National Wind Tunnel Facility
Indian Institute of Technology, Kanpur

Enquiry No: NWTF/SS/2025-26/01
Opening Date: April 24, 2025
Closing Date: May 04, 2025 (05:00 PM)
Extended Closing Date: May 11, 2025

Subject: Purchase of Machine Lead Screw Jack.

Quotation for the item mentioned above is requested in a sealed envelope. The quotation should reach on or before May 11, 2025 (05:00 PM) to the address given below.

Technical Specifications:

- **Load Capacity:** Minimum 200 kN
- **Screw Diameter:** ≤ 65 mm
- **Lead Size:** 12 mm
- **Linear Speed:** up to 500 mm/min
- **Gear Ratio:** Approx. 24:1
- **Start-up Torque (at full load):** Approx. 160 Nm
- **Thread Form:** Metric trapezoidal
- **Torque Proportionality:** Torque requirements should be approximately proportional to applied load across a range of 25%–100% of rated load
- **Screw Configuration:** Translating screw type
- **Lifting Screw Type:** Right-hand single start
- **Worm Shaft:** Standard type with both ends accessible
- **Lift Stroke (Raise):** 500 mm
- **Lifting Screw End Type:** Threaded
- **Gearbox Mounting:** Base mount
- **Screw Material:** Standard alloy steel or stainless steel
- **Screw Protection:** Cover pipes for screw protection must be included

Functional Features:

1. Anti-Backlash Mechanism:
The screw jack must incorporate a mechanism to minimize axial backlash under reversing load conditions (tension to compression).

- Adjustable axial backlash (minimum 0.025 mm)
- Should provide dual load path to maintain load in case of wear
- Optional wear indication feature (visual or sensor-based) desirable

2. Anti-Rotation Feature:
A keying mechanism must be present to prevent lifting screw rotation during operation without requiring external end-fixing.

- Should be integrated within the gearbox unit
- Compact and maintain standard dimensional profile

- Round cover pipe for ease of installation

3. Safety Nut Feature:
The jack should be optionally configurable with a safety nut to enhance operational safety.

- The safety nut must take overload in the event of primary nut wear or failure
- Visual wear indication through gap reduction between nuts
- Should be specified for load direction — sketch to be provided during ordering

4. Engineering Guide: Side Load Rating

The screw jack must be capable of sustaining **excessive side loads** without performance degradation or premature wear.

- Vendor must provide tabulated side load ratings from an engineering guide or performance catalogue.
- Ratings must indicate maximum allowable side loads relative to lift stroke, position, and load centre distance.
- Structural guidance on jack mounting and bracing under side load conditions should be provided.

5. Lubrication Requirements

- Both worm gear set and lifting screw must be **grease lubricated.**
- A **forced grease lubrication system** must apply a consistent film of lubricant directly onto the screw threads during operation.
- Lubrication system should be enclosed and service friendly.

6. Corrosion Protection

- All components, especially exposed parts (screw, housing, hardware), must be treated or coated to resist corrosion in humid or semi-aggressive industrial environments.
- Acceptable methods: zinc plating, epoxy coating, powder coating, or stainless-steel variants.
- Fasteners and external components must also have adequate corrosion resistance.

TERMS & CONDITIONS:

- **PRICES**: FOR IIT Kanpur
- **DELIVERY**: Maximum 3 months
- **VALIDITY**: Minimum 90 days
- **WARRANTY**: At least one year
- **PAYMENT**: 100% after delivery
- **Local Content**: Local content should be provided in the format attached

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