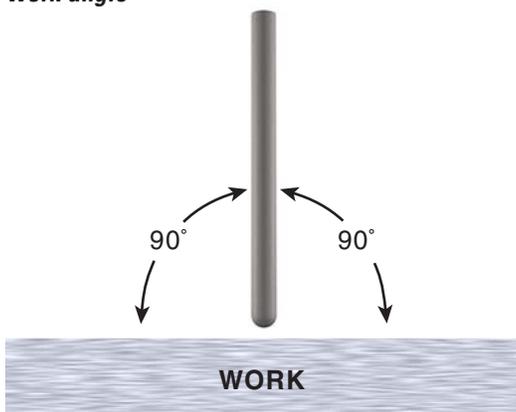
"Scratching" method of arc starting



Travel angle positions



Work angle

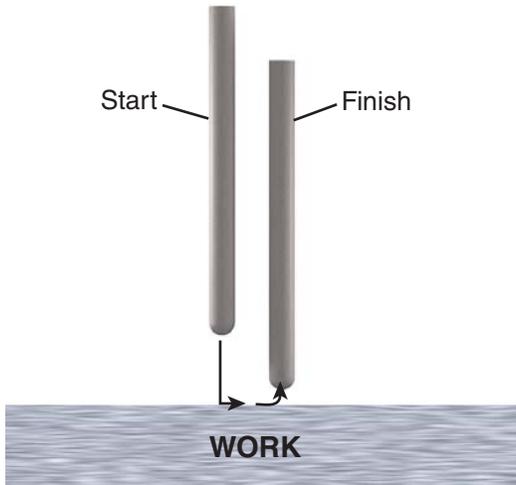


Exercise A: Strike and establish an arc using the scratching method.

1. Clean the base metal and position flat. The base material should be cleaned prior to welding to remove potential weld contaminants such as rust, mill scale or paint prior to welding. The base material can be cleaned by using a stainless wire brush or a grinder on the surface.
2. Attach the work clamp securely to work piece or table.
3. Set the polarity and amperage: AC at 100 ± 5 A for 1/8" E6013 electrode.
4. Place the bare end of the electrode in the holder so that it is gripped securely at a 90 degree angle to the jaws.
5. Turn the welder on.
6. Assume a comfortable body position and hold the electrode holder firmly using either one or both hands.
7. Hold the electrode above the plate and move it down until it is about one inch above the plate, inclined at an angle of 65 to 70 degrees in the direction of travel as shown in position 1.
8. Place the shield in front of your eyes.
9. Strike the arc as you would a match, by gently and quickly scratching the electrode on the metal as shown in position 2. A sudden burst of light will be produced on contact with the plate.
10. Withdraw the electrode to form an excessively long arc about 3/16", as in position 3. The long arc length is held only a second or two after which a normal arc length of 1/16" to 1/8", shown in position 4, is assumed.
11. Practice starting the arc, holding it and breaking it, until you are able to easily strike on the first try. In real time, the complete motion represented by positions 1 through 4 takes place in about 2 seconds.

Welding Lab Work

“Tapping” method of arc starting



Exercise B: Strike and establish an arc using the tapping method.

1. Follow steps 1 through 6 in Exercise A, using the same amperage setting.
2. Hold the electrode above the plate in a vertical position, and lower it until it is above the point you wish to strike the arc.
3. Place the shield in front of your eyes.
4. Touch the electrode gently to the plate by a downward motion of the wrist. With the first burst of light, quickly withdraw it to form a long arc, about 3/16". Hold the long arc momentarily, and then assume a normal arc length, 1/16" to 1/8".
5. Incline the electrode 65 to 70 degrees in the direction of travel.
6. Practice striking, holding and breaking the arc until you are able to easily strike on the first try.

Review Questions

Quick Facts

Protective Clothing

Welders, like firemen, must wear clothing to protect them from being burned. Of all injuries to welders, burns are the most common due to sparks landing on bare skin. Welding arcs are very intense and can cause burns to skin and eyes with just a few minutes of exposure.

1. How is an electric arc maintained?
2. What two methods are used to strike an arc? Which method is recommended when using an AC welder?
3. When an electrode sticks to the plate, what should you do?
4. Should the base metal be cleaned before welding? How?
5. What is a normal arc length? How do you know when the arc is too long?



Can the welding arc cause burns to the skin? (See Quick Facts)