

**Technical Specification of Co2/ MIG/MAG welding practice kit with bilingual
Multimedia Software. & Scope of supply**

Scope of Supply:-

The training equipment consists of –

1. CO2 Welding Machine –

Design Parameters:

1. Type -constant potential rectifier,
2. Input power supply: 415V (+/-10%), Three Phase, 50 Hz
3. Max. Welding Current rating up to 400 amps at 60% duty cycle
4. Wire feed unit servo wire feeder-1 type.
5. Welding gun
6. Power source
 - a. Max. KVA rating –20.7 KVA
 - b. Welding current range: 30-400 Amps
 - c. Open Circuit Voltage: **55V (max)**

Leading Technical Parameters:

1. The training equipment consist of Welding Machine with Type – Constant Potential rectifier
 - Input power supply: 415V (\pm 10%), 3 Ph, 50 Hz
 - Maximum welding current rating up to 400 amps at 60% duty cycle
 - Type of Cooling: Forced Air Cooling.

2. Bilingual Multimedia Software –

**e-Learning Software for CO2/MIG/MAG Welding Practice Kit Bilingual
Multimedia Software:**

The features of the Multimedia Software should be provided:

- a) An exhaustive content on the subject to be delivered. It has to be user friendly with an attractive GUI (Graphics User Interface).
- b) Literature with suitable diagrams, animation, audio and video clips taken of equipment used in the Indian Railways.
- c) The entire package should be divided into module and units.
- d) At the end of each module there must be evaluation test incorporated.
- e) Evaluation tests should be of various types like:
 - i) Fill in the Blanks Single Choice Question Multi choice questions / True or False
 - ii) Suitable feedback should be automated and informed to the user.
- f) Glossary consisting of technical nomenclature used in the software.
- g) Single button switch over between Hindi and English and regional language.
- h) Data sheets if applicable
- i) Capable of communication with a server based student management system through SCORM / AICC / IEEE communication standards.
- j) Capable of independent operation through compact disc.
- k) Book Marks for the user to add bookmarks for important pages in the software.

Bilingual Multimedia Software should consist of the following:

1. Introduction to CO2 Welding

Introduction to GMAW, Gas Metal Arc Welding Equipment, Selection of Gas and Electrodes Welding application.

2. Welding Fundamentals

Welding Power Source, Shielded Metal Arc Welding, Gas Metal Arc Welding, Flux Cored Arc Welding, Submerged Arc Welding, Gas Tungsten Arc Welding.

3. Operation of Arc Welding

Setting –up of Arc Welding Plant, Striking and Maintaining of Arc and Laying Short length Beads, Straight Line Beading on M.S. Plate in Flat Position, laying of Weaved Beads on M.S. Plate in Flat Position, Fillet Weld in Open Corner Joint on M.S. Plate in Flat Position, Fillet Weld in Tee Joint on Mild Steel Plate (10mm) in Flat Position, Fillet Weld in Lap Joint on Mild Steel Plate (10mm) in Flat Position, Butt Weld in Open Square Butt Joint on M.S. Sheet (3.15mm) in Flat Position, Butt Weld in Single 'V' Butt joint on Mild Steel Pate (10mm) in Flat Position Single Line Beading on M.S. Plate 10mm in Horizontal Position, Fillet Weld in Tee Joint On M.S. Plate(10mm) in Horizontal Position.

4. Safety Aspects in CO2 Welding

Welding Safety, Oxy-acetylene welding safety, Welding safety when working with gases, Welding safety-electrical powered equipment.

5. Introduction to Co2/Mig/Mag Welding (Bilingual English + Hindi)

Introduction to GMAW, Gas Metal Arc Welding Equipment, selection of Gas & Electrodes, Welding application.

6. Operation of CO2 welding kit

Operation of GMAW Equipment, Welding Machine Settings, Quality of Welds.

7. Discontinuities & Problems In Gas Metal Arc Welding

Welding Discontinuities and Problems in GMAW Part – I, Welding Discontinuities and Problems in GMAW Part – II.

3. Standard Accessories as detailed

1. Constant potential power source with control unit/panel complete including burn back control, wire feed speed control, motor control, gas control with gas saving device etc.
2. Servo Wire Feeder-1 unit wire spool of 0.8mm and 1.2 mm M.S copper coated wire.
3. Welding gun with accessories with length of torch cable of 3 meter (min).
4. Set of suitable welding cables of 3 meters length.
5. CO2 preheating equipment, two ways gas flow meter (CO2) with pressure gauge with test certificates for indicating cylinder pressure & outflow pressure
6. 4 core rubber/PVC flexible cable
7. Gas Defuser – 03 Nos.
8. Contact Tip- (0.8mm) – 10 Nos.
9. Contact Tip- (1.2mm) – 10 Nos.
10. Tip Adaptor (0.8mm) – 02Nos.
11. Tip Adaptor (1.2mm) – 02Nos.
12. Gas Nozzle – 03 Nos.
13. Ant Spatter Sparay 500MI – 02 Nos.