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WELDING SHOP

GAS WELDING

BUTT JOINT

Ex No. 6
Date 28/10/2021

AIM:

To make a butt joint of given two metal strip of size 100mm x 30mm x 3mm using oxygen acetylene gas

Application:

Gas welding is used in steel furniture and pipes and constructions

Material Required

1) Mild steel metal strips of size 100mm x 30mm x 3mm two pieces
2) C.C.M.S (copper coated mild steel) filler rod 1.5 mm dia

Tools Required

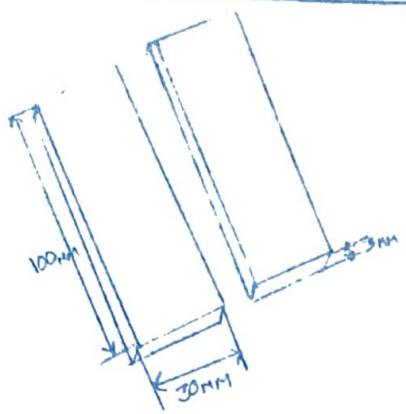
1) Bench vice 2) Flat file 3) Try Square 4) Tongs 5) wire brush
6) spark lighter 7) Cylinder opener Key

Sequence of operation

1) Preparing 2) Tack weld 3) Final weld 4) Cleaning

Working Steps:

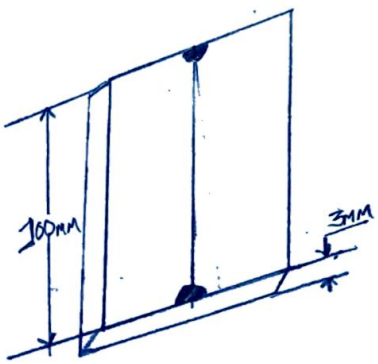
1) Preparing:
   a) clean the edges of the work piece using wire brush to remove dust and ~~dust~~ rust. Check the dimension using steel rule and also check the straightness of the edges to be joined using try square
   b) file those edges using flat file, make them straight and check with the try square



Tack welding

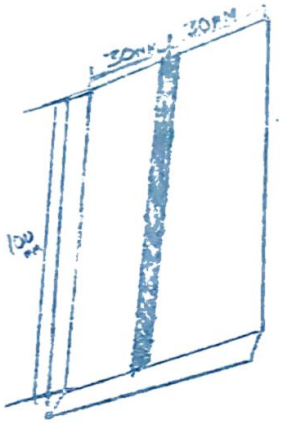
1) Place the piece as close as possible butting against each other over welding table.
2) Open the oxygen gas cylinder and acetylene gas cylinder, using the cylinder key.
3) Open the acetylene gas regulator value and oxygen gas regulator valve slightly so that the output gas pressure is set at 0.025 Kg/cm².
4) Open the Acetylene gas torch valve slightly on the gas torch and ignite the acetylene gas coming out of tip of the torch nozzle
5) The open oxygen gas torch valve gradually, until the flame separates out from the tip and then close the valve gradually just enough for the flame to join the tip
6) Further adjust the two valve of the gas torch until the immediate feather on the flame is drawn back into the inner core of the flame

(The instant that the feather disappears into the core shows the oxy acetylene gas produces the required Neutral flame for Gas welding purpose. This flame is make a hissing sound.



Final welding

1) Hold the gas torch nozzle by the right hand at an angle 60° over the joint of the 2 strips (to be gas welded) and hold the filler welding rod by the left hand at an angle 30°
2) First, heat the joint of the two base metals by the neutral gas flame up to red hot condition. Then bring the filler rod and heat its end till the fusion takes places and a tack weld is made at one end of the joint.
3) Similarly make a tack weld at the other end. Then do the run welding by steadily moving the gas flame over the joint from right to left using the filler rod



Chipping And cleaning

1) Allow the work piece to cool and dip it in the water using tongs
2) with the help of chipping hammer gently tap the weld bead so that the slag coating is removing from the work pieces.
3) Clean the work piece with wire brush thoroughly
4) Check for the dimensions

Pre Lab Questions

1) what is filler material
   These are alloys or unalloyed metals which when heated, liquefy and melt to flow into space between two close fitting parts.
2) Which gasses are used for gas welding?
   oxygen, acetylene

Mention any two limitation of gas welding?
1) Not suitable for Heavy Section
2) Less working temperature of gas flame

Mention the types of gas used in welding process
1) shielding gas
2) fuel gas

How many types of gas welding technique are used?
1) oxy acetylene gas welding
2) oxy gasoline gas welding
3) MAPP gas welding
4) Butane gas welding
5) Hydrogen gas welding

POST LAB Questions

1) What are the types of flames in oxy-acetylene welding?
   1) reducing flame 2) oxidising flame 3) neutral flame

2) Why is oxy acetylene flame used for welding process?
   1) High temperature 2) Easily to clean metal surface

3) Explain the neutral flame
   The flame in which the amount of oxygen is precisely enough for burning and neither oxidation nor reduction occurs

4) What are the safety measures are to be followed in gas cylinder during welding
   1) Use the cylinder upright position
   2) open slowly open valve
   3) Use regulators and pressure gauges only with gases only designed.

5) Write the function of regulator in gas welding
   It is used to control gas pressure

RESULT

Gas welding is done on the two given metal strips and the required butt joint is obtained