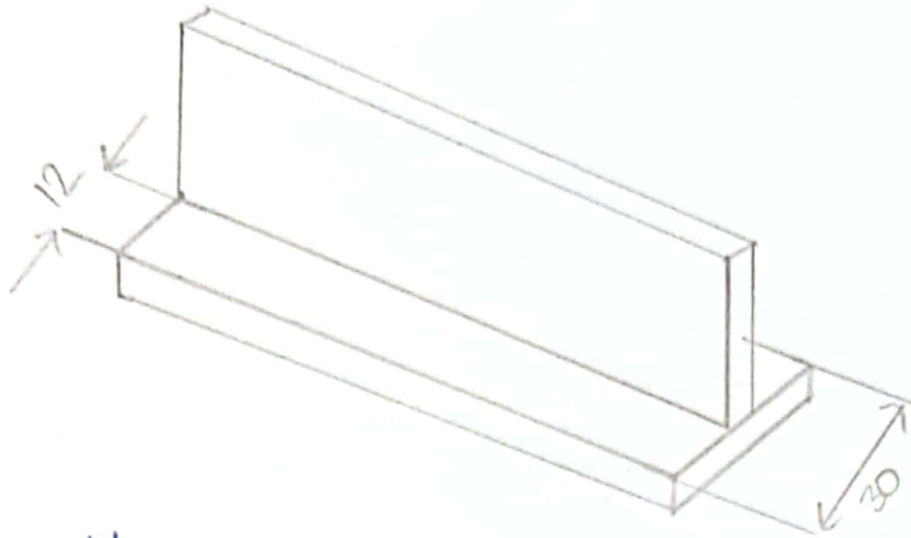
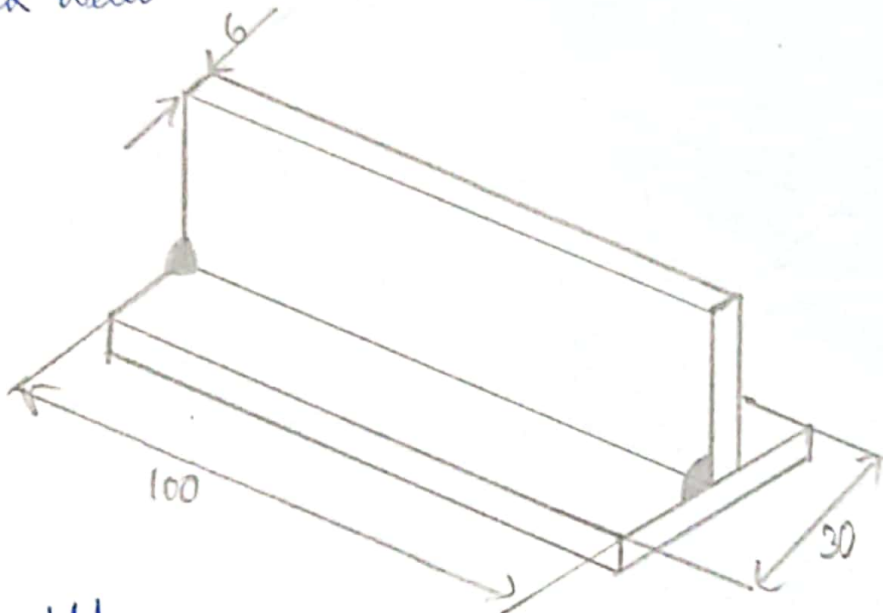


'T' JOINT

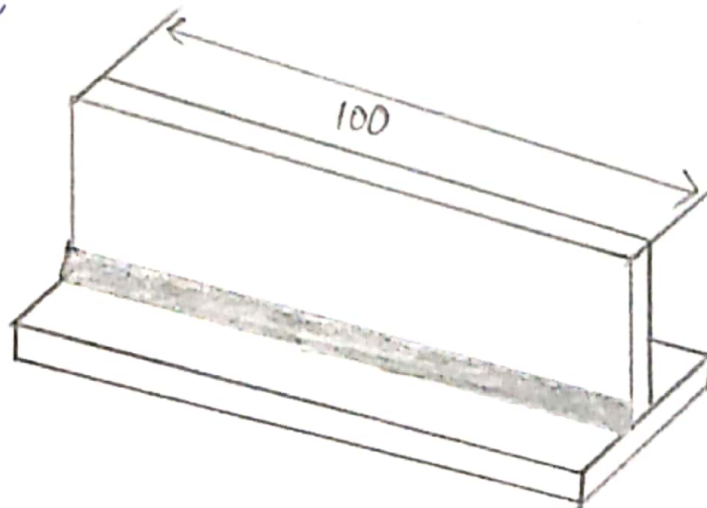
(1) Preparation



(2) Tack Weld



(3) Final Weld



ALL DIMENSIONS ARE IN mm. (100x30x6)

★ AIM:

To make a T joint of given mild steel plate of size $100 \times 30 \times 6$ mm using Gas Metal Arc welding machine.

★ APPLICATION:

Tee joint is used in very heavy structures, constructions, and steel furniture using MIG welding.

★ MATERIAL SPECIFICATION:

Mild steel metal plates of dimensions $100 \text{ mm} \times 30 \text{ mm} \times 6 \text{ mm}$ (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) MIG Welding machine (2) MIG welding torch (3) Ground clamps.
(4) CO_2 shielding Gas Cylinder (5) E70S-2 consumable wire.

★ SAFETY EQUIPMENT:

(1) Leather apron (2) Hand Gloves (3) Goggles

★ SEQUENCE OF OPERATION:

(1) Stage I (2) Stage II (3) Stage III.

★ WORKING STEPS:

- (1) Stage I:
- Clean the edges of the work piece using wire brush to remove dust and rust.
 - Check the dimensions using steel rule and also check the straightness of the edges to be joined using try square.
 - File those edges using flat file and make them straight, once again check with try square.

(2) Stage II:

- 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/cm^2 .
- Switch on the power source by the ON/OFF switch on the "MIGMATIC 250" welding machine in the panel.
- Press down the "GAS CHECK" switch and ensure the CO_2 gas supply in the gas supply in the gas line and release the switch.
- Select the welding voltage by tuning the voltage selector switch. Confirm the set voltage by pressing the "OCV CHECK" switch. This will show the reading on the voltmeter.
- 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 1.0mm dia. CCMS welding wire, the current is set at 80 amp.

(3) Stage III:

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

★ PRE AND POST LAB QUESTIONS:

Q1. How does MIG welding differ from TIG welding?

Ans= The Basic difference between MIG & TIG welding is that one uses a consumable wire electrode (MIG) and the other (TIG) uses a non-consumable tungsten electrode.

Q2. Which metals can be welded by MIG Welding?

Ans= (1) Carbon Steel (2) Stainless Steel (3) Aluminium (4) Magnesium
(5) Copper (6) Nickel (7) Silicon Bronze.

Q3. Describe MIG Welding process.

Ans= MIG welding is an arc welding process in which a continuous solid wire electrode is fed through a welding gun and into the weld pool, joining the two base materials together.

Q4. State the application of MIG Welding.

Ans= (1) Used for most types of sheet metal welding.
(2) Fabrication of pressure vessels and steel structures
(3) Automotive industry and home improvement industry.

Q5. Mention two advantages of MIG Welding.

Ans= (1) Better weld pool visibility.
(2) No sub end losses or wasted man hours caused by changing electrodes.

Q6. What is stickout?

Ans= Stick-out is the distance from the contact tip to the unmelted electrode end.

Q7. List out the gases commonly used in MIG Welding.

Ans= (1) Argon (2) Helium (3) Carbon dioxide (4) Oxygen.

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P.T.O

Q8. Which type of power supply can be used in MIG Welding?
Ans = Direct current, constant potential power sources are used for most MIG welding. This contrasts with TIG and stick electrode welding which use constant current power sources.

Q9. Mention the demerits of MIG Welding.

Ans =

- (1) Sensitivity to contaminants.
- (2) Sensitivity to wind.
- (3) Limited position
- (4) Lack of fusion
- (5) Portability problem.
- (6) Open arc process.
- (7) Fast cooling rates.
- (8) Shielding gas.
- (9) Dirty base materials
- (10) Voltage or travel speeds that are too.

Q10. How protection of weld zone is obtained in MIG Welding?

Ans = MIG welding uses inert, non-active gases, primarily argon, to keep the welds clean. In some situations, helium can assist in protecting the weld against oxidation due to external oxygen influence.

★ RESULT:

MIG Welding is done on given mild steel plate and the required "T" Joint is obtained.

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