Project No. – 22WS (0050)/2023-24/EMR-II/ASPIRE

Dated: September 11, 2025

To,

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Email:

Phone:

Sub: Inviting quotation for Customized MIG Machine Setup

Dear Sir/Madam,

The Institute intends to procure a **Customized MIG Machine Setup** (as per the specification provided in Annexure-I) for one of its sponsored research projects sponsored by CSIR. You are invited to participate in this bidding process and submit your quotation for the supply and installation of the complete set-up with the following terms and conditions.

You may kindly give your lowest offer on the following terms and conditions by **29th September 2025.**

1) Interested Firms/Parties should submit documentary proof (photocopy) of the following:

a) Valid Registration Certificate of the firm.

b) GSTIN and PAN Number.

2) The rates quoted should be **FOR** inclusive of all applicable taxes/statutory levies (GST or any other applicable central/state government taxes). No additional charges shall be entertained by PDPM IIITDM Jabalpur.
3) The supplier must ensure **technical support** (email/phone/online) for installation, activation, and operation issues for a **minimum of 3 years** from the date of installation.
4) Sealed quotation should reach on or before **3.00PM,29/09/2025**, to the **AR (Purchase), PDPM-IIITDM Jabalpur, Dumna Airport Road, Mehgawan, Jabalpur-482005**. Alternatively, duly signed quotations on the letter head of the firm can be submitted through email also at the following email addresses: **arpurchase@iiitdmj.ac.in** and **manu@iiitdmj.ac.in** within the same deadline of **3.00PM, 29/09/2025**. Hard copies are also required in case of Email submission.
5) The Institute reserves the right to reject any or all quotation without specifying any reasons thereof.
6) For any technical queries regarding the indented item or its specification or compatibility, please contact the undersigned at: **manu@iiitdmj.ac.in**.

7) Any delay or failure in delivering the items due to administrative or technical issues will be the responsibility of the supplier.
8) All disputes will be subject to jurisdiction in Jabalpur, Madhya Pradesh.

Thanking you,

(Dr. Manu Srivastava)
Project Investigator

ANNEXURE-I

MIG Power Source Specifications

Category	Specification
Input Power	3PH, 415 V ±25% (310–475 V range), 50–60 Hz, Input power ≥22 kVA
Power Factor	≥0.93 (preferably 0.99 for energy efficiency)
Efficiency	≥85%
Open Circuit Voltage (OCV)	≥85 V
Output Current Range	30 – 500 A (stable arc down to 10 A preferred)
Output Voltage Range	12 – 50 V (precision at 0.1 V)
Duty Cycle	440 A / 34 V @ 100% duty cycle, 40°C ambient
Rated Cooling	Forced air cooling (power source) + water-cooled torch system
Protection & Insulation	Degree: IP23 or better; Insulation: Class B or better
Welding Processes	MIG/MAG/CO_2; Low-spatter short arc; Pulsed arc; Spray arc
Supported Materials	Carbon steel, stainless steel, aluminium alloys and expandable to Ni, Cu, Ti, Mg for wire arc additive manufacturing (WAAM) research
Wire Diameter	0.8 / 0.9 / 1.0 / 1.2 / 1.6 mm
Wire Feed Speed	0.5 – 22 m/min (servo-controlled, 4-roller drive, push-pull capable)
Torch	Water-cooled push-pull torch, straight torch design (mandatory for WAAM), ≥350 A @100% duty cycle, hose length ≥6 m, forward/backward wire feeding,
Cooling Unit	≥1100 W cooling capacity, coolant volume ≥8 L, protection IP23, interlock for coolant flow failure
Operation Modes	2T / 4T / Special 4T / Spot / Stitch (leaping welding)
Arc Control Functions	Hot-start, crater fill, burnback, run-in, programmable arc pulsing
Programmability	≥1000 program storage; custom job creation; compatible with software upgrades
Digital Interface	Graphical display, dual digital meters (I/V), error codes
Robot Integration	Digital communication interface (KUKA/ABB/FANUC etc.), remote control unit, SD/USB data logging (Preferred but not mandatory)
Safety Features	Over-voltage, under-voltage, over-temp protection; torch coolant interlock; surge/lightning protection
Environmental Limits	Ambient temp up to 50°C; humidity ≤95% non-condensing
Standards	IEC/EN 60974-1, 2, 3, 10 compliance; CE/CSA marking
Accessories	Wire feeders, connection hose pack (≥4 m), earthing cable (≥6 m, 600 A), carriage trolley, consumables for CS/SS/Al (0.8–1.2 mm), gas regulator + hoses
Warranty	3 years
Special Features for WAAM	- Stable arc at low current (10 A)- Programmable waveform control- Data logging in CSV/Excel formats- Push-pull torch for Al/Cu- Suitable for robotic WAAM integration

Accessories to be Supplied with MIG Machine (WAAM Ready)

1. **Water-cooled push-pull welding torch** (≥6 m hose, ≥350 A @100% duty cycle)
2. **Wire feeding unit** (servo-controlled, 4-roller drive, enclosed for spools, inch/return/gas test functions)
3. **Cooling unit** (≥1100 W cooling capacity, ≥8 L coolant volume, IP23, interlock for coolant flow failure)
4. **Connection hose pack** (≥4 m power cable, coolant in/out lines, high-speed communication cable, wear-protected sleeve)

5. **Earthing cable with clamp** (≥6 m, rated ≥600 A continuous)
6. **Carriage trolley** (for power source + shielding gas cylinder)
7. **Remote control unit** (graphical display, SD/USB port, data logging and online monitoring support) (Preferred but not mandatory)
8. **Wire buffer unit** (for push-pull torch, forward/backward wire feeding)
9. **Wear parts kit** (contact tips, nozzles, liners, rollers) – sufficient for one year's operation
10. **Consumable wire spools** (Carbon steel, Stainless steel, Aluminium; 0.8 / 1.0 / 1.2 mm)
11. **Argon/CO_2 gas regulator with flowmeter and hoses**
12. **Collision sensor and robot mounting flange** (for robotic WAAM integration)
13. **Robotic interface hardware** (digital communication interface compatible with ABB/FANUC/KUKA etc.)
14. **Software package** (for data logging, process monitoring, welding program creation)
15. **Spare torch body** (for push-pull torch system)
16. **A cold wire feeder unit (**Input: DC 220V, 50/60 Hz; Wire size: 0.8 / 1.0 / 1.2 / 1.6 mm; Feed speed: 0–8 m/min; Wire spool: 5, 10, 12 and 15 kg (D300 mm); Functions: 2T/4T, continuous/pulse/delay/backfeed modes with dual-drive system)
17. **An air compressor** (>2 HP Oil Free & Noiseless, 50 Litre capacity)