

Annexure # 1 For PR NO: 3600001001

1 REQUIREMENT:

New 80 Ton or above capacity, diesel engine driven, hydraulic operated, telescopic boom rough terrain crane as per features, specifications, terms and conditions detailed below.

2 TECHNICAL SPECIFICATIONS & FEATURES:

2.1 Parameters for 80 Ton or above capacity rough terrain crane:

a	Capacity	80 Ton or above capacity at 3 m radius with fully extended outriggers & 306 degree slew
b	Capacity at different outreach at 8 m radius (with fully extended outriggers & 360 degree slew)	
	At 12 m out reach	Not less than 30 T
	At 20 m out reach	Not less than 26 T
	At 29 m out reach	Not less than 18 T
c	Maximum capacity over rear	Not less than 80 T
d	Main boom Length	Not less than 36 m
e	Luffing Jib Length	Not less than 17 m
f	Maximum boom tip height (without extension)	Not less than 40 m
g	Number of axels	2 (Two)
h	Drive/ Steer	4 x 4
i	Total weight	Not more than 54000 Kgs GVW
	Weight on Front Axel	Not more than 29000 Kgs
	Weight on Rear Axel	Not more than 26000 Kgs
j	Overall Length	Not more than 15.10 m
	Overall Width	Not more than 3.5 m
	Overall Height	Not more than 3.9 m
k	Wheel & tyre	29.5 x 25- 28 PR
l	Turing radius at turnanable tail	4.4 m
m	Outrigger lateral span	Not more than 7.4 m
n	Outrigger longitudinal span	Not more than 8.5 m
o	Boom Full Extension time	Not more than 160 sec
p	Full derricking time	Not more than 60 sec
q	Slew speed 360 degree	Not less than 1.5 rpm
r	Hoist speed, single line (no load)	Not less than 118 m/ min
s	Max. Travel speed (unladen)	Not less than 24 Km/H
T	Crane source of material/ manufacture	Crane to be manufactured in Europe/ Japan/ UK/ USA/ India only.

2.2 OTHER SPECIFICATIONS:

- a) **Engine:** Engine of adequate HP suitable for handling the crane capacity, Diesel powered, water-cooled. Exhaust emissions according to EUROMOT 4/ 97/68/EG Stage 4/ EPA/CARB Tier 4i or equivalent. Exhaust system stainless steel, incl. spark arrester.

Note: In case of engine with electronic controller system. One (01) complete set of engine fault diagnostic & repair tool (both software and hardware including Laptop, as necessary) shall be supplied along with the crane.

- b) **Main Boom:** Fully powered, synchronized, hydraulic operated telescopic boom. Telescoping operation of the boom either by individual hydraulic actuators for each boom sections or by actuator/s with rope chain mechanism. Boom head designed to handle offered/ requested hook block as per load chart.
- c) **Luffing jib:** With suitable inserts, designed to handle offered/ requested hook block as per load chart. Required attachment parts for fixed mounting of luffing jib to work as fixed jib
- d) **Outriggers:** Four (04) numbers hydraulically operated outriggers for full capacity load lifting through 360 degree slew. Independent as well as simultaneous automatic levelling controls with electronic level indicator fitted inside the cabin. Rigger feet (floats) permanently attached to the jacks. Outriggers to remain with crane during travel.
Outrigger extension- Full as well as intermediate extensions and accordingly automatic selected corresponding duties.
- e) **Hoist:** Hoist unit with power lowering & hoisting. Automatically applied failsafe hoist brake and cable follower. Hoist brake through brake band & shoe actuation is not acceptable.
- f) **Slew:** 360 degree continuous capacity slew on four (04) outriggers having free slew arrangement Slew brake through brake band/ shoe actuation not acceptable.
- g) **Derrick:** As per manufacturer's standard.
- h) **Hook Block:** Multi-sheave hook blocks and ball hook with rope guard and rotating hook with sling catcher. Means shall be provided to secure the hook with chassis to prevent swing while travelling.
- i) **Hydraulic system & controls:** Hydraulic system as per manufacturer's design. Pump control for independent as well as simultaneous operations, minimum three (03) operations. All operations shall be failsafe with positive hydraulic locking/ braking provisions in all actuators, as applicable.
- j) **Stability rating:** As per EN 13000 or equivalent
- k) **Counter weight:** Preferably Fixed type, not required to be removed during road travelling. If not fixed type, hydraulically self-loading & removal of counter weight shall be provided. Weight of the counter weight is to be indicated in the bid.
- l) **Axle:** Axle loading on each individual axle and counter weight of the complete crane unit are to be mentioned in the bid, while in road travel mode.
- m) **Suspension:** As per manufacturers design suitable for rough terrain road and operation. Type of suspension offered shall be indicated in the bid.
- n) **Brakes:** Multi- circuit power assisted service and parking brakes.
- o) **Transmission:** As per manufacture's design.
- p) **Ground Clearance:** Not less than 400 mm
- q) **SLI-** Crane should be fitted with SLI system with graphic and analog outputs with wide screen, backlit display. SLI should be easier to operate & understand by operator & maintenance crew.
- r) **Cab & control:** Both crane and driver operation shall be performed from one cabin on rotating superstructure

All steel construction, full vision type ergonomically designed spacious and comfortable operator's cabin mounted with rubber shock absorbers/pneumatic suspension. Safety glass windows at front, rear, side and top for clear view at all derrick positions, with defogger. Electrically adjustable mirrors, air-cushioned driver seat with lumbar support, instrumentation, display screen and all crane controls. Air conditioned cabin, power door windows, steering wheel height and tilt adjustable. Cabins preferably tilt able towards rear.

Control levers self- centring (joy-sticks) for simultaneous functioning of multiple crane operations.

- s) **Colour of crane:** Standard colors as per bidder's norms.

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- t) **Hoist rope:** Suitable diameter with a maximum line pull as per DIN/ ISO/ EN standards and required length to handle possible highest load capacity for selected configuration. Bidder to provide necessary details meeting the required criteria.
- u) **Chassis-** Made of structural steel confirming DIN 15018/ EN 13000/ Equivalent.
- v) **Operating speed, line pull, size and length of hoist rope, etc. as applicable are to be clearly indicated in the bid.**
- w) **Miscellaneous-**
- Towing hook at front and rear.
 - High audio alarm at reversing of the vehicle.
 - Spare wheel
 - First Aid Kit
 - Pressure & oil gauges
 - Emergency shutdown valves
 - Swing lock device
 - Flash light
 - Locking provision for outrigger beams in fully retracted position.
 - Provision for storing crowbars, slings, wooden blocks etc.
 - Use of Rubber Hydraulic Hoses (i.e. flexible hoses) shall be as minimum possible; instead metallic pipes are to be incorporated. All End Connections of hoses & pipes shall be of same type/design/standard to the extent possible as per manufacturer's design.
 - Two working flood lights at top of pivot section, electrically adjustable.
 - Suitable light/ reflectors on boom for night operation.
 - Weight of the crane should be minimum possible.
 - Anchoring of hoist rope at both ends shall preferably through-rope end connection/wedge system.
 - Sight Glass/Level Indicator and Temperature Meter in hydraulic tank.
 - Ladders to reach crane to ground to be provide.

3 SAFETY DEVICES / REQUIREMENTS & SAFE LOAD INDICATOR (SLI):

- a) Electronic Safe Load Indicator (SLI). Make and Model of the system (SLI) shall be clearly indicated.
- b) All controls to operate in fail safe mode.
- c) Positive locking hydraulic cylinders (except for horizontal cylinders of outriggers), automatically applied failsafe hoist brake.
- d) Anti-Two-Block system for hoist operations to arrest over-hoisting.
- e) Suitable over-lowering protection device for hoist operation/ Limit switch to apply when last three layers are left on hoist winch.
- f) Display of load chart on monitor in operator's cabin.
- g) Pin type Slew Lock (Cab Lock) as per standard to arrest automatic slewing of the super during Travelling.
- h) Level indicators.
- i) Means to secure the Hoist rope to prevent it from swinging while travelling.
- j) Electric horn in operator's cabin.
- k) Engine kill switch / emergency shut down device in operator's cabin.
- l) Floodlights for night operations.
- m) Camera on the top of basic boom & jib end with display screen in the operator's cabin. Alternatively vendor may purchase & provide the same.
- n) Anemometer on the top of basic boom & jib end with display screen in the operator's cabin and alarm system. Alternatively vendor may purchase & provide the same.
- o) Hazard light at front and rear of the carrier.
- p) Fire extinguisher (at suitable location).
- q) Spark arrestor of approved standard applicable for using inside Hydro carbon Process Industry.

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4 OTHERS:

- a) The crane and its components shall be new and of recent manufacture and design.
- b) Brand New crane manufactured not prior to six months from the date of issuance of purchase order.
- c) All calibrations in the crane shall be in metric system.
- d) All display & software used in the crane must be in English language only.
- e) Any item not included in the specifications but necessary for efficient & effective operation of the crane shall be indicated in the bid.
- f) All critical components of SLI in suitable enclosures/boxes to the extent possible.
- g) All electrical wiring of the SLI with suitable conduits.
- h) Colour coding / number coding of electrical wirings including that of SLI system for easy Identification. Same has to be confirmed in the bid.
- i) Coding of hydraulic / pneumatic hoses & pipes for easy identification to the extent possible.
- j) Suitable support/clamping for hydraulic & pneumatic hoses/pipes, electrical wirings, etc.
- k) All electrical system for carrier, crane, SLI system shall be in DC system only in accordance with ISO standard or equivalent

5 NAME PLATE:

A name plate bearing following information (engraved/embossed) shall be provided at a suitable Place on crane.

1. Crane Serial No.
2. Make & Model.
3. Year of manufacture
4. Maximum lifting capacity (safe working load)

6 SPARE PARTS:

A list for 2 years maintenance spares with price shall be submitted for future reference along with the bid, Note: Not considered for bid evaluation.

7 COMMITMENT FOR SPARES

The bidder must submit a written undertaking along with the bid that they will be in a position to Supply all necessary spares for a minimum period of 5 years from the date of successful commissioning of the cranes.

8 MANUALS & CATALOGUES:

- A. Following manuals & catalogues covering all details on the complete crane shall be supplied against crane
 - a. set of Spare Parts Catalogue.
 - b. set of Operation and maintenance Manual which includes,
 - Hydraulic schematics.
 - Pneumatic schematics.
 - Electrical & electronic schematics.
 - Troubleshooting
 - A complete detail of SLI system, its configuration, error codes, symbols/ codes used for various configuration.

All manuals & catalogues under a & b above shall be supplied in 2 No's of book (Print) format and in addition same shall also be supplied in 2 No's of soft form in CD format/ USB stick.

- B. Two (02) sets of operation & maintenance manuals for engine fault diagnostic tool.

9 STANDARD TOOL KIT:

One set of standard tool kit for maintenance and repair of the crane shall be supplied along with the crane. List of tools that shall be supplied shall be submitted with the bid. The tool kits shall include amongst others

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heavy duty grease gun, oil can, spanners, adapters, O ring kit, tyre air top up kit, wheel wrench & handle, etc. as per manufacturer's standard.

10 INSPECTION, TESTING AND ACCEPTANCE:

The pre-dispatch inspection / testing of the cranes shall be by MRPL's executives at MRPL cost which to be carried out at OEM site before delivery. The supplier shall provide testing facility with actual loads. Demonstration of tests shall be the responsibility of the supplier at their cost. Driver/crane operator required during inspection is to be arranged by the supplier at their cost. Supplier shall communicate the proposed inspection schedule to MRPL, with confirmed date of inspection at least 8 weeks in advance for travel plans. The inspection, testing & acceptance process of crane shall include the following minimum steps/tasks to the extent practically possible within ordered scope.

- a) Physical verification of all the items, components, specifications, etc. as per the purchase order.
- b) Identification/ Study of hydraulic layout as per hydraulic schematics.
- c) Operational & functional testing of different facilities/provisions.
- d) Load testing with 2-3 configurations w.r.t. various duties/load charts.
- e) Testing of effectiveness of LMI to work within SWL limits.
- f) Physical weighing for axle loading verification, as necessary.
- g) Inspection of the Parts Catalogue, Maintenance & Service Manuals, Schematics, etc. for similar cranes and other documents for their compliance to NIT requirements, as applicable.
- h) Bidder to arrange for Third Party inspection (TPI) for "Pre-Dispatch Inspection" of equipment (crane) before the crane leave the factory from vendor's port. TPI shall be carried out by authorized TPI agencies such as Loyds, DNV, TUV only. The cost for which is included in the lumpsum price for supply of the Crane and no extra cost is payable.
- i) Verification of test certificates for hook block, wire ropes, main pumps, transmission
- j) Any other points as felt necessary / comes up during inspection.
- k) Supplier shall take note of any minor modification/s for operational requirement as suggested by the inspection team & comply with the same with no extra cost, if feasible as per supplier standard practice.
- l) The minutes of the inspection process would be prepared at the end of the inspection & jointly signed by both the parties at manufacturer's plant and will be treated as MRPL's acceptance / dispatch advice.
- m) Supplier shall confirm in writing compliance of all the points raised in the minutes of inspection at manufacturer's plant.
- n) Supplier shall affect despatch of the units to MRPL, Mangalore. (India) only on receipt of MRPL's acceptance/ dispatch advice, which will be given at the time of inspection at manufacturer plant.
- o) Successful bidder shall make load test plan (LTP) for supply of 80 Ton or higher capacity crane consultation with purchaser after placement of purchase order. LTP shall be witnessed by the MRPL's representative. Supplier to obtain explicit approval for witness of the testing or waiver before dispatching the consignment.

11 DELIVERY & REGISTRATION OF CRANE:

Vendors shall quote their best delivery period along with technical bid for MRPL's acceptance. Vendor has to complete all formalities from dispatch of the vehicle from the vendor site to Mumbai sea port. Sale certificate and all other relevant documents (original) to be provided after the crane is commissioned at MRPL site and shall be in the name of Senior Manager (Admin.), MRPL, Kuthethoor, Mangalore.

12 SUPERVISION DURING COMMISSIONING:

Supplier shall depute experienced personnel in operation and maintenance of cranes to MRPL site at Mangalore for supervising and commissioning of the cranes. Commissioning charges, boarding, lodging, local transportation including to & fro travel and all applicable expenses shall be borne by the vendor. Commissioning shall be completed within 1 (one) month from receipt of the cranes at site at MRPL, Mangalore. MRPL will provide skilled and semi-skilled manpower, suitable craneage, test loads, slings, normal workshop tools, slippers / wooden blocks etc free of cost. Supplier to provide in their offer list of such items needed.

The supplier will be held responsible for delay in supply of crane; Liquidated Damage clause shall be made applicable.

Commissioning spares, if any, shall be arranged by the supplier.

13 TRAINING:

Onsite Training- Vendor shall provide Onsite training towards maintenance & operation of the crane to MRPL's engineers, maintenance & operation crew at MRPL, Mangalore site within the quoted price as under

A. Maintenance engineer's & maintenance crew training

Supplier shall provide maintenance & troubleshooting training covering following topics amongst others -

- a) Hydraulics – schematics, pumps, motors, valves, actuators, etc.
- b) Crane controls.
- c) Safety controls – SLI, motion cut, etc.
- d) Engine, transmission and transfer case.
- e) ABS, as applicable.
- f) Crane pneumatics.
- g) Crane electrical systems.
- h) Engine fault diagnostic tool

B. Operation engineer's & operation crew training

Supplier shall provide necessary training covering following topics amongst others -

- a) Operational aspects – controls, fault code & symptoms.
- b) Safety systems
- c) Components familiarization
- d) Working principle

Modalities, duration, training charges, if any, shall be borne by the Crane Supplier. The training on operation & maintenance of the cranes to MRPL's personnel during commissioning free of charge for a period of five days covering all of the above aspects and any other relevant topics.

14 WARRANTY:

Onsite warranty by the supplier for a minimum period of one year from the date of successful commissioning at MRPL site, Mangalore, India.

MRPL reserves the right to inspect, test and if necessary, reject any part/parts after arrival of the units at MRPL site, only if the said rejection is attributed to be the responsibility of the supplier. It shall, in no way be limited or waived by the reason that the units have been inspected, tested and passed by MRPL prior to dispatch.

In order to keep the unit fully operational, any item/sub-item failed during the warranty period is to be arranged including their customs clearance, etc. and replace / repair the same at site by the supplier or their authorised dealer/agent at their own cost within one month from the date of failure.

Note: The Bidder should have complete service set up on their own or through their dealer in India for taking up maintenance of the equipment supplied. The service set up of the bidder should be more than one year old in India for which proof should be submitted along with the bid.

Annexure # 2 For PR NO: 3600001001

SCOPE OF SUPPLY FOR PROCRUMENT OF 80 TON OR HIGHER CAPACITY CRANE

VENDER'S SCOPE (At Vendor's Cost):

I. Total land cost of the crane till Mumbai port (INDIA)

Total land cost of crane includes,

1. CPT Value till Mumbai port:

- A. EX-work (Cost of crane at factory, including all accessories and attachments, as per detailed specification mentioned in annexure#1)
- B. Fright on board (FOB) charges at vendor's port (Custom clearance, Packing charges, etc).
- C. Fright charges till Mumbai port.

II. Supervision for commissioning of the crane at MRPL site.

III. Basic training on operation & maintenance of the cranes to MRPL's personnel.

MRPL SCOPE (At MRPL Cost):

I. Pre-dispatch inspection of crane at vendor's work/ factory by MRPL executives.

II. Freight insurance (Vendor sea port to Mumbai sea port)

III. Custom duty charges at Mumbai port

IV. Custom clearance and inland freight charges at Mumbai port

V. Entry tax at Mumbai port

VI. Temporary insurance for transport of crane from Mumbai port to MRPL site

VII. Temporary registration of crane at Mumbai RTO

VIII. Transport of crane from Mumbai port to MRPL site

IX. Registration of crane at Mangalore RTO

X. Road tax/ Life Tax

XI. Insurance