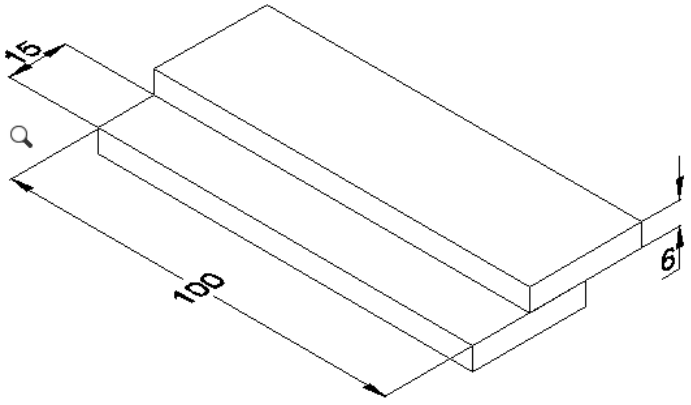
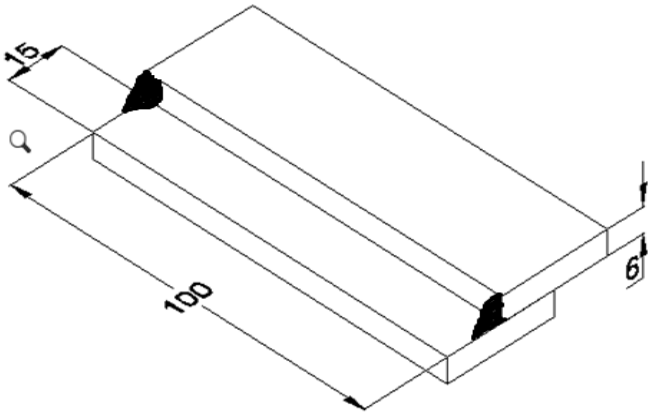
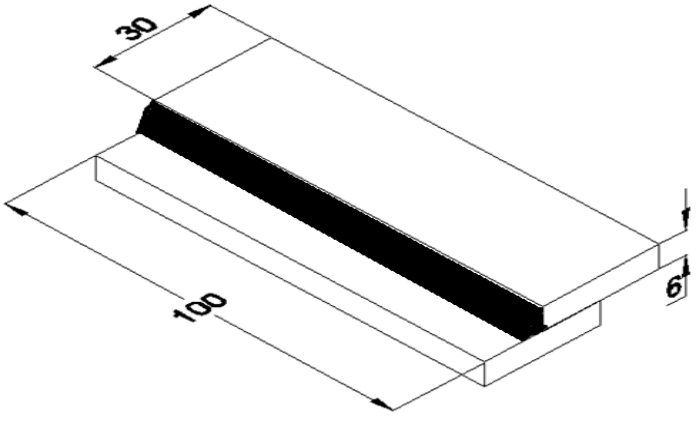
ELECTRICAL ARC WELDING
LAP JOINT



PREPARATION



TACK WELD



FINAL WELD

All Dimension are in mm (100 X 30 X 6)

ELECTRICAL ARC WELDING
LAP JOINT

Ex no :
Date :

Aim:

To join two edges of metal pieces overlapping each other using arc welding method.

Application:

Lap joint is used in very heavy structures, constructions, and steel furniture using arc welding method.

Material Specification:

Mild steel metal plates of dimension 100mm x 30mm x 6mm – Two pieces

Tools Required:

1) Bench vice 2) Try square 3) Steel rule 4) Flat File 5) Chipping hammer
6) Wire brush. 7) Tongs 8) Welding shield

Equipment Required:

1) Electrical arc welding machine 2) Arc welding cable 3) Ground clamp

Safety equipment:

1) Leather apron 2) Hand gloves 3) Goggles

Sequence of operation:

1) Preparing 2) Tack welding 3) Final welding 4) Chipping & Cleaning

Working steps:

Preparing:

a) Clean the edges of the work pieces using wire brush to remove dust and rust.
b) Check the dimensions using steel rule and also check the straightness of the edges to be joined using try square.
c) File those edges using flat file and make them straight. Once again check with try square

Tack welding:

a) Keep one work piece over welding table place another pieces over the first one so that the field edges make overlap of 15mm as shown. With the help of tongs hold the work piece in position

b) Check the welding machine electrode cable and clamp for proper connection
Select correct electrode (3.15mm) and fix it in electrode holder. Use gloves while fixing the electrode
c) Switch on welding machine Adjust the current to 100amps. Keep the shield closer to eyes and move the electrode nearer to one end of the work piece pair. Electrode should not touch the work piece. A critical distance should be maintained to produce spark. Make a spot over the work piece.
d) The same way make another spot at the next end of the work piece pair. This is to keep the pieces in place during welding.
e) Turn the work pieces upside down and make tack weld at required places

Final welding:

a) Move the electrode to first tack and make a spark
b) Gradually move the electrode towards the second tack without shaking the electrode and maintain the gap between electrode tip and work piece. (Back hand welding id preferred for thick plates) This is called as first run.
c) For the second run start from first tack and move towards second tack with uniform oscillation motion. This keeps the metal molten a little longer and allows the gas to escape, bringing the slag to the surface.

Chipping and cleaning:

a) Allow the work piece to cool and dip it in water using tongs
b) With the help of chipping hammer gently tap the welding bead so that the slag coating is removed from the work pieces.
c) Clean the work piece with wire brush thoroughly.
d) Check for the dimensions.

Pre Lab Question:

1. Which one of the following transformer used in AC arc welding?

2. What is the welded joint? Its permanent or temporary joint?

3. List out material to be used in arc welding?

4. How does an electrode work?

5. Why the step down transformer used for welding purposes?

Post Lab Question:

1. What is arc welding and mention the required weld temperature is given by?

2. Why travel speed is important in welding?

3. Name the components equipment's and tools used in arc welding?

4. Which of the following is a holding tool?

5. How do you use try square tool?

Result:

Thus the given two plates are joined by Lap joint using arc welding method.