

51. Air Plasma Cutting Machine

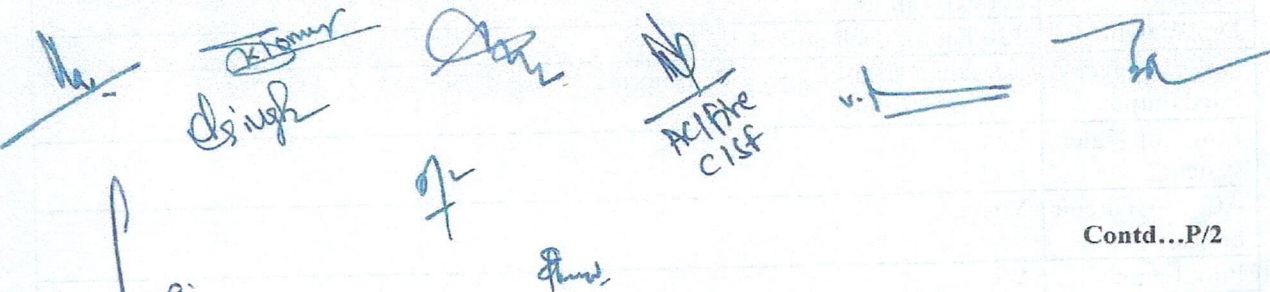
Annexure-'A'

Specification of Air Plasma Cutting Machine

1. **Air Plasma Cutting Machine:-** The Plasma power pack shall be portable type and designed for operation with Air Cutting Torch shall be light-weight and made from non-breakable material. The cutting torch shall be provided with a quick assembly/removal coupling end. It shall be possible to drag the torch on the work piece at full output without damaging consumables and nozzle from the molten metal spray. The torch shall be provided with post-flow features for reducing the torch stresses. The torch shall be provided with a manually operated trigger for ignition. The power cable and hose to connect the torch with the power source and cables shall be shielded against accidental damage.

Technical Specification	
Input Power Supply	230 V +10 % Single Phase AC 50 Hz
Current Output	45 Amp. at 50 % duty cycle
Rated Output Voltage	145 VDC
Cutting Capacity	Clean Cut-12 mm (for Stainless Steel) Clean Cut-20 mm (for Mild Steel) Severance-29 mm (for Mild Steel) Pierce-12 mm (for Stainless Steel)
Duty Cycle@40°C Max. Output	50%@45 Amp.,200-230 Volt, Single Phase 100%@32 Amp.,200-230 Volt, Single Phase
Rated open circuit voltage (OCV)	275 VDC
High Arc facility	No high frequency unit in plasma cutting machine, contact start technology with spring
Type of Power Supply	The machine should be IGBT Inverter based with dual threshold pilot circuit for enhanced consumable. Minimum current at pilot arc stage, which is automatically ramped up to set value when work piece is sensed. Continuous pilot arc technology for cutting of wire mesh & expended material.
Cutting Speed	250 mm/minute (for 12 mm Stainless steel)
Air Pressure	5.9 Bar Cutting 4.1 Bar Max. Control gouging 3.8 Bar Marking Pressure setting should be automatic
LCD Display	i. Air pressure adjustment and display ii. Mode-Cutting/gouging iii. Ampere adjustment and display iv. Error code display for easy maintenance Should display minimum last 5 error codes
Power Factor	0.99
Gas Supply	Oil free Air
Weight*	Less than 20 Kg
Class of insulation and protection	"H" and IP 23

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Key features:-

- Cutting Air ON/OFF control should be automatic.
- Post Airflow after every cycle for cooling consumables after cutting.
- Pressure adjustment should be automatic depending on – Mode, Torch lead length, Process being used.
- Cut Technology: Drag cutting (Touch and Cut) without using spacer rings.
- Pneumatic and Electrical connections are made together through connector avoiding need of external connections allowing easy change over.
- Smart sense technology should automatically set correct air pressure based on torch length and operating mode.
- Wide voltage tolerance to improve performance on motor generators and in low-line conditions.
- Torch should be designed for high impact and heat-resistance.
- Low maintenance for maximum uptime.
- Low consumable life for lower cost and more uptime.
- High power efficiency lower energy consumption.
- Have boost conditioner circuit, which improves performance on low-line voltage, motor generators, and fluctuating input power.

2. Air Compressor:- A portable electrically driven compressor of sufficient capacity with accessories is required for the equipment. It should meet the uninterrupted air supply requirement for continuous cutting operation. It should be suitable to work on generator power. The air compressor shall be provided with suitable handles to enable one/two person(s) to carry it from one place to another.

Technical Specification	
Tank Capacity (Minimum)	40 Ltr
Motor Power	2 HP Single Phase
Pressure	5.5 bar (Minimum)
Effective Output	190 lpm (Minimum)
Type	Reciprocating
Weight*	<43 Kg

3. Portable Generator Set :- Portable generator sets should have stroll/trolley type, which can be easily moved from one place to another place. The generator sets shall be fitted with fuel tank of 40 ltrs capacity to give continuous operation for a minimum of 4 hours at rated full load and fuel should not spill out of the lead of the tank due to vibration. The generator should be complied with the latest CPCB norms.

Technical Specification	
Fuel Type	Petrol start Petrol Run
Wattage	2x5.5 KVA (Coupled)
Output power rating	230 V/50 Hz, Single Phase
Engine Type	Air Cooled
Fuel Tank Capacity	Fuel tank of 40 ltrs capacity to give continuous operation for a minimum of 4 hours at rated full load.
Dry Weight*	120 Kg for each unit of 5.5 KVA
Noise level@ rated output	Less than 86 dB as per CPCB norms
Low oil alert system	Yes
AC Circuit breaker	Yes
Pilot Lamp	Yes

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