

**Tender No.65.12.8013**  
**SPECIFICATION FOR AIR PLASMA CUTTING MACHINE**

**DESCRIPTION:** - AIR PLASMA CUTTING MACHINE. (Diode Based)

**1.1 Capability : -**

- 1.1.1 The machine shall be capable of carrying out all types of profile cutting without dross and with minimum distortion of straight line cuts in plate of mild steel, corton steel, galvanized steel, stainless steel, aluminum and their alloys.
- 1.1.2 The machine shall be capable of compressed air plasma cutting of cut 16mm thick with quality and Mechanized cutting capacity 08mm thick of mild steel, corton steel, aluminum and cast iron.
- 1.1.3 The machine shall be of heavy duty to withstand intensive use of two shifts each of eight hour duration per day and 25 days per month under workshop condition of max. temperature of 50°C ,relative humidity and dusty atmosphere

**2. Description and scope of supply**

**2.1 Scope of supply: -**

- 2.1.1 The specification covers supply and commissioning of Air Plasma cutting machine [Diode based] with machine torch (with rubberized wheel to withstand the carrying load of the machine).The supply shall include all concomitant accessories/equipments as mentioned in specification and any other concomitant accessories/equipment, which the manufacturer considers essentials to make the machine fully operational when installed and connected to power source and other utilities.

**2.1 Concomitant Accessories:**

- 2.2.1 The machine shall be accompanied by the concomitant accessories listed below whose cost shall be included in the basic price of the machine. However, the cost of each items of concomitant accessories should also be given separately in the offer.
  - 2.2.1.1 Machine torch with torch cable of 7.6 meter length 01 no.
  - 2.2.1.2 Input copper cable for connecting power source to main supply- 5m. 01no.
  - 2.2.1.3 Air hose with accessories -20 meters. 01no.
  - 2.2.1.4 Work connecting cable 7.5 meters with earth clamp. 01no.
  - 2.2.1.5 Double Air filter cum regulator. 01no.
  - 2.2.1.6 Consumable **Spares** –
    - 1. Electrodes & Tip = 25 set each
    - 2. Outer Nozzle = 25 Nos.(Any other consumables required may also be quoated)
  - 2.2.1.7 Any other concomitant accessories required to make the machine fully operational on installation when connected to power source is also included in scope of supply and the cost of such accessories shall be included in the basic price of the machines.

**3. Basic Design features.**

**3.1 Rigidity.**

- The plant shall be rigid, robust and of sturdy construction with copper winding.
- 3.1.2 There shall be no change in the performance of the machine either on, switching on the machine or after continuous running.
- 3.1.3 All Controls of operating elements should be ergonomically design for ease of operation and for good man machine communication. Control panel incorporating necessary control will be easily accessible.

- 3.1.4 The out put terminal shall be suitable shrouded against accidental or inadvertent contact. Plug in type connection will be provided for easy interchangeability. To ensure operation safety, double insulation cable will be provided in all electrical equipments.
- 3.1.5 The machine shall incorporate safety devices to provide complete protection to the operator and machine for against all possible operational failure.
- a) Interlocking arrangement against faulty sequence of operation.
  - b) Thermal Cutout Protection with automatic shutdown of set.
  - c) Fully protected power source against voltage fluctuation and overload added safety interlock against low air pressure with visual audible alarm.
  - d) ON/OFF switch has been provided on the torch.

#### **4. Specific Characteristic**

##### **4.1. Cutting power source**

- 4.1.1 The cutting power source will be of **Diode based** .
- 4.1.2 It should have double Air filter cum air pressure regulator unit to get pure and moisture free air.
- 4.1.3 All electrical joints should be crimped. Soldering of any electrical joints is not permitted.
- 4.1.4 The power source should be provided with cooling fan for effective forced draught cooling. The transformer and rectifier unit should be systematically arranged in sturdy sheet metal housing. The standard of enclosure shall be minimum IP23.
- 4.1.5 The power source unit will rest on a well designed trolley for ease of maneuverability.

##### **4.2. CUTTING TORCH**

- 4.2.1 The torch should be air cooled type with air pre-flow and post- flow time control facility
- 4.2.2 The torch shall be of light weight and flexible with approx. 7.5 meter long hose for wide operating radius an shop floor.
- 4.2.3 The torch handle should be insulated from live parts and provided adequate protection to operator's hand for over heating, without interfering cutting operation. The torch construction will minimize lodging of dirt in joints and
- 4.2.4 Current carrying capacity at 80% duty cycle is 80 Amps..

##### **5.0 TRAINING :**

The technical experts of the manufacturers during commissioning of machines will adequately train to the operators/maintenance staff nominated by consignee.

##### **6.0 Manual Literature –**

Supplier should supply 04 sets of Operation and maintenance manual.

##### **7.0 INSTALLATION AND COMMISSIONING**

- 7.1 Supplier or his agent would be required to carry out a joint check at the consignee's end, along with the consignee before unpacking is done. To avoid subsequent complaints regarding short shipment/transit damages. It is necessary that joint inspection be done immediately on receipt of the machine by consignee to avoid commissioning delays due to shortages/ Transit damages
- 7.2 Following item of work shall be performed by the contractor.
- 1) Installation of the plant structure and associated machinery in position.
  - 2) Complete fitting and wiring of all electrical items.

3) Commissioning of the equipment.

**7.3** Consignee's obligation with regard to erection and commissioning will be limited to the following:

Supply following free of cost at the site of work.

- a) Electricity required for the purpose of erection and lighting.
- b) Welding facilities (without welder) as required.
- c) Compressed air arrangements.

**8. WARRANTY:**

24 months from the date of commissioning or 30 months from the date of supply. (Maximum two weeks will be allowed for attending and rectification of faults during the warranty period. A penalty of 0.5% per week of the contract value will be levied for delay in response time for attending and rectification of faults beyond specified time & maximum penalty to be levied on account of warranty failure will be 5% of contact value calculated during whole warrantee period and after that if there is any delay on the part of supplier, purchaser shall be entitled for encashment of WG bonds.)

## TECHNICAL SPECIFICATION:

### A. POWER SOURCE (Diode Based)

- |                                       |   |                                      |
|---------------------------------------|---|--------------------------------------|
| 1. Input Supply                       | : | 380 to 440V 3 Phase, 50 Hz.          |
| 2. Secondary voltage                  | : | 260-280 V                            |
| 3. Line Current                       | : | 30 Amps                              |
| 4. Arc Current                        | : | 80 Amps                              |
| 5. Output Current (Duty cycle)        | : | 100% at full load current of 80Amps. |
| 6. OCV (No load)                      | : | 300 – 320 V DC                       |
| 7. Power rating                       | : | 22 KVA                               |
| 8. Output Control                     | : | Diode based controlled               |
| 9. Cooling System                     | : | Forced air cooled transformer.       |
| 10 Class of insulation                | : | 'F'. :                               |
| 11. Cutting capacity (a) SS clean cut | : | 20 mm                                |
| (b) Continuous cutting                | : | 5 mm                                 |

### B. CUTTING TORCH ( Hand operated)

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|--------------------------------------|---|------------------|
| 1. Current Rating                    | : | 85Amp.           |
| 2. Length of cable                   | : | 7.5 meters       |
| 3. Cooling                           | : | Air Cooled       |
| 4. Air Pressure                      | : | 50 PSI at 11 CFM |
| 5. Duty cycle                        | : | 80%              |
| 6. Cutting capacity (a) SS clean cut | : | 20 mm            |
| (b) Continuous cutting               | : | 5 mm             |