



WESTERN COALFIELDS LIMITED  
( A SUBSIDIARY OF Coal India Limited )  
CIN U10100MH1975GOI018626

MATERIALS MANAGEMENT WING, COAL ESTATE, CIVIL LINES, NAGPUR - 440 001.  
PHONE : PBX : 0712-2611381, 2510691 Extn : 5606, 5861, Fax : 0712-2510284

Supply Order no: 12000110219123

Date : 26.09.2019

**SUPPLY ORDER**

To

M/s. BEML Limited,  
Vth Floor, Unity Building,  
J.C. Road, **Bangalore - 560 002.**

Vendor Code: 416002  
Vendor Category : Manufacturer  
Fax : 0712-2249997

Dear Sir,

Sub : **Formal Order for Supply of Crawler Dozer 410 HP complete in all respects with all necessary spares and consumables for initial 4 years (1+3 years)**

Ref : i. WCL tender enquiry no. WCL-hq-pur-yvr-ra—e022-2019-20

(Tender\_id\_2019\_WCL\_137971\_1) opened on 12.06.2019 and Price Bid opened on /Reverse Auction held on 22.07.2019.

ii. Your offer/Bid\_Id Number 410869 and subsequent correspondence on portal and submission of shortfall / confirmatory documents

iii. Your letter No. BEML/MN/WCL/209/BD355/419 dt. 24.07.2019

iv. Your letter No. BEML/MN/WCL/209/BD355/429 dt. 25.07.2019

v. Your letter No. BEML/MN/WCL/209/BD355/488 dt. 08.08.2019

This has reference to above. We are pleased to place FORMAL ORDER on you for the Supply of 01 number Crawler Dozer - 410 HP (Replacement requirement / NCD) at the rates, following terms and conditions given and General terms and conditions of supply enclosed.

Description	Ordered qty (nos)	Unit FOR destination Price Rs.	Extended value Rs.
BEML make Crawler Dozer 410 HP, model BD355 Bull Dozer, complete in all respects, powered by BEML make Engine model BS6D170-1 including necessary spares and consumables for 4 years (1+3 years); Detailed Scope and technical specifications as per Annex "A" enclosed; <b>Replacement</b> requirement (NCD);	1	2,12,00,000.00	2,12,00,000.00
GST @ 18% on equipment			38,16,000.00
Sub Total value of 1 no Equipment + GST			2,50,16,000.00
Cost of spares & consumables for 1+3 years, for 1 Dozer			1,82,22,532.00
GST on spares and consumables as quoted by the firm for 1 Dozer			36,27,557.16
Sub Total of Spares and consumables for 4 years and GST for 1 Dozer			2,18,50,089.16
Total value before availing ITC for equipment + 4 years spares			<b>4,68,66,089.16</b>

**Total Value:** Rs. **4,68,66,089.16** (Rupees four crores sixty eight lakhs sixty six thousand eighty nine and sixteen paise only).

The break-up of total cost of spares and consumables year-wise (1+3 years) is indicated at clause no 1A. The present applicable rate of GST on individual spares is indicated in Annexure B to E enclosed. The detailed technical specifications, scope of supply of technical requirement as per Annexure A enclosed.

**TERMS & CONDITIONS :**

1. **Prices:** Prices are FIRM and on FOR Destination basis inclusive of packing & forwarding Freight and insurance charges. Safe arrival of the complete equipment upto destination stores shall be your responsibility.

*Signature*

*Signature*

Supply Order no 12000110219123 dt 26.09.2019; M/s BEML Ltd

1A. The year-wise details of cost of spares and consumables and GST applicable on them is as under:-

Year	Value of Spares (Rs.) / Dozer	GST Value (Rs.) / Dozer
Year-1 *	12,25,184.00	2,45,141.32
Year-2	47,38,217.00	9,49,338.56
Year-3	64,07,894.00	13,56,195.02
Year-4	58,51,237.00	10,76,882.26
Total	<b>1,82,22,532.00</b>	<b>36,27,557.16</b>

\* Note: To be supplied along with the equipment

The details of Spares and consumables to be supplied year-wise are as per Annexure "B", "C", "D" & "E".

2. GST : GST shall be paid at actual against documentary evidence as applicable at the time of Dispatch within the stipulated delivery period. The current rate of GST is 18% on equipment. Input Tax Credit benefit shall be availed by the consignee, for which you should submit GST Complaint Invoice. You have to comply with the terms and conditions of GST Act/ Rules such as issuance of Tax Invoices, ensure payment of GST and enabling mechanism to facilitate Input Tax credit by WCL. You should upload the Tax Invoices/ Debit Note/ Credit Note in GST Portal, make payment of GST and file returns in time, as prescribed under GST Act and Rule to facilitate WCL to avail Input Tax Credit (ITC) as per eligibility under GST. In case WCL is unable to avail ITC or any liability arises to WCL due to failure on the part of you to comply the above provisions, the entire amount including Interest (If any) borne by WCL shall be recovered from you. The present rate of GST applicable on individual items of spares is as per Annex B to E, enclosed.

3. Delivery schedule: Delivery to be completed within 3 months, to be reckoned from 7<sup>th</sup> day of order date. Equipment shall be supplied from BEML, KGF, Karnataka and spares shall be supplied from BEML, Chandrapur, Maharashtra.

4. Guarantee/Warranty /Special Guarantee: M/s BEML Ltd shall warrant that the equipment supplied under this contract is :-

- In accordance with the contract specifications
- The equipment shall have no defects arising out of design, material or workmanship and the complete equipment shall be warranted for 12 months from the accepted date of commissioning. The warranty shall cover for total equipment so that ultimate responsibility lies only with M/s BEML although components may be supplied by different suppliers to you.
- The equipment will be warranted against any manufacturing defects / workmanship for a period of 12 months from the date of commissioning. Any defect observed on this account shall be attended to immediately. In the event of any breakdown or failure of performance due to defects in materials, design, workmanship spare parts etc, WCL shall promptly notify you in writing of any claims arising under this warranty. The repairs, replacement of rectification work shall be carried out by M/s BEML at site, immediately at NO cost to WCL, or latest within 21 days of settlement of warranty claims. At "No cost" to WCL means, you will have to bear all the expenses upto the destination site i.e. Ex-works price, Excise Duty Sales Tax, Insurance, Inland transportation charges etc as applicable to ensure free delivery of warranty replacement at WCL sites

#### Special GUARANTEE

i) M/s BEML Ltd must ensure that there is no major breakdown due to manufacturing / design defect during the warranty period. In case such breakdown occurs, the purchaser will reserve the right to extend the warranty period suitably.

ii) The complete Equipment consisting of All Assemblies/ sub Assemblies/ components e.g. Engine, Transmission, Differential, Final Drive, Air conditioning System, AFDSS, Under Carriage, Hyd. System, Chassis/ Structure, Blade Assy., Brake System, Engine Hour Meter & Auto Electricals etc shall be covered for suitable replacement/ Repairs, free from all costs to the purchaser, during total 48 (forty eight) months from accepted date of commissioning.

M/s BEML Ltd will be required to stock spares parts to take care of entire Performance period. Spares should be available immediately for replacement against the breakdowns.

*Signature*

*Signature*

Supply Order no 12000110219123 dt 26.09.2019; M/s BEML Ltd

5. Performance Bank Guarantee: You have to submit the performance bank guarantee as per the format at Annexure "K" for 10% of the order value (landed cost) i.e. Rs. **46,86,609.00** (Rupees Forty six lakhs eighty six thousand six hundred and nine only) valid for a period of 54 months of from the date of receipt and acceptance of materials to cover the guarantee period (1+3 years) and the same shall be released on receipt of satisfactory performance throughout the above given guarantee period. The Bank Guarantee shall be released after successful completion of guarantee/warranty period after confirmation from GM(EXCV) HOD, WCL (HQ)s. Any short fall of the performance availability, deduction shall be made as per technical specification as per Guarantee/Special Guarantee clause indicated in the order / NIT. The PBG must be submitted within 15 days from the date of receipt and acceptance of equipment. No payment shall be made without submission of performance Bank Guarantee.

The Bank Guarantee issued by the issuing bank on your behalf in the favour of Western Coalfields Ltd. Shall be in paper form as well as issued under "**Structured financial messaging system**". The details of beneficiary for issue of BG under SFMS platform is furnished below:

Name of beneficiary and details	
Name	Western Coalfields Ltd.
Area	Head Quarter
Bank A/c No: / Cust ID	Current Account No: 005905018053 Customer Id : 556096497 ICICI Bank Ltd., Vishnu Vaibhav, 222, Palm Road, Civil Lines, Nagpur
IFSC code	ICIC0000059
Bank Manager Name & Ph. No.	Hrushikesh Sakalkale Ph. No. +91-9923202096

BG advising message - 760COV / 767 COV via SFMS

Field number	Particulars
7035	ICICI000059
7037	WCL556096497

The original bank guarantee issued by issuing bank shall be sent by the issuing bank to " General Manager (MM) I/c, Materials Management Wing, Western Coalfields Limited, HQ, Coal Estate, Civil Lines, Nagpur - 440001, Maharashtra" by **Registered Post/AD**.

Any extension / amendments to the BG shall be done following the same procedure as above.

6. Performance Guarantee Clause: You shall guarantee that the availability of the equipment shall be not less than 75% (seventy five per cent) during initial 48 months from accepted date of commissioning (to be calculated Annually/ for each year).

7. Inspection: Pre-despatch Inspection shall be carried out by CM(Excv), CIL, Bangalore / representative of GM(Excv)I/C, WCL Hqrs or any other agency appointed by WCL and Final Inspection of the consignment shall be carried out by the consignee, at the project site, which will be arranged by the consignee on receipt of complete stores. The equipment must be delivered at Consignee's project within 15 days or earlier from the date of inspection and clearance by CIL's / WCL's representative

8. Payment Terms:

A) **For Equipment along with Spares and consumables for initial one year**: 80% value of equipment and accessories and initial spares for 1st year of operation and 100% taxes and duties and other charges shall be made within 21 days after receipt and acceptance of material at site by the consignee or submission of bills whichever is later.

Balance 20% payment shall be made after successful completion of erection, testing, commissioning and final acceptance of the equipment (along with the accessories) upon presentation of certificates

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*(Handwritten signature)*

Supply Order no 12000110219123 dt 26.09.2019; M/s BEML Ltd

from Area GM/SO(Excvt) of concerned area to the effect that the equipment has been erected and commissioned to their entire satisfaction and free training imparted to the end users & performance testing at the allocated location.

**B) For spares and consumables for subsequent three years after initial one year:** 100% Payment for spares and consumables for 2<sup>nd</sup> to 4<sup>th</sup> year of operation shall be paid on lot basis within 21 days, after receipt and acceptance of Spares and Consumables at site by the consignee or submission of bills, whichever is later.

9. Security Deposit: Exempted being PSU.

10. Consignee & Allocation:- **WCL's** GSTIN no. 27AAACW1578L1ZW

Project & qty	Area	POSTAL ADDRESS OF THE CONSIGNEE
Kamptee OC - 1 no	Nagpur	The Depot Officer, Regional Stores, Western Coalfields Limited, Nagpur Area PO : Silewara Colliery, Distt:- Nagpur (M.S) Pin: - 441109

11. Paying Authority: General Manager (Finance), Western Coalfields Limited, Coal Estate, Civil Lines, Nagpur - 440 001(M.S.) (for equipment with 1st year spares) & AFM of respective areas (for spares from 2nd year of operation).

12. EFT Details :-

Name of the Bank	State Bank of India
Branch & Location	Kingsway, Nagpur
Account Number	11172255258
Nature of Account	Current Account
IFSC CODE of the Branch	SBIN0000432

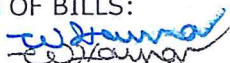
13. Mode of dispatch: All the stores surely packed are to be dispatched by road transport to the consignee on Freight paid basis.

14. Liquidated Damages and Risk Purchase clause:

In the event of failure to deliver the stores within the stipulated date / period in accordance with the samples and / or specifications mentioned in the supply order and in the event of breach of any of the terms and conditions mentioned in the supply order, Coal India Limited and / or its subsidiary Companies should have the right :-

- To recover from successful tenderer, as agreed liquidated damages, a sum not less than 0.5% of the price of the store which successful tenderer has not been able to supply (for this purpose part of a unit supplied will not be considered) as aforesaid for each week or part of a week during which the delivery of such stores may be in arrears limited to 10 %. Where felt necessary the limit of 10% can be increased to 15% at the discretion of Head of the Materials Management Division
- To purchase from elsewhere, after due notice to the successful tenderer, on the account and at the risk of the defaulting supplier the stores not supplied or others of a similar description without canceling the supply order in respect of consignment not yet due for supply or
- To cancel the supply order or a portion thereof, and if so desired, to purchase the store at the risk and cost of the defaulting supplier and also
- To extend the delivery period with or without imposition of Liquidated Damages as may be considered fit and proper. The penalty if imposed shall not be more than the agreed liquidated damages referred to clause (a) above.
- To forfeit security deposit in full or part.
- Whenever under the contract a sum of money is recoverable from and payable by you, Western Coalfields Limited, shall be entitled to recover such sum by appropriating, in part or in whole by deducting any sum or which at any time thereafter, may become due to the successful tenderer in this or any other contract, with Western Coalfields Limited. Should this sum be not sufficient to cover the full amount recoverable, the successful tenderer shall pay to Western Coalfields Limited, on demand the remaining balance. You shall not be entitled to any gain on any such purchase.

15. SUBMISSION OF BILLS:





Supply Order no I2000110219123 dt 26.09.2019; M/s BEML Ltd

a. For claiming 80% payment for equipment & 100% payment for Spares:

For claiming payment, following documents are to be submitted along with original bills as per terms of the supply order to the consignee.

- i). Pre-receipted and stamped Invoice (and/ or Original Buyer's copy of invoice as per GST laws).
- ii). Packing list in original list giving details of bill of materials, if applicable. (Invoice should be strictly as per GST laws 2017)
- iii). Consignment note / RR/ LR in original, if applicable.
- iv). Warranty / Guarantee certificate, if applicable.
- v). Manufacturers test certificate, if applicable.
- vi). DGMS / BIS / Pre dispatch inspection certificates / any other document, if required as per the contract.
- vii). Price certificate and Price fall certificate
- viii). Any other document as specified in the Order.

b. For claiming 20% payment of equipment:

- i) Pre-receipted and stamped GST Compliant Invoice for 20%
- ii) Commissioning Certificate from Area GM/SO(Excv)/ or his authorized representative of concerned area.
- iii) Any other document as specified in the Order

16. **Force Majeure Clause:** If the execution of the contract/supply order is delayed beyond the period stipulated in the contract/supply order as a result of outbreak of hostilities, declaration of an embargo or blockade, or fire, flood, acts of nature or any other contingency beyond your control due to act of God then Coal India Limited or its subsidiary companies any allow such additional time by extending the delivery period, as it considers to be justified by the circumstances of the case and its decision shall be final. If and when additional time is granted by the Coal India Limited and its subsidiary companies, the contract/supply order shall be read and understood as if it had contained from its inception the delivery date as extended.

You will advise, in the event of having to resort to this clause by a registered letter duly certified by the local Chamber of Commerce or Statutory authorities, the beginning and end of the causes of the delay, within fifteen days of the occurrence and cessation of such Force Majeure conditions.

For delay arising out of Force majeure, supplier will not claim extension in completion date for a period exceeding the period of delay attributed to the cause to the causes of Force Majeure and neither WCL nor you shall be liable to pay extra costs provided it is mutually established that Force Majeure conditions did actually exist.

17. **Price Certificate:** You have to submit the following certificate along with the bills:

*"Certified that we have not offered the same products at a price lower than that offered in the present bid in respect of any other ministry/ department of the Govt. of India or a PSU. In case we offer the lower prices for some items under similar terms within the validity of this offer to ministry/department of the Govt. of India or a PSU, we undertake to notify such reduction to the buyer and the same will also be applicable against this offer."*

18. **Risk Purchase Clause:** In the event you fail to deliver or dispatch within the stipulated date/period of the supply order or in the event of breach of any of the terms and conditions mentioned in the supply order, Coal India Ltd. or its Subsidiary Companies have the right to purchase the stores from elsewhere after due notice to you at your risk and cost. In the event of your failure as detailed above, the cost as per risk purchase exercise may be recovered from the bills against any other supplies pending in the same Subsidiary Co. and also in any other Subsidiary Companies/CIL.

Risk purchase action may be initiated under any of the following conditions:

- i. When you fails to deliver the materials even after the delivery period is extended on several occasions, on request from you.
- ii. When you fails to respond to purchaser's request for supply of the materials and fails to provide any reason which is considered to be genuine, for the delay in supply.
- iii. When in the judgment of the purchaser you is unable to execute the order due to various reasons.
- iv. When the materials are urgently required and you fails to deliver the materials within the extended/original delivery schedule.
- v. When you breaches any of the terms and conditions of the supply order and as a result fails to execute the order satisfactorily.

19. **Manufacturing certificate:** As the order is being placed on the basis of consideration that you are a manufacturer of the ordered material, you will have to provide a certificate to the following effect on the body of each bill.





Supply Order no 12000110219123 dt 26.09.2019; M/s BEML Ltd

"Certified that the items supplied and included in this bill/ invoice are our own make and have been actually manufactured in our works situated at \_\_\_\_\_ (address of the factory)

20. Integrity Pact : Integrity Pact as per format (Annexure E of the NIT) signed and furnished by you along with the offer shall remain valid and applicable for this contract.

The name of the IEMs for this tender are

Dr. (Ms) Nivedita Haran, 23, IFS Vilas, P-6, Builders Area, Greater Noida 201310  
Shri A.K.Mohapatra, Qrs no B-5/9, Unit - 9, Bhoi Nagar, Bhubaneswar 751022


21. Arbitration Clause: In the event of any dispute or difference relating to the interpretation and application of the provisions of the contracts, such disputes or difference shall be referred by either party for arbitration to the sole arbitrator in the department of Public Enterprises to be nominated by the Secretary to the Government of India in charge of the department of the Public Enterprises. The arbitration and conciliation act 1996 shall not be applicable to arbitration under this clause. The award of the arbitrator shall be binding upon the parties to the dispute, provided, however, any party aggrieved by such award may make a further reference for setting aside or revision of the award to the law secretary, Dept. of Legal Affairs, Ministry of Law & Justice, Govt. of India. Upon such reference the dispute shall be decided by the law Secretary or the Special Secretary/ Additional Secretary, when so authorized by the Law Secretary, whose decision shall bind the parties finally and conclusively. The parties to the dispute will share equally the cost of arbitration as intimated by the arbitrator.


22. Price fall clause: As undertaken by you in your offer that you have not supplied / are not supplying similar product systems or sub systems at a price lower than that ordered price in respect of any other ministry/department of the Govt. of India or a PSU and if it is found at any stage that similar product / Systems/ Sub -systems was supply by you to any other Ministry / Department of the Government of India or a 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 you to WCL, if the contract has already been concluded, you will furnish the certificate to this effect to the Consignee / Paying Authority along with bills.

Failure in submission of aforesaid certificate by the contract holder, may result in with holding of the payment of their bills against supply.

Unless otherwise specified above, the purchase order shall also be governed by the terms and conditions given in the General terms and conditions enclosed.

This order is issued with this acceptance. Kindly acknowledge the receipt of this order.

  
(Dr. Y. Venkata Ramana)  
26.09.19  
Sr. Manager (MM)

Yours faithfully  
  
(K.S.R. Divakar)  
Chief Manager (MM)

**Enclosures: -**

- Annexure-A : Detailed technical Specification for Crawler Dozer BD355
- Annexure-B : List of INITIAL SPARES required for first year of operation
- Annexure-C : List of SPARES & consumables required for Second Year of operation
- Annexure-D : List of SPARES & consumables required for Third Year of operation
- Annexure-E : List of SPARES & consumables required for Forth Year of operation
- Annexure-F : Standard & Special Tools
- Annexure-G : Erection Chart
- Annexure-H : Oil and Lubricant chart
- Annexure-I : Preventive & Periodical maintenance schedule
- Annexure-J : General Terms & Conditions
- Annexure-K : PBG format
- Annexure-L : Major bought out items

Supply Order no 12000110219123 dt 26.09.2019; M/s BEML Ltd

**Copy to :**

1. GM(Excv)HOD, WCL(HQ), Nagpur
2. AGM / SO(Excv) / SO(MM) / AFM / Depot Officer, WCL, Nagpur Area.
3. GM(CP) / GM(Fin.) I/c / GM(P&P),, WCL Hq., Nagpur
4. TS to DT(P&P), WCL, Nagpur
5. RD, CMPDIL, RI IV, Nagpur
6. Dr. (Ms) Nivedita Haran, 23, IFS Vilas, P-6, Builders Area, Greater Noida 201310  
Shri A.K.Mohapatra, Qrs no B-5/9, Unit - 9, Bhoi Nagar, Bhubaneswar 751022
7. GM(MM), CIL, SECL, MCL, CCL, BCCL, ECL, NCL
8. Chief Manager (Excv) EED, CIL, Regional Sales Officer, Geeta mansion, 4<sup>th</sup> floor, KG Road, Bangalore
9. GM (Excv) EED, Coal India Ltd., "Coal Bhawan", Premises No. 04 MAR, Plot No. AF III Action Area 1A, New Town, Rajarhat, Kolkatta 700156, West Bengal.
10. Sr. Manager(MM/Admn.), WCL(HQ) - The Landed value of the order is Rs.4,68,66,089.16.
11. M/s BEML Limited, 33 Cement Road, Shivaji Nagar, Nagpur -440010

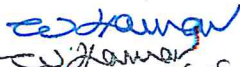
Indent details: Indent No 1473 dt 10.07.2019

**BC Reference :** Capital : FA/WCL/CAP/BC/HEMM/297 dt 16.11.2018 for Rs.264.87 lakhs

**Revenue:**

- 1<sup>st</sup> year spares: BC/WCL/Rev/GM/(Excv)/20-21/HEMM(Spares)/9/02/24 dt 25.09.19 for Rs.56.88 lakhs  
2<sup>nd</sup> year spares BC/WCL/Rev/GM/(Excv)/21-22/HEMM(Spares)/ 9/02/24 dt 25.09.19 for Rs.77.64 lakhs  
4<sup>th</sup> year spares BC/WCL/Rev/GM/(Excv)/22-23/HEMM(Spares)/9/02/24 dt 25.09.19 for Rs.69.28 lakhs

This issues with the approval of CMD, WCL

  
Sr. Manager (MM)  
26/9/19

  
Chief Manager (MM)  
26/9/19

**Detailed Technical Specification for Crawler Dozer 410 HP****1. SCHEDULE OF REQUIREMENT**

Sl. No.	Item description	Requirement
1	Crawler Dozer 410 HP complete in all respects with all necessary spares & consumables for initial 4 years (1+3 years)	Replacement / NCD : 01 nos

**2. Technical specification:****Introduction:**

These Technical Specifications identify the technical requirements of the Goods and Services which are the subject of this order.

The Technical Specifications are presented in three parts, as follows:

**A. Scope of Supply****B. General Requirements**

- 1) Geography and Climatic Conditions
- 2) Goods (Equipment and Machinery)
- 3) Standards
- 4) Supplier's Responsibility
- 5) After Sales Service & Spares Parts supplied.
- 6) Composite Warranty / Guarantee
- 7) Performance Guarantee
- 8) Quality Assurance

**C. Equipment Specifications**

**Conformity with specification:** The equipment to be provided shall conform with the requirements defined in these parts.

The order for the specifications shall prevail as follows:-

**Part A - followed by Part B - followed by Part C**

**PART - A****A. Scope of Supply**

**A.1 Equipment Package:** You are required to provide a complete package of Equipment for the supply of **CRAWLER DOZER 410 HP**, Accessories, Spare Parts, Consumables for **48 months operation** with Installation, Testing & Commissioning and necessary Training, at coal mining projects of WCL, Nagpur.

WCL shall make arrangements for the storage of Goods and Supplier's plant, tools etc. at project/site within the site(s) boundaries as may reasonably be required by you for the purposes of erection & commissioning of the Equipment, pending acceptance, at no cost to you

**A.2 Supplementary items:** All Spares, for Operational, Maintenance and standby/ contingency, Filters, O- rings/Gaskets etc, pertaining to all the systems of Equipment (including standard Engine filters etc) and Consumables including Battery, Auto Electricals, Ground Engaging Tools & Wear Materials eg Under carriage, Blade, Cutting Edges & End bits etc (herein after collectively referred to as "Spare Parts and Consumables" unless the context specifies otherwise). The Consumables for operation shall not include Diesel/ Fuel, Oils & Lubricants (POL).

(I) Items to be supplied, along with each Equipment:-

- a. Spare Parts and Consumables, required for initial 12 Months operation.
- b. First fill of all Oils, Grease and Lubricants needed for test and commissioning of each equipment.
- c. A comprehensive tool kit, which shall include any special tools required for erection, commissioning and for the maintenance & repair of the Equipment. The following Special Tools, generally required for

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*Signature*



Supply Order no 12000110219123 dt 26.09.2019; M/s BEML Ltd

repair, Maintenance & Trouble-shooting/ Testing of Major sub-Assemblies, shall be provided, in addition to any other special Tools required for the offered Equipments.

- i. Hydraulic pressure gauges of different ranges, required for Hydraulic pressure setting and trouble-shooting.
- ii. Socket set with torque wrench of reputed make, covering all sizes of high torque bolts used on the Equipment
- iii. Dial Indicator Gauge with Magnetic base.

Any other tool, if required over and above the list of comprehensive tool kit and special tool kit, shall be provided by you at no cost to purchaser during the contract period.

(II) Spare Parts & Consumables for 36 months operation, out of total 48 months, in accordance with your recommendations shall be delivered periodically, on Annual basis (in minimum two lots, Annually), throughout the balance period of 36 (thirty six) Months, of the total Guaranteed period of 48 (Forty eight) months from the accepted date of commissioning.

### A.3 Information, Drawings & Manuals:

Before the scheduled installation date, you shall provide :

- (a) FOUR suitable illustrated copies of operating, repair, and Maintenance instructions for all the equipment written in the English language, substantially bound in book form.
- (b) FOUR suitably illustrated copies of detailed Spares Parts Manuals covering all plant, equipment and accessories substantially bound in book form.

You shall also submit the data identified in the specifications for each item of Equipment. In addition to the Equipment drawings requested, where appropriate you shall supply detailed drawings illustrating erection/assembly site(s), foundation and accommodation requirements for such items as drive motors, switch installations, etc.

### A.4 Erection/Assembly, commissioning and Performance Testing :

You shall provide the service of Specialist Technicians/ Service Engineers to supervise the installation/ erection/ assembly, commissioning and any performance testing of the plant, equipment and accessories supplied.

The Service Engineer/ Technicians shall remain at site for the commissioning, until all necessary personnel are fully conversant with the maintenance and operation of the Equipment, and shall be available through out the guarantee period.

### A-5 Training

You shall give a comprehensive training to the WCL Employees regarding complete operation, Maintenance & Trouble shooting of the Equipment, covering all the systems. You shall be responsible for the provision and delivery content of any suitable training program, necessary for operation and maintenance of the equipment.

The training shall include Audio Visual presentation at WCL's site/ project/ Training Institute. The presentation/ training shall be for a duration of 2 days at maximum 4 locations.

## PART - 'B'

### B. GENERAL REQUIREMENTS.

#### B.1 Geography and Climatic Conditions.

Elevation : The natural surface varies from 100m to 1000m above mean sea level.

Climate: The climate is sub-tropical to tropical dusty with a hot and humid atmosphere. Monsoon rains occur in the period from June to October -

Ambient Conditions	Relative humidity	-	Maximum 98%
Temperature	-	Minimum 0°C	
	-	Maximum 55° C	

Rainfall : The mean annual rainfall is 1000 mm. 90 to 95% of which may fall in rainy season from June to October.

*Signature*  
C. J. HANNA

*Signature*

Supply Order no 12000110219123 dt 26.09.2019; M/s BEML Ltd

Wind	April to September	-South to South Westernly
	October to March	-North Westernly
Speed		-8 Km per hr average 100 Km per hour max.
Under foot	Slushy and highly abrasive	-

## B.2 Goods (Equipment & Machinery)

Detailed specifications of the equipments to be supplied are given in **part -' C'**, of this section. In general all items shall be -

New, unused and of the current design (incorporating latest proven features) and not likely to be discontinued or become obsolete in near future.

Designed and constructed to handle without overload and for the working hours stated, the maximum volumes/rates specified.

Designed to facilitate ready access, cleaning, inspection, maintenance and repair of component parts. Designed to facilitate rapid changeover of consumable items.

The component parts of all items shall, wherever possible, be selected from the standard ranges of reputable manufacturers.

The Equipments and accessories shall be physically robust and where necessary capable of dismantling for transportation and ready re-assembly using simple tools. All equipments items provided shall be designed to be compatible within the proposed overall Scope of Supply.

Electrical equipments shall provide all protection devices, controls and interfaces for the equipment to operate safely and efficiently.

All workmanship and materials shall be of first class quality in every respect.

All parts and surfaces which are exposed to corrosive environments shall be suitably protected to prevent any effects of corrosion or erosion.

## B.3 Standard:

(a ) Beside conforming to the standards specified in the Equipment specifications in **Part 'C'**, the Equipment shall also have to meet approval of the Statutory Government Authorities including Director General of Mines Safety (DGMS) having jurisdiction over the Equipment and its use.

(The system of units for all measurements shall be *the System International Units (S.I.)*.)

**B.4 Supplier's Responsibility:** You shall accept responsibility for the provision of complete operable and compatible Equipment and systems within the Scope of Supply. This document identifies only the major items required for the installation and you shall ensure that the total supply includes all necessary Equipments for it to function effectively and safely. Any additional items, you considers necessary to ensure compliance with such requirements shall be identified and included.

If you observe that this specification documents contains any anomalies, ambiguities, flaws, errors or omissions, you shall immediately bring these to the attention of the Purchaser.

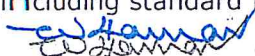
You shall be responsible for the testing and commissioning of the equipments and ensure that it meets the requirements as specified. The commissioning and setting to work of the whole equipments supply package shall be carried out under the supervision of you in conjunction with the Purchaser's nominated personnel.

## B.5 AFTER SALES SERVICE & SPARE PARTS SUPPORT

**B.5.1. After Sales Support Network:** You should have your own office and suitable establishment for services & assemblies/ sub-assemblies repairs facilities in India, for support of the after sales services & Spare parts supplies. You shall ensure that the availability of sufficient skilled service personnel, suitable stock of spares parts in the spare parts depot/ ware house and necessary servicing facilities is maintained, to support the Equipment in mines, to maintain the Equipments in use through out its life.

### B.5.2. Provisions of Spare Parts.

B.5.2.1 Within the Contract Price, the Purchaser will agree to purchase all Operational, Maintenance and standby/ contingency Spare Parts, Filters, O-rings/Gaskets etc, pertaining to all the systems of Equipment (including standard Engine filters etc) and Consumables including Battery, Auto Electricals &

  
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10/27

Supply Order no 12000110219123 dt 26.09.2019; M/s BEML Ltd

Ground Engaging Tools / Wear Materials eg Dozer Blade, Cutting Edge, End Bits etc, in accordance with your recommendations for 48 (**Forty eight**) **Months** from the accepted date of Commissioning.

Necessary Oil & Lubricant, required for Commissioning & Testing shall be supplied by you, as per the contract. The Consumables for operation during subsequent period, shall not include Diesel/ Fuel, Oils & Lubricants (POL). Necessary Spares & Consumables, required for initial **12 Months**, shall be supplied with EACH Equipment, as per Annexure "A".

All Spare Parts & Consumables, required for the balance period of thirty six (36) months (beyond the initial 12 months) of the Equipment, shall be delivered periodically (in minimum two separate lots for each year) as per the breakup enclosed in Annexure B to E.

**B.5.2.2** The assessment of the Spare parts & Consumable requirements shall be based on the expected 4,000 (four thousand) working hours +/- 500 (five hundred) working hours per year. However, Any shortfall in quantity of these spares and any other spares over and above the list submitted with offer (as per Annexure B) during the period of 48 months, shall have to be supplied by you free of cost. Any shortfall in quantity of above items during the period of 48 months, if required beyond the above mentioned expected working hours, shall have to be supplied by you at extra cost.

**B.5.2.3. In the event that the Spare Parts and Consumables, as recommended by you, in any way fall short of actual requirements** during the period for which they are said to be adequate, you shall provide such additional Spare Parts and Consumables, as are necessary at the final destination. Such additional Spare Parts and Consumables shall be provided by you to the Purchaser free of all cost and shall be transported to Site by air freight internationally and by air, rail or fast road transport within India .

**B.5.2.4** You shall not be liable for the supply of additional Spare parts and Consumable, if these are required by reasons of unforeseen accidents, negligence or misuse on the part of the purchaser.

**B.5.2.5** In the event that the operation of the plant is inhibited or frustrated as a direct result of lack of Spare parts and Consumables pursuant to clause B.5.2.2 hereof, then the period referred to in clause 'B.5.2.1' hereof shall be extended by a period of not less than the period during which operation as aforesaid was inhibited or frustrated.

**B.5.2.6** In the event that the spare parts and consumables, as recommended by you are in excess of the actual requirements, The purchaser at its option may -:

1. Retain such excess spares and consumables as, in discretion, it may elect to do so.
2. Require you to reprocess or repatriate or otherwise dispose off such excess spare parts in exchange for payment to the purchaser of the contract Price of the spare parts and consumables concerned. The purchaser shall notify you, in writing of it's requirement under the clause within Sixty (60) day after completion of the contract period of 48 months.

You shall also stock all necessary spares including sufficient fast moving & maintenance Spares, in their Local Depots to meet exigencies and to ensure maximum availability of the Equipments in use, throughout its life.

### **B.5.3 Emergency Spare Parts**

You shall ensure that spare parts required urgently for repair of breakdown equipments, are supplied at over riding priority.

In case the required spares, for breakdown equipment, are not available in the inventory maintained in the local depot, the same should be immediately made available from nearest available stock or diverted from the production line in the factory. Arrangements will be made by you to air lift the required spares and supply the same immediately to facilitate early re-commissioning of the breakdown equipment.

### **B.5.4 Lifetime Spare Parts.**

You have undertaken and guaranteed to produce and maintain stocks, to be available for purchase by the Purchaser under separate agreements of all Spare Parts and Consumables as may be required for maintenance and repair of the equipment throughout its working life. In the event that you wishes to terminate production of such Spare Parts, you shall:





Supply Order no 12000110219123 dt 26.09.2019; M/s BEML Ltd

- (a) give not less than six months notice in writing of it's intention to terminate production in order to permit the Purchaser reasonable time in which to procure needed requirements and
- (b) immediately following termination, provide to the Purchaser at no cost, manufacturing drawings material specifications and all necessary permissions to facilitate manufacture of the spare parts elsewhere.

In any event, you shall not seek to terminate manufacture of spare parts for a period of not less than 10 (ten) Years from taking over.

**B.5.5. Oil, Lubricants and Fluids :**

You shall provide to the purchaser a detailed schedule of all necessary oils, lubricants, fluids for the operation and maintenance of equipment and specify the appropriate grades, Indian and international standard references (whichever is applicable, suitable for different assemblies).

**B. 5.6 General**

Nothing in this clause B.5 shall relieve you of any guarantee, Availability, Performance or other obligations or liabilities under the contract.

**B.6 Composite Warranty/ Guarantee**

You shall warrant that the equipment supplied under this contract is:--

- a) In accordance with the contract specifications.
- b) The equipment shall have no defects arising out of design, material or workmanship & the Complete Equipment shall be warranted for 12 months from the accepted date of commissioning. The warranty shall cover for total equipment so that ultimate responsibility lies only with you, although components may be supplied by different suppliers to you.
- c) The Equipment will be warranted against any manufacturing defects / workmanship for a period of 12 months from date of commissioning. Any defect observed on this account shall be attended to immediately.

In the event of any breakdown or failure of performance due to defects in materials, design, workmanship, spare parts etc., WCL shall promptly notify you in writing of any claims arising under this warranty. The repairs, replacement or rectification work shall be carried out by you at site, immediately at no cost to the purchaser, or latest within 21 days of settlement of warranty claims.

"At no cost to the purchaser" means, you will have to bear all the expenses upto the destination site i.e. Ex- works prices, Excise Duty, Sales Tax, Insurance, Inland transportation charges etc. as applicable to ensure free delivery of warranty replacement at WCL sites.

**B.7 Performance Guarantee :**

**B.7.1 Introduction.**

B.7.1.1 You shall guarantee that the equipment supplied pursuant to this contract shall be available for use by the Purchaser and shall meet the performance criteria specifications at the level and in accordance with the terms and conditions of the Availability Guarantee herein contained.

B.7.1.2 Where equipment supplied under the Contract fails to meet the criteria of the Availability Guarantee, you shall, at your own cost, provide suitably qualified and experienced personnel at site to demonstrate to the purchaser's satisfaction that the required level of availability can be achieved and maintained.

**B 7.2 Guarantee**

B7.2.1 You shall guarantee that the equipment supplied pursuant to the Contract shall be available to the Purchaser at the level hereinafter defined to perform to criteria of not less than that defined in the Technical Specifications incorporated in the Contract.

B 7.2.2 You shall guarantee that the equipment shall be available to perform its duty to minimum criteria and to the minimum availability percentage level as defined in the individual equipment specifications included as the Attachment to the Technical specifications.

The method of assessment applied shall be as follows : Method of Assessment : The following calculation shall determine the availability of the equipment

% Availability =  $\frac{\text{Scheduled Available time} - \text{Down time}}{\text{Scheduled Available time}} \times 100$

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Supply Order no 12000110219123 dt 26.09.2019; M/s BEML Ltd

Scheduled Available time shall equate to 24 hours.

Down time shall mean all hours of work lost due to mechanical, electrical or other failure, **Including :-**

- a) routine servicing and maintenance in accordance with the manufacturer's published recommendations
- b) planned preventive maintenance programmes, It shall however **not include** : -
  - i. damage due to abusive use or incorrect operation methods by the Purchaser.
  - ii. accidents.
  - iii. Strikes or stoppage of work by the purchaser's personnel
  - iv. Natural disaster.
  - v. Lack of spare parts not attributable to a failure of you; your Agents or Representatives.

Down time shall also specifically include all hours lost due to failures determined to be failures within guarantee period.

You shall state the number of hours per day required to carry out (a) and (b) above.

The Purchaser will assist you, without relieving you of any other obligations under the Contract, to achieve the guaranteed availability by :

- i. Providing suitable skilled & un-skilled manpower for repair & maintenance.
- ii. Providing normal and proper maintenance, including preventive maintenance in accordance with your standard/published recommendations, and making all necessary repairs using only genuine manufacturer's spares.
- iii. Providing cooperation to all Supplier's authorized representatives, complying with all reasonable procedural suggestions to improve efficiency of machine operation or reduce downtime.
- iv. Where appropriate, providing and maintaining such conditions as :
  - i. proper electrical supply
  - ii. Terrain area
  - iii. Bench preparation.
  - iv. Reasonable floor conditions.
- v. Providing all Supplier's authorized representatives access at all reasonable times to the machines service and repair facilities.
- vi. Maintaining of log book for each shift wherein the working hours, breakdown time, maintenance hours, idle time, etc. shall be recorded. This record will be available for examination and signature by your representative.

B.7.2.3 Waiting time for maintenance shall not be taken as downtime.

B.7.2.4 The average routine maintenance hours shall not be more than two hours per day. In case the site personnel of WCL are unable to carryout the daily maintenance in two hours in such case you shall carry out the maintenance within two hours and train the project personnel to enable them to carryout the normal routine maintenance within two hours every day. In the event the project personnel are unable to carry out the routine maintenance in two hours time every day even after the demonstration & training by you, the time taken over & above two hours by the project personnel will not be counted as downtime.

**B. 7.2.5** You will promptly report any breakdown in any major sub assembly/sub-assembly to the concerned Head of Excavation Department of the subsidiary company.

**B 7.3 Effect and Duration of the Performance Guarantee :**

B.7.3.1 This guarantee shall become effective on the day on which the Equipment is commissioned at the Site. Commissioning shall be evidenced by the issue of the Purchaser's Acceptance Certificate.

B.7.3.2 This guarantee shall remain effective for Forty eight **(48) months** from the date of commissioning irrespective of the hours operated by the Equipment during the period of the guarantee.

B.7.3.3 In the event that the Equipment fails to achieve the Availability during initial Forty eight **(48) months** from the date of commissioning, herein provided during first or second or third or fourth 12 (twelve) months period, you shall be liable to pay to the Purchaser, as Penalty, a sum equal to as indicated hereunder for each Equipment, to be computed for each 12 months period (on annual basis):-

- a) 1% of the contract price of the equipment for every percentage reduction from the Guarantee Availability, for the first 5%
- b) 10% of the contract price of the equipment, for reduction beyond 5% from the Guaranteed Availability.

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13/07

Supply Order no 12000110219123 dt 26.09.2019; M/s BEML Ltd

**B.7.3.4** When you is unable to supply the replacement of a failed part under warranty within 21 days of giving intimation by the consignee and if the machine is commissioned by using the spares from the stock of the project the period (after 21 days) till you replaces the part under warranty shall be treated as "Deemed Breakdown" (the credit for keeping machine available shall not be given to you).

**B 7.3.5 SPECIAL CONDITION :**

For close monitoring of the performance of equipment under warranty, the Project authority must furnish information, as per proforma on monthly basis to the Area Staff- Officer (Excv). On completion of the Performance Guarantee period, a consolidated statement in the said proforma must be sent to GM(Excv)HOD of the subsidiary company for judgment regarding performance of the equipment.

The project authority must not give any performance certificate directly to the equipment supplier.

**B.8 QUALITY ASSURANCE**

**B 8.1** You should furnish in detail its quality assurance plan for various stages of manufacture. The Quality Assurance Plan shall comply with an internationally recognized quality assurance standard such as ISO 9000 .

**B.8.2** You shall provide facilities to Purchaser or their authorized representatives, when so required by them, for progress inspection during manufacture at your works and furnish all test data available in this regard for quality control, both for bought out items and his own manufactured items.

**B.8.3** The Purchaser or his agent, when so required by him, shall also be provided with samples of "bought- out" materials for the purpose of undertaking independent tests which independent tests shall be at the expense of the Purchaser.

**PART-C**

**EQUIPMENT SPECIFICATION OF CRAWLER DO ZER 410 HP.**

**1. Scope Of Specification**

This specification is intended to cover the technical requirements for the design, manufacture, testing, delivery, on-site erection and commissioning of a self-propelled, crawler mounted dozer of 410 HP.

**2. References**

The following International Standards are referred to in, and form part of, the Specification: ISO 2867 Earth-moving machinery - Access systems

ISO 3449 Earth-moving machinery - Falling-object protective structures - Laboratory tests and performance requirements

ISO 3457 Earth-moving machinery - Guards and shields - Definitions and specifications

ISO 3471 Earth-moving machinery - Roll-over protective structures - Laboratory tests and performance requirements

ISO 6014 Earth-moving machinery - Determination of ground speed

ISO 6405-1 Earth-moving machinery - Symbols for operator controls and other displays - Part 1 : Common symbols

ISO 6405-2 Earth-moving machinery - Symbols for operator controls and other displays - Part 2 : Specific symbols for machines, equipment and accessories

ISO 6682 Earth moving machinery - Zones of comfort and reach for controls

ISO 6747 Earth-moving machinery - Tractors - Terminology and commercial specifications

ISO 6750 Earth-moving machinery - Operation and maintenance - Format and content of manuals

ISO 7129 Earth-moving machinery - Tractors with dozer, graders, tractor scrapers - Cutting edges - Principal shapes and basic dimensions

ISO 7464 Earth-moving machinery - Method of test for the measurement of drawbar pull

ISO 9246 Earth-moving machinery - Crawler and wheel tractor dozer blades - Volumetric ratings

ISO 9249 Earth moving Machinery - Engine Test code - Net Power

ISO 10265 Earth moving machinery - Crawler machines - performance requirements and test procedures for braking systems

ISO 10968 Earth moving machinery - Operator's controls

**3. Design Criteria**

The dozer shall be capable of continuous operation for protracted periods on a system of 3 shifts each of 8 hours duration per day throughout the year in hard, highly abrasive, blasted sandstone/ rock having a density after blasting of 1,800 kg/m<sup>3</sup>.

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Supply Order no 12000110219123 dt 26.09.2019; M/s BEML Ltd

The dozer shall have the following minimum range of drawbar pull, measured according to ISO 7464:

- 160 kN to 430 kN at 1 km/h speed

- 180 kN to 640 kN at zero speed

#### 4. Technical Requirements

##### 4.1 Engine

The dozer shall be powered by a direct injection 4-stroke turbo-charged diesel engine of minimum 410 HP net power measured between 1700 and 2200 r/min according to ISO 9249.

The engine shall be provided with 24V electric starting, dry type 2-stage air cleaner with manual / automatic dust evacuator and dust level indicator and 2-stage fuel filter with water separator.

The engine shall have a water jacket cooling system, thermostatically controlled, using an engine driven water pump, with the cooling water re-circulated through a heavy duty radiator. The system shall be capable of providing sufficient cooling to allow the dozer to continuously operate at the full rated output at the maximum ambient temperature.

The moving parts of the engine shall be lubricated by an engine driven oil pump, with full flow oil filtration and cooling. The engine shall be provided with a heavy duty removable pan guard.

The engine shall be equipped with an over-speed governor and Auto-shut off system should be provided.

**4.2 Drive System:** Power transmission from the engine to the crawler drive sprocket should either through conventional means i.e. torque flow transmission, final drive, steering and brakes or through any other proven alternate drive system.

##### 4.2.1 Transmission

Torque-flow transmission consisting of single stage torque converter, planetary gear drives and hydraulically operated multiple disc type clutches equipped with suitable valves for developing a minimum of 3 forward and 3 reverse speeds.

Heavy duty removable belly guard, designed such that it does not allow accumulation of dirt.

**4.2.2 Final Drive:** Heavy duty spur and or planetary gear system.

**4.2.3 Alternate Drive System:** In the case of any other alternative type of drive, the system must be clearly defined and illustrated. The advantages and disadvantages compared with a conventional system must be adequately described to allow proper evaluation.

##### 4.2.4 Steering

Independent track steering by means of hydraulically actuated oil cooled multiple disc steering clutches and brakes shall be provided. These are to be held in engagement by springs and disengaged hydraulically.

All hoses and piping shall be protected from damage.

**4.3 Brake System:** Suitable reliable service, secondary and parking brake system, which complies with ISO 10265, shall be provided.

##### 4.4 Under carriage:

The undercarriage shall be a heavy duty rugged design suitably suspended with oscillating type equaliser bar and pivot shaft to reduce shock loads transmitted to the dozer.

Track frames and load rollers shall be of sufficient strength to withstand the high loads, which may occur due to uneven ground conditions. They shall be of welded construction and stress relieved as required.

The sprocket should preferably be a segmented bolt-on type. Preferably, life time lubricated idler and rollers, and a reliable hydraulic track tensioning arrangement should be provided.

Extreme service single grouser shoes of not less than 610 mm width shall also be provided.

##### 4.5 Dozer Attachment

The dozer shall be fitted with hydraulically controlled **straight-tilt blade attachment**. The dozer blade shall be heavy duty type with steel wear plate and heavy duty end bits. Heavy duty hardened steel wear resistant cutting edges which comply with ISO 7129 shall be provided.

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Supply Order no 12000110219123 dt 26.09.2019; M/s BEML Ltd

#### 4.6 Fuel Tank

The fuel tank should be of sufficient capacity for 16 hours operation without re-fuelling, and be provided with a level indicator and a lockable hinged cap.

Construction of the tank should be such that it provides for easy accumulation and drainage of water with minimum loss of fuel.

#### 4.6.1 Operator's Cab

A fully insulated, sound suppressed, Air conditioned operator's cab (walk-through type) shall be provided. The operator's seat shall be a fully adjustable bucket type with foam rubber cushion and best quality upholstery. Safety glass, windshield wiper and washer, Heavy duty rubber floor mats and a cooling fan shall also be provided. All doors, windows and vents shall have dust and weatherproof seals. Both a ROPS and FOPS which comply with ISO 3471 and ISO 3449 respectively shall be provided. All operating controls, monitoring and working signals should be conveniently located in consoles within easy reach of the operator and shall comply with ISO 6405-1, ISO 6405-2 and ISO 7095. The Air Conditioning system shall be maintained by you during entire contract period.

Non-slip type walkways which comply with ISO 2867 shall be provided. There should be provision of seat belt.

#### 4.7 Gauges and Indicators

The following shall be provided as a minimum:

1. Water temperature Gauge
2. Engine oil pressure Gauge.
3. Converter / Transmission oil temperature Gauge.
4. Fuel level indicator Gauge.
5. Transmission Pressure Gauge
6. Engine Tachometer and Engine Hour Meter

#### 4.8 Warning Alarms / Lights

The following audio/visual warning alarms shall be provided:

- 1 Coolant level & temperature
- 2 Engine oil pressure
- 3 Converter oil temperature (where applicable)
- 4 Front warning horn
- 5 Reversing Alarm & light / Flasher (Audio-Visual Reverse Alarm)
- 6 Warning Alarm for Operators fatigue

#### 4.9 Electrical Equipment

The dozer shall be provided with the following:

1. 24V DC electrical system with suitably rated alternator of repute make
2. Electric start
3. Reputable make high capacity batteries
4. Battery isolation switch

All circuits shall be protected by adequately rated fuses which shall be easily accessible for maintenance.

#### 4.10 Lighting

Adequate lighting, (conforming to the following minimum), shall be provided for safe nightshift operation :

- a. 4 (nos) Headlights
- b. 2 (nos) Rear working lights
- c. 4 (nos) ROPS mounted working lights (2-front and 2-rear)
- d. Cabin dome light

Headlights and Rear working lights shall be identical in rating and fitted in steel protective areas.

#### 4.11 Guards and Shields

Adequate guards and shields, which comply with ISO 3457 shall be provided throughout the dozer. There should be provision of turbocharger guard and baffle plate to separate hot zone from cold zone.

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**4.12 AUTOMATIC FIRE DETECTION & SUPPRESSION SYSTEM**

The supplied equipment should be fitted with DGMS approved / compliant Automatic Fire Detection & Suppression System (AFDSS), covering all major & vital points on the Equipment. Make & model of the AFDSS fitted, should be specifically mentioned. Details of compliances with references shall be furnished by you. The system shall be maintained by you during entire contract period.

**4.13 Fire Extinguishers :** Adequate numbers of fire extinguisher shall be provided on the dozer, suitably mounted in a heavy-duty bracket for ease of removal. The extinguisher shall be dry powder (cartridge type) with a minimum capacity of 5 kg and shall comply with Indian Standard IS: 2171.

**4.14 Rear Vision System:** The system shall be provided with a Monitor, installed inside the Operators Cabin and Automatic Switch on the reverse gear actuates ultra low light camera with sufficient number of infra red LEDs installed at the rear of the Dozer which provides picture in nearly pitch dark and in poor weather conditions and a clear & sharp picture is displayed on the Monitor. The monitor and camera shall be connected by a suitable detachable cable with water proof joints and the system shall be suitable for operation in extreme climatic conditions in the Indian Open cast mines. The camera shall be housed in a fully water proof, dust proof and shock & vibration resistant case which is suitable for high pressure washing.

**4.15 Warning System for Operators fatigue:** Warning System for Operators fatigue shall be provided in line with the DGMS Regulation 216(2) of CMR 2017

**5. Ancillary Equipment/ Additional Safety Features and Other Requirements**

The following are to be supplied with the dozer:

- a. Front pull hook
- b. Rear mounted rigid drawbar
- c. Fire/ Heat resistant/ retarder hydraulic hoses in place of ordinary hoses to decrease chances of fire
- d. All sleeves and conduits where cables/ wires are passed shall be fire heat resistant.
- e. Audio-visual Reverse Alarm system shall be provided, confirming to specifications as per DGMS (approval)/ AVA/ 01 dated 25-05-2010, issued by DGMS.
- f. Warning system for operators fatigue should be provided conforming to DGMS Regulation 216(2) of CMR 2017

**6. Performance Guarantee**

In accordance with the provisions of **clauses B.7.2.2 and B.7.3.2** of the Technical Specifications, **you** shall guarantee that the availability of the equipment shall be not less than 75% (seventy five per cent) during initial 48 months from accepted date of commissioning (to be calculated Annually/ for each year).

**7.1. Technical Details**

<b>7.2 Specification parameters for Dozer BEML make BD 355 model</b>	
<b>7.3 Dimensions, Weights, Technical &amp; Performance Details</b>	
<b>7.3.1 Dimensions :</b>	
7.3.1 i) Maximum overall length with & without blade	7163mm with Blade & 5405mm without Blade
7.3.1 ii) Maximum overall width with & without blade	4315mm with Blade & 3030mm without Blade
7.3.1 iii) Maximum overall height	3945 mm
7.3.1.iv) Drawbar Height	640 mm
<b>7.3.2 Weights :</b>	
7.3.2 a) Shipping weight of individual components	Annexure 7.3.2.a Enclosed
7.3.2 b) Total operating weight	46550 kg

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Supply Order no 12000110219123 dt 26.09.2019; M/s BEML Ltd

7.3.2 c) Operating weight excluding dozer attachment	37082 kg
7.3.3 Engine :	
7.3.3 a) Manufacturer's NAME & Model NAME	BEML & BS6D170-1
7.3.3 b) Number of cylinders	06 Nos
7.3.3 c) Bore	170 mm
7.3.3 d) Stroke	170 mm
7.3. e) Displacement	23.15 ltr (0.02315 m3)
7.3.3 f) ISO Net Power and rated rpm	310 KW (416 HP) @ 2000 Rpm
7.3.3 g) Maximum Torque and rated rpm	181.5 Kg-m (1780 N-m) @ 1400 rpm
7.3.4 Transmission :	
7.3.4 a) Make & Model	BEML / BTM44310DM
7.3.4 b) Type	Planetary power shift transmission
7.3.4 c) Number of Gear speeds, forward and reverse	04 Forward , 04 Reverse
7.3.4 d) Travel speeds, forward and reverse	Annexure 7.3.4.d enclosed
7.3.5 Final Drive :	
7.3.5 i) Make	BEML
7.3.5 ii) Type	Spur and Planetary gear, Double reduction
7.3.5 iii) Ratio	37.0:1
7.3.6 Steering & Braking	
7.3.6 a) Type	Annexure 7.3.6 a enclosed
7.3.6 b) Actuating System	Annexure 7.3.6 b enclosed
7.3.7 Under Carriage :	
7.3.7 i) Under Carriage overall width	3030 mm
7.3.7 ii) Crawler tracks height	1581 mm
7.3.7 iii) Crawler effective length	3360 mm X 2
7.3.7 iv) Crawler width	610 mm
7.3.7 v) Crawler shoes, total numbers	78 Nos
7.3.7 vi) Ground contact area	4.099 m2
7.3.7 vii) Ground bearing pressure	0.85 kg/cm2 bare tractor
7.3.7 viii) Load rollers, diameter and number per crawler	S/F-2, D/F-5 (per track), Dia-270mm
7.3.7 ix) Driving Sprocket diameter	PCD 1128.9 mm
7.3.7 x) Idler roller diameter	880 mm
7.3.7 xi) Centre to centre of idler roller and sprocket	3360 mm
7.3.8 Hydraulic System :	
7.3.8 (i) Make, Model, Number, flow rates and operative pressures of PUMPS.	Annexure 7.3.8 enclosed
7.3.8 (ii) Make, Model, Number and ratings of MOTORS (where applicable)	Annexure 7.3.8 enclosed
7.3.8 (iii) Make, Model, Number, piston diameters and stroke lengths of CYLINDERS	Annexure 7.3.8 enclosed
7.3.8 (iv) Relief valve operating pressure	Annexure 7.3.8 enclosed
7.3.9 Dozer Attachment :	
7.3.9 (i) Maximum digging depth	700 mm
7.3.9 (ii) Ground clearance at full lift	1545 mm
7.3.9 (iii) Maximum tilt adjustment	1000 mm

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Supply Order no 12000110219123 dt 26.09.2019; M/s BEML Ltd

7.3.10 Electrical System :	
7.3.10 (i) Starter Make and Model	Annexure 7.3.10 enclosed
7.3.10 (ii) Starter control make and model	Annexure 7.3.10 enclosed
7.3.10 (iii) Alternator make and model	Annexure 7.3.10 enclosed
7.3.10 (iv) Batteries, numbers and ratings	Annexure 7.3.10 enclosed
7.3.10 (v) Lighting details	Annexure 7.3.10. v enclosed
<b>Documents to be submitted at the time of Equipment shipment :</b>	
7.4.1 Suitably illustrated, Operation, Repair & Maintenance and Instructions Manuals for the complete Equipment, in English language - 4 sets;	
7.4.2 Suitably illustrated detailed Spare Parts Manuals, covering all Plant, complete Equipment and Accessories - 4 sets	
7.4.3 Detailed drawings illustrating erection / assembly, foundation requirement & drive motors, Transmission etc (if applicable) - 4 sets;	
7.4.4 All the test certificates	

8. Special GUARANTEE

(Also refer clause No 'B-6' of the technical specifications, and other relevant clauses of the NIT).

i) You must ensure that there is no major breakdown due to manufacturing / design defect during the warranty period. In case such breakdown occurs, the purchaser will reserve the right to extend the warranty period suitably.

ii) The complete Equipment consisting of All Assemblies/ sub Assemblies/ components eg. Engine, Transmission, Differential, Final Drive, Air conditioning System, AFDSS, Under Carriage, Hyd System, Chassis/ Structure, Blade Assy, Brake System, Engine Hour Meter & Auto Electricals etc shall be covered for suitable replacement/ Repairs, free from all costs to the purchaser, during total 48 (forty eight) months from accepted date of commissioning.

You will be required to stock spares parts to take care of entire Performance period. Spares should be available immediately for replacement against the breakdowns.

9. PERFORMANCE BANK GUARANTEES: Also refer the relevant clauses under the technical specifications). In accordance to clause No B.7.2 & B.7.3 & clause No '6' of technical specifications, you have to furnish the Performance Bank Guarantees for the **10% value of the Equipment** (along with accessories) including taxes etc. of the total/ FOR Destination price of order(Landed value), initially. The performance Bank Guarantee shall cover the first, second, third & fourth year of performance.

You will have to submit performance bank guarantee for 10% of the order value (landed cost) valid for a period of 54 months of from the date of receipt and acceptance of materials to cover the guarantee period (1+3 years) and the same shall be released on receipt of satisfactory performance throughout the above given guarantee period.

Performance Bank Guarantee has to be submitted for the order value, which will be arrived at by adding all the Taxes applicable, such as GST to the FOR Destination Price of the materials on order. The Performance Bank Guarantee shall be released after receipt of satisfactory performance and no claim certificate from the user department.

10. ERECTION & SUPERVISION

You shall be responsible for the erection and commissioning within 30 days of the receipt of complete equipment at site. However, the purchaser will assist in providing normal tools & tackles etc. and unskilled manpower for this purpose.

11. INSPECTION AND TESTS

i. The purchaser or its authorized representative shall have the right to inspect and/or to test the goods to confirm their conformity to the contract. The purchaser shall notify you in writing of the identity of any representative retained for these purposes.

ii. The inspections and tests may be conducted at the premises of you or your subcontractor(s), at point of delivery and/or at the goods final destination when conducted on the premises of you or your subcontractor(a), all reasonable facilities and assistance, including access to drawings and production data, shall be furnished to the inspectors at no charge to the purchaser.

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*Esthman*

*[Signature]*  
*[Signature]*

19/82

Supply Order no 12000110219123 dt 26.09.2019; M/s BEML Ltd

iii. Should any inspected or tested Goods fail to conform to the specifications, the purchaser may reject them and you shall either replace the rejected goods or make all alternatives necessary to meet specification requirements free of cost to the Purchaser.

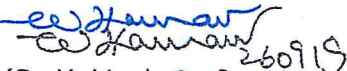
iv. The materials will be inspected on arrival at site by the consignee, which will be considered as final. This shall in no way be limited or waived by reason of the Goods having previously been inspected, tested and passed by the Purchaser or its representatives prior to the despatch of the Goods.


v. Nothing in these documents shall in any way release you from any warranty or other obligations under this contract.

12. INSPECTION CLAUSE :

Final Inspection: Final Inspection of the consignment shall be carried out by the consignee, at the project site, which will be arranged by the consignee on receipt of complete stores.

Pre-despatch Inspection: WCL reserves the rights, to hold Pre-despatch Inspection at supplier's works/ establishment, to get the Equipment inspected before despatch (if considered necessary) by the representative of GM(Excv) HOD, WCL Hqrs or CM(Excv) CIL, Bangalore or any other agency appointed by WCL. Such inspection shall not absolve you of the guaranteed obligations of the contract, in case of any defect noticed later. Necessary tools and tackles etc to carry out such inspection shall be provided by you.

  
(Dr.Y. Venkata Ramana)  
Sr. Manager (MM)

  
26/9/19  
(K.S.R. Divakar)  
Chief Manager (MM)