

Practical knowledge for MMAW Basic Level

1. Set up of hand welding and cutting equipment and adjustment of pressure valves.
2. Fit up of holder and earth cables to welding power sources.
3. Surfacing on a M.S. plate by depositing a metal pad with 3 layers using 4mm ϕ or 5mm ϕ dia size electrodes in flat position. The weld pad area to be fixed as 200mm x 100mm. While welding the pad, welder should ensure that 1/3rd portion of the weld run falls on the preceding run and cater groove, if any may be filled up. The weld pad should be free from porosity and inclusion and of uniform width.
4. Should be able to prepare Fillet Welds T-joint in Flat, Horizontal, Vertical and Overhead positions (Thickness > 3mm and $t > 8$ mm).
5. Should be able to prepare Fillet Weld corner joint ($t > 3$) in Horizontal position.
6. Should be able to prepare Fillet Weld, Tube to plate ($t > 3$, $D \geq 40$) in O.H. position.
7. Should be able to prepare Fillet Weld, Tube to plate $t > 3$, $D > 150$ and $t > 3$, $40 \leq D \leq 80$ in Vertical position.
8. Should be able to prepare butt welds in downhand position on 10 mm plate.
9. Should be able to gas cut and grind plates required for subject joints and also for 20-25 mm plate thickness.
10. Should be able to identify the electrodes being used by them.

Practical knowledge for GTAW Standard

1. Should be able to do gas cutting and beveling of pipes.
2. Should be able to set up GTAW welding equipment and torch.
3. Should be able to prepare fillet welds in C.S. plate in Flat, Horizontal, Vertical upwards and Overhead positions of plate size 3 to 4 mm.
4. Should be able to prepare fillet and butt joints in S.S. sheet (05 to 2 mm.) in all positions.
5. Should be able to prepare Fillet Welds in C.S. tube to plate in different positions.

6. Should be able to prepare Butt joints in C.S. pipe with root run by GTAW and fillerruns with MMAW process in Horizontal and Vertical positions of radiographic quality(114.3 mm O.D. x 8-10 mm thickness).
7. Should be able to prepare butt joints in S.S. pipe (2 – 3 mm thick) x 50mm O.D. inVertical and Horizontal position.

Practical knowledge for GMAW Standard

1. Should be able to set up GMAW power source, wire feeder unit and torch.
2. Should have knowledge of operation and setting of welding parameters.
3. Should be able to control welding current, Voltage and speed of welding for different jobs.
4. Should be able to produce fillet weld T-joint on carbon steel sheet (1.6 to 3mm) in Flat, Horizontal and Vertical upward positions by dip transfer technique.
5. Should be able to produce fillet weld on C.S. plate (8 to 10 mm thick) in H-V, Vertical down and Overhead positions by open arc process.
6. Should be able to produce fillet joints on S.S. sheets by Dip Transfer technique in all positions.
7. Should be able to produce butt joint and fillet joint on S.S. plates by open arc process in down hand, H-V and Horizontal positions.
8. Should be able to produce butt weld joint on carbon steel plate in Flat, Horizontal and Vertical upward positions by open arc process.
9. Should be able to set up argon cylinders, regulators and flow meters.