

**BROAD / AoN DETAILS OF PROCUREMENT  
OF CRANE 5/10 TON (SP) 4X4 FULL SLEW**

1. **AoN Date:** 28 September 2022
2. **Item Description (weapon/equipment/platform).** Crane 5/10 Ton Self Propelled (SP) 4x4 Full Slew.
3. **Quantity:** 46.
4. **Categorisation:** 'Buy (Indian-IDDM)' with minimum 50% IC in accordance with Para 8 of Chapter-I of DAP – 2020.
5. **Parameters/ QRs of the Item.** Parameters/QRs are consists of four parts.
  - (a) Part –I (Operational Characteristics).
  - (b) Part-II (Technical and Physical Characteristic).
  - (c) Part-III (Operation and Maintenance).
  - (d) Part-IV (Miscellaneous)

6. **PART - I: OPERATIONAL CHARACTERISTICS**

(a) **Powering System.** The Crane should be Self Propelled with 360<sup>0</sup> continuous slew, hydraulic power operated and vehicle to be powered by diesel engine.

(b) **Environmental Conditions.** The equipment must be able to operate in the environment conditions as under without any deterioration in reliability or condition of the equipment: -

- (i) **Temperature Range.** The vehicle should conform to existing environmental norms as given below to be able to operate in Plains and High Altitude Areas.

Min Temp	Max Temp
Between minus 15 <sup>0</sup> C and minus 5 <sup>0</sup> C	Between 40 <sup>0</sup> C and 45 <sup>0</sup> C

- (ii) **Altitude.** Upto 3500 meters above Mean Sea Level (MSL).
- (iii) **Emission Norms.** In accordance to latest CMVR emission norms for rough terrain cranes, as applicable at the time of commencement of trials.
- (iv) **Humidity.** 90% RH at below 30<sup>0</sup> C ambient temperature based on OEM certification.
- (v) **Wind Velocity.** During In-Service condition, the crane should withstand the effect of wind velocity upto 60 kmph safely.

(c) **Main Assembly and Sub Assembly.** Main motive assemblies and sub-assemblies are recommended as mentioned below: -

(i)	Engine	(aa) Turbo charged diesel engine of minimum 130 HP (@ min 2200 RPM) at the above stated altitude. (ab) The engine shall be equipped with Cold starting device for extreme cold climate.
(ii)	Transmission	Power shift torque converter transmission system with minimum 4 forward and 2 reverse speeds which provides effortless, fatigueless, & clutch free operation.
(iii)	Suspension	One axle fixed type and the other axle oscillating type with articulation of min 300mm and hydraulic operated suspension locks for free-on-wheels lift and move operations.
(iv)	Axles	All live axles with differential locks, 4-wheel steer, 4 Wheel Drive, & single wheel.
(v)	Towing hooks in front & rear	Minimum 10 Ton capacity towing hook with positive locking for towing eye/bar.
(vi)	Tyres	CC type pneumatic tyres of suitable load capacity and speed rating. The date of manufacture of tyres shall not exceed 06 months prior to the date of inspection.

(d) **Controls for Operations.** The operator should be able to operate all the crane functions smoothly, controls should be easily accessible, located inside the cabin and enable a single operator to operate the crane & outriggers completely without any external assistance.

(e) **Operator's Cabin.**

(i) The operator's cabin of Crane should be of revolving type. It should be weather proof, insulated, and enclosed. Operator's cabin mounted on the slewing structure of the crane should offer unrestricted view of the lifted load to the operator.

(ii) All glasses of the cabin shall be transparent to avoid any restrictions all-round view of the operator.

(iii) The adjustable seat of operator should be ergonomically designed to provide max comfort to the driver or operator. The requirement of seat belt should also be provided.

(iv) Heating ventilation & Air Conditioning (HVAC) system should be provided for the operator's cabin.

(v) Exhaust pipe should be positioned away from the operator's cabin and it shall be fitted in such a position that the exhaust fumes of the engine do not reach the driver/operator.

(f) **Cabin Accessories.** The cabin shall be provided with the following accessories:-

(i) Sun visor.

(ii) Speedometer & Odometer.

(iii) Separate cumulative Hour's Meter for the crane lifting operations to be provided.

- (iv) Digital Safe Load Indicator (SLI) with visual display for hook load, safe load radius & boom length with audio visual alarm on approaching over- load condition.
- (v) Reading cum cabin light on Cabin Ceiling.
- (vi) Fuel level gauge.
- (vii) Hydraulic oil pressure gauge.
- (viii) Engine oil temp gauge should incorporate visual indicator and Audio alarm for high oil temp.
- (ix) Low engine oil pressure indicator.
- (x) Rear view mirror on cabin – 01.
- (xi) Insulated water camper with tap, min capacity 5 litres.
- (xii) Laminated wind screen with Wipers and toughened side & rear glasses will be provided for the cabin.
- (xiii) Battery charging indicator.

(g) **Accessories.** The u/m accessories must be provided with the Crane:-

- (i) Jumper starting electrical cables, heavy duty with clamps.
- (ii) Rigid tow bar of min 2.5m length.
- (iii) Spare wheel - Qty 01 No, mounted suitably on the crane.
- (iv) Cable tackles with load lifting capacity, as below:-
  - (aa) Two way slings - Qty 02, 5 ton capacity of std length.
  - (ab) Four way slings - Qty 02, 10 ton capacity of std length.
- (v) **Cargo Nets** : Size 20ft x 20ft, load capacity of two tons with permissible mesh size of 5"x5" max, made of suitable long life synthetic and fray-resistant material - Qty 02 Nos.
- (vi) One box for keeping First Aid kit (empty) - Qty 01.
- (vii) Tool Box with hand tools - Qty 01.
- (viii) Light weight Metallic hollow blocks - Qty 04.  
as per design of vendor to be placed below outriggers  
so that one person can handle the same  
(with stowage arrangement)
- (ix) Metal wheel chokes to be placed against wheels - Qty 04.  
(with stowage arrangement)
- (x) **Lighting Arrangements.**
  - (aa) Head lights - Halogen type with dippers.
  - (ab) Twin fog lamps (both front & rear) - Halogen type, yellow coloured.
  - (ac) Halogen search lights with 15 mtr electric extension cable and tripod stand, connectable to suitable power outlets on the Crane – Qty 02.
  - (ad) Marker lights at all extremities and also on the highest point.
  - (ae) One flood light each on cabin and boom of crane.
  - (af) Inspection lamp with minimum 3m length cable.
  - (ag) Tail light.
  - (ah) Brake light.
  - (aj) Turn indicators.
  - (ak) Reverse light with Audio alarm.
  - (al) Beacon revolving light.
  - (am) Horn.

(h) **Boom System.** Fully powered and hydraulically operated telescopic boom system. Fully synchronized booms to ensure proportional telescopic extension of boom section under single Joy stick control.

(j) **Slew System.** Hydraulically powered slew system providing 360° continuous rotation with capability of intermittent stoppage.

(k) **Control Systems.** The control systems should be provided in the operator's cabin and should ensure that:-

- (i) Any two operations out of three (i.e hoisting, derricking and slewing) should be possible simultaneously, and also when using the remote control.
- (ii) All control for crane motions, driving/travelling, outrigger operations, winch operations, etc must be provided in the cabin of operator.
- (iii) The crane should be steady, under all working condition i.e whether on wheels or on outriggers.

(l) **Self Recovery.** A self-recovery hydraulically operated winch of 10 Ton direct line pull (at outermost layer), with minimum 50 mtr length of wire rope will be provided rear of the crane. A suitable rope cleaning device will also be provided on the winch.

(m) **Safety Provision.** The device should be provided with under mentioned safety arrangements:-

(i) **Locking Arrangements.**

(aa) The lifting tackle should have locking arrangements under all conditions to hold hoisted loads and to ensure that it does not get detached or fall down.

(ab) In the event of failure of power system there should be alternate provision to lower the suspended load & bring down the crane to stowage condition.

(ac) An alternate backup Manual SLI should be provided in case of failure of Digital Safe Load Indicator (SLI).

(ii) Overload hydraulic cut-off that automatically cuts-off further operations upon reaching safe working load conditions.

(iii) A safety arrangement will also be provided to prevent over hoisting of the Crane hook.

(iv) The hydraulic braking effort shall be provided in hoist, derrick & slew system to hold the rated load in any position. It will act as a fail safe type effort.

(v) **Safety Charts/Indicators.** A safety chart with relevant information to be provided to assist the operator to position the device for safe and satisfactory performance.

(vi) **Fire Extinguisher.** 01 No of (clean agent type) Fire Extinguisher of capacity 02 Kgs be provided inside operator's cabin at suitable location.

(vii) Anti-skid platform around the turn table with necessary ladders & suitably positioned hand rails / hand grips.

(viii) Holding valves/Counter balance valves in Hydraulic system to hold the load in its position without falling in the event of power and / or hydraulic failure in hoisting, derricking & telescoping system.

- (ix) Digital spirit level display to be provided inside the cabin for leveling of Crane when on outriggers for better stability.
- (x) All critical parameters for system monitoring pertaining to hydraulic system, engine, electrical etc should be displayed in the control cabin, as given in para 4.7 above.

(n) **Transportability Through Rail and Road.** The Crane should be transportable on existing railway freight wagons / road trailers.

(o) **Dimensions of Crane in Transit.** Height of the Crane in closed position should be within 3.55m and width should be within the limit of 2.7m.

(p) **Endurance.** Crane 5/10 Ton (SP) 4x4 Full Slew should be able to sustain 2 hours of continuous lift.

## 7. **PART - II : TECHNICAL AND PHYSICAL CHARACTERISTIC**

(a) **Technical and Physical Characteristic** The Crane must confirm to **IS-4573** specifications.

(b) **Life Expectancy.** The Crane 5/10 Ton capacity (Self Propelled) 4x4 Full Slew should be capable of rendering at least 4,000 hrs of rugged operations under all environmental and terrain conditions before becoming due for major overhaul and should have a life span of **09 years or 80,000 KMs whichever is earlier**. OEM is required to certify the life expectancy.

(c) **Outriggers.** The Crane 5/10 Ton capacity (Self Propelled) 4x4 Full Slew shall have four independent outriggers fully powered, hydraulically operated, "Out & Down" and "Boom & Jack" type telescopic outriggers for both horizontally "In/Out" as well as vertically "Up/Down" operations respectively. These should be operated from the cabin of driver-cum-Operator and have a minimum span of at least 2.5m each. These shall be self-adjusting and lockable by holding valve operated automatically or from the cabin of operator to ensure safety. The Outriggers should be speedily deployable, either individually or collectively. Outriggers design should be such that it should perform satisfactorily on muddy/undulating surfaces. In addition, outriggers to be accommodated within the width of the vehicle.

(d) **Battery Life.** Minimum service life of maintenance free battery as per the existing service norms viz. three years. It shall be of 12V/24V. It shall comprise of lead acid storage battery, alternator, starter motor etc. The wiring shall be colour coded for ease of identification. The battery box provided shall be painted with anti-corrosive black paint.

(e) **Crane Characteristics.** The essential characteristics of the Crane performance are enumerated below :-

(i) **Lifting Capacity.** The equipment should be able to safely lift the following operational loads rated at 85% of tipping load conditions:-

(aa) Minimum 10 Tons lifting capacity at 5m radius, blocked on outriggers and 1.7m clear out reach ahead of the outriggers over 360° slew with boom fully retracted.

(ab) Minimum 5 Tons lifting capacity at minimum 4.5m radius, lift and move at 4 kmph speed over the front on a gradient of minimum

1-in-10 ( $5.74^{\circ}$ ) on un-metalled surface (only when moving up the slope with load secured to the chassis).

(ac) It should negotiate minimum 1-in-5 ( $12^{\circ}$ ) in un-laden conditions

(ii) Slewing angle -  $360^{\circ}$  (Continuous rotation).

(iii) Derricking angle - Min (-)  $1^{\circ}$  to (+)  $70^{\circ}$ .

(iv) Operating speeds in un-laden condition should be :-

(aa) Hook hoisting speed - Not less than 7m/min (single line speed at top layer of drum)

(ab) Slewing speed - Not less than  $12^{\circ}$  per sec (2 RPM).

(ac) Boom In/Out speed - Less than 70 sec from fully retracted to fully extended position at maximum Derricking angle.

(ad) Max Achievable Radius - It shall have a maximum achievable radius of not less than 14m.

(v) **Hook Block** - Pulley block with provision for sufficient fall lines essential for the maximum rated load capacity of the Crane.

(vi) **Emergency Operation**. It should have an emergency wind off system to enable controlled lowering of the suspended load in case of power failure.

(f) **Vehicle Characteristics**. The essential characteristics of the vehicle portion of the main equipment are given below :-

(i) **Mobility**. It should be capable of travelling on highway, cross country and un-metalled road surfaces.

(ii) **Steering**. A hydraulic power steering system shall be provided. In the event of failure of primary steering system, the steering control should continue to be maintained on at least one axle. An automatic steering reversal mechanism should be provided to ensure that the crane steers in the direction in which the steering wheels is turned, irrespective of the position of the operator's cabin. The crane should be provided with right hand drive system. The cabin of crane must be located on right hand side of the boom.

(iii) **Air Pressure**. Suitable air line must be provided for filling of air pressure in the tyres from the air reservoir. The crane shall have a legible & prominent inscription on the chassis giving the correct inflation pressure of tyres.

(iv) **Stability**. Load stability must be in accordance with SAE-J765 standards, which shall be certified by means of Certificate of Conformance(**CoC**) from the OEM.

(v) **Wading depth**. Not less than 1000 mm with one "Stop & Go" without preparation (un-laden condition).

(vi) Angle of approach - Min  $22^{\circ}$

(vii) Angle of departure - Min  $24^{\circ}$

(viii) Ground clearance - Not less than 400 mm in un-laden condition.

- (ix) Inner and outer Turning Circle Dia, 4 Wheel Steer - Less than 8 mtr & 14 mtr respectively.
- (x) Vehicle speed - Max speed not less than 30 kmph on plain & metalled roads, and min speed not less than 5 kmph on level un-metalled roads in un-laden condition.
- (xi) Reverse Speed - Maximum speed not less than 15 kmph (un-laden condition).
- (xii) Mud crossing - Not less than "200 mm" (un-laden condition).

#### 8. **PART IV - OPERATION AND MAINTENANCE**

- (a) **Product Support.** OEM must undertake assurance to supply for a period of at least 15 yrs from the dt of effecting delivery of the eqpt.
- (b) **Remote Control.** Provide wired remote control for smooth operations of Crane and Outrigger operations through cable of not less than 10m length.
- (c) **Hand Throttle.** Provide hand throttle on chassis of crane to vary the engine RPM.
- (d) **Satellite Navigation System.** Provision of satellite navigation system be provided by the vendors.

#### 9. **PART V – MISCELLANEOUS**

- (a) **Trials.** Trials will be carried as per procedure laid down in Para 65 & 66 of Chapter II of DAP 2020.
  - (b) **Trialability of Parameters.** Any parameter which can not be trial evaluated due to lack of test facilities or equipment or terrain will be accepted on certification of accreditation of Laboratory/Original Equipment Manufacturer/Vendor in that sequence, if required.
10. Special Instruction on Trial, if any : As per DAP 2020.
  11. Offset is applicable : NA.
  12. ToT if applicable : NA.
  13. Any other special Instructions : The proposal will be reserved for MSMEs, provided there are at least two or more MSMEs eligible to participate in the category iaw Para 23 to Ch-II of DAP 2020.

14. Vendors should confirm that the acceptability of the following conditions: -

(a) The solicitation of offers will be as per 'Single Stage-Two Bid System'. It would imply that a 'Request for Proposal' would be issued soliciting the technical and commercial offers together, but in two separate sealed envelopes. The validity of commercial offers would be at least 18 months from the last date of submission of offers.

(b) The technical offers would be evaluated by a Technical Evaluation Committee (TEC) to check its compliance with RFP.

(c) The equipment of all TEC cleared vendors would be put through a trial evaluation in India on a 'No Cost No Commitment' basis. A staff evaluation would be carried out by SHQ to analyse the result of field evaluation and shortlist the equipment for introduction into service.

(d) Amongst the vendors cleared by GS evaluation, a Contract Negotiations Committee would decide the lowest cost bidder (L1) and conclude the appropriate contract.

(e) Vendor would be bound to provide product support for time period specified in the RFP, which includes spares and maintenance tools/jigs/fixtures for field and component level repairs.

(f) The vendor would be required to accept the general conditions of contract given in the Standard Contract Document at Chapter VI of DAP - 2020.

15. Tentative date of issue of RFP is Dec 2022. Total quantity required is approximately **46 (Forty Six only)** Crane 5/10 Ton Self Propelled 4x4 Full Slew. The desired quantity should be **delivered within twelve (12) months** from the day of signing of the contract. The vendors should confirm if they can deliver requisite quantity of The Telescopic Handler within the stipulated timeframe.

### **PROCEDURE FOR RESPONSE**

16. The parameters/ broad specifications of the item are mentioned above in Part-I to Part-V. The vendors are required to respond as **Comply/ Non Comply** to the same.

17. In addition, the vendors are required to furnish details as per Performa at **Appendix 'A'**.

18. This information is being issued with no financial commitment and the Ministry of Defence, Government of India, reserves the right to change or vary any part thereof at any stage. The Government of India also reserves the right to withdraw it, should it become necessary at any stage. The acquisition process would be carried out under the provisions of DAP – 2020.

19. Apart from the information as per the appendices, the vendors may also forward technical details / product brochures / literature etc pertaining to the item.



20. The required information / details may please be forwarded and to reach at the following addresses by **14 Nov 2022, 1200 hr**. The envelopes be dropped in the box kept at **Gate No 04, Sena Bhawan** on any working day (Mon-Fri) between 0900 to 1600 hrs.

- (a) DIRECTORATE GENERAL OF ORDNANCE SERVICES /OS-7  
ROOM NO 116, 'D-II' WING, SENA BHAWAN  
INTEGRATED HEADQUARTERS OF MINISTRY OF DEFENCE (ARMY)  
DHQ PO, NEW DELHI – 110 011  
Email ID : [oodsde@gmail.com](mailto:oodsde@gmail.com)
- (b) DIRECTORATE GENERAL OF CAPABILITY DEVELOPMENT (CD-9)  
GENERAL STAFF BRANCH  
ROOM NO 411, 'A' WING, SENA BHAWAN  
INTEGRATED HEADQUARTERS OF MINISTRY OF DEFENCE (ARMY)  
DHQ PO, NEW DELHI – 110 011  
FAX NO : +91-11-23793274  
Email ID : [gso1-we9-army@nic.in](mailto:gso1-we9-army@nic.in)
- (c) DIRECTORATE GENERAL OF CAPABILITY DEVELOPMENT (RFP CELL)  
GENERAL STAFF BRANCH  
ROOM NO – 444, 'A' WING, SENA BHAWAN  
INTEGRATED HEADQUARTERS OF MINISTRY OF DEFENCE (ARMY)  
DHQ PO, NEW DELHI – 110 011  
FAX NO : +91-11-23793274  
Email – ID : [dirrfp.we-army@nic.in](mailto:dirrfp.we-army@nic.in)
- (d) ARMY DESIGN BUREAU (T&WS) (GSQR CELL)  
GENERAL STAFF BRANCH  
ROOM NO – 122, 'A' WING, SENA BHAWAN  
INTEGRATED HEADQUARTERS OF MINISTRY OF DEFENCE (ARMY)  
DHQ PO, NEW DELHI – 110 011  
FAX NO : +91-11-2011198  
Email ID : [dracd920-ihq@nic.in](mailto:dracd920-ihq@nic.in)
- (e) ADDITIONAL DIRECTORATE GENERAL ACQUISITION TECHNICAL (ARMY)  
ROOM NO 28, D-II WING, SENA BHAWAN  
FAX NO : +91-11-23792414  
EMAIL ID : [tmls-mod@nic.in](mailto:tmls-mod@nic.in)

**VENDOR INFORMATION PROFORMA**1. **Name of the Vendor/Company/Firm.**

\_\_\_\_\_  
 (Company profile including Share Holding pattern, in brief, to be attached)

2. **Type (Tick the relevant category).**

Original Equipment Manufacturer (OEM)

Yes/No

Authorised Vendor of foreign Firm

 Yes/No (attach details, if  
 yes) Others (give specific  
 details)
3. **Contact Details.****Postal Address:**

City: \_\_\_\_\_ State: \_\_\_\_\_

Pin Code: \_\_\_\_\_ Tele: \_\_\_\_\_

Fax: \_\_\_\_\_ URL/Web Site: \_\_\_\_\_

Email: \_\_\_\_\_

4. **Local Branch/Liaison Office/Agent (if any).**

Name &amp; Address:

Pin code: Tel: Fax:

Email: \_\_\_\_\_

5. **Financial Details.** Category of Industry (Large/Medium/Small Scale): \_\_\_\_\_6. **Certification by Quality Assurance Organisation.**

Name of Agency	Certification	Applicable from (Date and Year)	Valid Till (Date & Year)

7. **Details of Registration.**

Agency	Registration No	Validity (Date)	Equipment
GeM			
DGQA/DGAQA/DGNAI			
OFB			
DRDO			
Any other Government Agency			

8. **Membership of FICCI/ASSOCHAM/CII or other Industrial Associations.**

- (a) Name of Organisation (b) Membership Number

9. **Equipment/Product Profile (to be submitted for each product separately)**

- (a) Name of Product : \_\_\_\_\_

(Capability be indicated against the product)

(Should be given category wise for e.g. all products related to Telescopic Handler to be mentioned together)

- (b) Description (attach technical literature) : \_\_\_\_\_

- (c) Whether OEM or Integrator : \_\_\_\_\_

- (d) Name and address of Foreign collaborator (if any): \_\_\_\_\_

- (e) Industrial License Number : \_\_\_\_\_

- (f) Indigenous component of the product (in percentage): \_\_\_\_\_

- (g) Status (in service/ design and development stage) \_\_\_\_\_

- (h) Production capacity per annum: \_\_\_\_\_

- (j) Countries/agencies where equipment supplied earlier (give details of quantity supplied):

\_\_\_\_\_

\_\_\_\_\_

10. Any other relevant information : \_\_\_\_\_

11. **Declaration.** It is certified that the above information is true and any changes will be intimated at the earliest.

***(Authorised Signatory)***

*(As per DAP-2020)*