Ex No: 10
DATE: 26/11/2021

WELDING SHOP
MIG WELDING (T-JOINT)

PONNURI ANIRUDDHA
RA2112704010015

Aim
To make a T-joint of a given mild steel plate of size 100 x 30 x 6mm using Gas Metal Arc welding machine

Application
Tee-joint is used in very heavy structures, constructions, and steel furniture using MIG (Metal inert gas) welding

Material specification:
Mild steel metal plates of dimension 100mm x 30mm x 6mm - Two pieces

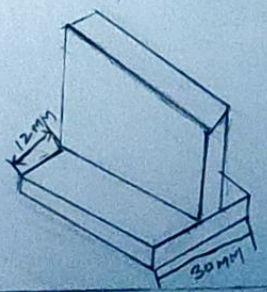
Tool Required:
1) Bench vice 2) Try square 3) steel rule 4) Flat file
5) Chipping hammer 6) wire brush 7) Tongs 8) welding shield

Equipment Required
1) MIG welding machine 2) MIG welding torch 3) CO_2 shielding Gas cylinder
4) ER70S-2 consumble wire (coil 1.0mm dia) 5) Ground clamps

Safety Equipment
1) Leather apron 2) Hand gloves 3) Goggle etc.

Sequence of operation:
1) stage-I 2) stage-II 3) stage-III

Working steps:
1) stage-I
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



Stage - II

a) With cylinder Key open the CO_2 gas cylinder and adjust the CO_2 gas regulator so that the gas output pressure is maintained at 0.25 Kg/cm²

b) Switch on the power source by the ON/OFF switch on the "MIGMATIC 250" welding Machine in the panel

c) Press down the Gas CHECK switch and ensure the CO_2 gas supply in the gas line and release the switch

d) Select the welding voltage by turning the voltage selector switch. Confirm the set voltage by pressing the "OCV check" switch This will show the reading on the voltmeter

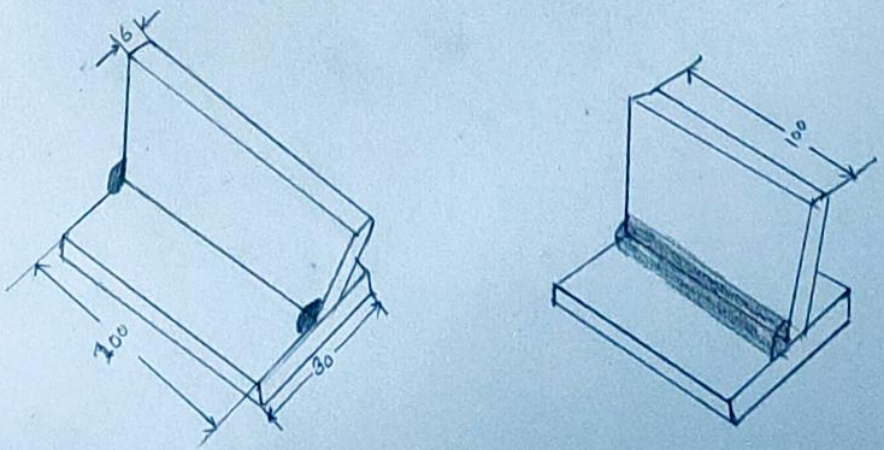
e) Select the welding current by adjusting the "wire feed speed control potentiometer" on the wire feeder unit. The ammeter will show the welding current during actual welding. For 1.0 mm dia. CCMS welding wire, the current is set at 80 amp.

Stage - III

a) The MIG welding torch should be positioned on a rough metal piece and the torch switch is pressed for checking the spark.

b) Then the torch is positioned over the joint to be welded on one end. Torch switch is pressed and a tack welded. Similarly weld other end

c) Do the run welding on the strip joint by steadily maintaining the movement of the torch over the joint for uniform welding. Similarly do the welding on the other side of the joint



Tack weld

PRE LAB QUESTION:

Q1 How does MIG welding differ from TIG welding?
In MIG welding, a consumble wire electrode is used whereas in TIG welding a non consumble electrode is used.

Q2 Which metals can be welded by MIG welding?
Steel, aluminium, copper, nickel and other alloys

Q3 Describe MIG welding process
It is an arc welding process in which a continous solid wire electrode is fed through a welding gun, joining the two base materials together.

Q4 State the application of MIG welding?
MIG welding is used in very heavy structures, constructions and steel furniture

Q5 Mention two advantages of MIG welding
1) The process is semi-automatic
2) No slag

POST LAB QUESTIONS

Q1 what is stickout?
It is the length of unmelted wire coming out of the contact tip of the welding gun.

Q2 How protection of weld zone is obtained in MIG welding?
Protection of weld zone is obtained in MIG welding using inert gas

Q3 list out the commonly used in MIG welding
1) Argon 3) Carbon dioxide
2) Helium

Q4 which type of power supply can be used in MIG welding?
A.D.C source with constant voltage

Q5 Mention the demerits of MIG welding?
1) Higher initial cost
2) Higher maintance cost.

Result
MIG welding is done on given mild steel plate and the required "T" joint is obtained.