



LME: 012: C

LOCOMOTIVE ENGINEERING DEPTT.

PURCHASE SPECIFICATION

LME/PUR/325

ISSUE DT: 20.05.2015

REV.NO.00

REV DT:

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SUBJECT:

PURCHASE SPECIFICATION FOR RECTIFICATION OF BCM

Enclosures:

1. **Technical Specification of BCM (Annex-I)**
2. **List of Spares (Annex-II)**
3. **OGA of BCM (Annex -III)**

Rev	Date	Prepared	Rev	Date	Prepared	Rev	Date	Prepared
		Approved			Approved			Approved
Rev	Date	Prepared	Rev	Date	Prepared	Rev	Date	Prepared
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I. GENERAL:

BHEL had undertaken development of Ballast Cleaning Machine (BCM) in collaboration with M/s MTH Praha of Czech republic. As per contract with Indian Railways, 2 No BCMs were to be manufactured & supplied in line with IR specification having ballast cleaning capacity on turnouts also. The machine consist of 2 separate units coupled electrically. These units are as under:

- 1.) Power Unit
- 2.) Working Unit

The Power Unit has been designed and developed with in house efforts. However the working Unit has been designed by M/s MTH Praha. The major component of working unit has been supplied by MTH. The assembly of Working unit was done at BHEL Jhansi under the guidance of MTH personnel.

The in-house testing was done on one BCM. During this testing certain discrepancies were observed in the machine. Few discrepancies were attended during testing but many issues were left un-attended as no support from MTH was available.

Since working unit was designed by MTH, BHEL doesn't have any design details of Hydraulic /Electrical Controls /Systems/Components etc.

The vendor will study the mechanism & working of machine & will identify the areas where this does not meet the IR spec requirements. One of the major issues presently to our knowledge is that these machines are not able to meet the requirement of cleaning the ballast on both left and right hand turnouts.

BHEL is interested in rectification of one BCM first and after acceptance of first BCM by Indian Railways, second BCM shall be taken up for rectification.

II. Description of the problem:

a.) Identified Problem in BCM Machine :

According to the design specification the machine was required to perform both on straight track as well as on Turn outs.

The working of one BCM on plain track was tested in-house and required few rectification.

Also the machine is not able to work on turnouts because the opening of hydraulic cylinders to enable the chute to open & reach the specified distance to cover turnout was not possible.

2nd BCM has not been tested.

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a.1) Expected work for above mentioned problem :

1. The capability of the chain, driving motor and other supporting structural parts needs to be examined/attended for their capability as the power required to work on turn out may be more as compared to straight track. (**for Drawings of BCM Refer Annex – III**)
2. Modification in existing mechanism so that opening and closing the chute to cover the turnouts become feasible. Vendor shall furnish the design details for carrying out the modification also.
3. Calibration of track lifting unit to be done.

a.2) Expected major rectification :

The vendor shall study the ballast cleaning machine and conduct remedial course of action with design details to make the machine capable to meet the requirements as mentioned in IR **specification for BCM,(Refer Annexure –I)**. To mention a few , the Complete BCM should be able to perform following functions satisfactorily after incorporation the required modification(to be detailed by vendor) :-

1. BCM shall be capable of excavating ballast bed up to a depth of 900mm below the rail top and entire width of ballast section. The width of the ballast section from mainline track center may vary from 2700mm for plain track to 4800mm for turnouts.
2. The machine is supposed to deep screen both left hand / right hand turnouts when approached from either direction i.e. from the switch or the crossing side, depending upon the site conditions. No turning of machine should be required for this.
3. The machine should be capable to return the ballast sizes from 65mm maximum to 25mm minimum to the bed. The machine shall be capable of cleaning, grading and profiling a minimum 550 cubic meter of ballast on plain track in an hour of working including hard, encrusted and caked ballast.

III. Other Responsibility of vendor:

1. The Vendor shall undertake the prime responsibility that rectified BCM will conform to the Specification cited in **Annexure –I** & meet all the working requirement of BCM.
2. Vendor shall furnish component drawings, specification for the rectification work, where required.
3. Vendor shall explore/develop the sources for supply of spare items of BCM. (List of spares enclosed as Annex –II for reference).
4. Vendor shall supervise the rectification work at BHEL premises.
5. Vendor shall revise the spare parts list and O&M manual of BCM based on modifications as carried out.

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6. Vendor shall provide the service of an experienced Service Personnel for a total period of 16 weeks for satisfactory commissioning of Machines at Railways site.
7. Vendor shall arrange necessary spare parts after exploring its sources for operation & maintenance of Machine for 2 years under warranty.
8. Vendor shall assist in field trials at IR sites.
9. Vendor to impart the training to IR /BHEL personnel.
10. Vendor to arrange the performance guarantee for successful working of BCM.
11. Vendor shall also revise list of tools required by the operator in emergency & for normal working of the machine.
12. Vendor will associate to carry out all the tests as mentioned at Clause no. 17 in IR spec (Annexure -I) so that machine can be dispatched complete in all respect.
13. The responsibility of getting the machine accepted by Indian Railways lies with vendor.

IV. Document Submission with the offer:

Vendor to submit the following documents with the bid:

1. Techno-commercial offer (Price bid in separate envelop)
2. Deviation from the specification if any.
3. Stage wise detail activity schedule with time frame
4. Supporting document in respect of required experience of min 15 yrs.
5. Successful performance certificate from user railways (min 1 user railways).
6. Vendor directory of Parts/ equipment
7. Letter of Authorization from Principal (In case of Indian agent, if applicable)

V. Document Submission after award of contract:

1. The drawings to carryout modification
2. Detail technical specification of spares/ consumable parts and equipment
3. Detail scheme/ write up on hydraulics systems
4. Revised Parts Catalog
5. Revised O & M manual
6. Revised training manual

VI. Qualifying Criteria:

1. Min 15 years' experience of manufacturing of similar BCM with electrical transmission having in-house design capability
2. Must have successful performance certificate from user railways (min 1 user railways).

Note: Foreign vendor if operating through Indian agent should have only one Indian agent duly authorised by principal.

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