जवाहरलाल नेहरू एल्युमिनियम अनुसंधान विकास एवं अभिकल्प केन्द्र, नागपुर
(स्वायत संस्थान, खान मंत्रालय, भारत सरकार के आधीन), अमरावती रोड, वाडी, नागपुर - ४४० ०२३ (भारत)
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Jawaharlal Nehru Aluminium Research Development and Design Centre (JNARDDC) invites Expression of Interest (EOI) from Indian agencies for the design, manufacture, supply and / or installation of following equipment.

Description of instruments	Date of Presentation in JNARDDC	Timing	Concerned Official mobile no for any query
1. 5-10 KN UNIVERTAL TESTING MACHINE	07 Nov 2022	1100 Hrs	9980574024
2. Lab – Scale DC Casting setup for Aluminium Alloy billets	08 Nov 2022	1100 Hrs	
3. Press for compaction of aluminium chips or turnings	09 Nov 2022	1100 Hrs	7382105254
4. Ultrasonic probe stirrer for molten aluminium Bath	10 Nov 2022	1100 Hrs	9491318525
5. Lab scale aluminium profile stretching machine	10 Nov 2022	1500 Hrs	7798546794

Please find the tentative technical specifications for the instruments in the following pages (2 – 6).

Note: JNARDDC reserves the right to cancel this request for EOI or invite afresh with or without amendments, without liability or any obligation for such request for EOI and without assigning any reason. Information provided at this stage is indicative and JNARDDC reserves the right to amend/add further details in the EOI.

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JNARDDC
In the service of aluminium industry

Tentative specifications of 5 – 10 KN Universal testing machine

Universal testing machine of 5/10kN capacity for testing of small size specimens and unprepared specimens such as foils, wires, rods and other metallic samples.

Broad specifications

S No	Parameter	Requirements
1	Load Capacity	5 N, 2.5/5/10 kN
2	Scope of supply	• Universal testing machine • Grips for Foils, Wires, Strips, Rods and other miniature metallic samples • Extensometers/accessories • Operating software
3	Testing Capabilities	Tensile, Compression, Bend and Coefficient of Friction
4	Samples to be Tested	Foils, Wires, Strips, Rods and other miniature metallic samples
5	Basic design of Machine	• Floor or table mounted • Double or Single column
6	Controller Software	Capable of capturing raw data and be able to export into required formats
7	Test Space	The machine should be capable of conducting tensile/compression/bend within single space of the machine. The exact test space available for the machine to be specified by the manufacturer.
8	Speed Range	0.001 to 500 mm/min
9	Load accuracy	± 0.5% of measured load or better

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Tentative Specifications for Laboratory Scale DC Casting Set Up

For Aluminium Alloy Billets

S No	Parameter	Requirements
1	Length of the billet (mm)	Min 450 mm and Maximum 800mm
2	Diameter of the billet (mm)	(150 ± 2 mm)
3	Melting furnace	Suitable for melting aluminium and its alloys with a capacity of 50kg.
4	Launder	Detachable and be able to transfer metal from furnace to mould table.
5	Filtration and Degassing system	Provision for filter and degassing by Nitrogen or better
6	No of mould Strands	Minimum 1
7	Mould assembly	To produce defect free billets
9	Casting speed and cooling rate	Adjustable for optimum quality and surface finish
10	Straightness of the billet	1mm/metre Maximum
11	Shell zone	maximum 200 microns
12	Grain Size	Maximum average grain size: 150 microns Single grain to be less than 200 microns
13	Essential Auxiliaries	To be specified by manufacturer

Tentative specifications of Compaction press

Purpose:

- Compaction press is required for compacting the cleaned chips or turnings generated during machining operations of aluminium into a billet of required size with and without heating provisions. >85% relative density is the desired compaction characteristic.

S. No	Feature	Requirement
1.	Aluminium billet size to be made	150 mm Diameter x 400 mm long (Tentative)
2.	Maximum load in Press	Press can be hammer/screw/hydraulic/pneumatic other type suitable for producing compacted billets with >relative density greater than 85%
3.	Stroke length	Suitable for producing billet of required length
4.	Ejector capacity	Suitable capacity to eject the compacted billet
5.	Essential Auxiliaries	To be specified by manufacturer

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Tentative Specifications of ultrasonic probe stirrer set-up for molten aluminium bath

Purpose:

JNARDDC is looking for low-cost research purpose ultrasonic probe stirrer set-up which is compatible for stirring molten bath of aluminium and its alloys.

Requirement:

- Ultrasonic probe will be used for stirring molten aluminium bath which will be at a temperature of around 700 – 780 °C.
- This set up shall be portable and supplied with a height adjustable stand to be suitable to use with existing melting unit or any newly installed furnace for melting.

Parameter	Value / range / features
Adjustable range	Amplitude or power to be adjustable
Probe material	Suitable for molten aluminium metal
Immersion depth	50 – 100 mm
Working volume	10 – 25 kgs
Other features / accessories	• Dry running protected • Suitable cable for connections with sheathing • Height adjustable Stand • Cooling set-up for probe (if required) • Integrated temperature sensor (optional) • All other necessary tools and kits

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Tentative technical information for
Laboratory-scale Aluminium Profile Stretching machine

Purpose:

JNARDDC is looking for low cost research purpose stretching machine as an auxiliary for 1400 ton extrusion press to impart controlled stretching for aluminium profiles made from all grades of aluminium alloys.

Scope of supply and work:

To design, manufacture, supply and commissioning of stretching machine, complete in all respects like bed, suitable jaws, head stock, tail stock, de-twisting arrangement etc. Civil engineering work (if any) to be taken care by the vendor. The scope also includes proving the machine for rated capacity.

TECHNICAL DATA:

1. Profiles to be stretched: rods, flats, & profiles (solid and hollow) in as extruded and solution heat treated condition.
2. Material to be stretched: Al alloys 1XXX, 2xxx, 3xxx, 4xxx, 5xxx, 6xxx,7xxx series
3. To accommodate various profile configurations/designs
4. Vendor to provide Capacity (tons) with justification
5. Force application through electrical/hydraulic/pneumatic power packs
6. The stretching machine offered should have a bed length of 5-6m