



ISO 9001 Company

Heavy Engineering Corporation Limited

(A Govt. of India Enterprise)

Heavy Machine Building Plant

MM Division

8. The Corporation does not pledge itself to accept the lowest or any tender and reserves to itself the right of accepting the whole or any part of tender or portion of the quantity offered and you shall supply the same at the rate quoted.
9. Supplies will be subject to inspection by our Inspection wing/or Inspection agencies prescribed by us.
10. Order placed as a result of this tender will be subject to the Corporation's General Terms and Conditions of contract, which can be down loaded from our web site www.hecltd.com.
11. Corporation reserves the right to call for and examine at any time the books of accounts and other documents and papers of the firm for the purpose of ascertaining whether any excess payments has been made or the firm likely to be received/ received undue benefit out of execution of the particular contract.
12. Earnest Money- Earnest money to the extent of 2% of the total value to be deposited by demand draft on the State Bank of India, Ranchi Hatia Branch, in favour of Heavy Engineering Corporation Ltd. Ranchi-4 along with the offer. EMD will be converted to security deposit in case of successful bidder. **Offer without EMD/Documents for exemption if any will not be considered.**
13. Security Deposit- The firm has to deposit a sum equal to 5 percent of the total value of the contract as Security Deposit for the due fulfillment of the contract within 21 days from the date of receipt of order. Failing this the contract will be cancelled at the risk & expense of the supplier. This will be in addition to other remedies available to the purchaser for the successful completion of the contract. The validity of the security deposit shall be up to the receipt of the last consignment.
Note:-Incase the EMD is converted into security deposit the firm will have to deposit 3% amount of the total value (5% of the total value – 2% of the converted value)
14. **Delivery- Our delivery schedule for all items is within 3 months from the date of drg. approval.** The date of delivery of the Stores stipulated in the acceptance of tender shall be deemed to be the essence of the contract and delivery must be completed not later than the dates specified therein. Otherwise:
 - (a) **LD Clause:** - The purchaser to recover from the contractor a sum of 0.5 % per week (completed week) of the price any stores (up to maximum 10%) as liquidated damages, which the contractor has failed to deliver as aforesaid or
 - (b) The purchaser may procure the un deliver stores/ similar items from elsewhere, without notice to the contractor at the risk of the contractor without canceling the contract in respect of the consignment not yet due for delivery or,
 - (c) To cancel the contract or a portion thereof.
15. Income Tax Clearance Certificate- All tenderers shall submit along with their tender an Income Tax Clearance Certificate duly countersigned by the Income Tax Officer of the Circle concerned under the seal of the office. Copy of permanent A/c no. (PAN) (of income tax) to be enclosed with the bid.
16. There is no obligation on our part to accept delayed / late tenders received after the due date of opening and there are liable to be summarily rejected.
17. The rates quoted shall also be inclusive of embossing on the material. The Ownership namely "HMBP" at a predominant place of the material to a size/thickness depending upon the volumes of the material.
18. Guarantee- The stores supplied shall be guaranteed for a period of 12 months from the date of commissioning or 18 months from the date of supply which ever is earlier against defective materials or bad workmanship.



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19. Performance Bank guarantee- Performance Bank guarantee amounting to 10% of the contract price is to be submitted in HEC's Format issued by any Nationalized Bank (Preferably State Bank of India) valid till full guarantee period.

D. SPECIAL INSTRUCTIONS

- The tender is to be submitted in two parts. Part- I & Part – II
- i. Part I- Tender comprising Techno Commercial offer which shall cover all technical part as well as commercial terms & conditions except the prices. Tenderers shall also mention whether Earnest Money is enclosed in Part II of the bid or not. They should not mention about the value.
- ii.. Part II – The Tender shall comprise Price Bid & Draft of earnest money as per Clause 12 of the enquiry.

The price bids shall be opened only after the Techno Commercial terms are settled and accepted.

Part I & Part II offers shall be in separate sealed covers. The tenderers are to clearly super scribe on the top of each envelope the relevant part number and description along with tender reference number and date of opening.

Both the envelopes (Part I & Part II) shall be enclosed in one envelope. This envelope shall also be super scribed on the top with tender reference number and date of opening of enquiry, indicating that both the parts (Part I & Part II) are enclosed in the envelope.

If the tender is bulky & voluminous the tenders are to be handed over to the following persons against receipt date & time:

1. Sri P.K. Singh
Sr.DGM / Purchase / HMBP
2. Sri K.K. Das
Jr. Manager/ Purchase/HMBP

If the offer is not submitted as per the instructions above the same may be rejected.

Regards

P.K. Singh
Sr DGM / Purchase /EL
Material Management Division
Ground Floor, HMBP ADM Bld
HEC LTD, Ranchi 4

Enclosed: DAP No 139/11M



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W.O. No.	Capacity of Crane	Qty
0039.002-006.150	20T x 37.5M	5

1.0 OPERATING CONDITION: -

Application	:	The weighing system shall be suitable for mounting on steel mill duty E.O.T crane handling hot metals.
Ambient temp	:	60 ⁰ C
Humidity	:	100 % (Max. temp & max. humidity not occurring simultaneously).
Atmosphere	:	Hot & dusty (conductive dust).
Vibration	:	Severe shocks & vibration as encountered by rail mounted EOT crane.
Power supply	:	240 V \pm 10%, 50 Hz, \pm 5% Any other voltage level, if required for the system shall be generated by the tenderer.

2.0 GENERAL REQUIREMENTS FOR THE WEIGHING SYSTEM: -

1. The weighing system shall be installed on an EOT crane of capacity 20T x 37.5M (Qty. – 5 Nos.).
2. There are 2 numbers of equaliser lever blocks on the top of rotating trolley. Only one equaliser lever block shall be equipped with two numbers of 11T capacity weigh beam. Both the weigh beam shall be mounted on the top of the upper trolley below the equaliser lever block.
3. The width of weigh beam shall be 90 mm. The height of weigh beam along with the upper & lower bracket shall not be more than 150 mm and length of weigh beam shall not be more than 400 mm. **The degree of protection for the enclosure will be minimum IP67.**
4. Two nos. large display units (6 digit display) of letter size min. 250 mm shall be installed on the bridge, readable from the shop floor level.
5. The offered system shall include all accessories like special cables, junction boxes etc. and any other item required for successful operation



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and meeting the performance requirements, whether specifically mentioned in the specifications or not.

6. The system shall conform to IPSS: 1-10-004-89 & also GS-01, GS-03, GS-05, GS-09 & GS-13 of GTS of DSP/MECON.

7. The system shall have following technical features: -

The electronic weighing system shall be complete with total 2 nos. of weigh beams mounted on the top of the upper trolley below the equaliser lever block and display in the operator's cabin as well as on the outside of bridge girder readable from the shop floor level .It shall be complete with weighing electronics, display, communication & programming unit.

Electronic weighing system shall include calibration equipment cables, load cells and panel mounted associated electronics (microprocessor based) with communication capability with PLC on bus.

Crane weighing system shall be connected to ground station by Radio link module. Necessary hardware & software including cables for above as well as communication of ground station with main automation network of shop automation system shall be in the scope of the tenderer.

Data (weighing) communication from 20 T under magnet rotating trolley cranes to ground station and from ground station to end user's PLC shall be in the scope of tenderer.

From ground station system 4-20 mA signal and profibus connectivity shall be provided for interfacing with shop PLC.

The load cell shall give satisfactory operation with supply frequency variations, complete protection against heat, dust and rain, provide desired accuracy, overload capacity upto 250% without adversely affecting its characteristics and 400% without getting physically damaged.

The load cell shall be providing desired accuracy for particular application. The built in temp. compensation in the range of 0⁰ C to 80⁰ C.

The weighing system on the crane is intended to measure the weight of materials being handled and to provide the following:

- Micro processor based weighing electronics complete with programming unit, communication module, special cable (optical fibre) etc.
- Necessary digital displays.



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- Automatic Calibration Check
- Performance accuracy of full scale : $\pm 0.5\%$ of rated load
- Overall accuracy of the system : $\pm 0.5\%$

8. Other details of crane weighing system:

1. The Weighing system shall be designed, manufactured, assembled & tested in accordance with relevant OIML / NTEP standards.
2. Load cell shall be of globally reputed make, confirming to OIML / NTEP Standard & preferably digital type. Load cell shall be easily replaceable type, provided with safety devices from impact load, vibration, heat & dust.
3. Weighing system shall have auto zero & auto calibration facilities.
4. Redundant electronics shall be provided.
5. Test weight for calibration shall be provided by DSP.
6. The requirement of the system are:
 - i) The Weighing system will be sufficient to measure, display and telemeter the loading material weight, meet all operating requirement and necessary safety provision including alarms for abnormal conditions. Design should support better tolerances in the mechanical system.
 - ii) The equipment selected for the purpose will be suitable for a continuous and reliable functioning in environment generally prevailing in steel plant area. Signal transmission will be through radio communication. The frequency used shall be in license free bands as per prevailing standards in India.
 - iii) The design will include all necessary precautions and provision for the safety of operating and maintenance personnel and equipment.
 - iv) Accuracy of the system will not be less than $\pm 0.5\%$ of FSD.
 - v) The Crane Weigh unit will be able to tolerate sudden shock loads caused by the lifting and traveling of crane. Weigh unit will be suitable for continuous loading for long durations. Electronics will be resistant to vibration prevalent in cranes.
 - vi) Weight signal shall not be affected by the height at which load is weighed. Rope weight compensation will be included.
 - vii) The Weighing system shall have protection against strong magnetic field, electrical surge, RF interference and heat & dust.
 - viii) Data updation on real time basis in the central computer. (However, central computer is not included in the scope of the tenderer.)



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The weighing controller with accessories shall be mounted inside a sheet steel enclosed, wall-mounting type, IP-54 enclosure as per fabricated with 2 mm thick sheet steel, suitable for installation inside the operator's cabin.

1. Power supply unit suitable for 240 V \pm 10%, 50 Hz \pm 5%, 1 ϕ , incoming power supply with necessary protection.
2. Micro-processor based digital weighing controller
3. Radio Modem

3.0 SCOPE OF SUPPLY & SERVICE: -

The scope of supply consists of weighing system for 5 Nos. 20 T x 37.5M cranes complete with weigh beam, weighing controller, radio modems and all required accessories including commissioning spares, hardwares and softwares as per the technical specifications. Supervision of erection of load cells and commissioning of the weighing system and demonstration of communication with the shop PLC will be included in the scope of the tenderer. Calibration of the load cell and getting statutory certification will be the responsibility of the tenderer.

Qty – 5 sets (one for each crane)

The scope of supply for **each weighing system** shall include the following -

<i>Weighing cabinet</i>	-	1 No.
<i>Weigh beam 11 T capacity</i>	-	2 Nos.
<i>Large display</i>	-	2 Nos.
<i>Radio Modems with all accessories including cable, antenna etc. for weighing system on the crane.</i>	-	1 Set
<i>Ground station with radio modem. All accessories including cable antenna etc. and with Control electronics for generating 4-20 mA signal for the shop PLC & also provide Profibus connectivity to the shop PLC.</i>	-	See Note
<i>Connecting cables</i>	-	1 Set
<i>JB & Other accessories</i>	-	1 Set.



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Commissioning spares - *List with item*
wise *prices to be*
furnished.

Integration of all sub units & Commissioning - *at site (DSP,*
Durgapur)

Spares & Tools and tackles (**Common for all cranes**)

Tools & Tackles

a) Digital Multimeter 4 ½ digit (**make: Philips / HP / Fluke**) - 2 nos.

b) Portable think pad based software programmer (**make: HP / IBM / SONY**)

- 1

no.

c) Universal calibrator (**make: HP / Fluke**) - 1 no.

d) Professional tool kit (**make: RS / Philips**)

e) Special tools & tackles

Note:

There will be total 1 no. of ground station for the single bay i.e. Product Dispatch Yard & Bloom Storage Yard Bay. Ground station for Product Dispatch Yard & Bloom Storage Yard bay will receive data from five cranes operating in the bay.

The scope of supply also includes the following:

- i) Supply of complete data, design calculations, technical literature and documents, erection / maintenance and operation manuals, erection drawings, Quality Assurance Plan (QAP) and as built drawings.
- ii) Component level training to maintenance staff of DSP at the tenderer's works.
- iii) Initial Stamping and verification certificate at the manufacturer's works as required under Weights and Measures Act to be arranged by the successful tenderer.
- iv) Suitable safety devices for the protection of the weighing and processing system against impact loading.

The minimum accessories shall include the following –

1. 15 M integral cable with weigh-beam for connection with junction box.



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2. Self aligning mounting units to ensure vertical transmission of loads to the load cell and bumper checks / horizontal constrainers to eliminate horizontal forces.
3. Junction boxes for termination of load cell cables.
4. 100 M special screen cable suitable for cable reeling duty, EPR insulated, for connection between weigh-beam & weighing panel.
5. Required cables and accessories for connection between weighing controller, large display and radio modem. It may please be noted that the distance between controller and large display may be 15M. The radio modem should preferably be placed inside the weighing panel on the crane. Necessary cable for connection to the radio modem antenna shall also be included. For radio modem required for the ground station, separate cabinet with power supply and associated accessories shall be provided.
6. Antenna with mounting bracket cables, cable-accessories, programming software, programming cable, power supply unit etc. for radio modems. Cables for connecting the radio modem to the control electronics shall also be included in scope of this tender.

4.0 DATA SHEET TO BE FURNISHED ALONG WITH THE OFFER: -

Following technical information shall be furnished along with the offer -

1. Block diagram of the offered system.
2. System description.
3. Catalogue / specification of each unit.
4. B.O.M indicating type, make of each component.
5. GA Drg. indicating installation details of the load cell including the constrainers.
6. Details of cables along with unit rates.
7. Data sheet of load cell.
8. GA Drg. of the weighing cabinet.
9. Max. Temperature that the system can sustain.
10. Complete technical details of the offered radio modems. A reference list for use of modems in similar applications shall be furnished.
11. Communication protocol and connectivity for the weighing controller. Details of the communication network adopted between weighing controller, radio modem and the large display.
12. Working range of the modems.



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13. Any specific requirement for the antenna installation should also be included.

NOTE: - Getting clearance / License from statutory authority, if required, will be the responsibility of the tenderer.

5.0 INFORMATION TO BE FURNISHED BY THE SUCCESSFUL TENDERER: -

1. The tenderer shall undertake to submit 10 sets of following drawings for approval within two weeks of placement of order.
 - 1.1. Complete schematic diagram of the system with BOM indicating make, type and rating of each components.
 - 1.2. Operation & maintenance manual of the system.
 - 1.3. Data sheet of the load-cell.
 - 1.4. GA Drg. of the weighing cabinet.
 - 1.5. Installation drawing of the load-cell.
2. 10 sets of "AS BUILT " drgs. Incorporating all changes during commissioning & also soft copy on CD.