



# मुंबई पत्तन प्राधिकरण Mumbai Port Authority

**Request for Budgetary Quotation for  
Supply, Delivery, Supervision of Erection, Testing,  
and Commissioning of Gangway Tower at  
Fifth Oil Berth at Jawahar Dweep, Mumbai Port Authority**

Date: 07-Aug-2024

**Request for Budgetary Quotation for  
Supply, Delivery, Supervision of Erection, Testing and Commissioning of  
Gangway Tower at Fifth Oil Berth at Jawahar Dweep, Mumbai Port Authority**

Mumbai Port Authority (MbPA) intends to Install Marine Gangway suitable for VLCC vessels at Fifth Oil Berth at Jawahar Dweep of Mumbai Port Authority.

You are therefore requested to submit your most competitive budgetary offer for the subject work through email on ak.maiti@mumbaiport.gov.in or ss.kharche@mumbaiport.gov.in or rk.rathore@mumbaiport.gov.in. The Scope of work and Schedule of Quantities and Rates (SOQR) are given below, you are also requested to note the same before submitting your budgetary offer for the subject work.

**GENERAL**

The intent of this document is to outline the minimum requirements for the design, engineering, procurement of materials and bought out components, manufacture/fabrication, assembly at shop, inspection, testing and painting at manufacturer's works, packing and supply, supervision of erection, commissioning, and performance guarantee run test at site of one (1) No. Electro-Hydraulic Column type **Gangway Tower for Fifth oil (J5) berth** at Jawahar Dweep Island (Mumbai Harbour Area), of **Mumbai Port Authority**.

The system shall be complete with all auxiliaries, safety features, electricals, instrumentation.

Before quoting, the tenderer, in his own interest may carry out the site inspection to understand the actual site conditions and full implication of assignment. This will also help him to make proper assessment of scope of work. Failure to do so will not absolve them of their responsibility to do the work as specified in the tender document.

**SCOPE OF WORK & SPECIFICATIONS**

1. Design, engineering, fabrication, assembly, inspection, testing & supply and supervision of erection, commissioning, performance testing of electro-hydraulic column type gangway tower at Jetty no.5 (J5), Marine Oil Terminal, Jawahar Dweep, MBPA.

The J5 consists of the Unloading platform, berthing / mooring dolphins on either side of unloading platform interconnected with catwalk bridges, approach trestle connecting unloading platform with Jawahar Dweep Island and new fire water pump house structure. The berth no.5 can accommodate the vessels of sizes 70,000 to 2,50,000 DWT.

The Bidder's scope of work consists Design, Engineering, Procurement, manufacture, inspection, testing & painting at manufacture's works, packing, all

supply including supply of all commissioning spares, special tool and Tackles, first fill of oils and lubricants and documentation.

Bidder Scope also include dismantling of existing gangway installed at J5, and shifting, installation commissioning of same at Jetty no.4 (J4).

## **2. Scope of Supply**

The Vendor's scope of supply shall include but not limited to the following major items / sub-systems as per the specifications and drawings/documents/standards enclosed and forming a part of the Material Requisition (MR).

**One (1) No.** Electro-hydraulic operated "Column Type" Gangway Tower to access ship deck and all other accessories required within the battery limit for safe, continuous, smooth & efficient operation and maintenance of the system.

5 MT crane with 15 m radius (min.) mounted on the top of column to cater to all ship decks.

All foundation bolts, nuts, washers and other related installation materials.

First fill of oils, lubricants, greases etc. and replenishment of any loss of these during commissioning

Structural Supports for all equipment, piping, ducting, cable trays etc. as applicable.

Operating and maintenance platforms, access ladders, cross-over etc. required to provide access to various items of unit wherever required.

Spares for startup and commissioning (Price to be included in the quoted price).

One set of special tools and tackles for operation and maintenance, as required (Price to be included in the quoted price).

Quotation for critical/ insurance spares for two (2) years' normal operation and maintenance of the equipment (Itemized price list to be furnished along with the bid). MbPA shall order these spares separately.

All associated Electrical works including supply SITC of requisite cable and electrical panel, switch gears, accessories etc. Electrical power shall be tapped through local power supply of 440v @ 50 Hz, at site. All the electrical items, even though not specified, but required for completion & successful commissioning of the gangway tower, shall be included in the scope of bidder.

The area has been classified as Zone-1 with gas group IIA/IIB. All the electrical items, shall have Ex-d enclosure with temperature class as T3.

All the motors/local control panel installed out door shall be provided with canopy for protection against rain water. Enclosure material of all electrical equipment shall be corrosion resistant suitable for subtropical marine environment having salt water exposure

Contractor scope shall include preparation of all drawings and documents as built.

Any additional items or feature required/ identified, during detail engineering for the completeness and trouble-free performance of the system, shall be included in the Vendor's scope without any price and time implications, as long as system performance & technical requirements within the battery limits of the system as defined under this specification/ requisition are kept unchanged.

### 3. Scope of Services

Vendor's scope of services shall include, but not limited to the following:

Design and Engineering.

Procurement of raw material & bought out components.

Manufacturing and Assembly at works. Inspection and Testing

Surface preparation, protective coating and painting (primer + finish coat), including supply of paint at works.

Packing and Supply.

Touch-up/ repair painting at site including supply of paint.

Erection, Installation, testing and commissioning of supplied Column type Gangway at Site.

On-site" training at project site to MbPA personnel for operation and maintenance, cost of the same shall be quoted.

Necessary assistance to MbPA in obtaining the statutory approvals as required / applicable, by providing required drawings & documents as required etc. as required for smooth and trouble free operation of the system.

Dismantling of existing gangway installed at J5, and shifting of same to Jetty no.4 (J4) and its installation, testing and commissioning at J4. The scope of contractor include civil work for gangway foundation etc ., if required at jetty no.4. Contactor shall arrange qualified skilled/semiskilled manpower for the same. All the necessary tools tackle, floating crafts, floating crane etc. shall be included in the quoted rates. Contractor shall test the existing gangway at J5 for satisfactory performance before dismantling the same. In case any fault is identified the same shall be rectified by the contractor, the cost for the same shall deemed to be included in the quoted rated.

### 4.0 SITE CONDITIONS

#### i. LOCATION

The site is located at Jawahar Dweep Island (Mumbai Harbour Area), 7 kms. North- East of Apollo Bunder, Mumbai of Maharashtra state, India.

#### ii. REFERENCE LEVEL

Reference Level is Chart Datum (CD).

#### iii. TIDE LEVELS

2.1.4 TIDE	LEVEL (in meters)
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High-High Water(June 1924)	+5.39CD
Mean High Water Spring (MHWS)	+4.42 CD
Local Mean Sea Level (MSL)	+2.50 CD
Mean Low Water Spring (MLWS)	+0.76 CD
Indian Spring Low Water Mark	+0.18CD
Datum of Sounding	±0.00 CD
Lowest Low Water (LLW)(May1958)	-0.46 CD

Statistical studies indicate that:

- i) All high tides exceed +2.70m.
- ii) About 5% of all high tides would be less than +3.20m CD.
- iii) About 5% of low high tides (LHW) would be less than +2.85m CD.

#### iv. WIND

The direction of wind in general is from the North West quarter with seasonal variations as shown below.

Month	Predominant Direction
Feb to May	Mainly from N.W.

The strongest recorded winds are principally during Southwest Monsoon from June to September. The wind loads shall be calculated corresponding to the wind speeds as follows:

Sl.No.	Return Period	Wind	Direction
			4
1	100 year Storm	44 m/s	Omni
2	1 year Storm	30 m/s	Omni
3	Vessel Moored	30 m/s	Omni

#### v. WAVES

The proposed jetty is located in the Jawahar Dweep area which is sheltered from the Arabian Sea by the Mumbai Main Island and due to fetch and water depth limitations, the generation of high waves at the proposed site is not likely. The wave data for the proposed Jetty location is tabulated

PARAMETER	VALUE
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	1-YEAR	100-YEAR	Vessel Moored Condition
Significant wave height(m)	0.6	1.6	-
Wave Period (sec)	10.0	10.0	10.0
Maximum Wave Height(m)	1.0	3.0	1.0

#### vi. CURRENT

Surface current data is described in the following table.

PARAMETER	SURFACE CURRENT VELOCITY (m/s)	Direction
During Installation	1.54	Omni
During 1 year storm	2.00	Omni
During 100 year storm	2.00	Omni
During vessel moored condition	1.00	Omni

The current velocity is required at different levels in various water depths. Its calculated from the surface current velocity using 1/7<sup>th</sup> power law for velocity reduction with depth

#### vii. TEMPERATURE&RELATIVE HUMIDITY

Maximum ambient temperature is 45°C and minimum is 20° C. The mean daily temperature ranges from 24° C to 35° C. The hotter months are March, April, May and June.

Relative humidity ranges from 61% to 87% being the highest in the monsoon period. During the winter months (Nov- Jan) relative humidity ranges from 61% to 72%.

#### 2.1.9 SEISMIC LOADS

The site in Mumbai is located at **Seismic Zone III as defined in IS:1893-2002.**

### 5. DESIGN CRITERIA

#### GENERAL

The gangways shall be designed to accommodate all ship deck levels of the specified vessels in both laden and light conditions. It shall be designed to follow the ship's response to the prevailing sea state.

#### SHIP PARTICULARS

The following vessels shall be catered by the Gangway Tower.

VESSEL TYPE	DWT	Displacement tonnage (Tonne)	LOA (m)	BEAM (m)	FULLY LOADED DRAFT	MAXIMUM PERMISSIBLE DRAFT(m)
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					(m)	
Crude VLCC	250,000	281218.9	349	56.1	26.0	16.8*
Suezmax	150,000	199500	298	48.1	17.4	16.7*
Aframax	100,000	133000	263	42.5	15.4	15.4
Panamax	70,000	93100	225	36.0	12.5	12.5

\*Partially loaded to 140,000 parcelsize

### JETTY DATA

The Access Gangway will be installed on the main loading platform deck  
Deck level of Unloading Approx. 3.5 m

### AREA CLASSIFICATION

All electrical and instrumentation items shall be suitable for Hazardous area classification defined elsewhere.

### MINIMUM DESIGN LIVE LOADS

For Ladders: - 2.5 kN/m<sup>2</sup>

For Platforms: - 5.0 kN/m<sup>2</sup>

For railings: - A horizontal force of 5 kN at any one point shall be considered.

## 6. CODES AND STANDARDS

<b>BS 6349</b>	:	British standard code of practice for Maritime structures
<b>IS 1893(PART1):2002</b>	:	Criteria for Earthquake Resistant Design of Structures, Part 1: General provisions and building
<b>BS 5400 PART 2</b>	:	British Standard Code of Practice for Bridges: Specification for loads (wind loads)
<b>BS 5950</b>	:	Structural use of Steelwork in Buildings; part 1
<b>BS EN 10025-1993</b>	:	Hot rolled products of non-alloy structural steel
<b>American welding society (AWS) , AWS D1.1</b>	:	Structural Welding Code
<b>ISO 1461</b>	:	Hot Dipped Metallic coatings on ferrous product
<b>BS 8118</b>	:	Structural Use of Aluminium Part 1 and 2

<b>BS EN 13195:2002</b>	:	Aluminium and Aluminium Alloys – Wrought and cast products for marine applications Part 1,2,3
<b>EN 1011-4-WELDING</b>	:	Recommendations for welding of metallic materials - Part 4 Arc welding of aluminium alloys.
<b>EN 1999 Eurocode 9</b>	:	Design of Aluminium structures
<b>IS:4651</b>	:	Planning And Design Of Ports And Harbour
<b>IS: 800</b>	:	General Construction in Steel
<b>IS: 875-part 3</b>	:	Code of practice for design loads for buildings and structures (Wind loads)

## 7. TECHNICAL REQUIREMENTS

### i. TOWERS AND PLATFORMS

- Construction of the gangway towers shall be from standard structural steel shapes. Any hatch cover must be spring loaded or equivalent for easy access. Adequate lighting shall be provided for stairway.
- MOC of Towers and Platforms shall be S235 / S355 or equivalent.
- Location of fixed controls shall be at main column adjacent to the gangway platform. Fixed controls shall not be operable from persons located on the gangway ladder. Access gate to gangway ladder shall be locked until the gangway is safely coupled to the ship.
- Platforms, ladders and steps shall be constructed of grating. As an alternative, chequered plates provided with durable non-slip tape may be used.
- Operating Speeds  
Luffing (approx.): 60 seconds up and 60 seconds down  
Slewing (approx.): 90 degrees in 15 seconds  
Telescoping (approx.): 45 seconds in and 60 seconds out
- When the gangway is reaching its limit for telescoping (minimum or maximum length) or slewing, an intermittent signal (horn and red light audible and visible from the dock platform) shall be activated. An additional red light shall be mounted on the fixed controls
- All bearings shall be provided with adequate seals and protection covers for operation in a marine environment. Bearings shall be provided with grease extraction points.
- Provision shall be made to insulate Electro-hydraulic all possible points of contact between the gangway and the vessels. Insulation shall be provided



between all steel and aluminium contact surfaces to minimize galvanic corrosion

- Crane of 5 MT capacity and radius 15 m min. shall be provided on top of tower. Vendor shall furnish the details of the crane drive system and other features in his bid

## **ii. TELESCOPIC LADDER**

- A telescopic ladder shall be made from sea water resistant aluminium alloys, with fixed hand railings on both sides and self-levelling steps. At ship's end of the gangway the aluminium deck ladder / bulwark ladder shall be provided with nylon wheels.
- The gangway shall be equipped with walkway lights for use at night.
- The gangway clear ladder width shall be at least 900 mm.
- The gangway and bulwark ladder shall always clear ship handrails (bulwark ladder height is to be determined by Vendor)
- Maximum gangway angle should not exceed 51° from horizontal.
- In case of power failure gangway shall have ability to be luffed up and slewed in by manual means.
- The gangway shall retract to stowed position where no part of the gangway or tower is within 2 meters of the compressed fender line.
- The gangway shall be supported in the stowed position and locked in place with a mechanical device provided with durable non-slip tape.

## **iii. RADIO REMOTE CONTROLS**

Radio remote control with two (2) belly-pack transmitters and one (1) receiver with full manual override. Vendor must supply two (2) remotes and two (2) sets of corresponding manuals and specifications. All remote (and fixed) operation devices to have automatic zero return. 2 Radios required for local use and marine use respectively. Radios shall be portably intrinsically safe type.

## **iv. INSPECTION & TESTING**

Pre-dispatch inspection shall be carried out by Owner / his authorized inspection agency for all the subassemblies and components at the manufacturer's premises before shipment of the equipment to Owner to the satisfaction of the latter. The inspection and testing shall be carried out in accordance with the approved QAP.

QAP's (Quality Assurance Plans) shall be drawn by main Vendor / sub-Vendor after award of order and shall be submitted for EIL / Owner's review

before taking up manufacturing/assembly. QAP's shall clearly mark the hold points due to Owner. Acceptance/rejection criteria shall be clearly defined. Any or all the tests may, at the Owner's option, be witnessed by the Owner or its authorized representative. However, such Inspections & Testing witnessed by Owner / Owner's authorized representative shall be regarded as check-up and in no way absolve the main Vendor of his responsibility.

Each individual equipment shall be shop tested as per the applicable codes and standards for performance and pressure rating

Inspection and testing of electrical items shall be as per job specifications attached with MR.

After successful commissioning, the Performance Test shall be carried out by Vendor. The vendor at his own cost shall arrange all instruments and gadgets for testing at Site.

## **8. DEFECT LIABILITY PERIOD AND SPARE PARTS**

### **i. Defect Liability Period (DLP):**

The gangway shall be covered under defect liability period of the two years from the date of Commissioning of Gangway at Site. The contractor shall rectify/attend any defect when notified for the same, during the DLP period within 72 hrs from the time of such defect notification by letter/ email/phone. The Spares for attending defects during the DLP shall be supplied by the contractor without any cost to MbPA.

### **ii. Spares**

Vendor shall furnish quotation of Critical/insurance spares for normal operation and maintenance of equipment with itemized price list along with the bid. These shall be ordered by purchaser separately. The price of these spares shall not be considered for commercial evaluation.

### **iii. Critical spares**

Vendor shall guarantee/ ensure the availability of spares and service for the entire design life of equipment. Vendor shall furnish list of critical spares for the entire designed life of equipment with itemized price list along with the bid for information of the purchaser.

### **iv. Commissioning Spares**

Vendor shall supply adequate quantity of commissioning spares so as to ensure that commissioning of the system is not hampered for shortage of commissioning spares. Vendor shall include the cost of the commissioning spares in the lump sum quoted price.

v. All spares parts shall be wrapped and packaged so that they are preserved in original as-new condition, under normal conditions of storage to be anticipated in India, and shall be properly tagged and coded so that later identification for intended equipment usage will be facilitated. The “Critical spares” and “commissioning spares” shall be packaged separately and clearly marked as “Spare Parts” and “Commissioning Spares” respectively. Recommended spares will be ordered separately during the contract period as per the pricelist submitted along with the bid.

## 9. SPECIAL TOOLS AND TACKLES

The Vendor shall provide a set of new and unused special tools and tackles, as required, for day to day operation and maintenance of the offered equipment. Vendor shall include the cost of the service tools and in his base price / lump sum quoted price.

## 10. PAINTING AND SHIPMENT

- i. Equipment and materials supplied shall be painted after tests at shop and after installation and testing at site. Shop & field painting shall be suitable for site and service conditions. Vendor shall also supply paint for touch up of any damages during transport & erection at site.
- ii. The units shall be disassembled into major components suitable for shipment and shall be properly packed to provide adequate protection during shipment. All assemblies shall be properly match marked for site erection.
- iii. All machined and bearing surfaces shall be protected against rust with a thick coat of grease.
- iv. Each equipment shall have an identification plate giving salient equipment data, make, year of manufacture, equipment number etc.

## 11. TECHNICAL DATA SHEET FOR GANGWAY

Sr. No.	General Data	Values
1.	Type	Electro- Hydraulic Column Type
2.	Qty.	1 No.
3.	Mode of operation	Electro-Hydraulic
4.	Jetty Top Level	+8.75 m CD

5.	Distance between berthing face to Gangway tower	+6.5 m CD (3.0 m “distance between face of gangway tower to the face of jetty” + 3.5 m “distance of face of jetty to berthing line” )	
6.	Vessel Range	70,000 to 250,000 DWT	
7.	Highest elevation of ship deck <sup>1</sup>	+27 m CD #	
8.	Lowest elevation of ship deck <sup>2</sup>	+6.0 m #	
9.	Drift Dimensions	Longitudinal	6.0 m
		Transverse	4.0 m
	High Water level	+5.0 CD	
	Lowest Astronomical Tide	0.3 m below CD	
10.	Material of construction	Steel and Aluminium alloy	
11.	Crane on Top of Tower	Required	
12.	Crane capacity and min. radius	5 MT, 15 m (radius)	
<p><sup>1</sup> Highest elevation of ship deck (27 m CD) have been computed at “unloaded VLCC tanker and during high tide (+3 m) condition”.</p> <p><sup>2</sup> Lowest elevation of ship deck (6.0 m CD) have been computed at “fully loaded 70,000 DWT tanker and during low tide (0 m) condition”.</p> <p>#: vendor to cross check the exact level for the given vessel ranges</p>			
13.	<b>CONSTRUCTION FEATURES</b>		
13.1	Overall dimensions	*	
13.2	Length of ladder	Telescopic	*
		Bulwark	*
13.3	Operating speed	Luffing	*
		Slewing	*
		Telescopic	* <input type="checkbox"/>
13.4	Crane details	Drive Method	*
		Control Method	*
		No. of Speeds	*
		Speed	*
		Other details	*
13.5	Power, kW	*	
14.	<b>GENERAL</b>		
14.1	Weight of total assembly	*	
14.2	Weight of heaviest Sub-assembly /	*	

Request for Budgetary Quotation for Supply, Delivery, Supervision of Erection, Testing,  
and Commissioning of Gangway Tower at Fifth Oil Berth at Jawahar Dweep, Mumbai Port Authority

**Schedule of Quantities and Rates**

Group No.-A	Item No.	Tag No.	Item Description	Lot	UOM	Price Basis (Refer Note & Instruction below)	Ocean Freight Charges (Refer Note & Instruction below)	Charges towards Marine Insurance up to Indian port of entry
						Total Supply Price (___) Indicate Currency: USD or EURO or INR	Lumpsum Price (___) Indicate Currency: USD or EURO or INR	Lumpsum Price (___) Indicate Currency: USD or EURO or INR
	01.01	xx-xx-xxx	Supply of Gangway Tower complete as per MR	1	Nos.			
	01.02	xx-xx-xxx	Quotation for supply of Two Years critical/insurance spares for Operation and Maintenance of item no. 1.01 above as per MR	Lot	Lot			
GROUP No.- B	Item Description			Lot	UOM	Lumpsum Price (___) Indicate Currency: USD or EURO or INR (Refer Note & Instruction below)		
	02.01	Training of owner's personnel at project site (for operation and maintenance) for item s.no. 1.01 above as per MR		Lot	Job			
	02.02	Supervision of erection, commissioning and performance guarantee testing for item s.no. 1.01 above, as per Scope as per MR		Lot	Job			
GROUP No.- C	Item Description			Lot	UOM	Lumpsum Price (___) Indicate Currency: USD or EURO or INR (Refer Note & Instruction below)		
	03.01	Dismantling of existing gangway installed at Jetty no.5, and shifting of same to Jetty no.4 (J4) and its installation, testing and commissioning at J4 as per scope		Lot	Job			
<b>NOTES:</b>								
(1)	The quoted total prices are inclusive of all accessories, spares, special tools, documentation and testing requirements, as specified in the Material Requisition.							
(2)	Evaluation & ordering shall be carried out on bottomline basis							

(3)	Prices shall be quoted strictly as per the Price Schedule Format made available herein without altering any of the contents of the "Price Schedule Format".		
(4)	Prices for 2 years normal Operation and Maintenance spares shall not be considered for evaluation and Purchaser / Owner reserves the right to select and order these spares seperately.		
<b><u>INSTRUCTIONS:</u></b>			
(1)	Price Basis	For Foreign Bidder→	CIF basis Including unloading charges at Jetty no.5, Jawahar Dweep MbPA Mumbai, IN) as per INCOTERMS 2010.
<b>(2)</b>	<b>Currency</b>	<b>For Foreign Bidder→</b>	<b>USD OR EURO OR INR</b>
(3)	Transportation charges	For Foreign Bidder→	CIF basis including unloading charges at Jetty no.5, Jawahar Dweep MbPA Mumbai, IN)
(4)	Mode of Shipment	For Foreign Bidder→	By Sea
(5)	HSN CODE	For Foreign Bidder→	