UDUPI COCHIN SHIPYARD LIMITED

(Formerly Tebma Shipyards Limited)



Date: 20.04.2023

TENDER ENQUIRY

Dear Sirs,

Sealed Tenders in duplicate, super scribing the Enquiry Number & Last date for receipt of Quotations on the envelope, are invited <u>TWO BID SYSTEM</u> two separate covers as 'Part-I Techno-commercial' and 'Part-I Price' - both enclosed in the single envelope, for the supply of following materials so as to reach the undersigned on or before the last date and time shown. Tenders should be addressed to Assistant General Manager (Materials), Udupi Cochin Shipyard Limited, Malpe Harbor Complex, Malpe. Udupi-576108, Karnataka, India.

Submission by Email: Offers (both Part- I Techno-commercial' and 'Part- II Price) in two separate password protected PDF file format, can also be made by E-mail (<u>sony.clement@udupicsl.com</u>, <u>purchase@udupicsl.com</u> / <u>muhammad.anas@udupicsl.com</u>, <u>midhunthomas@udupicsl.com</u>) on or before, the last date & time of receipt of tender as shown below, if delivery of sealed offers cannot be ensured at UCSL on the due date. The offer PDF files (Part- I Techno-commercial' and 'Part- II Price) to be named clearly (UCSL/MAT/2023-24/010 - Techno Commercial & UCSL/MAT/2023-24/010 - Price bid)

Enquiry No.	Enquiry Date	Last Dt. & Time for Receipt of Tender	Tender Opening Date & Time
UCSL/MAT/2023-24/010	20.04.2023	10.05.2023, 15:00:00	10.05.2023, 15:30:00

SI No	Material Code	Material/ Service Description	UOM	Qty	Yard No	Required Date at UCSL
1		Design, Manufacture, Supply, Installation, testing and commissioning of Plate Preservation Line	Set	1	UCSL Yard	Total 4 months i.e Supply should be completed within 3 months from the date of PO and installation and commissioning within one month

EMD- An EMD of Rs 1,00,000/- should be submitted by the bidders

A pre-bid meeting and site visit of the proposed site for installation of the blasting machine will be conducted on 28 Apr 2023 at 0900 Hrs IST at UCSL, Malpe, Udupi Dist, Karnataka.

Bidder should attend the Pre-bid meeting and visit the site and asses the site conditions prior to quoting

उडुपी कोचीन शिपयार्ड लिमिटेड पत्तन, पोत परिवहन और जलमार्ग मंत्रालय भारत सरकार

UDUPI COCHIN SHIPYARD LIMITED Ministry of Ports, Shipping & Waterways Government of India पंजीकृत कार्यालयः एस. नं. 377, पष्ठामलूर गाँव पुकावुर्र्ड पोस्ट, मदुरान्तकं तालुका कांचीपुरम – 603 116, तमिल नाडु, भारत ।

काँपरिट कार्यालय: माल्पे हार्बर काँम्प्लेक्स, माल्पे उडुपी – 576 108, कर्नाटक, भारत ।

अस्य कार्य कार्य्यस्य, मृत्य उडुपी – 576 108, कर्नाटक, भारत । CIN: U27209TN1984GOI010994

Pukathurai Post, Madurantakam Taluk Kancheepuram - 603 116, Tamil Nadu, India Corporate Office: Malpe Harbour Complex, Malpe Udupi - 576 108, Karnataka, India

S.No.377, Pazhamathur Village

Registered Office:

GSTIN: 29AAACT1281B1ZO

Phone: +91 820 2538600 Fax : +91 820 2538605

www.tebma.co.in

In case of any commercial queries, please contact: Mr. Sony Clement - AGM (Materials), Muhammad Anas - Manager (Materials) Mobile No. 8129443366, Midhun Thomas - Assistant Manager (Materials) Mobile No.: +91 9995777763, Email: <u>sony.clement@udupicsl.com</u>, <u>muhammad.anas@udupicsl.com</u>, <u>midhunthomas@udupicsl.com</u>, <u>purchase@udupicsl.com</u>,

For Technical queries please contact: Mr. Riyas Mydheen (Deputy Manager- Hull & Piping) Mobile No. <u>9994230860</u>, Email: <u>design@udupicsl.com</u>, Mr. Rishikesh M B (Deputy Manager - Painting) Mobile No.: <u>9987818291</u>, Email: <u>rishikesh.mb@udupicsl.com</u>

Enclosures:

- 1. Purchase Technical Specification (PTS) Annexure 1
- 2. General Terms and Conditions of procurement Annexure 2
- 3. Price bid format Annexure 3
- 4. Bank Guarantee/Security Deposit Format Annexure 4
- 5. Pre-Contract Integrity Form- Annexure 5

For Udupi Cochin Shipyard Ltd,

Authorized Signatory

सोणि क्लेमेन्ट टी एम SONY CLEMENT T M सहायक महापर्वधक/ASSISTANT GENERAL MANAGER उडुपि कोचीन ज्ञिपयार्ड लिमिटेड UDUPI COCHIN SHIPYARD LIMITED माल्पे, कर्नाटक/MALPE, KARNATAKA-576 108



UDUPI COCHIN SHIPYARD LIMITED

(Formerly TEBMA Shipyards Limited) Ministry of Ports, Shipping and Waterways, Government of India

TECHNICAL SPECIFICATION

FOR

DESIGN, MANUFACTURE, SUPPLY, ERECTION, TESTING AND COMMISSIONING OF

FULLY AUTOMATED PLATE PRESERVATIONLINE FOR SHIPYARD APPLICATIONS

(CONSISTS OF ABRASIVE BLASTING MACHINE, PAINTING MACHINE, DRYING CHAMBER & CONVEYOR SYSTEMS FOR PRE-TREATMENT OF STEEL PLATES)

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1. SCOPE_OF WORK

The Scope of work shall involve Design, Manufacture, Supply, Erection, Testing and Commissioning of a rugged and reliable **Fully Automated Plate Preservation Line for Shipyard Applications** which consists but not limited to Blasting machine, Painting machine, Drying Chamber, Dust collector units and any of their associated modules/ systems as required for the successful operation of the plant fulfilling SA 2.5 standard with logically optimized process integrated with energy efficient Conveyor system suitable for the dedicated shop floor incorporating the functions of each block in consonance with its required-process speed meeting round the clock operations. **Fully Automated Plate Preservation Line for Shipyard Applications** is to be commissioned in Hull Shop at Hangarkatte, Udupi conforming to relevant standards as per the technical specification and UCSL Contract Rules & and Regulations. The supplier shall be responsible-for total integration of individual machine sand equipment of the Fully Automated Plate Preservation Line and its successful installation and commissioning.

Plate Preservation Line system shall be fully automated and ergonomic one designed with optimized plate travel/ process at suitable process speed action on single master command and incorporated with one master control PLC and all provided with emergency stop commands at different location as required for ensuring safety of man and machinery in full.

The system shall be designed with self-diagnosis tools and self-generating predictive maintenance instructions keeping the failsafe concept in the backdrop. Moreover, system shall specifically be designed and constituted with UL certified/ listed PLC, VVVF drives, process sensors, actuators and incorporated with IOT based Data Acquisition Modules. Centralized control station shall be constituted with industrial PC and LCD/ LED touch screen panel. Every element/ module/ unit shall be selected in compliance with the Ingress Protection Grading, meeting ambient temperature and vibration requirements

The system shall specifically be designed with reliable and rugged components/ units' proper duty cycle required for meeting the round the clock operation requirements of M/s Udupi Cochin Shipyard Ltd (UCSL) meeting SA 2.5 standard and shall be installed, tested and commissioned in the designated bay of Hull Shop inside UCSL fully in compliances with all required relevant standards, statutory rules as applicable in India and technical specifications of UCSL.

Contractor shall fully be responsible for installation, test, trials and commissioning of Fully Automated Plate Preservation Line for Shipyard Applications inside UCSL and shall be done with all required safety precautions, fully in compliance with extant rules and regulations prevailing in UCSL.

Bidder shall categorically take notice that they are fully obliged and liable to meet all the above requirements irrespective of other details in the technical specifications. Nevertheless, if any superior specification /requirements /standards etc, delineated elsewhere in this tender technical specification, bidder shall take note of the same and submit the bid in compliance with that specification. While in case any substandard concept /specification /requirements /standards etc, delineated elsewhere in this tender specification, bidder shall neglect the same and consider the above stipulations and submit the bid in compliance exactly with the above stipulations without any dilution. Bidder shall categorically and expressly informed that any non-compliance of the above is noticed either during tender process or implementation or even during the warranty period, bidder/ contractor is fully liable and responsible for its immediate replacement /rectification based on a single communication from UCSL side so as to ensure the fulfillment of the aforesaid specifications and conditions. Else, replacement /rectification of all such units shall be taken by UCSL at the risk and cost of the bidder/ contractor without any further notice or even any communication.

The Plates to be Blasted and Painted are Mild/ Normal Strength/ High Tensile Strength/ Extra High Strength Ship Building Quality Steel (Marine grade/ Shipbuilding Quality Steel) of size 12000 mm (Length) x 3000 mm (Width) x 50 mm (Thickness).

Blasting (using steel abrasives/ grits) and Cleaning to be done on both sides of the plate simultaneously before painting. The surface profile of plate after blasting shall be SA 2.5 or higher(Swedish Standard).

After blasting, shop primer to be applied with DFT of 15 to 20 microns on both sides of the plate simultaneously, with the help of an automated system in a specific paint booth.

Fully Automated Plate Preservation Line Supplier shall take note on each applicable rule & procedure prevailing UCSL an ISO 9001-2015 certified company in full while discharging duties or executing works at UCSL

2. TESTIN, INSPECTION AND ACCEPTANCE

The system shall be supplied, installed, tested and commissioned at M/s. Udupi Cochin Shipyard Limited conforming to relevant standards to entire satisfaction of UCSL Engineer incharge as per the UCSL Contract Rules and Regulations. Details of the standard followed shall be furnished along with the offer.

2.1 PRE-DESPATCH

UCSL reserves the right to inspect at any stage of fabrication including Design/ Plan approval/ manufacture of the equipment/ material at manufacturers works and also at his sub-contractors works by themselves or deputing any external inspection agency. The Plate Preservation Line system will be inspected to confirm whether structural strength capacities, dimensions, accuracy, operating requirement, working of safety devices such as limit switches etc. meets with the approved specification and drawings. Necessary facilities shall be provided by the supplier of the above. The inspection cost will be borne by UCSL.

Bidder /Contractor is liable and responsible for incorporating all changes or fulfilling the requirements as reported by the inspection agency with the ambit of contract technical specification. Dispatch clearance will be given subject to the clearance of such points. If any such point is pending or any point needs any further rectification / modification, insofar as the commissioning and acceptance of the system is considered, the bidder / contractor shall solely be liable and responsible for the successful execution of the same during installation and commissioning of the final acceptance of Fully Automated Plate Preservation Line for Shipyard Applications.

2.2 TESTS FOR OPERATION AT UCSL:

Before the equipment is put into regular service, tests shall be carried out to prove the following:

- 2.2.1 Compliance of the equipment with the specified performance/ technical specification and other parameter requirements mentioned in the tender document.
- 2.2.2 Satisfactory performance of each system
- 2.2.3 Satisfactory operation of all protective devices.
- 2.2.4 Satisfactory operation of switches, relays, control devices, limit switches and accessories.
- 2.2.5 Correctness of all circuits and interlocks and sequence of operation.
- 2.2.6 Tolerance as specified within the limits.

3. ELIGIBILITY CRITERIA

The criteria mentioned below are very critical for successful commissioning of the Plate Preservation Line with the given specifications and well within the time frame. Tenders meeting the criteria stipulated below are only eligible and those offers shall be considered for technical evaluation. Offers received without complying the below requirements will summarily be rejected without any further communication from UCSL side.

3.1 <u>GENERAL</u>

- a) The Bidder shall be a Single firm or Consortium/ Joint Venture (JV) of maximum three members. The Single bidder/ Lead Partner of JV/ Lead Partner of Consortium shall be Original Equipment Manufacturer (OEM) of Fully Automated Plate Preservation ·Line for Shipyard Applications (Consists of Abrasives Blasting Machine, Painting Machine, Drying chamber etc. with conveyor systems). In case of subsidiary companies set up in India, their parent company (Indian or Foreign) shall meet the above criteria of doing business of Fully Automated Plate Preservation line for Shipyard Applications. Necessary supporting documents shall be submitted in this regard
- b) Single bidder/ Lead Partner of JV/ Lead Partner of Consortium should be in the field of manufacturing, supply, erection, testing and commissioning of Fully Automated Plate Preservation Line for Shipyard Applications (Consists of abrasive blasting machine, painting machine & drying unit along with conveyor systems designed for automatic blasting, painting & drying of Steel Plates) for a minimum period of Ten (10) years as on the date of publishing this tender. Certificate of Incorporation of the company in this regard shall be submitted. The certificate should be Notary vetted/ Embassy attested.
- c) Bidder shall not be under a declaration of ineligibility issued by Govt. of India / State Govt. / Public Sector Undertakings etc. Bidder shall submit a declaration to that effect.

3.2 TECHNICAL EXPERIENCE:

- a) The bidder should have manufactured, supplied, erected, tested and commissioned at least Two (2) No's of Fully Automated Plate Preservation Line (Consists of abrasive blasting machine, painting machine drying unit along with conveyor systems designed for automatic blasting, painting & drying of Steel Plates of minimum size: Length 12m x Width 3m) during the last Ten (10) years, as on the date of publishing this tender in any of the shipyard or heavy engineering companies in India. All the executed Fully Automated Plate Preservation line Projects should be in operational and put in to production satisfactorily for more than One (1) year after commissioning will only be considered for the above.
- b) Bidder shall submit **Performance Certificate** (shall be obtained within the last 10 years as on the date of publishing this tender), directly issued by Shipyard/ Heavy Engineering Industry (clients), for the Fully Automated Plate Preservation Line supplied & commissioned for claiming the above. The performance certificate shall have details like Purchase Order No., brief technical details of the system commissioned, date of completion, performance feedback of the system commissioned, promptness in after sales service support, supply of spares, etc. The authenticity of performance certificates submitted by the bidder will be verified with source directly by UCSL.
- c) Bidder shall submit Notary vetted copy of Purchase Order (PO)/ Work Order

(WO) and Commissioning Report/ Completion Certificate issued by the client as relevant stating the above. The contact details (Phone No., Email ID, Communication Address etc.) of the Clients for the above shall be invariably submitted. Bidders please note that submitting Commissioning Report/ Completion Certificate from the client (Shipyard/ Heavy Engineering Industry) on its letterhead along with other supporting documents (PO/ WO) is mandatory.

- d) The documents/ certificates submitted by the bidder will be verified with the source directly by UCSL. Misleading or false representations in the forms, statements and attachments submitted in proof of eligibility requirements will result in summarily rejection/ disqualification of the submitted offer at any point of time whatever may be the status of the process. Also, the firm will not be considered for further tender process of UCSL for a period of Three (3) years henceforth.
- e) UCSL reserves the right to visit the Fully Automated Plate Preservation Line installations carried out by the bidder in order to have firsthand information regarding the performance of the Plate Reservation line and after-sales support rendered by the firm. The Bidder shall coordinate for obtaining approval/ consent for the above mentioned visit whereas travelling and all other expense of the UCSL Personnel shall be borne by UCSL. Final Acceptance of the offer will be subject to the receipt of satisfactory feedback from the clients as mentioned above.

3.3 FINANCIAL CAPABILITY:

- a) The Single bidder/ Lead Partner of *JV*/ Lead Partner of consortium shall have average annual financial turnover equivalent to Rs. 5 Crores (INR) for the preceding three fiscal years from the current fiscal year. Other members of JV/ Consortium each shall meet 50% of above-mentioned annual turnover in the preceding three fiscal years. In case of subsidiary companies set up in India, financials of subsidiary and parent company (Indian or Overseas) hall_collectively be considered
- b) The single bidder/ members of JV/ members of consortium/ parent company shall have positive net worth during the last three preceding financial years
- c) The Bidder shall enclose a certificate issued by its Statutory Auditors with their seal and signature, stating its Net worth & Annual Turnover for the past three fiscal years along with the bid. Certificate shall be as per the format enclosed at Form-1. Or else, the firm shall submit Audit Report for the last three financial years duly certified and signed by their Statutory Auditor.
- d) Bidders shall seriously take notice that each of the aforesaid report is very critical for this tender and any wrong submission or submission with inadequate supporting documents or any mismatch in the documents will result in summarily rejection /disqualification of the submitted offer or even at any point of time prior to placement of PO whatever may be the status of the process.

 e) UCSL shall at its own discretion and cost, opt for obtaining credit information report on bidder's financial credentials through credit rating firms like M/s. Dun & Bradstreet, MNS etc. The same shall also be considered as a factor for prequalification criteria along with other criteria mentioned in the tender document

Offers of those firms, who have adequate experience and reliable credentials will only be considered. The decision of UCSL in this matter will be final.

4. WARRANTY

The manufacturer shall warrant the equipment / accessories (except wear and tear parts and consumables) against damage or failure due to defects in design, material, performance and/ or workmanship for Twenty Four (24) months from the date of commissioning & final acceptance by UCSL or Thirty (30) months from the date of supply of Plate Preservation Line in complete with all equipments/ accessories at UCSL, whichever is earlier. Should such damage or failure occur within that period, the manufacturer shall replace or repair the defective parts at his cost and responsibility and has to ensure the performance of the system to the same status of "as commissioned".

5. <u>SUPPLY OF DOCUMENTS</u>

All documents shall be in English language and in metric system and the following shall be submitted, where applicable

5.1 Documents along with quotations – Two (2) set unless otherwise mentioned:

- 5.1.1 Documents indicating technical details with description, size, total weight, GA drawing along with technical brochure etc. Soft copies shall also be submitted for the above.
- 5.1.2 List of items quoted including accessories.
- 5.1.3 List of spare parts / consumables required for two (2) years normal operation and maintenance of the machine (post warranty period) including electrical, electronic, mechanical, Pneumatic & hydraulic items along with price details and tools according to the manufacturer's standard.
- 5.1.4 Preliminary documents with description and expected performance curve or data, if any.
- 5.1.5 Single line diagram and block diagram of the system
- 5.1.6 List of deviations from the tender specification and exclusions, if any, to be separately listed out in the offer.
- 5.1.7 Special merits of the system offered, if any may be separately listed out and indicated in the tender.
- 5.1.8 Sectional drawing of blast wheel assembly to be provided with the offer.
- 5.1.9 Make and type of all major components.
- **5.2** Documents within One month from the date of issue of Purchase Order Two (2) sets unless otherwise mentioned:
 - 5.2.1 Detailed Bill of Material of items with makes of items covered under contract.

- 5.2.2 Installation and commissioning details.
- 5.2.3 Detailed procedure of shop tests, pre-despatch inspection and final testing.
- 5.2.4 Arrangement and detailed drawing containing among others, the following information:
 - Machinery and / or equipment arrangement drawings giving dimensions, bolting arrangement and clearances for maintenance etc.
 - Conveyor arrangement.
 - Electrical and electronic automation, control and instrumentation drawings such as, single line diagram, wiring diagram, schematic diagram, cable schedule, and arrangement drawing of all electrical items, electronic controls and circuits, PLC/ APC digital controls etc.
 - List of various electrical/ electronic parts/ items indicating designation, description, manufacturer's name, type, rating, quantity etc.
 - > Make and type of all major components.
 - > Soft copy of all drawings & documents in native format.
 - Physical layout of all the items offered indicating dimensions, weight, clearance etc.
 - Any other item not specifically mentioned but required for the equipment offered by the supplier.
 - > The time schedule of the work (Bar Chart) Project management as per ISO.
 - Details of pit size required for equipment seating, foundation, trenches, anchor bolts, ducting arrangement of dust collector, exhaust stack etc.
 - Civil Foundation Load with detailed drawing for foundation should be given as well as calculation sheet.

The supplier shall be entirely responsible for any errors and / or omissions from the drawings etc. and the sufficiency and the efficiency of the equipment supplied in all respects, notwithstanding any approval, which the purchaser may have given to the drawings prepared by the contractor/ supplier.

5.3 Documents along with machine – Three (3) set unless otherwise mentioned:

- 5.3.1 Test certificates (in Duplicate with original).
- 5.3.2 Test and inspection (PAT, FAT etc.) results.
- 5.3.3 Packing list (with reference to each item of Bill of Material).
- 5.3.4 White prints of all drawings & diagrams of all equipment and accessories [five (5) sets].
- 5.3.5 Instruction and maintenance service manuals [five (5) sets] with details covering general description, installation, operation, maintenance including preventive maintenance check list, lubrication procedure, control systems, mechanical & electrical components, troubleshooting guide, brochure and literature of individual components such as motors, gearboxes, blowers, dust collectors, conveyor systems, painting machine etc.
- 5.3.6 White prints of operator's instruction manual of all equipment [five (5) sets] and soft copy in native files.

- 5.3.7 Spare parts list [five (5) sets] and soft copy in native files
- 5.3.8 Copy/ backup of PLC program (Ladder Logic), VFD parameters and all supporting software (with license, if applicable).
- 5.3.9 Licensed copies of all programs from OEM
- 5.3.10 Manual/ Document pertains to IIoT- Industry 4.0
- 5.3.11 Soft copy of above (manual/ documents/ catalogues/ programs/ report etc.) in USB (pen drive).

The supplier shall submit final as fitted drawings with modification / alteration, if any, whatever applicable. Soft copy shall also be submitted for the above.

6. PLACE OF DELIVERY

Udupi Cochin Shipyard Limited Balakudru Village Hangarkatta – 576218 Udupi, Karnataka, India

7. DELIVERY, ERECTION & COMMISSIONING SCHEDULE

The supply of equipment shall be completed within Three (3) months from the date of approval of GA drawing. The equipment shall be handed over to UCSL after erection, testing and commissioning within one (1) month from the date of issue of site clearance. Schedule from design stage to commissioning stage for the Plate preservation line should be indicated in the offer. The equipment shall be erected and commissioned in the new bay constructed on the eastern side of Plate preparation/ SB bay, Hull Shop at the location as shown in the enclosed.

8. GENERAL REMARKS

8.1 Name Plate(s)/ Caution Plate(s) and Instrumentation:

The name plate(s) and caution plate(s) shall be written in English and indicated in metric unit and shall be covered with cellophane tape for the temporary protection. All major machinery, electricals and equipment shall be provided with identification name plates made from stainless/ brass plates and label plates indicating equipment type, capacity, electric rating etc., shall be fitted as per manufacturer's standard. Instrumentation shall also be indicated in metric unit.

8.2 Liability:

Manufacturer shall bear all the responsibilities for shop trials and the delivery of the machinery to UCSL.

8.3 Piping Flange:

Piping flange connections on machinery and or equipment shall be as per Indian/ International Standards. If supplied as per manufacturer's standard, mating flanges shall be supplied.

8.4 Screw Thread:

Screw thread shall be in accordance with ISO standard.

8.5 Grease Nipple:

Pin type grease nipple, where grease is applied, shall be used.

8.6 Painting:

Painting schedule shall be as per manufacturer's standard and the detail shall be indicated in the offer.

8.7 Preservation & Operation:

The equipment and accessories shall be suitable for specified duty of operation at an ambient temperature of 45 degree centigrade and Relative Humidity 98% in a dust and salt laden corrosive atmosphere prevailing in Malpe.

Recommended method of preservation and names of recommended preservatives shall be indicated in the offer

8.8 Special Tools:

Special Tools for installation and maintenance of the equipment shall be supplied, if necessary. Detailed list of such tools shall be given in the offer. Adequate spares shall, be considered and the same shall be readily available at site during the guarantee period

8.9 Instruments:

Instruments to be mounted on the equipment have to be supplied. The instruments shall be simple manual measuring instruments in general. Instruments like Mesh to check size of abrasives, Profile Gauge (reputed make), DFT Gauge (reputed make), Instrument to measure Temperature of the surface (reputed make), relative humidity (reputed make), Ta, Td, Ts, Ts-Td & Plate thickness Gauge. Also, Air compressor (reputed make) required of respective load to run machines/ equipment's of Plate Preservation Line

8.10Standards:

All design factors, equipment, materials, parts, workmanship etc. shall comply with the latest standards/ practices such as **ISO & IEC.**

- a) **ISO & IEC STANDARDS.** A list of reference numbers of such standards shall be submitted with the tender.
- b) Factories Act, Indian Electricity Act 2003 and Central Electricity Authority (Measures relating to Safety and Electric Supply) Regulations 2010 and subsequent amendments, Environment Rules and other statutory regulations pertain to design, manufacture, installation, operation and maintenance of such machinery / equipment for service at Cochin, India. All safety precautions are to be taken care in the design and should be incorporated in the equipment.
- c) Regarding the practices, not specifically mentioned in the above standards, the normal practice of the industry shall be applied.

9. <u>TECHNICAL DETAILS OF PLATE PRESERVATION LINE</u> Basic Requirement:

UCSL requirement is dedicated & integrated plate preservation line consists of in-feed conveyor, transfer conveyor, blasting machine, painting machine, drying chamber, out-

feed conveyor, compressor of suitable capacity (including piping), dust & fume collection system and connected duct works & associated auxiliary equipment's. The machineries to be installed in Hull shop Hangarkatte. The system shall be controlled by PLC and drives to achieve automatic operation of the machines and conveyor system.

9.1 CONVEYOR SYSTEM

A). Arrangement:

The conveyor line carries plates from steel yard to the abrasive blasting machine, automatic painting machine and drying chamber.

Arrangement of proposed Fully Automated Plate Preservation Line for Shipyard Applications is as follows



Figure 1

'A' constitutes roller conveyors for in-feeding of plate from steel yard. The conveyor length from A to B shall be mentioned in the offer. The length of a conveyor section shall be suitably decided by the bidder as the total length of roller conveyor arrangement from 'A to B'.

'A' constitute roller conveyors for feeding plate through blasting machine

Slat conveyors (D, E, F) constitute the line from painting machine to steel yard through drying chamber. The length of a conveyor section and number of conveyors sections required shall be suitably decided by the bidder as the total length of conveyor arrangement.

Generally, the plates are loaded from steel yard on conveyor 'A' using existing Gantry crane with magnetic unit.

The conveyor speed for the system shall be made adjustable within 1 to 6 m/min. Detailed conveyor arrangement shall be submitted for UCSL approval.

i)	Width	:	1000 mm to 3000 mm
ii)	Length	:	6000 mm to 12000 mm

B). Steel plate conveyed:

iii)	Thickness	:	3 mm to 50 mm
iv)	Material	:	Mild/ Normal Strength/ High Tensile Strength/ Extra High Strength Ship Building Quality Steel (Marine grade/ Ship building Quality Steel)

All conveyor systems shall be designed to convey the minimum load of 1500 kg/ running meter, suitable for above mentioned plate dimensions.

C). Roller conveyors:

The roller conveyor system shall be of modular assembled, solid and space saving construction with profile steel, rollers, double chain wheels, chains and chain protection covers made of steel sheet. The conveyor system shall have fabricated steel frames on to which is fitted self-lube foot or flange mounted sealed bearings. Each pair of bearings carries a welded construction thick-walled heavy-duty tubular roller. Drive shall be through guarded chains fitted to double sprockets. Top level of the drive mechanism & chain protection cover should be below the roller top level. Vertical guide rollers shall also be provided for roller conveyors for guiding the plates. The number of guide rollers required and distance between each guide rollers shall be designed in such a manner that no work part (plates) shall deviates from its path.

Adequate lubrication system for conveyor system should be provided as per OEM standard.

Drive of the in-feed roller conveyor shall be with frequency-controlled gear motor. Operation and control of the conveyor shall be possible from the control cabinet. The conveyor system shall be reversible with all safety features such as light barrier, limit switches, emergency stop etc.

i)	Working Height	:	800mm above ground level
ii)	Roller Diameter	••	Please specify. Shall be designed to convey the minimum load of 1500kg/ running meter
iii)	Effective Roller Width	:	To specify
iv)	Pitch (Roller distance)		Supplier shall specify the optimum Pitch in order to prevent trap/ stuck up of thinner plate between the rollers.
v)	Roller distance – Blasting Area	:	To be indicated in the offer
vi)	Transport Speed	:	1 to 6 m/min

Technical Details:

vii)	Conveyor Length	:	To be indicated in the offer
viii)	Conveyor Load Carrying Capacity	:	1500 kg/ running meter. To be indicated in the offer.

D). <u>Slat Chain Conveyors:</u>

i)	Maximum loading	:	To be indicated in the offer
ii)	Motor Capacity	:	To be indicated in the offer
iii)	Surface Contact Point	:	To be indicated in the offer

The purpose of the slat conveyor is for the wet plate discharge from the painting machine to the dryer and finally up to desired area, where the plates are unloaded using overhead magnetic cranes for stacking. Optimum design shall be made to reduce the area of contact points as freshly sprayed primer is sensible to mechanical contact at the bottom side of plate. The dimensions of work piece to be conveyed and Conveyor carrying load shall also be considered for deciding Surface contact points.

The slat conveyor shall consist of sturdy frame, chain wheel shafts, each complete with roller bearings, chains, tensioning screws, removable segment bars, frequency-controlled drives etc. Operation and control of the conveyor shall be possible from the control cabinet. The conveyor system shall be reversible with all safety features such as light barrier, limit switches, emergency stop etc. Optical sensor to be integrated with PLC for work piece (plates) detection.

Lubrication shall be done through centralized automatic lubrication system, as far as possible.

Technical particulars of Slat chain conveyor system offered shall be detailed in the offer.

E). Other Requirements:

Apart from the standard safety features & control accessories as per common norms and regulations, supplied by the OEM along with the machine required for satisfactory performance of the system, the following shall also be ensured:

- a) All conveyors shall be integrated with blasting, painting and drying operations.
- b) All conveyor system & its speed shall be fully automatic and shall also have provision for manual operation.
- c) All conveyors wherein variable speed is applicable for synchronized process speed shall be provided with VVVF (Variable Voltage Variable Frequency) drives.
- d) All individual conveyor sections shall also be provided with sub control boxes consisting of:
 - Emergency stop for stopping all operations including conveyors, blasting and painting equipment's.

- Mushroom type push button for stopping all conveyors along with stopping of abrasive flow of blasting machine and painting operation. All other connected accessories of blasting and painting shall work under this condition.
- e) Display, if conveyor is loaded with plate, shall be made available in the main control desk of blasting machine.
- f) Conveyer speed shall remain constant at different loads.
- g) Operation elements with display in the central control panel.
- h) Electrical interlock for avoiding further movement of plates when plate reaches extreme end of any conveyor's series shall be provided.
- i) Energy conservation measures by switching off idle conveyors during process control shall be established

9.2 ABRASIVE BLASTING MACHINE

The blasting machine is engineered for fully automatic blasting of steel plates. Roller conveyor transports the plates into the blasting chamber. Blasting machine is suitable for cleaning scale, rust and other adhering matter from the steel plates. Cleaning is carried out on both sides of the work part (steel plates) simultaneously while passing through the blasting chamber.

Details of Plates to be Blasted & Painted:

a)	Material	Mild/ Normal Strength/ High Tensile Strength/ Extra High Strength Ship Building Quality Steel (Marine grade/ Shipbuilding Quality Steel
b)	Steel Plate width	1000 mm to 3000 mm
c)	Steel Plate thickness	3 mm to 50 mm
d)	Steel Plate length	6000 mm to 12000 mm

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The Steel Plate is fed into an enclosed chamber equipped with high efficiency wheel blasting system for surface preparation requirement. Steel abrasives are fed into the centre of the wheel and it is dispersed through the periphery of the wheel. The simultaneous discharge of abrasives from the blasting wheels at high centrifugal velocity enables to perform the removal of rust, stains etc. from the plate in single pass through the blasting chamber. Abrasives after having hit the surface of the plate to be blasted are collected at the bottom hopper and finally fall into the screw conveyor fitted at the bottom of the machine. The screw conveyor will convey the materials to a bucket elevator at the end of it and the abrasives will be lifted up to the separator system. The separator system effectively separates the usable abrasives and particles. Recycled abrasives are further brought into an air-wash system that removes dust from the abrasives. As the air-wash system is connected to the dust collector, it is able to separate dust and abrasive at a very

high efficiency rate and also ensures minimal environmental pollution. A careful construction of the sequential logic and automation allows easy operation of machine without any risk of wrong handling and injury to the operator. The machine is to be connected to an exhauster and filtering unit in order to clean the abrasive and to reduce the exit of dust during the work. All operation of the blasting system shall be controlled by PLC and drives to achieve automatic operation of the machines and conveyor system. The speed of conveyor in blasting area, abrasive throwing speed, abrasive flow control, etc. shall be controlled through control panel.

The system shall have detecting mechanism of steel plate arrival and width detection by means of limit switches/ sensing arrangement.

A). TECHNICAL DETAILS:

- No. of wheels (Turbine unit): : a) Shall be min. 8 Blade quantity per wheel (Turbine): b) : Shall be min. 6. c) Hardness of the wheel blade : d) Wheel diameter : e) Blade width : f) : Design details of wheel blade: Abrasive throughout / Per **g**) : wheel h) : Throwing speed (Abrasive) Blast wheel speed i) : Installed turbine drive i) : Nominal passage dimensions k) : (B x H) 1) Maximum conveyor loading : Blasting speed, adjustable: m) : Plates: Within 1 to 6 m/min. Blasting speed, normal: n) : Plates: 3 to 4 m/min
- i) Following details are to be filled and submitted with offer:

o)	Blasting surfaces: Both sides in single pass	:	
p)	Surface finish required: SA 2.5 conforming to Swedish Standards (SIS 05 5900-1967)	:	
q)	Abrasive used: Steel Grit and Steel shots	:	
r)	Roughness of surface after blasting (Rz value): 75 to 100 microns	:	
s)	Conveying capacity of screw conveyors	:	
t)	Capacity of bucket elevator	:	
u)	Blower capacity of blow-off system	:	
v)	Dust collector suction rate (m ³ /hr)	:	
w)	No. of cartridges in dust collector	:	
x)	Dust concentration of air out of chimney (located outside of shop): Dust concentration in air out of chimney shall be less than 10mg/m³ . Supplier shall provide the details of filter standards.	:	
y)	Volume of silo (capacity) in liter	:	
z)	Size of pit required for the machine	:	
aa)	Overall dimensions of the machine	:	
bb)	First fill quantity of abrasive	:	
cc)	Life of wearable items shall be listed in blasting hours	:	

B). CONSTRUCTIONAL FEATURES:

i) Blast cabinet/ chamber:

Blasting chamber/ cabinet shall be a welded sturdy structure manufactured from **manganese steel (12 – 13% Mn steel, minimum 8 mm thick)** to protect against abrasive wear. The interior sidewalls, end walls and roof shall be lined with additional manganese steel plates (Minimum 8 mm thick) in the complete blasting chamber. Extra replaceable additional liners made of **manganese steel (12 - 13% Mn steel, minimum 8 mm thick)** shall be provided in the direct abrasive hitting area/ hot blasting zone. All liners shall be mounted with dome nut or suitable arrangements for easy replacement of liners. All internal cross section walls shall also be fabricated from **manganese steel.** The chamber size shall be suitable for abrasive blasting of plates for the sizes mentioned above. Suitable doors, which allow easy entrance into the cabinet, shall be provided with safety interlock for maintenance and inspection purpose.

ii) Roller conveyors:

Roller conveyors inside the machine shall be with externally mounted bearings in dust proof execution and chain drive from roller to roller. The drive shall be effected by means of infinitely variable geared motor which is reversible. Adjustable speed and pitch of the roller shall be meeting the blasting requirements mentioned above. The rollers in the blast chamber shall be made from hardened tool steel/ S 355 covered with manganese steel. In the direct abrasive impact zone/ abrasive blast chamber, wear resistant rollers covered with **manganese steel** or made from heavy-duty alloy steel. Necessary protection arrangement shall be made between rollers to prevent an outflow of blast media during blasting of plates.

iii) Entrance vestibule:

Entrance vestibule shall be lined with abrasive resistant rubber sheets or superior. The vestibule shall be fitted with multiple sets of easy to replace profiled rubber curtains to prevent the escape of expended blast media.

iv) Abrasive collection hopper:

Forming an integral part of the vestibules and chamber, are the recovery hoppers made from **manganese steel.** The hopper shall have heavy-duty steel grillage flooring and heavy-duty alloy steel screw conveyors, driven by shaft mounted geared motors. Heavy-duty grillage cover is provided to protect scroll conveyor from possible damage by larger particles that might fall down. The abrasive is transferred via a cross screw to the bucket elevator

v) Bucket Elevator:

The vertical transport of abrasive and waste products of blasting from abrasive collection hopper to abrasive reclamation unit is performed by bucket elevator. It construction includes steel casing with inspection doors, top & bottom pulley groups with dust-proof ball bearing supports, closed belt with high wear resistant buckets retained by special screws, belt tensioning device, geared motor drive, non-return

mechanism to avoid inverse rotation of the driven pulley, mechanism to prevent of flooding of the abrasive during transport etc.

As an additional wear protection, all buckets shall be provided with a trilateral, welded edge reinforcement made by Mild steel or Manganese steel. The system shall have belt alignment lever with a self-locking mechanism to avoid belt sliding during operation.

vi) Abrasive reclamation unit with silos:

The abrasive reclamation unit and silo shall be carefully designed and manufactured in steel structure, placed on the top of bucket elevator and blasting tunnel, which separate clean and usable abrasive in cycle from worn abrasive and other waste blasting products. Abrasive discharged from the elevators shall be conveyed through screw conveyors into removable screen, which remove large foreign matter from abrasive recycle system. Abrasive reclamation unit shall be designed as cascade wind sifter and abrasive air wash to be performed by suction effect of dust collector exhaust fan. Lighter weight of dust allows it to be pulled from the system by extraction air currents. Cleaned abrasive flows over the weir assemblies and gravitates to the main storage hopper. A perforated sheet shall be installed as a protection cover for the silo. The level of clean operational abrasive in the upper silo shall be controlled by an electronic level indicator. Extracted dust is fed directly via the ducting to the dust arrester. Heavy particles to be fed to the ground level via heavy-duty flexible pipes. Required level sensors for silo and sensors for running control of equipment shall be provided.

vii) Automatic blast media replenishment unit:

Replenishment unit shall be of robust welded construction for automatic dosing of new blasting abrasive/ media into the blasting media circulation. Automatic refilling ensures constant quality of the media mix by a continuous replacement of the used blasting media. Necessary replenishment of fresh abrasive shall be performed automatically depending upon upper silo level indicator signal. Necessary arrangements shall be made for collecting of the separated undersized/ big particles including frame, holder for discharge tube, pipe connection etc. Safety sieve supports shall be provided for taking off of abrasive bag/ bucket and filling of the blasting media storage tank.

viii) Abrasive Control Units:

These are the dosing units for turbines. Specially designed valve with remote electrical positioning of sluice flap shall be provided for each throwing wheel to enable remote feed control and shut / opening operation. The quantity of abrasive thrown by each wheel shall be adjusted by the abrasive control units. Considering the size of the plate, rate of the abrasive shall be controlled as per the requirement

The system shall be capable of automatically switching off the abrasive supply to the unused wheel units according to the number of wheel units working.

ix) Blasting wheel (Turbine) units:

The abrasive blast shall be generated by blast wheel units, each driven by **directly driven** energy efficient electric motors of sufficient HP and speed to rotate the wheel at the

required rpm. The Wheel and its components shall be made from highest wear resistant highly hardened tool steel. The welded housing of wheel (turbine) units shall be made from **manganese** steel and additionally inside protected with highly hardened tool steel (> 62 HRC) or equivalent plates. All other wearing parts inside the turbine shall also be made with this material. The abrasive should be pre-accelerated and distributed to the blades by Two Stage Acceleration System or equivalent mechanism in order to provide higher blast performance, lower wear rate and considerable reduction of abrasive consumption. Each wheel shall have an automatic or manual control cage adjustment mechanism to guide the abrasive stream. In order to have the possibility to adjust the turbine speed and also the quantity of abrasive media to different plate thickness, each turbine shall have own frequency inverter (VVVF Drive) and also each turbine shall have own automatic abrasive flow adjustment control. The orientation of lower wheel units shall be designed to protect from the falling debris. System shall have advanced screw conveyor technology to supply abrasive to lower wheels (turbine). The turbines shall be mounted in staggered position/ inclined position to achieve constant blast result and also to prevent blasting into each other. The blades shall be of double end-supported type.

Considering the maintenance aspects/ during disassembling of unit, arrangements like shut off gate at the upper and lower turbines unit shall be provided in order to prevent blast media flowing to the turbines from the abrasive hopper.

Technical details and Sectional drawing of blast wheel assembly to be submitted with the offer. Make of bearings shall be of SKF/ FAG/ NTN.

x) Exit vestibule:

Exit vestibule shall be fabricated in sheet steel construction with maintenance door. Exit vestibule shall be lined with abrasive resistant rubber sheets or superior. The vestibule shall be fitted with multiple sets of easy to replace profiled curtains to prevent the escape of expended blast media. **Exit vestibule houses brush-off** & **blow- off units**. Brush off system shall be provided with automatic height level control with rotating brush, made of highly wear resistant, easily replaceable brush segments with clamps. Separate electric geared motors shall provide the rotating and lifting drive for the brush-off unit. High-pressure blow units with nozzles shall be installed behind the brush for blowing off remaining abrasive particles from the blasted plates. The brushed material shall be conveyed through a system. Details like brush dia., working depth of brush, motor power for brush drive, height adjustment, blow off ventilator etc.

xi) Maintenance platform & access ladder:

Access platform shall be fitted around the elevators, airflow separators, rotary sieve units etc for safe access to all the maintenance and inspection points on these units. Platform shall be of solid welded construction made of profiles, chequered plates or grate type floor. Safety hand rails 1.2 Mtr in height and toe guard shall be provided all around the platform. Access ladder shall be provided with safety cage above the 2 Mtr level.

xii) Noise reduction covering:

The noise level of the equipment shall be within the limits of 85 dB(A) during daytime

and also during night time in the industrial area. Noise reduction covering shall be provided to reduce the noise of the blasting machine within the allowable limits. The cover shall be made from double walled sheet metal and profile construction lines with noise dampering material and shall be fitted with doors for ease of maintenance.

Noise reduction covering shall also be provided for the blower fan of dust collector to reduce the emission noise. It shall be of housing with sound insulation and air outlet grid.

xiii) Dust Collector:

Dust collector shall be located outside the shop and shall be of explosion proof design. Dust collector shall be designed as a cartridge filter unit in solid steel construction reinforced by profiles. The Filter system corresponds to the **ATEX-terms or equivalent directives.** Cartridge type reverse pulsejet cleaning continuous automatic dust collector with suitable cartridges shall be supplied. The cartridges shall be cleaned automatically and continuously by means of compressed air pulses which are adjustable in its duration and frequency. The cleaning shall be controlled with the aid of a timer unit. Lower portion of the dust collector shall be formed to a collection hopper for the disposal of extracted dust through a rotary valve. Avoid Explosions/ Fire in dust unit (Explosion Proof Design). Provision shall be made to avoid dust locking in the filter Unit. Only finally filtered air, with allowable dust concentration, shall be passed to atmosphere through Chimney/ exhaust stack. The height of chimney shall not be less than 25 Mtr.

The dust collector shall be provided with platform, access ladder and inspection door for inspection and maintenance purpose. Since the dust collector is to be installed **outdoor**, it shall be made **waterproof** and shall be **Zinc coated**. Supplier shall ensure adequate protection to avoid water ingress in dust collector unit.

Form No. 40 (Prescribed under Rule 122 of Factories & Boilers Act) shall be submitted for Dust Collector. Sample Form No. 40 attached for reference.

xiv) Ducting:

These shall include ducting from the abrasive blasting machine to the dust collector and also the outlet exhaust stack from industrial blower fan into the atmosphere. **[Separate ducts shall also be provided for the exhaust from the painting machine and drying chamber to the open atmosphere outside the shop].** The ducting parts shall be made of solid steel. Ducting shall be fitted with all the necessary flow control valves and low velocity extraction boxes. The exhaust stack (for blasting, painting & drying) provided for the discharge of clean air into the atmosphere shall be of minimum height of 25 Mtr from the ground level with sufficient supports. Porthole and platform cum ladder shall be attached to the exhaust stack/ chimney for facilitating emission monitoring. Exhaust air should not contain any volatile material. Ducts shall be designed with stringent safety norms to prevent fire and explosion. Ducting system shall be designed to suit the site layout and to be submitted for UCSL approval.

xv)Pit & Superstructure:

Pit area should be having sufficient width and depth to accommodate the bottom hopper,

bucket elevator and screw conveyor for recovering the abrasive. The superstructure supports the screw conveyor, abrasive separator, storage hopper and service platform.

C). OTHER REQUIREMENTS:

Apart from the standard safety features & control accessories as per common norms and regulations, supplied by the OEM along with the machine required for satisfactory performance of the system, the following also shall be ensured:

- a) The blasting system shall be PLC controlled with central control panel with clear text display of all machine functions and malfunctions. The control system shall be such that one operator can control the whole process from control panel.
- b) Auto/Manual operation is required for the machine.
- c) Emergency stop (Total 4 Nos.) shall be provided on four sides of blasting machine and also in control desk.
- d) All doors shall be provided with electrical safety interlocks to prevent machine operation when open.
- e) All abrasive flow control valves shall be pneumatically controlled and each valve shall have its own control from control desk.
- f) Flow and velocity of abrasive shall be controlled using individual VVVF Drive.
- g) Display of amperage load of each turbine is required.
- h) Required cooling arrangement and panel door interlocks shall be provided for all panels.
- i) Required level sensors for silo and sensors for running control of equipment's shall be provided.
- j) If the conveyors are loaded with plates the same shall be displayed in the central control station.
- k) Automatic on and off control of blasting media supply, if no plate passes through the machine shall be provided.
- 1) Brush off unit shall be provided with automatic height level control.
- m) Retrieval of plate through blast machine without blasting shall be provided
- n) In-built safety system comprising of sound alarms, overload protection, emergency stopping device/self-tripping device etc. shall be provided at convenient locations to prevent any accidents or breakdown.
- Machine should have adequate and reliable safety interlocks/devices to avoid damage to the machine, work piece and the operator due to malfunctioning or mistakes. Machine functions should be continuously monitored and alarm/ warning indications shall be generated.
- p) The blast units shall be fitted with sensors so that as soon as the plate passes the unit they should start operation and stop automatically when the plate goes out of its reach. System should have automatic **part width sensor** to sense the width of the plate and also for turning the turbine on or off depending on the plate width.

Sensor shall be provided for detecting steel plate thickness to auto adjusts the height of brushing unit. Sensor shall also be provided for detecting steel plate arrival.

- **q)** All required interlocks to avoid accumulation of abrasives inside the abrasive transfer system in case of failure of any of the units associated with abrasive transferring system shall be provided.
- r) The fault diagnostic system with required software and hardware installed on the PLC system should show detailed cause and remedy of the fault on the PLC system display with full diagnostics indicating the element/device causing the fault.
- s) All electrical motors shall be fitted with overload protection and single phasing protection. Motors shall be TEFC, squirrel cage, 415V, 50 Hz with IP55 protection.
- t) All motors of blasting equipment shall be driven by independent motor / drive system and automatically controlled with the start of the abrasive blasting process.
- u) 24V supply for inspection inside blasting machine shall be provided in main panel. 4 Nos. of inspection lights with required length cable shall also be supplied.
- v) Provision for conveyor speed adjustment and speed display of blasting machine shall be provided in the control desk of blasting machine. All fault indications and reset provisions shall be provided in control desk of the machines.
- w) Viewing window shall be provided on panel on which drives are mounted.
- x) All operation and sub operation control boxes and central control desk shall be provided with emergency stop.
- y) Provision for control of abrasive abrasives from control desk shall-be provided for blasting machine. All control panels, desks shall be suitable for operation under dusty and humid atmosphere.
- z) Display for running status of each motor with current (Amps) and trip indications shall be provided in central control desk. Air pressure display and tripping indication due to low air pressure shall be provided in central control desk.
- aa) Automatic blow off of filter cartridges by compressed air impulses and diaphragm valves shall be provided for dust collector. The same shall be achieved by electronic control device. Mechanism for controlling cartridge-cleaning intervals shall be provided.

9.3 PAINTING BOOTH & DRYING SYSTEM

Automatic Painting & Drying system shall be capable of painting and drying both sides of the steel plates of width varying from 1000 mm to 3000 mm and plate thickness up to 50 mm. After painting, plates are made touch dry in drying chamber by cold/ hot air blow at sufficient velocity. The equipment consists mainly of automatic painting machine, paint supplying equipment, drying chamber, sensor & painting Guns. The automatic painting & drying system shall also be capable of painting and drying of plates.

A). Automatic Painting machine:

The machine has to apply zinc rich (inorganic zinc ethyl silicate) primer with coating thickness 15 to 20 microns on both side of the plate after blasting. The plates are transported into the

chamber on the roller conveyor and transported out on slat conveyor. The transportation speed (1 to 6 m/min) and painting speed (3 to 4 m/min) shall be matching with that of the blasting machine.

The automatic painting machine shall consist of:

- i) Chamber housing with an air filter. The housing shall be a sturdy structure made of steel plates and profiles. There shall be inlet and outlet openings and two interlocked personnel access doors with sealed glazed viewing panels. Suitable mechanism, to meet statutory requirements, shall be provided inside the painting chamber for easy cleaning, protection and disposal of paint waste.
- ii) Painting mechanism involving traverser with spray guns placed on both sides of plate to be painted, which shall be traversing left and right and having facility for varying speed of spray gun. The guns shall be adjusted to spray the paint over the edges of the plates so that its edges are also painted.
- iii) Spray head collision prevention system.
- iv) Detecting mechanism of steel plate arrival and width detection by means of limit switches / sensing arrangement.
- v) Suitable cleaning mechanism in the painting chamber by way of Air suction which ensures/ meets safety and environmental aspects. The suitable dust collector system shall be equipped near painting machine to treat the paint fumes and paint dust shall be collected at the bottom of the system. The treated air/ fume shall be emitted to open atmosphere through duct system. Duct system shall be of explosion proof design. The exhaust stack/ chimney provided for the discharge of clean air into the atmosphere shall be of minimum height of 25 Mtr from the ground level with sufficient supports.
- vi) Inside the chamber, dry panel filters shall be placed through which the fan is absorbing the air. Negative cabin pressure shall be maintained to retain fugitive emissions. Exhaust fans shall be provided on both sides and duct system for taking out paint vapor from painting machine and exhausts into the atmosphere after filtering. Necessary facilities/ arrangements shall be provided for maintenance/ cleaning activities in the filtering system.
- vii) Since this machine is required for painting of wide plates, even thickness of paint coat on both sides shall be achievable. The plate coming out from drying unit shall be "Touch Dry".
- viii) Lighting inside the chamber with paint protection & fire/ flame protection.
- ix) Painting machine shall be built-in explosion proof design.
- x) There should be an interlocking system between painting system operation & cleaning system.

Blower fan capacity for exhaust from the painting chamber shall be detailed in the offer.

B). <u>Paint Supplying Equipment:</u>

Paint mixing is to be carried out in an explosion proof paint room to be located near to the painting machine. Paint is mixed in the pre-mixing tanks (60 litre capacity) and then transferred to the paint tanks, by pneumatic/explosion proof transfer pumps. Paint is sent to the spray guns at required pressure by means of airless paint spray pumps. The equipment consists mainly of:

- i) Station for pre-mixing of paint with hardener using pneumatic operated stirrer automatically.
- ii) Paint transfer pump for automatically transferring of paint mixer from pre-mixing drum to paint tanks.
- iii) 1 Nos. 100 L (min.) free standing non corrosive paint tanks with top cover and stirrer operated by electric motor mounted on top of tank.
- iv) High-pressure airless spray pump with accumulator. 1 Nos. 'GRACO or equivalent make' cart mounted airless spray-paint units with adequate connected accessories such as air less spray guns, high pressure filters, wear resistant tips etc.
- v) Reinforced supply & return hoses, pressure regulators, pressure gauge and all other accessories required for satisfactory functioning of the system. Paint stirrer should get switched off when top cover is lifted in the paint preparation room.
- vi) Support frame for fixing of the components.
- vii) The system shall have adjustment of stroke and speed of reciprocator to suit individual applications.

The size of paint preparation room has to be indicated in the offer considering the layout as shown in the attached figure 1. Full details of the paint preparation room such as size of room, entry & exit way, requirement of any thermal insulation, fire-fighting equipment's, explosion proof light fittings etc. shall be detailed in the offer. UCSL will only do the civil construction work of the paint preparation/ mixing room based on the supplier's design data/ recommendation.

Personnel protective equipment's, if any required to be worn while working inside the paint preparation room shall also be supplied as a part of the standard equipment.

Details of the above shall be furnished in the offer.

C). Drying Chamber:

The drier shall be positioned immediately after the painting machine. The drying chamber shall be air blow- drying type. Atmospheric air is sucked in through a pre-filter and ventilated to inside of the chamber by induced draft fan/ advanced air channel system and vent out through suitable ducting. This airflow dries the painted plates as they pass through the chamber. Bidder/ Supplier can also consider electric coil heating arrangements to meet the paint drying requirements. The exhaust stack/ chimney provided for the discharge of clean air into the atmosphere shall be of minimum height of 25 Mtr from the ground level with sufficient supports.

Bidders please note that drying of painted plates by burning Gas, Kerosene or any other flammable products shall not be accepted by UCSL.

Details of induced & extraction fan, size of the drying chamber, drying time etc. shall be detailed in the offer.

D). Other Requirements:

Apart from the standard safety features & control accessories as per common norms and regulations, supplied by the OEM along with the machine required for satisfactory performance

of the system, the following also shall be ensured:

- a) The painting system shall be PLC controlled with VVVF drives and central control panel with indications (Preferably push button operated) for all machine functions and malfunctions.
- b) The control system will be such that one operator can control the whole process from control panel.
- c) Auto/Manual operation is required for the painting system.
- d) Emergency stop (Total 4 Nos.) on four sides of Painting machine and in control desk of painting machine.
- e) All doors shall be provided with electrical safety interlocks to prevent machine operation when open.
- f) Required cooling arrangement and panel door interlocks shall be provided for all panels.
- g) All required sensors for running control of machine shall be provided.
- h) Retrieval of plate through painting machine without painting shall be provided.
- Machine should have adequate and reliable safety interlocks/devices to avoid damage to the machine, work piece and the operator due to malfunctioning or mistakes. Machine functions should be continuously monitored and alarm/warning indications shall be generated.
- j) There shall be safety interlocks to stop the conveyor system and abrasive blasting machine when there is opening of entrance and exit door of the painting machine.
- k) The painting machine shall be synchronized with the conveyor movement and the start of spray gun. The same is intended to avoid premature start of painting.
- 1) The system shall have sensor to detect the plate arrival and be adjusted automatically to perform efficient painting operation considering the length, width & thickness of plate.
- m) All fault indications and reset provisions shall be provided in control desk of the machine.
- n) All electrical components connected with painting machinery and paint preparation room shall be of explosion proof design.
- o) System should be able to sense the width of the plate and paint should be sprayed only on the plate.
- p) Error indications/hooters shall be provided to detect the fault easily.
- q) Provision for adjustment of speed of reciprocator shall be provided in the control panel.
- r) The operation of the reciprocator shall be smooth and jerk free
- s) Additional electrical protection shall be provided to stop the movement of the reciprocator whenever there is overshoot to either side due to imbalance of the reciprocator or due to malfunction of the plate width sensors.
- t) Necessary overload, short circuit and single phasing protection shall be provided for motor.
- u) On and off provision for each gun, material scanning indications of sensors, reciprocator left and right operation switches, reciprocator speed adjustment switch, spraying cycle adjustment switch shall be provided in the control panel.
- v) Control panel for painting operation shall be mounted nearer to the painting machine so that operator can see the painting operation sitting in front of control panel.

w) The fault diagnostic system with required software and hardware installed on the PLC system should show detailed cause and remedy of the fault on the PLC system display with full diagnostics indicating the element/device causing the fault.

10. ELECTRICAL SPECIFICATION – GENERAL REQUIREMENTS

10.1 <u>Power Supply:</u>

- 10.2 The entire system containing conveyors, blasting machine, painting machine and drying chamber shall have provision to operate both in Automatic and manual modes.
- 10.3 Following requirements shall also be complied:
 - a) The scope includes supply, installation, testing and commissioning of the total electrical components and its connected system. This being a turnkey job shall include all the accessories required for the successful completion of the job and commissioning of the same as per all relevant rules and regulations and to the entire satisfaction of UCSL. If any change or modification is required to suit the operational and running requirements, the supplier at his cost shall do the same/
 - b) The supplier shall provide necessary control power supply / low voltage supply 110V & 24V system arrangements complete in all respects. UCSL will provide 3 phase and neutral (4 wires) 415 V (+/- 5%), 50Hz (+/-3%) incoming supply of the required current rating to the main incomer switch of blasting / painting system. All the outgoing circuits from these panels to machineries/ equipment's of Plate Preservation Line are to be arranged by the supplier.
 - c) Only system earth bus is available in the shop floor. Frame work of all equipment's of the system shall be double earthed to this safety earth bus bar. All electrics (motors, panels, sub-switches, etc.) shall be double earthed at two distinct points as per statutory requirement. Any separate earthing system needed for all the components and also for the micro process electric system for its faultless operation should be provided by the supplier at his own cost.
 - d) Suitable identification labels with engraved aluminium boards should be provided for all electrics. Danger boards of requisite size as prescribed by IS should be fixed on all electrics.
 - e) Identification tags engraved on aluminum plates/ plastic plates shall be provided on both ends of all cables.
 - f) Rubber mat of appropriate voltage class shall be placed in front of Switchboard/ Panel for width of 1 Mtr throughout the length conforming to IS-15652 and this shall be properly pasted such that the same should not be removed while opening the front/ rear door of the Switchboard/Panel. Danger Board Sign should be fitted on the electrical equipment's.
 - g) Being a turnkey job, all statutory requirements and their approval from concerned authorities, inter alia for the successful and satisfactory commissioning of the equipment are included in the scope of contract. Wiring shall be fitted into cable trays, according to length and position. Complete wiring, cable trunking, wiring material & accessories as well as connections and commissioning of the panel and equipment's for satisfactory performance is under the scope of supplier.
 - h) All the electrical works including cabling, earthing etc. shall be arranged by the supplier through a licensed electrical contractor having valid license to work in Karnataka State, India. After installation, completion report with relevant documents/ necessary drawings shall be submitted in the prescribed format duly signed by licensed electrical contractor to submit the same to the Central Electricity Authority (CEA). Prior to energization, the installation shall be got inspected and approved by CEA. If any modification or re-work is suggested by CEA for conformity with statutes/ IER,

etc. the supplier without extra cost shall do the same. Indian Electricity regulations shall be followed while designing and installing the electrics. Indian Electricity Act 2003 and Central Electricity Authority (Measures relating to Safety and Electric Supply) Regulations 2010 and subsequent amendments shall be downloaded from the website of Central Electricity Authority (<u>http://cea.nic.in</u>).

- i) Total KW required for operating the entire system and rating of main incomers of blasting machine and painting machine to which UCSL need to supply power shall be indicated in the offer.
- j) The pre-commissioning test of operational requirements, insulation measurement etc. shall be carried out. The workmanship and quality of work should be acceptable to UCSL Authority/ Officer-in-charge of the work.
- k) Any panel coolers, voltage stabilizers, UPS etc. of required capacity necessary for the satisfactory operation of control panels and other electric/ electronic system should be provided by the supplier. Any other items, which are required for the successful operation of the equipment even if not specifically mentioned, are to be provided by the supplier.
- 1) Necessary testing kits, instruments, meters, accessories, etc. for testing and proving various parameters and capabilities of machine should be arranged by the supplier. The above should have necessary accuracy and calibrated in an approved laboratory.
- m) All the motors of the Plate Preservation Line shall be of Energy efficient motors of minimum IE3 class.
- n) Test certificate of all motors, panels and drives shall be submitted along with the machine.
- o) Control system shall be of PLC based. PLC shall be supported with a proper HMI unit like panel view/ SCADA in order to read the parameter values/ system status, details of faults occurred, modify the parameters etc. The size of HMI unit shall be 24 inch.
- p) All relevant PLC software including system software and application program have to be provided to system.
- q) Interconnecting cable and system software are to be supplied for upload or download of programs to PLC and drives.
- r) Protection circuits like snubber circuits/ surge protection etc shall be provided at input supply for protection of electronic components of the system.
- s) Hard copies of system manual shall be supplied. PLC program as commissioned shall be provided in USB/ memory card.
- t) Licensed copies of all programs from OEM shall be handed over to UCSL in an accessible format/ device.
- u) All drives fitted shall be provided with detailed technical manual for parameterization and troubleshooting. Each drive has to be supported with suitable HMI for further troubleshooting and modification of data.
- v) All system control materials including PLC & Drives shall be of current version of respective manufacturers. VVVF drives and PLCs shall be from reputed single source manufacturer/ make of Allen Bradley/ ABB/ Siemens/ Schneider/ Mitsubishi/ Fuji.

- w) All sensors and actuators used in the system shall be UL/CSA/CE/ equivalent third party certified one. Supplier shall provide the details of standards considered for sensors and actuators.
- x) Suitable ingress protection shall be provided for control panel, field components, etc. All field components of control system/ Electrical cabinet shall be of minimum IP 55 grade. Protection for operator panels shall be IP 65. Control panel shall be of minimum IP 54 grade or more and wired properly with suitable ferrules and tags for intuitive trace ability with the relevant drawings. Proper documentation of the system shall be provided with sufficient information about components and parts identification (part number) list. Detailed/ Intuitive trouble shooting procedure has to be provided. Final wiring diagram shall incorporate all modification done during commissioning. HMI/ panels etc shall be positioned in such a convenient place to avoid dust accumulation/ entry of foreign particles. The size of HMI unit shall be 24 inch.
- y) Suitable protection shall be provided for control system in view of unstable power supply (frequent voltage/ frequency fluctuation and power failure).
- Proper training shall be given to UCSL personnel in the operation, trouble shooting, PLC integration, PLC ladder diagram, Drive parameterization, Drive trouble shooting etc.
- aa) The bidder prior to quoting may visit the site and examine in detail the existing facilities, connected systems etc. including location and layout of the proposed place, where the machineries will be installed.
- bb) Any clarification/doubt, technical or otherwise, regarding any of the items pertaining to the tender shall be obtained before quoting. If the bidder does not mention or indicate specifically any change/ exclusions/ deviations/ variations regarding any items/ accessories, it shall be construed that the offer is as per UCSL specification and requirement and proceeded accordingly.
- cc) Make of Electrical items shall be specified by the bidder:
 - 1) Motors:
 - 2) Electrical switch gears (Contactors, MCB, MCCB etc.):
 - 3) PLC & VVVF drives:
 - 4) HMI:

Supplier shall list out the make for all major equipment's in the offer and shall be of reputed make.

11. OPERATING PRESSURE REQUIRED FOR THE SYSTEM

Compressed air requirement for operation of the system should be listed in the offer. Breakup details of air consumption data of equipment shall be provided during detailed engineering. One (1) no. dedicated portable screw type air compressor (reputed make) of adequate capacity along with Drier & Air receiver tank, Piping & other accessories for the entire operation of machinery/ equipments of plate preservation line shall be under the scope of supplier. **Price for the same is deemed to be included in the cost quoted for the fully automated plate**

preservation line. Connecting pipe work between the compressor and the machineries are also to be done by the supplier.

12. <u>SPARES & CONSUMABLES</u>

- 13.1 The first fill of lubrication oil/ hydraulic oil shall be provided by the supplier at free of cost. Also filter cartridge and other such accessories are to be supplied free of cost. Any other spares/ consumables required for successful testing and commissioning of plate preservation line shall also be provided by the supplier except abrasives (steel abrasives).
- 13.2 The machinery manufacturer shall guarantee the availability of spares for a minimum period often (10) years even if the system becomes obsolete.
- 13.3 Spares & Consumables required for 2 years normal operation, post warranty period, shall also be offered along with the Fully Automated Plate Preservation Line. Individual price of the spares & consumables shall be mentioned in the offer separately. The prices of spares & consumables quoted shall be firm for a minimum period of Five (5) years.

13. AFTER SALES SERVICE

The facility of after sales service by the supplier to provide efficient service support to attend to any failure / service requirement of the equipment and accessories within short notices has to be provided. The spares shall be easily available in India and supplier should have Indian service provider who should be in a position to provide service as well as supply of spares immediately when required & local service provider details should be mentioned in offer.

14. <u>COUNTRY OF ORIGIN</u>

Country of origin of the offered machineries shall be indicated in the offer.

15. CIVIL FOUNDATION

- 15.1 Complete foundation design including details viz. static/ dynamic load details etc., pit size required for machineries and final layout drawings considering soil condition data at UCSL shall be submitted by the supplier within one month from the date of issue of purchase order. The layout should consist of all requirements pertaining to complete machine and its accessories.
- 15.2 UCSL shall construct complete foundation for machines as per the data furnished by the supplier. Foundation bolts, anchor bolts, leveling plates etc required for the machineries are to be arranged by the supplier. Special grouting procedure, if required shall also be mentioned by the supplier.
- 15.3 Detailed drawing showing dimensions of civil work, if required, for cable trenches for routing cables shall be informed. The same will be done by UCSL. All other works including supply of all materials for cable routing is under the scope of the supplier. Pit covers of any kind and hand rails or pit access ladders, if required shall be provided by UCSL as per the drawings of the supplier after erection of the machineries.
- 15.4 Soil data in UCSL: The undisturbed soil on surface will take around 5 ton/sq. meter and reduces to 1 ton/sq. meter at three-meter depth. However, Supplier shall obtain the details of soil data by testing from UCSL premises for foundation design.

16. ERECTION, TESTING AND COMMISSIONING

- 16.1 The equipment shall be satisfactory erected, tested and commissioned at U C S L. The supplier shall arrange the required manpower for shifting of supplied, items from store to site location, installation, erection, testing and commissioning of Fully Automated Plate Preservation Line for Shipyard Applications at UCSL Tools, tackles, instruments and other necessary equipment / tools required for erection & commissioning activities should be arranged and brought by the supplier. Schedule of erection & commissioning shall be submitted with the offer.
- 16.2 Gas, Electric power, Water and Compressed Air will be supplied free of charge from the nearest outlet points. Arrangements are to be made by the supplier / contractor to tap it from these outlets.
- 16.3 Handling equipment's like Mobile Crane of 10T, for installation of the equipment along with operator will be provided by UCSL free of cost, subject to availability without any prejudice to the other terms and conditions. In case of non-availability of the above, supplier/ contractor shall make alternate arrangements to address the same. UCSL will extend crane and transport facilities for assembly & erection of equipment, subject to availability. However, non-availability of such facilities should not be construed as a reason for delay in project completion.
- 16.4 Machine weight (unit wise break up details) shall be detailed in the offer.

17. COMPLIANCE OF SAFETY RULES AND OTHER STATUTES

The supplier / contractor shall abide all the Safety Rules and Practices and Labor Rules applicable for erection of the machineries at UCSL site such as contract labour regulation and abolition act 1970, employee's compensation act, ESI/PF act, minimum wages act, payment of gratuity act, CEA regulations, Electricity Act etc, and any other statutory requirements as applicable along with its any other updated stipulations prevailing in India and bidder /Contractor shall take notice that UCSL is no way liable or responsible for any violation and bidder /contractor shall be taken by the contractor to settle any violation or even a slippage at their own cost and risk.

18. TRAINING FOR OPERATION AND MAINTENANCE PERSONNEL

The supplier shall impart training for Seven (7) days on the operation and maintenance aspects to at least Ten (10) UCSL personnel during the period of testing and commissioning of the equipment in UCSL at free of cost.

Supplier shall supply One (1) No. Laptop of Industry type (rugged one) stored with all programs/ parameters/ software for maintenance purpose.

19. EQUIPMENT FAMILIARIZATION

On completion of trial run and satisfactorily testing & commissioning of the equipment, the supplier has to depute competent person for minimum of **One (1) month** to monitor independent operation of the machine by UCSL personnel, free of cost.

20. ITEMS EXCLUDED FROM THE CONTRACT

- 21.1 Concrete foundation work of the equipment and its accessories (Also, please refer clause # 15.2 above).
- 21.2 Construction work of the trenches on the floor for electrical wiring and piping (Also, please refer clause# 15.3 above).
- 21.3 Construction of paint preparation/ mixing room (Also, please refer clause # 9.3, B above).
- 21.4 Steel plates, abrasive (steel abrasive), primer paint and solvent for testing of the equipment.

21. DEVIATIONS

A clause wise compliance matrix is to be submitted along with the offer. Any deviation from technical specification given above or the conditions laid down should be clearly specified under "List of Deviations". The advantages of the deviations, if any, may also be stated in detail for consideration and acceptance. All other will be presumed to have been accepted by the bidder.

22. <u>TECHNICAL CHECKLIST</u>

The Technical Check List enclosed shall be completely filled in and submitted with the offer, without which the offer is liable to be rejected.

TECHNICAL CHECKLIST

SUBMITTED BY THE TENDERER ALONGWITH THE OFFER FOR FULLY AUTOMATED PLATE PRESERVATION LINE FOR SHIPYARD APPLICATIONS

(CONSISTS OF SHOT BLASTING MACHINE, PAINTING MACHINE, DRYING CHAMBER & CONVEYOR SYSTEMS FOR PRE-TREATMENT OF STEEL PLATES)

SI. No.	Requirement as per UCSL Specification	Compliance	Remarks
1	Shot blasting, Painting machine, Drier unit along with conveyors & complete set of accessories and supply, erection, testing and commissioning at UCSL as per scope of work detailed in technical specification.	Yes/No	
2	The offered equipment confirms to Clause # 9 of technical specification.	Yes/No	
3	Equipment shall confirm to the additional Electrical requirements as per clause # 10 of technical specification	Yes/No	
4	Electrical System offered shall be suitable for operation on 415 V, 3 Phase, 50 Hz as per technical specification	Yes/No	
5	Delivery schedule of the system as per Clause # 7 of technical specification.	Yes/No	
6	Spares & Consumables offered as per Clause # 12 of technical specification.	Yes/No	
7	After Sales Service facility available locally as per Clause # 13 of technical specification.	Yes/No	
8	Warranty offered as per Clause# 4 of technical Specification	Yes/No	
9	Supply of documents as per Clause # 5 of technical specification	Yes/No	
10	Meeting of Eligibility Criteria "General" as per clause # 3.1 of technical specification	Yes/No	
11	Meeting of Eligibility Criteria "Technical Experience" as per clause # 3.2 of technical specification	Yes/No	
12	Meeting of Eligibility Criteria "Financial Capability" as per clause # 3.3 of technical specification	Yes/No	

13	Operating pressure required for the system as per clause # 11 of technical specification	Yes/No
14	Training of operation & maintenance Personnel as per clause # 18 of technical specification.	Yes/No
15	Equipment Familiarization as per clause# 19 of technical specification	Yes/No
16	Facility provided for erection, testing & commissioning of system at UCSL as per clause # 16 of technical specification	Yes/No
17	Compliance of Safety Rules & other Statues as per clause # 17 of technical specification	Yes/No
18	Submission of Civil foundation details as per clause # 15 of technical specification	Yes/No
19	Submission of Performance certificate as per clause# 3.2 (b) of technical specification	Yes/No

It is mandatory to fill up the check list and submit along with the technical part, without which the offer is liable to rejected.

SIGNATURE WITH DATE & SEAL OF THE TENDERER

Form 1

FINANCIAL CAPABILITY

Sl. No.	Financial Year	Annual Revenue/ Turnover	Networth as at the end of the financial year
1	2020-21		
2	2021-22		
3	2022-23		

Signature of the authorized representative of Tenderer

Date:

(Company Seal)

<u>Certificate from the Statutory Auditors</u>

This is to certify that ______ (name of the Tenderer's) has been received the payments shown above in the respective years and that the Networth is as computed.

Name of Statutory Auditors:

Designation:

Name of the Audit firm:

(Signature of the Authorized Signatory Auditors) (Seal of Audit Firm)

Form 2

EXPERIENCE: RELEVANT PROJECTS COMPLETED

Please fill in information about the relevant projects completed in the last Ten (10) years, as on the date of publishing this tender, to meet Eligibility Criteria.

S1. Name of the Project Completion Start date & Remarks Details of No. Client Description period of the Commissioning including reason documentary Main Technical for delay in project as per Date of the evidence Particulars of Plate the contract completing the provided project Preservation Line project, if so 1 2 3

Name of the Supplier

We hereby solemnly confirm and certify that the above information is true as per audited records of our organization and liable to furnish any additional information if UCSL demands.

Signature of the authorized representative of Tenderer

Name:

Designation:

(Company Seal)

Place:

Date:

PRESENT ORDER BOOK POSITION

Please provide information about all projects in progress, including those where the company has received a letter of intent, but a formal contract is not awarded.

The below details would not be considered for Eligibility Criteria evaluation. This is for information only.

Name of the Supplier

Sl. No	Name of the Client	Plate Preservation Line Details	Scheduled date of
1			
2			
3			

We hereby solemnly confirm and certify that the above information is true as per audited records of our organization and liable to furnish any additional information if UCSL demands.

(Signature of the Authorized Representative) (Name and designation of the Authorized Representative)

Place:

(Company Seal)

Date:

FORM No. 40 (Prescribed under Rule 122)

TEST REPORTDUST EXTRACTION SYSTEM

- 1. Description of system :
- 2. Hood:
 - a) Serial No. of hood
 - b) Contaminant captured
 - c) Capture velocities at points to be specified Design value Actual value

- d) Volume exhausted at hood
- e) Hood static pressure
- 3. Total pressure drop at :
 - a) Joints
 - b) Other points of system(to be specified)
- 4. Transport velocity in duct(at points along ducts to be specified)
- 5. Air cleaning device
 - a) Type used
 - b) Velocity at inlet
 - c) Static pressure at inlet
 - d) Velocity at outlet
 - e) Static pressure at outlet
- 6. Fan
 - a) Type used
 - b) Volume handled
 - c) Static pressure
 - d) Pressure drop at out let of fan
- 7. Fan Motor
 - a) Type
 - b) Speed and horse power
- 8. Particulars of defects, if any, disclosed during test In any of the above components.

I Certify that on thisday of the above dust extraction system was thoroughly cleaned and (so far as its constructions permits) made accessible for through examination. I further certify that on the said date. I thoroughly examined the above dust extraction system including its components and fittings and that the above is true report of my examination.

If employed by a Company or Association, give name & address:

Annexure 02/A GENERAL TERMS AND CONDITIONS

SL NO	Description	Compliance by Supplier (YES/NO) In case of noncompliance, please provide remarks.
1	Tenderers are to carefully go through the terms and conditions and the technical specification of the items for which offers are called for. Tenderers have to adhere to above and supply full technical scope of items along with compliance of commercial conditions. UCSL have full right upon deviations, if any, including rejecting the partial scope/ complied offers.	
2	Offers are to be furnished in duplicate and should be free from overwriting. Corrections and additions, if any, must be attested. In the case of E-tender offers shall be submitted only through UCSL E procurement portal. Incomplete/ambiguous/conditional offers are likely to be rejected.	
3	Technical checklist, if applicable and current general terms & conditions of enquiry duly filled and signed and technical specifications of items offered (refer clause 5), should be submitted along with part-1 techno-commercial bid in the case of two- bid tenders and along with the bid documents in the case of single bid. Non receipt of the document may lead to rejection of offers. In the case of E tender filling up of GTC check list in the portal itself is sufficient.	
	 Spare/Tool requirements to be confirmed, if applicable i) Spare parts shall be furnished in accordance with the Class recommendations and manufacturers standard ii) The same shall be included in offered costs and shall be a part of L1 evaluation. 	
4	Following Certificates/documents is to be submitted for the item in the event of an order:	
5	 SPECIFICATIONS:- a) Manufacturer's name, their trade mark and brand, if any, should invariably be mentioned and illustrative leaflets giving technical particulars (technical details of items offered including technical literature) etc., should be attached to the offer. b) Materials offered shall conform to UCSL specifications and drawings. c) Samples are to be supplied free of cost in the event of requirement by UCSL. 	
	The detailed working drawing, if called for, is also to be furnished for approval before commencement of manufacture.	
6	Packing materials should be eco friendly.	
0	Supplier should follow the statutory requirements of product offered.	
8	materials, Materials Safety Data Sheet may be furnished along with the material.	
9	 COMMISSIONING/ SERVICE ASSISTANCE:- Necessary service assistance and commissioning assistance, shall be provided for the plate preservation line. Service engineer assistance for required days irrespective of number of engineers in necessary trips for the installation and commissioning is to be included in scope and costs. b) Cost considered to include travel tickets, lodging and local transport costs. 	

	c) Additional manday rates to be indicated separately (all inclusive of cost for	
	lodging and local transport etc.) for extension beyond agreed mandays. Additional	
	mandays only applicable after completion of 30 days for the plate preservation line.	
	d) Whether the applicable taxes in India shall be borne by UCSL/Supplier (In the	
	case of foreign vendors)	
	e) Income tax liability of non resident service engineer based on his period of stay	
	in India shall not be borne by UCSL	
	f). The non resident vendor/service provider shall provide such documents that	
	are necessitated by the Indian income tax laws so as to enable UCSL to comply	
	with the provisions of Indian statute and for payments of income tax in India.	
	Following documents shall be sought by UCSL in this regard	
	(i) Certificate under 10 (F)	
	(ii) Tax residency certificate	
	(iii) The certification regarding the existence/non existence of business	
	connection or permanent establishment in India.	
	(The above is only an indicative list)	
10	Taxes and duties, if any, payable extra are to be indicated in the price part for	
	single bid and in techno commercial part and price part (in the case of 2 bid	
	tender).	
11	MSEs, Startups and Make in India	
	a) Local Suppliers (Make In India), MSME firms and Startups will be eligible for	
	various Relaxations in pre-qualification criteria and other Benefits as per the	
	orders promulgated by Government of India. Bidders are advised to refer the	
	details of various Benefits and Relaxation in pre-qualification criteria as	
	published at CSL website (www.cochinshipyard.in) under the Tenders tab for	
	further reference.	
12	Delivery Period:	
	a. Delivery time required for supplies should be indicated in the offer (including	
	time frame for drawing preparation, class approvals, manufacture etc.) Please note,	
	required date at UCSL are as follows:	
	b. The supplier shall submit all the drawings for approval from UCSL within 15 days from	
	the date of PO and UCSL has forward the drawing approval within 15 days thereafter.	
	Material required date at UCSL is within 3 months from the date of PO and	
	approved drawings and installation to be completed within 1 month of supply and site clearnee	
13	Suppry and she clearnee. SHIPMENT	
15	a Supplier shall intimate UCSL the readiness of the Equipment/ Machinery/	
	Components and Parts prior to fourteen days of shipment	
	b A minimum 14 days free detention period is to be granted for clearance of the	
	acode at Mangalore/Mumbai/Chennai seaport as applicable for full containers	
14	DAVMENT TEDMS .	
14	<u>IAIWENT IENVIS:</u>	
	a. For equipment 5 with commissioning	
	UCSL payment term is 90% along with 100% applicable taxes within 30 days from	
	the date of receipt and acceptance of items at UCSL stores after inspection for the	
	supply of materials and balance 10% along with the installation and commissioning	
	charges after satisfactory completion of commissioning certified by UCSL.	

		b. For general items	
		UCSL payment term is 100% within 30 days of receipt and acceptance of	
materials at UCS		materials at UCSL stores after inspection.	
		c) Payment mode shall be Electronic Clearing System (ECS)/cheque /NEFT/ /LC/CAD/TT-as mutually agreed in line with above standard payment terms. Variations from standard terms, if any, shall be appropriately loaded for tender comparison purposes for arriving the lowest bid. Bank charges (including LC charges, if any) inside India will be to UCSL account and outside India to supplier's account (In the case of import shipments). The charges for LC amendment, if any, shall be borne by the parties by whom the same is attributed/ necessitated.	
		d) Normally advance payments are not encouraged. In case, if advance payment is sought, the same can be considered for a maximum of 10% order value only. Interest at the base rate of SBI {applicable on the date of price bid opening} + 1% for the amount of advance will be charged. In addition, Bank guarantee for equivalent amount of advance to cover the period till advance payment is adjusted to be furnished. (i.e till completion of supplies or for a period as specifically agreed + 90 days). In case interest as above is not agreeable to be paid, the same will be loaded on your quoted basic prices, for tender comparison purposes for arriving the lowest bid	
		e) For deviation in Payments terms from UCSL standard terms, if any, aforesaid interest will be loaded on quoted item prices, for tender comparison purposes for arriving lowest bid.	
		f) Part payment shall be considered only if specifically agreed against partial supplies.	
	15	Earnest Money Deposit: The amount of Earnest Money Deposit (EMD) shall be Rs. 1,00,000.00 in the form of Demand Draft/Bankers Cheque, Fixed Deposit Receipt/Bank Guarantee in favor of Udupi Cochin Shipyard Limited, payable at Cochin from Nationalized Banks with minimum 3 months validity.	
		Bids submitted without EMD will be rejected. The EMD can be remitted either in the form of DD/Bankers Cheque /FDR drawn/ NSC in favor of Udupi Cochin Shipyard Limited (with a minimum validity of 3 months from the date of tender opening). Cheques are not acceptable. No interest shall be paid for the EMD and shall be returned on the contract is places one the successful bidder.	
		a.i) The successful bidder shall remit a security deposit of 5% of the total order value (excluding taxes, duties) in the form of demand draft drawn in favor of Udupi Cochin Shipyard Ltd towards the satisfactory performance of the contract, if an order is placed on them. Alternatively, a Bank Guarantee equivalent to above % of the total order value (excluding taxes, duties) as per UCSL format from an International Bank as per approved list of banks available in CSL website (for overseas supplier) & Scheduled Indian bank for Indian supplier is to be submitted, if an order is placed towards satisfactory performance of the contract. a.ii) The supplier shall also agree for 5% of total order value (excluding taxes and duties) as Bank guarantee towards the Guarantee clause a.iii) The Bank Guarantee /DD as above should be initially valid till 90 days after completion of supplies in terms of SD and later revalidated (within the validity of initial BG) to cover the guarantee period mutually agreed plus 90 days. However, in the case of items where WBG is not applicable (as in 15.a.ii), the SD shall be valid for item delivery at vard plus 90 days. Fixed Deposit Receipt (for equivalent	
		amount of Security Deposit/WBG required as per tender) in lieu of bank guarantee is also acceptable. Fixed Deposit Receipt shall be in the name of supplier with lien	

	 marked in favor of Udupi Cochin Shipyard Limited, Kochi. a.iv) The above SD/WBG is required or applicable only when the total order value (excluding taxes and duties) is Rs.20lakhs and above (or equivalent foreign currency). In case supplier have quoted Rs.20 lakhs and above in tender and indicated that BG as not applicable in the check list, the clause 15b shall be considered for further process. 	
	 b) If the bidder is not agreeable to submission of SD/ warrantee bank guarantee as per UCSL general terms and conditions of enquiry, UCSL reserves the right to reject the offer at our discretion or 5% of total order value (excluding taxes and duties) will be added to the quoted price for tender comparison/ evaluation purpose on case to case basis for arriving the lowest bid. However, in cases where total quoted value is less than 20 lakhs, (ie split order etc) and the order value of entire tendered items is more than Rs 20.0 lakhs, the aforesaid loading will be applied on individual items in following cases. The bidder has not quoted for entire tendered quantity UCSL has technically / commercially rejected a few items in the tender c) SD to be submitted within 2 weeks of receipt of order from yard. 	
	 e) Mode of receipt of bank guarantee is strictly through SWIFT mode from supplier bank to UCSL designated bank (for overseas bidders) 	
17	Risk Purchase: If the supplier fails to supply the items ordered in good quality as per contract specification and fails to deliver within the delivery date or violate any of the terms and conditions of the purchase order, UCSL shall have the following rights.	
	a. To cancel the order partially or fully with 15 days, notice and to forfeit the security deposit if any	
	b. To impose tender holiday for the vendor for an appropriate period as decided by UCSL	
	c. To initiate alternate procurement action at the risk and cost of the supplier. This Risk Purchase clause is applicable only in the case of total order/ contract value (excluding taxes and duties) is Rs.20 lakhs and above (or equivalent foreign currency). Cases of value less than 20 lakhs will be addressed by serving appropriate caution/ warning notice to the firm.	
18	Liquidated Damage: In case of delay in supply of ordered materials beyond the stipulated delivery period, which is not attributable to UCSL, supplier is to pay Liquidated Damages (and not by way of penalty) a sum equivalent to ½% (half percent) per week or part of the week of the total basic price in case of Machinery/Equipment and of basic price of materials delayed-in all other cases, subject to a maximum of 10% of the total basic price of undelivered material/10% of total basic price of machinery/equipment (Total basic price is the order value excluding freight, taxes, other charges etc.). Further, GST will be applicable upon LD and the same also will be deducted along with LD. However, LD applicability is without prejudice to UCSL right to terminate contract for delayed delivery or other actions as per clause 16.	
19	 <u>Warrantee</u> a) The manufacturer shall warrant the equipment / accessories (except wear and tear parts and consumables) against damage or failure due to defects in design, material, performance and/ or workmanship for Twenty Four (24) months from the date of commissioning & final acceptance by UCSL or Thirty (30) months from the date of supply of Plate Preservation Line in complete with all equipments/ accessories at UCSL, whichever is earlier. Should such damage or failure occur within that period, the manufacturer shall replace or 	

	repair the defective parts at his cost and responsibility and has to ensure the	
	performance of the system to the same status of "as commissioned".	
	performance of the system to the same status of "as commissioned."	
	b) Further to aquinment guarantee, replaced/repaired items shall be guaranteed for	
	12 months from dots of ransir/ranlacement	
20	Jurisdiction:	
	All questions, disputes or difference arising under, out of, or in connection with	
	contracts shall be subject to the exclusive jurisdiction of the Courts at Bangalore,	
	India. Alternate dispute resolution mechanism can also be considered.	
21	Force Majeure condition:	
	Should failure in performance of the contract or part thereof arise from war	
	insurrection, restrain imposed by Government, Act of Legislature or other	
	Statutory Authority or illegal strike, riot, legal lock-out, flood, fire, explosion, act	
	of God or any inevitable or unforeseen event beyond human control which may be	
	construed as reasonable ground for an extension of time, UCSL may allow such	
	additional time as is mutually agreed, to be justified by the circumstances of the	
	case. The occurrence/cessation of force majeure situation is to be informed with	
	documentary evidence within 15 days from the date of occurrence/ cessation.	
22	Indian Agent:	
	a) Udupi Cochin Shipvard Ltd prefers to deal directly with the supplier. However,	
	if the supplier appoints an Indian Agent to deal with Udupi Cochin Shipvard Ltd.	
	the Agency commission payable by the supplier to such an agency shall be	
	intimated.	
	b) If manufacturers affect the supply through Agents only, authorization in writing	
	from manufacturers in favor of the Agent for supply to UCSL shall be furnished.	
	c) In case where an Agent participates a tender on behalf of a Foreign manufacturer	
	Indian agent should submit specific authorization from the authorized person of	
	foreign manufacturer	
	d) In a tender, either the Indian agent on behalf of the Principal/ OFM or	
	Principal/OFM itself can bid but both cannot bid simultaneously for the same item/	
	product in the same tender. If an agent submits hid on behalf of principal/OFM	
	the same agent shall not submit a hid on behalf of another principal/OEM in the	
	same tender for the same item/product. Indian agents cannot represent more than	
	one firm or quote on their behalf for any particular tender	
	e) Clarifications either technical or commercial should be submitted to points	
	specially asked for only. The opportunity so given should not be used for	
	correcting/changing/amending the data/conditions already submitted with the	
	tender	
23	PRICING: a. Overseas firms should quote prices both on FOB and C&F Chennai	
	Seaport terms. Indigenous bidders should quote prices for delivery of materials at	
	UCSL stores. Insurance shall be to UCSL scope. In the case of E tender C&F price	
	shall be quoted and the freight charges shall be indicated separately under header	
	conditions as per the provision in the CSL e-tender portal.	
	b. Exchange rate variation will not be applicable and the prices shall be fixed for	
	an order within validity period in the case of indigenous orders.	
	c. Offer to be submitted in INR Currency only	
	d. Comparison of prices will be in INR only. All foreign currencies will be	
	converted to INK for comparison and Exchange rate as on date of price bid opening	

	shall be considered for arriving lowest bid	
	e. Prices should be valid for acceptance for a period of four months from the date of tender opening.	
	f. No enhancement of rate for whatsoever cause will be allowed once the offer is accepted and an order is placed. Withdrawal of the quotation after it is accepted or failure to make the supply within the stipulated delivery period, will entail cancellation of the order and forfeiture of Earnest Money Deposit/Security deposit, if any and/or risk purchase, without prejudice to other penal actions, including tender holiday after serving show cause notices, as deemed fit.	
	g. Conditional discounts, if any, will not be reckoned for tender evaluation/ comparison purpose. However, if the bidder becomes L1 at original offer, conditional discount shall also be considered.	
	h. Unpriced bid (price bid without price) duly signed is to be submitted along with techno-commercial offer in the price format, provided. Price should be quoted separately for each item shown in the format. In the event price bid is different from the unpriced format already submitted, yard reserves the right to reject the offer at our discretion without any further discussions. Details of optional items, if any, should be indicated under separate heading in the Techno commercial bid and the respective price details should also be given in the price bid. Combining of figures against more than one item and ambiguous clauses will lead to rejection of the bid.	
	i. If, in the price structure quoted for the required material/ item, there is discrepancy between the unit price and the total price (which is obtained by multiplying the unit price by the quantity), the unit price shall prevail and the total price corrected accordingly. If there is an error in a total corresponding to the addition or subtraction of subtotals, the subtotals shall prevail and the total shall be corrected. If there is a discrepancy between words and figures, amount in words of respective figures shall prevail. If the bidder does not agree to the observation of the CSL, the tender is liable to be rejected and the same shall be intimated.	
	j. After submission of quotation/price offer no unsolicited correspondence will be entertained.	
	k. Udupi Cochin Shipyard Limited does not bind itself to accept the lowest or any tender but reserves to itself the right to reject any or all or a part of any tender at its discretion.	
	1. UCSL reserves the right to place order to the techno-commercially qualified lowest bidder in full or individual items to the respective lowest bidders in the tender (except in cases where basis of L1 arrival is declared specifically in enquiry). Also please refer loading applicable for split order of value less than 20 lakhs (Clause 15 b)	
	m. In the case of part quantity order, the quoted freight charges applicable for the entire quantity as per enquiry shall be apportioned and allocated.	
	L1 computation shall be based on total cost of all items, including cost of spares as per tender & Class/certification charges, if any required (excluding GST/IGST). For all import consignments directly imported in CSL's name/or on High Seas Sale agreement, customs duty is not applicable at import clearance. Customs clearance at Chennai port and transport till UCSL stores shall be to UCSL account.	
24	<u>Integrity Pact:</u> As per Government of India (Central Vigilance Department), UCSL and the SUPPLIER have to sign an Integrity Pact for the high value contracts, for ensuring transparency, equity and competitiveness in public procurement. The Tenderer has to sign Pre-Contract Integrity Pact as per format enclosed and to submit along with	

	your offer. The above is applicable when the total basic price is above Rs. 100.0 lakhs. (present limit)	
25	Grievance Redressal Committee: As an alternate dispute redressal or reconciliation mechanism (other than arbitration clause), Cochin Shipyard has constituted Grievance Redressal Committee. Currently following executives of the committee may be contacted for the settlement of disputes, if any, arising out of all contracts. a) Mrs. Anjana KR, GM (Design) b) Mr.Subramanian K K, Deputy General Manager (HR) c) Mr. Shibu John, Deputy General Manager (Finance)	
26	SUB CONTRACTING AND ASSIGNMENT Supplier shall not contract with any subcontractor and/or vendor without the prior written consent of UCSL. Such consent shall not relieve the Supplier from any of his responsibilities and liabilities under the Purchase Order. In addition, Supplier shall ensure that the terms and conditions of any such contract shall comply with and correspond to the terms and conditions of the Purchase Order.	
27	General: a. Prior to price bid opening, UCSL is at liberty to take the credit rating of bidders at our cost on case to case basis, and to include the same during the evaluation of the tender.	
	b. Deviations, if any in the techno-commercial offer from that of the tender enquiry in any form should be clearly furnished in a separate document titled as "List of Deviations", failing which it will be presumed that all the terms and conditions are acceptable.	
	c. The techno-commercial part alone will be opened initially on the due date of tender. The price part will be opened only after evaluation of the Techno commercial part. Date of opening of the price part will be intimated to those firms whose Techno- commercial bids would be acceptable after the evaluation. Suppliers are allowed to depute their authorized representative to be present at the time of opening of Price Bid of their tender only. In case of E-Tender, suppliers shall not depute their representative to CSL. However techno-commercially qualified supplier can view the price details in CSL E-procurement portal after opening the price bid	
28	P.O :- a. In the event supplier's offer leads to an agreement to effect supplies, a formal purchase order shall be issued by UCSL on the basis of agreed terms and conditions of tender.	
	b. Upon placement of order (by post or mail) the supplier shall submit the acknowledgement (ie: signed and stamped original/ scanned soft copy by mail) as a token of acceptance of order within 15 days. In case UCSL doesn't receive the above, it will be deemed as accepted.	
29	SUPPLY : - a) UCSL reserve the right to inspect the goods after receipt at UCSL store / prior to dispatch (by UCSL or UCSL authorized agency at yard cost). Short supply / Mismatch / Replacement of Defective items / those not meeting agreed / contractual specification/ Items failing during commissioning shall be sent on air freight/ DDP basis courier freight prepaid/delivered at UCSL store. The customs clearance charges of above shall be to supplier account.	
	b) Replacements during guarantee period to be sent on Duty and all taxes paid basis to location as required by yard/vessel owner with all expenses to supplier account.	

	c) Defective items, if any, after receipt shall be sent back on cost, carriage, handling and insurance prepaid basis including re-export (wherever desired by supplier) to be arranged by supplier. Defective items shall be returned after receipt of replacement item. Supplier shall replace all/ part of items as applicable, in case of rejection, within 4 weeks of reporting the defect, without any additional cost to UCSL. In case the defective materials are not taken back within the said period, UCSL reserves the right to dispose the same without further intimation.	
	d) The supplier shall compensate UCSL for loss on account of shortage in quantity and number of pieces received than that indicated in the bill of lading provided the UCSL's claim is rejected by the insurance due to any fault of supplier. Such claims, if any, shall be supported by recognized surveyors report. The supplier shall also compensate for losses, if any sustained by the UCSL due to defective packing and/or marking of the goods not in accordance with the terms of contract. The time limits for filing claims under clauses above shall be generally 180 days from the date of complete discharge of goods.	
30	UCSL reserves the right to alter, modify the scope of supply at its discretion and in consistent with the policy of the Government of India and statutory bodies under them as applicable to the contract from time to time.	
31	UCSL shall, at its own discretion and costs opt for obtaining credit information report on supplier's financial credentials through credit rating firms. The same shall also be considered as criteria for commercial evaluation. In the event supplier's credit rating is not at least satisfactory, offer will be summarily rejected.	
32	Public procurement policy as per order No. D.O. No. P-45021/2/2017-PP (BE-II) (E-1588) by Department for promotion of Industry and Internal Trade Ministry of Commerce & Industry is applicable for this tender	
33	UCSL reserves the right to commercially reject the offer if compliance is not issued to terms at Sl. No.14, 15, 16, 17 & 18 without any further clarification / notice / communication in this regard from M/s. Udupi Cochin Shipyard Ltd., even though the offer is technically acceptable.	
34	UCSL has an option of receiving two more similar projects within 15th July 2021 and upon exercise of this option by owner yard will confirm the same quantity of item to supplier within 15th July 2021 or earlier. Therefore the price offer shall consist the prices for current projects as well as the discounted prices applicable for these optional projects with validity to confirm the order till 15th July 2021. However the L1 determination shall be purely based on current confirmed quantity	
Restri Procu	ction of bidders sharing land border with India vide Office memorandum dt 23.7.20 rement no 1 dt 23.7.2020, Order no 2 dt 23.7.2020 and Order no 3 dt 24.7.2020	20 Order - Public
35.A	Requirement of registration	
1	Any bidder from a country which shares a land border with India will be eligible to bid in this tender only if the bidder is registered with competent authority as per C below. In works contracts, including turkey contracts, contractors shall not be allowed to sub contract works to any contractor from a country which shares a land border with India unless such contractor is registered with Competent authority	
	Relevant certificate to be submitted by bidder from a country which shares land border with India except for bidders to which Govt of India has extended lines of Credit or in which Govt of India has development projects, along with the offer as proof of registration with competent authority, failing which the offer will not be considered. A certificate is to be submitted by the bidder for compliance with the	
	order referred above along with tender documents for consideration of offer (Wordings are as per Clause below). If such certificate given by a bidder whose bid is accepted is found to be false, this would be a ground for immediate termination and further legal action in accordance with law.	

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2	Wordings of certificate to be submitted along with tender documents for Works involving possibility of sub contracting	
	I have read the clause regarding restrictions on procurement from a hidder of a	
	I have read the clause regarding restrictions on productment from a block of a	
	country which shares a faid border with findra and on sub contracting to contractors	
	from such countries. I certify that this bidder is not from such a country or if from	
	such a country has been registered with the competent authority and will not	
	subcontract any work to a contractor from such countries unless such contractor is	
	registered with the competent authority. I hereby certify that this bidder fulfils all	
	requirements in this regard and is eligible to be considered(Evidence of valid	
	registration by the competent authority shall be attached wherever applicable)	
В	Validity of registration	
1	Registration should be valid at the time of submission of bids and at the time of	
	acceptance of bids. In respect of supply otherwise than by tender, registration	
	should be valid at the time of placement of order. If the bidder is validly registered	
	at the time of acceptance /order placement, registration shall not be a relevant	
	consideration during contract execution.	
С	Competent authority and Procedure for registration	
1	The competent authority for the purpose of registration under the order shall be	
	Registration committee constituted by the Department of Promotion of Industry	
	and Internal Trade (DPIIT). Details of the committee and procedure for registration	
	and restrictions shall be as per Ann I of the Order - Public Procurement no 1 dt	
	23.7.2020 issued by Ministry of Finance, department of Expenditure.	
D	Definition of Bidder and Bidder from a country sharing land border with India	
1	Bidder is defined as any person or firm or company including any member of a	
1	consortium or joint venture, every artificial juridical person not falling in any of	
	the descriptions of bidders stated hereinhefore including any agency branch or	
	office controlled by such person, participating in a productment process	
2	"Didden from a country which change a land horder with India" for the numerose of	
2	bluder from a country which shares a fand border with findra for the purpose of this Order means:	
	a) An antity incorporated actablished or registered in such a country; or	
	a) All entity incorporated, established or registered in such a country, of	
	b) A subsidiary of an entity incorporated, established of registered in such a	
	c) An entity substantially controlled through entities incorporated, established or	
	registered in such a country; or	
	d) An entity whose beneficial owner is situated in such a country; or	
	e) An Indian (or other) agent of such an entity; or	
	f) A natural person who is a citizen of such a country; or	
	g) A constitution or joint venture where any member of the consortium or joint	
	venture falls under any of the above.	
3	Type of business entity	
	(Private Limited Company/ Public Limited Company/ Sole Proprietorship/ One	
	Person Company/ Partnership/ Limited Liability Partnership/ Joint Venture/	
	Trust/ NGO)	
	In case of incorporated entity - to attach certificate of incorporation	
	Beneficial Owners - as defined in the Department of Expenditure Order (Public	
	Procurement No.1) issued vide No. F.No.6/18/2019-PPD dated 23rd July, 2020.	
	Details of all beneficial owners having entitlement of more than 01% of shares or	
	capital or profit to be given, in the format as given in Annexure-I duly certified	
	by practicing Chartered Account in India.	
	Preference to Make in India	
	Purchase preference in accordance with Public procurement (Preference to Make	
	in India Order - 2017) Order from Department of Promotion of Industry and	
	Internal Trade P - 45021 /2/2017/- B.E -II dt ,4.6.2020 and as amended from time	
	to time shall be applicable as per below	

	In the procurement of all goods/services/works in respect of which there is sufficient local capacity/local competition, only Class I Local suppliers shall be eligible to bid irrespective of purchase value	
	In the procurement of all goods/services /works which are not covered as above and with estimated value of purchase less than Rs 200.0 Crores, only Class I local suppliers along with Class II local suppliers shall be eligible to bid.	
	Purchase preferences for Class I local suppliers	
36	In the procurement of goods/works covered under 2 above and which are divisible in nature, Class I local supplier shall be eligible for Purchase preference over Class II/Non local supplier as per following	
	If L1 bid is not a Class I local supplier, 50% of the order quantity shall be awarded to L1. Thereafter the lowest bidder among Class I local supplier will be invited to match the L1 price for the remaining 50% quantity subject to Class I local supplier quoted price falling within 20% margin. Contract for that quantity shall be awarded to such Class I local supplier subject to matching L1 price. In case such lowest eligible Class I local supplier fails to match L1 price or accept less than offered quantity, next higher Class I local supplier within 20% margin shall be invited to match the L1 price for the remaining qty and so on. If some quantity is left uncovered on Class I local supplier, such balance quantity shall be ordered on L1	
	bidder.For procurements that are not divisible in nature and in procurement of services evaluated on price alone, Class I local supplier shall get purchase preference over Class II/Non local supplier as per below	
	If L1 is not a Class I local supplier, lowest bidder among Class I local supplier will be invited to match L1 price subject to Class I local supplier quoted price falling within 20% of L1 price and contract will be awarded to such Class I local supplier, subject to matching L1 price. In case such lowest eligible Class I local supplier fails to match L1 price, procedure same as para 3 above will be opted. In case none of Class I local suppliers within 20% margin matches L1 price, contract shall be awarded to L1 bidder. The purchase preference as above will be only for Class I local supplier and Class II local supplier will not be eligible for any Purchase preference	
	Local content requirement to categorize a supplier as Class I/Class II/Non local supplier shall be as per below. Definition of local content shall be as per order dt 4.6.2020 ie amount of value added in India which shall be the total value of the item procured (excluding net domestic indirect taxes) minus the value of import content in the item (including all customs duties) as a proportion of total value in percentage.	
	Class I -Local content equal to or greater than 50%	
	Class II-Local content greater than 20%, less than 50%	
	Non local -Local content less than 20%	
	Declaration of local content	
	Class I local supplier /Class II local supplier at the time of tender shall indicate % of local content and provide self-certification that offered item shall meet the local content requirement for Class I/Class II as applicable including details of locations at which local value addition is made.	
	In case of procurement for a value in excess of Rs 10.0 Crores Class I/Class II local supplier is to provide a certificate from statutory auditor/cost auditor (for companies) /practicing cost accountant/Chartered accountant (suppliers other than companies) indicating % of local content	

Verification of the Certificates issued by the bidder shall be carried out by CSL on random basis. False declarations will attract actions as stipulated in the order referred, including other actions as permissible by law.	
Exemption is applicable from provisions of order for purchases with estimated values less than Rs 5.0 lakhs	
Notwithstanding above, exemptions for meeting local content as per relevant Clause of order dt 4.6.2020 and as amended from time to time shall apply.	

Annexure - 3

PRICE BID FORMAT

Tender Enquiry No: UCSL/MAT/2023-24/010

Tender Enquiry Date: 20.04.2023

Vessel/ Project: UCSL Yard

SI.		UOM	Quantity	Unit Rate	Total Price
No	DESCRIPTION	(a)	(b)	(c)	(b) × (c)
1.	Design, Manufacture & Supply of Plate Preservation Line	Set	1		
	TOTAL BASIC PRICE				
2.	Installation, Testing and Commissioning Charges				
3.	Packing & Forwarding Charges / FOB Charges				
4.	Freight Charges				
5.	Other Charges, if any (specify)				
6.	Transit Insurance and Unloading Charges	BY UCSL			
7.	GST (as applicable)				
8.	Currency Quoted				
9.	HSN CODE				
10.	Total Order Value (FOR UCSL STORES PRICE)				
11.	Delivery Period required at UCSL Stores	Within 3 months from the date of PO for supply and 1 month for installation from the date of supply			

Signature :

Name & Address of the firm :

Important Note:

1. Un-priced Bid, to be submitted along with techno commercial bid with details like percentage of taxes & duties applicable and showing whether "Amount quoted/ Nil/ Included/ By UCSL" against respective column. Confirmation regarding exercising the option shall be provided during finalization of the purchase order.

- 2. The price quoted in column no. 1 to 4 above will be added and the bidder who has quoted the aggregate lowest will be declared the Lowest Bidder.
- 3. The Tender document technical specifications to be referred prior quoting the prices, the quantities and other technical specifications along with the scope of installation to be noted.
- 4. Installation and commissioning of the unit is mandatory to consider the offer. However, the civil works as mentioned in the tender document are under UCSL scope.
- 5. Detailed Bill Of Material (BOM) shall be submitted along with the un-priced bid with details of each item including makes if any, quantity, specifications etc.

BANK GUARANTEE IN LIEU OF SECURITY DEPOSIT/

WARRANTY GUARANTEE

То

UDUPI COCHIN SHIPYARD LTD

(Formerly Tebma Shiyards Limited

MALPE HARBOUR COMPLEX, MALPE, UDUPI - 576108.

AND WHEREAS it has been stipulated by UDUPI COCHIN SHIPYARD LTD (The Buyer - hereinafter called "**UCSL**") in the said contract that the Supplier shall furnish CSL with a Bank Guarantee for the sum specified therein as security for compliance with the Supplier's obligations in accordance with the Contract.

AND WHEREAS we have agreed to give the Supplier such a Bank Guarantee.

We, the bank, hereby irrevocably undertake to pay you any amount not exceeding in total the Guarantee Amount upon receipt by us of your demand in writing accompanied by the following documents:

- 1. Your signed statement certifying that the Supplier is in breach of his obligation(s) under the Contract and the respect in which the Supplier is in breach.
- 2. Your signed statement certifying that the Supplier has been given a prior written notice by email from you to make good the aforesaid breach and that the Supplier still failed to fulfill the Contract within 30 days of such notice. A copy of such notice given by email to the Supplier shall be attached to the demand for payment.

Any demand for payment should contain your authorized signatures which must be authorized by your bankers or by a notary public.

We, the Bank, further agree that no change or addition to or other modification of the terms of the Contract or of the Works to be performed there under or of any of the Contract documents which may be made between UCSL and the Supplier shall in any way release us from any liability under this guarantee, and we hereby waive notice of any such change, addition or modification. We, the Bank, further agree that any change in the constitution of the said contractor or the said bank shall not discharge our liability hereunder.

Notwithstanding anything contained herein:

1. Our liability under this Bank Guarantee shall not exceed only).

2. This Bank Guarantee shall be valid up to (date) and

3. We are liable to pay the guaranteed amount or any part thereof under this bank guarantee only and only if UCSL serve upon us a written claim or demand on or before(validity date).

Any demand for payment under this guarantee must be received by us at this office during working hours on or before the validity date. Should we receive no claim from you by the validity date, our liability to you will cease and the guarantee will definitely become null and void whether returned to us or not.

Yours truly, Signature and seal of the Guarantor:..... Name of Bank:....

Address:

Date:

* An amount shall be inserted by the Guarantor, representing the percentage of the Contract Price specified in the Contract and denominated in respective Dollars / Indian Rupees/Other Currency.

PRE-CONTRACT INTEGRITY PACT

UDUPI COCHIN SHIPYARD LIMITED

<u>General</u>

This pre-bid pre-contract Agreement (hereinafter called the Integrity Pact) is made on 26th day of the month of July 2022 between, on one hand, the President of India acting through Assistant General Manager, Udupi Cochin Shipyard Ltd (UCSL) having its registered office at Malpe, Udupi – Karnataka, India (hereinafter called the "PRINCIPAL", which expression shall mean and include, unless the context otherwise requires, his successors in office and assigns) of the First part and M/s...., represented by Shri Wataru ATO, General Manager (hereinafter called the "BIDDER/Seller" which expression shall mean and include, unless the context otherwise requires, his successors and permitted assigns) of the second part.

WHEREAS the PRINCIPAL proposes to procureand the BIDDER/Seller is willing to offer/has offered the stores and

WHEREAS the BIDDER is a private company / public company / Government undertaking / partnership/registered export agency, constituted in accordance with the relevant law in the matter and the PRINCIPAL is a Government of India PSU performing its functions on behalf of The President of India.

NOW, THEREFORE,

To avoid all forms of corruption by following a system that is fair, transparent and free from any influence/prejudiced dealings prior to, during and subsequent to the currency of the contract to be entered into with a view to:-

Enabling the PRINCIPAL to obtain the desired said stores/equipment/item at a competition price in conformity with the defined specifications by avoiding the high cost and the distortionary impact of corruption on public procurement, and

Enabling BIDDERs to abstain from bribing or indulging in any corrupt practice in order to secure the contract by providing assurance to them that their competitors will also abstain from bribing and other corrupt practices and the PRINCIPAL will commit to prevent corruption, in any form, by its officials by following transparent procedures.

The parties hereto hereby agree to enter into this Integrity Pact and agree as follows:-

Commitments of the PRINCIPAL

1.1 The PRINCIPAL undertakes that no official of the PRINCIPAL, connected directly or indirectly with the contract, will demand, take a promise for or accept, directly or through intermediaries, any bribe, consideration, gift, reward, favour or any material or immaterial benefit or any other advantage from the BIDDER, either for themselves or for any person, organization or third party related to the contract in exchange for an advantage in the bidding process, bid evaluation, contracting on implementation process related to the contract.

- 1.2 The PRINCIPAL will, during the pre-contract stage, treat all BIDDERs alike and will provide to all BIDDERs the same information and will not provide any such information to any particular BIDDER which could afford an advantage to that particular BIDDER in comparison to other BIDDERs.
- 1.3 The officials of the PRINCIPAL will report to the appropriate Government office any attempted or completed breaches of the above commitments as well as any substantial suspicion of such a breach.
- 2. In case any such preceding misconduct on the part of such official(s) is reported by the BIDDER to the PRINCIPAL with full and verifiable facts and the same is prima facie found to be correct by the PRINCIPAL, necessary disciplinary proceedings, or any other action as deemed fit, including criminal proceedings may be initiated by the PRINCIPAL and such a person shall be debarred from further dealings related to the contract process. In such a case while an enquiry is being conducted by the PRINCIPAL the proceedings under the contract would not be stalled.

3. <u>Commitments of BIDDERs</u>

The BIDDER commits itself to take all measures necessary to prevent corrupt practices, unfair means and illegal activities during any stage of its bid or during any pre-contract or post-contract stage in order to secure the contract or in furtherance to secure it and in particular commit itself to the following:-

- **3.1** The BIDDER will not offer, directly or through intermediaries, any bribe, gift, consideration, reward, favour, any material or immaterial benefit or other advantage, commission, fees, brokerage or inducement to any official of the PRINCIPAL, connected directly or indirectly with the bidding process, or to any person, organization or third party related to the contract in exchange for any advantage in the bidding, evaluation, contracting and implementation of the contract.
- **3.2** The BIDDER further undertakes that it has not given, offered or promised to give, directly or indirectly any bribe, gift, consideration, reward, favour, any material or immaterial benefit or other advantage, commission, fees, brokerage or inducement to any official of the PRINCIPAL or otherwise in procuring the Contract or forbearing to do or having done any act in relation to the obtaining or execution of the contract of any other contract with the government for showing or forbearing to show favour or disfavor to any person in relation to the contract of any other contract with the Government.
- **3.3** BIDDERs of foreign origin shall disclose the name and address of their Indian agents and representatives, if any and Indian BIDDERs shall disclose their foreign principals or associates, if any.
- **3.4** BIDDERs shall disclose the payments to be made by them to their Indian agents/brokers or any other intermediary, in connection with this bid/contract and the payments have to be in Indian Rupees only.

- **3.5** The BIDDER further confirms and declares to the PRINCIPAL that the BIDDER is the original manufacturer/ integrator/authorized agent of the stores/equipment/items and has not engaged any individual or firm or company whether Indian or foreign to intercede, facilitate or in any way to recommend to the PRINCIPAL or any of its functionaries, whether officially or unofficially to the award of the contract to the BIDDER, nor has any amount been paid, promised or intended to be paid to any such individual, firm or company in respect of any such intercession, facilitation or recommendation.
- **3.6** The BIDDER, either while presenting the bid or during pre-contract negotiations or before signing the contract, shall disclose any payments he has made, is committed to or intends to make to officials of the PRINCIPAL or their family members, agents, brokers or any other intermediaries in connection with the contract and the details of services agreed upon for such payments.
- **3.7** The BIDDER will not collude with other parties interested in the contract to impair the transparency, fairness and progress of the bidding process, bid evaluation, contracting and implementation of the contract.
- **3.8** The BIDDER will not accept any advantage in exchange for any corrupt practice, unfair means and illegal activities.
- **3.9** The BIDDER shall not use improperly, for purposes of competition or personal gain, pass on to others, any information provided by the PRINCIPAL as part of the business relationship, regarding plans, technical proposals and business details, including information contained in any electronic data carrier. The BIDDER also undertakes to exercise due and adequate care lest any such information is divulged.
- **3.10** The BIDDER commits to refrain from giving any complaint directly or through any other manner without supporting it with full and verifiable facts.
- **3.11** The BIDDER shall not instigate or cause to instigate any third person to commit any of the actions mentioned above.
- **3.12** If the BIDDER or any employee of the BIDDER or any person acting on behalf of the BIDDER, either directly or indirectly, is a relative of any of the officers of the PRINCIPAL, or alternatively, if any relative of an officer of the PRINCIPAL has financial interest/stake in the BIDDER's firm, the same shall be disclosed by the BIDDER at the time of filing of tender.

The term 'relative' for this purpose would be as defined in section 6 of the Companies Act 1956.

3.13 The BIDDER shall not lend to or borrow any money from or enter into any monetary dealings or transactions, directly or indirectly, with any employee or the PRINCIPAL.

4. <u>Previous Transgression</u>

- **4.1** The BIDDER declares that no previous transgression occurred in the last three years immediately before signing of this Integrity Pact, with any other company in any country in respect of any corrupt practices envisaged hereunder or with any Public Sector Enterprise in India or any Government Department in India that could justify; BIDDER's exclusion from the tender process.
- **4.2** The BIDDER agrees that if it makes incorrect statement on this subject, BIDDER can be disqualified from the tender process or the contract, if already awarded, can be terminated for such reason.

5. Earnest Money (Security Deposit)

- **5.1** While submitting commercial bid, the BIDDER shall deposit an amount **NIL** (to be specified in RFP) as Earnest Money as applicable/Security Deposit, with the PRINCIPAL through any of the following instruments:
 - (i) Bank Draft of Pay Order in favor of UCSL.
 - (ii) A confirmed guarantee by an Indian Nationalized Bank, promising payment of the guaranteed sum to the PRINCIPAL on demand within three working days without any demur whatsoever and without seeking any reasons whatsoever. The demand for payment by the PRINCIPAL shall be treated as conclusive proof of payment.
 - (iii) Any other mode or through any other instrument (to be specified in the RFP).
- **5.2** The Earnest Money if applicable/Security Deposit shall be valid upto the complete conclusion of the contractual obligations to the complete satisfaction of both the BIDDER and the PRINCIPAL, including warranty period.
- **5.3** In case of the successful BIDDER a clause would also be incorporated in the Article pertaining to Performance Bond in the Purchase Contract that the provisions of sanctions for Violation shall be applicable for forfeiture of Performance Bond in case of a decision by the PRINCIPAL to forfeit the same without assigning any reason for imposing sanction for violation of this Pact.
- **5.4** No interest shall be payable by the PRINCIPAL to the BIDDER on Earnest Money/Security Deposit for the period of its currency.

6. <u>Sanctions for Violations</u>

6.1 Any breach of the aforesaid provisions by the BIDDER or any one employed by it or acting on its behalf (whether with or without the knowledge of the BIDDER) shall entitle the PRINCIPAL to take all or any one of the following actions, wherever required:-

- To immediately call off the pre contract negotiations without assigning any reason or giving any; compensation to the BIDDER. However, the proceedings with the other BIDDER(s) would continue.
- (ii) The Earnest Money Deposit (in pre-contract stage) and/or Security Deposit/ Performance Bond (after the contract is signed) shall stand forfeited either fully or partially, as decided by the PRINCIPAL and the PRINCIPAL shall not be required to assign any reason therefore.
- (iii) To immediately cancel the contract, if already signed, without giving any compensation to the BIDDER.
- (iv) To recover all sums already paid by the PRINCIPAL, and in the case of an Indian BIDDER with interest thereon at 2% above the prevailing Prime Lending Rate of State Bank of India, while in case of a BIDDER from a country other than India with interest thereon at 2% above the LIBOR (London Inter Bank Offer Rate). If any outstanding payment is due to the BIDDER from the PRINCIPAL in connection with any other contract for any other stores, such outstanding payment could also be utilized to recover the aforesaid sum and interest.
- (v) To encash the advance bank guarantee and performance bond/warranty bond, if furnished by the BIDDER, in order to recover the payments, already made by the PRINCIPAL, along with interest.
- (vi) To cancel all or any other contracts with the BIDDER. The BIDDER shall be liable to pay compensation for any loss or damage to the PRINCIPAL resulting from such cancellation/recession and the PRINCIPAL shall be entitled to deduct the amount so payable from the money(s) due to the BIDDER.
- (vii) To debar the BIDDER from participating in the future bidding processes of UCSL for a minimum period as deemed appropriate, which any be further extended at the discretion of the PRINCIPAL.
- (viii) To recover all sums paid in violation of this Pact by BIDDER(s) to any middleman or agent or broker with a view to securing the contract.
- (ix) In cases where irrevocable Letters of Credit have been received in respect of any contract signed by the PRINCIPAL with the BIDDER, the same shall not be opened.
- (x) Forfeiture of Performance Bond in case of a decision by the PRINCIPAL to forfeit the same without assigning any reason for imposing sanction for violation of this pact.

- **6.2** The PRINCIPAL will be entitled to take all or any of the actions mentioned at para 6.1(i) to (x) of this pact also on the Commission by the BIDDER or any one employed by it or acting on its behalf (whether with or without the knowledge of the BIDDER), of an offence as defined in chapter IX of the Indian Penal code, 1860 or Prevention of Corruption Act, 1988 or any other statute enacted for prevention of corruption.
- **6.3** The decision of the PRINCIPAL to the effect that a breach of the provisions of this pact has been committed by the BIDDER shall be binding on the BIDDER. However, the BIDDER can approach the Independent Monitor(s) appointed for the purposes this Pact.

7. Fall Clause

7.1 The BIDDER undertakes that it has not supplied/is not supplying similar product/systems/items or subsystems at a price lower than that offered in the present bid in respect of any other Ministry/Department of the Government of India or PSU and if it is found at any stage that similar product/systems or sub systems/items was supplied by the BIDDER to any other Ministry/Department of the Government of India or PSU at a lower price, then that very price, with due allowance for elapsed time, will be applicable to the present case and the difference in the cost would be refunded by the BIDDER to the PRINCIPAL, if the contract has already been concluded.

8. Independent Monitor

- **8.1** The PRINCIPAL has appointed Independent Monitors (hereinafter referred to as Monitors) for this Pact in consultation with the Central Vigilance Commission.
 - Shri. Om Prakash Singh, IPS (Retd.), Flat No. D-801, Prateek Stylome, Sector-45, Noida, Uttar Pradesh – 201301 Mob: 9818564455 Email: Ops2020@rediffmail.com
 - (ii) Shri. Jagadip Narayan Singh, IAS (Retd.), C-54, Bharatendu Harischandra Marg, Anand Vihar, Delhi – 110092. Mobile: 9978405930 Email: jagadipsingh@yahoo.com
- **8.2** The task of the Monitors shall be to review independently and objectively, whether and to what extend the parties comply with the obligations under this Pact.
- **8.3** The Monitors shall not be subject to instructions by the representatives of the parties and perform their functions neutrally and independently.

- **8.4** Both the parties accept that the Monitors have the right to access all the documents relating to the project/procurement, including minutes of meetings.
- **8.5** As soon as the Monitors notices, or has reason to believe, a violation of this pact, he will so inform the Authority designated by the PRINCIPAL.
- **8.6** The PRINCIPAL accepts that the Monitors have the right to access without restriction to all Project documentation of the BUYER including that provided by the BIDDER. The BIDDER will also grant the Monitors, upon his request and demonstration of a vlid interest, unlimited access to his project documentation. The same is applicable to Subcontractors. The Monitors shall be under contractual obligation to treat the information and documents of the BIDDER/Subcontractor(s) with confidentiality.
- **8.7** The PRINCIPAL will provide to the Monitors sufficient information about all meetings among the parties related to the Project provided such meetings could have an impact on the contractual relations between the parties. The parties will offer to the Monitors the option to participate in such meetings.
- **8.8** The Monitors will submit a written report to the designated Authority of PRINCIPAL /Secretary in the Department/ within 8 to 10 weeks from the date of reference or intimation to him by the PRINCIPAL /BIDDER and, should the occasion arise, submit proposals for correcting problematic situations.

9. Facilitation of Investigation

In case of any allegation of violation of any provisions of this pact or payment of commission, the PRINCIPAL or its agencies shall be entitled to examine all the documents including the Books of Accounts of the BIDDER. The BIDDER shall provide necessary information and documents in English and shall extend all possible help of the purpose of such examination/inspection.

10. Law and Place of Jurisdiction

- **10.1** This Pact is subject to Indian Law. The place of performance and jurisdiction is the seat of the PRINCIPAL.
- **10.2** A person signing Integrity Pact shall not approach the Courts while representing the matters to Independent External Monitors and shall await their decision in the matter.

11. Other Legal Actions

The actions stipulated in this Integrity Pact are without prejudice to any other legal action that may follow in accordance with the provisions of the extent law in force relating to any civil or criminal proceedings.

12. Validity:

- **12.1** The validity of this Integrity Pact shall be from date of its signing and extend upto 5 years or the complete execution of the contract to the satisfaction of both the PRINCIPAL and the BIDDER/Seller, including warranty period, whichever is later. In case BIDDER is unsuccessful, this Integrity Pact shall expire after six months from the date of the signing of the contract.
- **12.2** Should one or several provisions of this Pact turn out to be invalid; the remainder of this pact shall remain valid. In this case, the parties will strive to come to an agreement to their original intentions.
- **13.** The parties hereby sign this Integrity Pact at.....on.....

PRINCIPAL	BIDDER
Name of the Officer	Designation
Dept./MINISTRY/PSU	
Witness	Witness
1	1

2.....

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* Provisions of these clauses would need to be amended/deleted in line with the policy of the BUYER in regard to involvement of Indian agents of foreign suppliers.