Procurement Procedure & Other Details For:

A) TECHNICAL SPECIFICATIONS for:-

Sub: Replacement of 5 Ton EOT crane at Dadar pumping station.

B) Disclaimer.

For Your Feedback please **click here .**

http://www.linkedin.com//pub/chief-engineer-sewerage-operation-m-c-g/56/6a1/409

Or

eemechscity1.so@mcgm.gov.in

chiefengineer.so@gmail.com

Note- Last date of feedback is 18.06.2024

Please read Disclaimer section

BRIHANMUMBAI MUNICIPAL CORPORATION

Sub: Replacement of 5 Ton EOT crane at Dadar pumping station.

TECHNICAL SPECIFICATIONS

Scope of work:

1) Dismantling of existing 5 Ton EOT crane.
2) Supply of 5 Ton EOT crane.
3) Installation, Testing and Commissioning of 5 Ton EOT crane.
4) Submittals.

1) Dismantling of existing 5 Ton EOT crane:

a) After getting electrical isolation from BMC site Engineer and after ensuring that electrical supply for the both cranes is switched off, the contractor shall disconnect all power & control cables leading to and from the main supply.

b) The contractor shall assign a competent representative (licensed electrical supervisor) who shall supervise the dismantling and installation work from beginning to completion and final acceptance.

c) During this dismantling and removal due care shall be taken that there shall be no undue damage to any appliances provided therein.

d) Any damage occurred will be repaired by contractor at his own cost. All cables and electrical items shall be removed carefully after putting the main supply terminated.

Details of existing EOT crane are as follows:

- Capacity: 5 Ton
- Make: Sharp
- Class: II
- Span: 6.3 Mtr
- Hoist motor: 7.5 HP
- Micro Motor: 3 HP
- LT motor: 1.68 HP
- CT Motor: 1.26 HP

2) Supply of 5 Ton EOT crane:

a) The crane should be designed in accordance with the latest editions of IS: 807, IS: 3177, other relevant standards referred to therein and also in accordance with the requirements specified herein after.

b) The crane shall comply with all currently applicable statues, regulation and safety codes relating to the design, construction and operation of cranes.

c) However the main girders and the travelling track shall be retained from the existing EOT crane. Contractor shall replace the trailing cable system to DSL system for the main supply to the crane.

d) The contractor shall supply 5 Ton EOT crane having following technical specification.

1	**Crane Capacity Main Hoist with Micro Hoisting**	5 Ton
2	**Span**	6.3 Meters
3	**Height of Lift**	15.0 Meters
4	**Travel Length**	70 Meter
5	**Class & Standard of EOT crane**	Class II (M5) as per IS: 3177 and IS: 807
6	**Ambient Temperature**	45 °C
7	**Operation**	From Fix Pendent Push Button / radio remote system
8	**Speeds** **Main Hoist** **Micro Hoisting** **Cross Travel** **Long Travel (Double drive)**	 4 M/min 2 M/min. 10 M/min. 15 M/min. Variable voltage variable frequency (VVVF) drive shall be provided for all the above motions.
9	**Wheels for Long Travel**	Compatible for Existing rails
10	**Wire Rope**	Suitable diameter wire rope of 6 x 36 Const. Fiber Core, 1960 N/mm2 Sq.Galvanized or 7 x 36 Const. Steel Core of make "USHA MARTIN" or any reputed ISI make.
11	**Motors**	
	Main Hoist	Motor of suitable ratings with 6 Poles,415 V

		AC, 3 phase, 50Hz, 150 Starts/Hr, Crane duty Squirrel cage type, Foot Mounted, suitable for VVVF drive.
	Micro Hoisting	Motor of suitable ratings with 6 Poles,415 V AC, 3 phase, 50Hz, 150 Starts/Hr, Crane duty Squirrel cage type, Foot Mounted, suitable for VVVF drive.
	Cross Travel	Motor of suitable ratings with 6 Poles,415 V AC, 3 phase, 50Hz, 150 Starts/Hr, Crane duty Squirrel cage type, Foot Mounted, suitable for VVVF drive.
	Long Travel	2 nos. Motors of suitable ratings with 6 Pole, 150 Starts/Hr, Crane duty Squirrel cage type, Flange Mounted, Gear Brake Motor, suitable for VVVF drive.
12	**Brakes**	
	Main Hoist	Electro Hydraulic Thruster brakes shall be provided
	Micro Hoist	Electro Hydraulic Thruster brakes shall be provided
	Cross Travel	Electro Hydraulic Thruster brakes shall be provided
	Long Travel	02 Nos. of DC Disc brakes shall be provided
13	**Hook**	'C' Type Hook for 5 tonnes capacity with Safety Latch provided , if required
14	**Power Supply**	415 V, AC, 3 Phase, 50 Hz, ± 5%.
15	**Control Supply**	110 V, AC, 1 Phase, 50 Hz, ± 5%
16	**Buffers**	Rubber buffers shall be provided for cross travel and Long travel.
17	**Limit Switches**	Gravity & Rotary Limit Switches provided for Hoisting motions & Lever Type Limit Switches provided for Cross Travel & Long Travel.
18	**Earthing**	Earthing shall be provided for all electrical Equipment
19	**DSL (Down shop lead)**	DSL shall be provided for long travel length.

		DSL conductors shall be of Galvanized steel. Conductors shall be completely shrouded such that they have no exposed current carrying surfaces. Four numbers current collectors required for DSL system shall be part of the DSL system.
20	**Variable Voltage Variable Frequency (VVVF) Drive**	VVVF Drives shall be anyone from "ABB" , "Fuji", "Yaskawa" , "Siemens", or "Schneider" make

e) All components like main hoist with micro hoisting system , Cross travel , long travel system, panel, Gear boxes , Motors, DSL system with wall mounting arrangement for the entire long travel, Remote pendent system, Limit switches, entire Cablings from panel to drives are laid new one according to their respective ratings. The make of the cables are from reputed ones like "Polycab" "Havels""Finlox" etc. RYB supply indicators at the far end shall be provided.

f) All electrical cables should be so laid that they are not liable to be damaged and can be easily inspected and maintained.

g) Electric panel of suitable size shall be provided with SS 304, 1.5mm Thick sheet with mounting plate & suitable lock.

h) The components in the panel shall be of reputed make like L&T/Siemens/BCH.

i) For power supply DSL with necessary brackets shall be provided. Power supply indicator RYB in LED shall be provided one end of the DSL. Necessary adequate brackets are to be provided for supporting the DSL track.

j) The rope drum shall be designed to withstand the compressive stresses caused by the rope wound on it and the bending stress due to beam action of the drum.

k) Wire rope in the crane shall be of galvanized type & preferably "Hyflex" type wire ropes shall be used.

l) All gear boxes shall be of completely enclosed splash lubricated type. All gear boxes shall be oil tight and sealed with neoprene 'O' rings of suitable section.

m) Gear boxes shall be provided with breather vents, easily accessible drain plugs, and a suitable oil level indicator such as a dip stick.

n) Hook shall be solid forged, heat treated alloy or carbon steel suitable for the duty service. For loads up to and including 50 ton, Shank type plain hooks shall be used.

o) Hook with hook latch is to be provided with closing fingers to prevent slippage of load and the risk of displacement of load during hoisting and for lowering operation 'C' type hook shall be used.

p) The rail wheels shall be Compatible for Existing rails. The wheels shall be manufactured from medium carbon alloy steels, and shall be solid forged and heat treated.

q) For long and cross traverse wheels, spherical roller bearings or double grove ball bearings shall be used. Bush bearings shall not be used at any location.

r) The electric motor of hoist mechanism shall be connected to the gear box through a geared coupling / flexible shock absorbing type coupling. The output of the gear box shall be connected to the rope drum by means of geared coupling.

s) Motor shafts and gear box input shaft extensions shall be connected through flexible couplings. Solid couplings shall be used for connecting intermediate lengths of the long travel and cross travel shafts. Couplings shall be made of forged or cast steel. All couplings shall be provided with suitable guards.

t) All contactors used in the panel shall be of AC 4 Class of duty with rating sufficiently higher than the full load current of the respective motors at the specified duty cycle. The contactors shall have high contact reliability.

u) EOT crane shall be provided with limit switches to prevent crane from over hoisting/over lowering/over travelling etc.

v) Limit switches shall be set such that there would be a gap of 20 to 30 mm between crane ends and buffers. In any case crane shall not touch the buffers.

w) Safety switches or emergency switch of sustained contact type shall be provided at each end of Crane Bridge so that under any emergency conditions, by operating anyone of the switches, the incoming circuit breaker is tripped thus cutting power to all motions. One number of emergency stop push button shall also be provided on pendant.

x) All wiring for power control circuit shall be carried out with 1.1 KV grade Flame Retardant Low Smoke (FRLS) PVC insulated copper cables.

y) Pendant push button control and wireless remote control for long travel, cross travel and hoist motions. For switching ON and OFF the motor of a particular motion, the supply voltage to the pendant control shall be 24V AC/DC.

Necessary flexible multi core cable with sufficient length shall be supplied to enable the crane to be operated from floor level. Pendant shall be moving type and the movement of pendant will be independent of trolley. The pendant control shall be capable of withstanding rough handling without being damaged. The cover shall be firmly secured. Pendant push button station shall be sheet steel enclosed and shall comprise the following push buttons and indicating lamps:

'Start' and 'Stop'.
Long travel with micro speeds – 'Right' and 'Left'.
Cross travel with micro speeds -- 'To' and 'Fro'.
Hook with micro speeds – 'Hoist' and 'Lower'.
Red indicating lamp for supply 'ON' indication.

z) Earthing to the crane shall be effected through track rails crane structure. As such, all the electrical equipments mounted on crane shall be connected to the crane structure by means of earthing links.

3) Installation, Testing and Commissioning of 5 Ton EOT crane:

a) The testing of the crane shall be carried out at the site.

b) All the necessary electrical work/modification required for completion of job i.e. wiring/cabling/termination/ installing new switch etc shall be arranged by the contractor. If required necessary Petty civil work for erection of new crane shall be done properly at no extra cost.

c) High Tensile Nut-Bolts-Washers of appropriate size shall be used for entire replacement work.

d) After successfully installing the crane at site contractor shall carry out the trials initially under no load conditions and on satisfactory completion of no load test, trials shall be repeated for various loads until full rated load and 25% overload on hoisting and cross traverse motion.

e) The crane shall be checked as per standards at site for Insulation test Operation test, Deflection test, Overload test, Speed test & Brake test.

f) The Commissioning of new crane shall be carried out at site in presence of BMC Engineer.

4) Submittals:

a) Successful contractor shall furnish the following prior to manufacture of the crane for approval by the BMC Engineer.

- The GA drawings showing elevation, cross section and plan of the crane

- General layout drawing of the trolley.
- Assembly drawing inclusive of gearbox details of individual drives like hoist, long travel and cross travel.
- Circuit diagrams showing the wiring for the complete crane.
- Quality assurance Plan.

b) The following documents/ information's are to be furnished after commissioning of the crane.

- As build G.A. and detailed drawings of the crane - 3 Sets on A3 paper as well as soft copy of the same.
- Operation & Maintenance manuals- 3 Sets

c) A toolbox containing all necessary tools (e.g., torque wrench, hand grease gun, set of spanners, screwdrivers etc.) required for the maintenance of the crane should be furnished along with the Crane.

d) The successful contractor should furnish material test certificates for parts used in handling loads (e.g. wire ropes, hooks etc.), mechanical components such as couplings, gears boxes, rope drums, pulleys, wheels etc. (Manufacturer's test certificate is required)

e) The contractor shall submit form 11 as per factory license rules.

Note: Any other spare/ equipment/accessory not mentioned in the above scope of work & technical Specification but if required for successful commissioning of crane, then same shall be provided the successful contractor on his own cost.

Terms & Conditions:-

a) The contractor shall visit the Dadar Pumping Station Pumping Station to know the existing system and to collect the necessary details for SITC of crane.

b) If any discrepancy in the material supplied or work carried out is observed during erection and commissioning of the equipments or defect liability period, and informed to the contractor in writing within a reasonable period of time thereafter, the contractor shall have to rectify the defect / discrepancy or replace the equipment / material at his own cost.

c) All tools, equipments, material, etc. required to execute the work shall be arranged by contractor at his own cost.

d) No material whatsoever required will be supplied by BMC except electricity and water. The contractor shall note that BMC shall not be responsible for any

mishap, if happened to men, material of the contractor. Any damaged by the contractor to Municipal property shall be made good free of cost.

e) Transportation cost of all material involved in this quotation shall be borne by the successful contractor only. Any lost/damaged charges during transportation/handling will be to the account of contractor.

f) The contractor shall carry out the work with the best workmanship.

g) The contractor shall clean the site after completing the work. After completion of work old removed crane & other material shall be handover to BMC.

Sd/-

E.E.Mech(Sew)City-I

DATA SHEET FOR 5 TON EOT CRANE TO BE FILLED IN BY THE CONTRACTOR

SR. NO.	PARTICULARS	MCGM Requirement	Data to be filled by the tenderer
1	**Crane Capacity Main Hoist with Micro Hoisting**	5 Ton	
2	**Preferred Make**	Shakti/Rahul Stamping/Crane Engineering/ Hercules/Sharp/Elephant/WMI/Joist-O-Mech	
2	**Span**	6.3 Meters	
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Seal & Signature of Tenderer

Trading under the name and style of:

Disclaimer :

The Corporation retains the liberty to change the specifications of works to be procured or the items to be supplied and the terms of procurement of works or supply and/or installations, maintenance and other conditions prior to issue of the tender. The suggestion / objections received may or may not be considered if the same is not in consonance with the requirements of the project, MCGM reserves it right to reject the same.

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