

	BHARAT COKING COAL LIMITED (A Subsidiary of Coal India Limited) Office of the General Manager(MM) Materials Management Department Commercial Block L-III , Koyla Bhawan : Koyla Nagar Dhanbad : 826005(Fax No- 0326-2230183)
SUPPLY / PURCHASE ORDER	Under jurisdiction of Dhanbad Court and Jharkhand High Court only.

BY REGD.POST / SPEED POST

Ref no: BCCL/PUR/570121(IV)/AA/E&M/Haulage/10-11/100

Dt.04.09.2012

To,
M/s Rana Sales & Service Pvt.Ltd.,
102, Industrial Area, Phase-I,
Panchkula(Haryana)- 134 113.
Fax no:- 0172-2565167

VENDOR CODE:- 1/24/M/U/001

Sub:- This office Tender Enquiry No:BCCL/PUR/570121(IV)/AA/E&M/Haulage/10-11/110 Opened on 21.02.2011

Ref:- Your Offer ref: RSS/BCCL/Tender/015F/2010-11/333 Dt. 15th February, 2011 and subsequent correspondences on the above subject , your last letter dated 31.08.2012.

Dear Sirs,

With reference to the above, we for and on behalf of BCCL hereby place **PURCHASE ORDER** on you for supply of below mentioned items at the following price, terms and conditions:

1.SCOPE OF SUPPLY:-

SN of NIT	Description	Qty.	Basic Unit Rate	Extended Value
1	50 HP Tugger Haulage with 550V , FLP Electrical detailed Technical Specification as per Annexure "A"	6	560000.00	3360000.00
3	100 HP Direct Haulage with 550V , FLP Electrical detailed Technical Specification as per Annexure "A"	3	1850000.00	5550000.00
	Total			8910000.00
	E.D. @ 12.36%			1101276.00
	Sub Total			10011276.00
	CST @ 2 %			200225.52
	Freight for item no. 1		25000.00	150000.00
	Freight for item no. 3		50000.00	150000.00
	Total F.O.R. Landed Value			10511501.52
	CMPDIL Inspection charge	0.80%		84092.01
	Service Tax on Ins. Charge	12.36%		10393.77
	Total contractual Value with inspection charge			10605987.30

- 2. Total Contractual Value :** The total contractual value will be Rs 1,06,05,987.30 (Rupees One Crore Six Lakhs Five Thousand Nine Hundred Eighty Seven and Paise thirty) only on F.O.R. Destination basis inclusive of all taxes , duties & charges as indicated above .
- 3. PRICE :** FIRM & On F.O.R. Destination basis
- 4.E.D & Cess :** As applicable against documentary evidence . Quoted rate indicated above.

THE DESIRED INFORMATION FOR RAISING CENVAT INVOICE		
	SUPPLIER	CONSIGNEE
Name & Address Of Area:		Ekra Central Store, Block – II Area, BCCL, Nawagarh, Dhanbad, Jharkhand – 828306
Tin No.:		20821500736
JST No.:		KT – 651 (R)
CST No:		KT – 254 (C)
Circle / Sub		Katras Circle Katras
Service Tax Regd. No:		AAACB7934MST 009
Central Excise Duty Regd. No:		AAACB7934MEM 007
Range (Code):		Dhanbad - Code - 02
Division (Code		Dhanbad - Code - 02
Commissionerate (Code):		Ranchi - Code - 87

- 5.CST :** Will be paid as applicable . Quoted rate is 2% against issue of C form as indicated above.
- 6.Packing , Forwarding & Insurance :** Nil
- 7.Freight :** To be paid extra the maximum amount indicated above.
- 8.Payment Terms:** 100% payment within 21 days of receipt and acceptance of the materials by the consignee or from the date of receipt of Bills, whichever is later by the consignee.
- 9. Bank Details:**

1	VENDOR/SUPPLIER/CONTRACTOR/CUSTOMER’S NAME & ADDRESS: (With Telephone No. & Fax No.)	M/s Rana Sales & Service Pvt.Ltd., Plot No 102, Industrial Area, Phase-I, Panchkula (Haryana)- Ph no.0172-2560560 Fax no:- 0172-2565167
2	PARTICULARS OF BANK ACCOUNT:	
	A.BANK NAME:	Syndicate Bank
	B.BRANCH NAME:(Including RTGS Code)	Main Branch, Chandigarh, SYNB0009650
	ADDRESS:	SCO 66-67, Sector 17B, Bank Square, Chandigarh, 160017
	C.9-DIGIT CODE NUMBER OF THE BANK & BRANCH (Appearing on MICR Cheque issued on the Bank) Or 5-DIGIT Code Number of SBI	160025001
	D. ACCOUNT TYPE: (S.B. Account/Current Account Or Cash Credit with Code 10/11/13)	Cash Credit
	E.LEDGER NO./LEDGER FOLIO NUMBER:	
	F.ACCOUNT NUMBER (CORE BANKING) & STYLE OF ACCOUNT (As appearing on the Cheque Book)	96501250000038

10.DELIVERY SCHEDULE:-- Supply to commence within 5 months of receipt of order and to be completed within 7 months thereafter. However , keeping in view of our urgency , earliest delivery will be appreciated .

Delivery period to be reckoned from 10th day of placement of order .

NOTE : Safe arrival of materials shall be your responsibility.

11. Performance Bank Guarantee – PBG on schedule/Nationalized Bank in India valid for three months beyond the expiry of Guarantee/Warranty period for 10 % value of the order (order value means FOR destination price including taxes, duties, transportation & insurance charges & other charges if any) shall have to submitted to MM Division, BCCL, Koyla Bhawan on or before commencement of supply. PBG may be submitted either for the entire order quantity at a time or each equipment wise/lot wise.

The original Bank Guarantee should be sent to the beneficiary directly by the issuing bank under registered post with A.D

However in exceptional cases, where the Bank Guarantee is handed over to the customer for any genuine reasons, the issuing bank should immediately send by Registered Post with A.D an unstamped duplicate copy of the BG directly to the beneficiary with a covering letter requesting them to compare with the original received from supplier and confirm that it is in order. The A.D card should be kept with the loan papers of the relevant BG.

12. Security Money:- Exempted as being registered with NSIC.

13.Inspection & Tests: As per Appendix -III.

14.Transit Insurance – Shall be arranged and covered by you for safe arrival of the materials to the consignee end at your cost and risk.

15. PENALTY FOR FAILURE TO SUPPLY IN TIME

The delivery of stores stipulated in Purchase order shall be deemed to be of the essence of the contract and delivery of the stores must be completed by the date specified. No materials should be supplied beyond the specified delivery period, unless specific approval has been obtained from the purchaser.

In the event of failure to deliver the stores within the stipulated date/ period in accordance with the samples and/or specification mentioned in the supply order, and in the event of breach of any terms and conditions mentioned in the supply order. Bharat Coking Coal Limited reserves the right:

a) To recover from successful tenderer, as agreed liquidated damages, a sum not less than 0.5% (half percentage) of the price of the stores 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 .

b) To purchase 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

c) 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

d) To extend the period of delivery with or without penalty as may be considered fit and proper. The penalty , if imposed shall not be more than the agreed liquidated damages referred to in clause(a) above.

e) To encash any Bank guarantee which is available for recovery of the penalty or

f) To forfeit the security deposit full or in part.

g) Whenever under the contract a sum of money is recoverable from and payable by the supplier, BCCL shall be entitled to recover such sum by appropriating , in part or whole by deducting any sum or which at any time thereafter may be due to the successful tenderer in this or any other contract with Bharat Coking Coal Ltd. or any subsidiary of Coal India Ltd. Should this sum be not sufficient to cover the full amount recoverable, the successful tenderer shall pay BCCL on demand the remaining amount. The supplier shall not be entitled to any gain under this clause.

16. PRICE FALL CLAUSE.

i) The prices charged for the stores supplied under the contract by the supplier shall in no event exceed the lowest price at which the supplier offer to sell the stores of identical description to any other organization from date of offer till completion of supply under the contract.

ii) If at any time during the said period the supplier offers lower sale price of such stores to any other organization at a price lower than the price chargeable under this contract, the supplier shall forthwith notify such reduction or sale to the consignee concerned under intimation to CGM(MM), Bharat Coking Coal Limited, Commercial Block, Level –III, Koyla Bhawan, Koyla Nagar, Dhanbad and the price payable under the contract for the stores supplied after the date of coming into force of such reduction or sale, shall stand correspondingly reduced. The above stipulated will not, however apply to exports by the supplier.

17. Submission of Bills- Pre –receipted stamped original bill for 100% value in **four** copies along with, delivery challan in original, Guarantee/ Warranty certificate, Price Certificate and other relevant documents as per supply order, should be submitted to the Paying Authority through Consignee only.

18. Guarantee /Warranty – Materials supplied should be guaranteed for a period of 12(twelve) months from the date of fitment or 18 months from the date of receipt and acceptance at consignee end whichever is earlier against any manufacturing defects / workmanship / inferior quality. Any defect observed on this account shall be attended within 07 days from the date of receipt of report and replace the materials within 21 days free of cost.

19. Packing: Consignment shall be supplied in suitable standard proper packing.

20. Force Majure Clause – If the execution of the supply order is delayed beyond the period stipulated in the supply order as a result of out-break of hostilities, declaration of an embargo / curfew or blockade or fire, flood, acts of nature or any other contingency beyond the supplier's control due to act of God then BCCL may 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.

21. Consignee – Depot Officer, Ekra Central Stores., P.O:- Bansjora(Sijua), Dhanbad, Jharkhand, India (Phone NO:-0326-2330350)

22. Paying Authority- GM(F) MM Div, Koyla Bhawan, Koyla Nagar, Dhanbad.

23. Issue of Road Permit: Road Permit if required may be obtained directly from the Consignee under intimation to this office.

24. All disputes are subject to Dhanbad Court and Jharkhand High Court

ALL OTHER TERMS & CONDITIONS AND TECHNICAL SPECIFICATIONS ALONG WITH SCOPE OF SUPPLY WILL BE STRICTLY AS PER OUR NIT.

This contract is concluded with the issuance of this order. We are enclosing 2 copies of the Purchase order, one of which should be returned to us duly stamped and signed. This issues with the approval of the Competent Authority.

Yours faithfully,
For & on behalf of Bharat Coking Coal Ltd.

(M. Mehta)
Asst Manager(MM)

(A.K.Choudhary)
Chief Manager (MM)

INDENT & BC/FC REFERENCE:-

Indent no. and Date	Budget Certification & FC Details.
Indent No:- BCCL/CGM(E&M)/F- C.Indent/Schemes/2010/ 108 dt 21.08.2010	BC No:- BCCL/C&B/CAP/12-13/P&M/HQ/118/73/195eBC dtd 27.08.2012 for Rs Rs 10605987.30 (Rupees One Crore Six Lakhs Five Thousand Nine Hundred Eighty Seven and Paise thirty) only
IR No:- 0121 dated 05.10.2011	e-F.C. No. : BCCL/C&B/CAP/12-13/P&M/HQ/FC/48/43/69eFC dtd 30.08.2012 for Rs Rs 10605987.30 (Rupees One Crore Six Lakhs Five Thousand Nine Hundred Eighty Seven and Paise thirty)

Copy to:

- 1. Depot Officer, Ekra Central Stores.
- 2. GM(F) MM Div, Koyla Bhawan
- 3. CGM (E&M), BCCL, Koyla Bhawan
- 4. SM(Tech Cell), MM Div,Koyla Bhawan.
- 5. Master File/Office Copy.
- 6 . CMPDIL Ltd. , Gondwana Palace , Kanke Road ,Ranchi

ANNEXURE:-1

**BROAD SPECIFICATION OF DIRECT ROPE HAULAGES .
As per DGMS Circular Tech.13 /1982**

- (1) The different parameters of the Direct Rope Haulage from 75KW and 90 KW / 115 KW should be as follows:-

<u>Rating of the Haulage</u>	<u>75 KW</u>	<u>90 KW/115KW</u>
Rope dia mm	22	25
Drum width mm	1200	1500
Drum dia mm	1000	1200
Flange/Cheek dia mm.	1600	1950
Rope capacity of the drum (m)	1000	1200
FLP Motor,Power,KW	75	115
Motor r.p.m.(Syn.)	1000/750	750
Max/static rope pull Kgf.	3000	4000
Rope speed.m/sec.	2/2.2	2.5/2.7

- (2) Direct haulage should be provided with service brake as well as the emergency brake on the drum. The emergency brake should have the capacity of 3 times the maximum static torque and the service brake have a breaking capacity of 1.2 times the static torque.
- (3) Direct haulage should also be provided with speed indicator, distance indicator and over speed tripping arrangement.
- (4) Jaw Clutch: A jaw clutch should not be provided in the haulage as its incorporation in the system would be linking with all the above mentioned safety features with the drums and as such this may unsuccessfully complicate the mechanism. The motor should run with power 'NO' while the empty tubs are being lowered. The absence of clutch would help to keep the lowering speed with limits.

ELECTRICAL DETAILS:-

- (A) General :-The selection of electricals to be determined mainly on the basis of (1) duty cycle of Haulage operation and (2) Condition of installation and operation.
- (i) Slow speed running and its duration.
 - (ii) No. of start stops and inching operation in each cycle and in each stage of operation.
 - (iii) Over loading and its duration.
 - (iv) Over speed running and its duration.
 - (v) Total duty cycle with acceleration and Retardation time.
 - (vi) Braking / plugging if any.
 - (vii) Ambient and Environmental condition.

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(B) **SELECTON OF Drive**

Type :- Whether slipping or squirrel cage motor to be determined as per measurements of Haulage Installation, Enclosure as the case may be.

Rating :- Output voltage, speed and torque as per requirements of haulage and available supply system.

Duty :- To be determined as per requirements as mentioned in para.

Other :- As per IS: 325 AND 3682, having class of Insulation corresponding to min 30 Minimum requirements.

- (i) 100% over speed for 5 mts.
- (ii) 15-20 nos. of inching operation in each cycle during acceleration and slow speed running.
- (iii) Slow-speed running for 1/3rd period of duty cycle at 1/3rd of rated speed on full load.
- (iv) Duty cycle 10 mts. And pause of 2/3 sec.
- (v) Acceleration time 1 min. and Retardation time 10-30 sec.
- (vi) 15% overload for 1 min. continuous.

Selection of Rotor Resistant

Grid :- Selection of motor resistance and its no. of steps to be determined considering torque speed requirement of haulage and drive Motor rotor data, the duty factor time determined from actual duty cycle of haulage and duration of operation in each step.

MINIMUM REQUIREMENT:-

- (1) 30% speed and 35% torque at 1st notch for inspection speed.
- (2) 30% speed and 60% torque at 2nd notch for slow speed running.
- (3) 30% speed and 100% torque at 3rd notch slow speed running to cope with sharp bend and undulation in track.
- (4) 100% duty factor of 1st, 2nd and 3rd notch.
- (5) 20% duty factor for 4th and onwards notch for acceleration.
- (6) Maximum developed torque shall not be more than 250% and minimum not less than 180%(from 4th notch and onwards).
- (7) Maximum permissible temperature rise of resistance bank not be more than 70°C.
- (8) The resistance unit shall be shock proof, vibration proof and rust proof. Suitable torque speed characteristics for roto resistance shall be adopted.
- (9) Maximum unbalanced rotor resistance, if selected, shall be restricted to 150% of normal F.L. Current.
- (10) Fully enclosed F.L.P. construction.

SPECIFICATIONS OF DIRECT ROPE HAULAGES

1.0 SCOPE:

This specification broadly cover requirements for manufacturer supply & other tech parameters for the electric motor driven Direct Haulage to be used primarily for transport of (ROM) in mines.

2.0 SERVICE CONDITIONS

- 2.1 The Haulages / unit shall be extremely compact and of robust construction to withstand rough usage.
- 2.2 The unit shall be capable of performing satisfactory service in heavy dust laden atmospheres and ambient temperature of 45 deg. & humidity of 98%.
- 2.3 The design & overall dimensions of the Mechanicals & electrical of the unit shall be such that it can be easily dismantled and transported from one place to another.
- 2.4 This specification lays down general conditions & requirement specific service conditions and requirements so required and covered herein shall be given due consideration provided full particulars with justification thereof and necessary supporting documents of technical information be furnished along with the tender offer.

3.0 DEVIATION:-

- 3.1 In case the tenderer is unable to comply with the requirements of this standard the same must be specifically spelled out while quoting against tender requirement and where not so mentioned the tender will be fully responsible to meet all the conditions of this specification. Similarly any deviation from the standard laid down herein with a view to improve the performance of the equipment, shall be given due consideration, provided full particulars with justification thereof and necessary supporting data/technical information may be furnished along with the tender offer.

4.0 DESIGN COSNTRUCTION & TECHICAL REQUIREMENTS:

- 4.1 The direct haulage unit complete with drive motor, speed reduction unit and control gear box shall be mounted on a common bed frame and shall be designed to meet the technical parameters at annexure-1. The bed plate shall be suitably extended to form plate-form for operator and to accommodate all control levers for easy access. The mechanicals & electricals shall be generally conform to clauses 5 & 6 of this specification.

5.0 MECHANICALS:-

- 5.1 **Bed/base frame :**

- 5.1.2 The bed frame shall be made from standard heavy rolled steel sections of adequate size and shall be of such design that can be dismantled to facilitate transport & handling during installation. Overall dimensions shall be optimum so that transportation is possible with minimum dismantling in the underground mines..

C. **SELECTION OF CONTROL GEARS:-**

The following basic elements/features to be considered while selecting the control gears.

- i) Supply Isolation device(with reversing and interlocking provision).
- ii) Forward-Reverse operating device with the Mech. & Elect. Interlocking.
 - a. Short circuit protection(preferably with ACB).
 - b. Overload protection(preferably magnetic Oil dashpot type)
 - c. Under voltage protection.
 - d. Earth leakage protection with sensitive earth leakage relay(250-750mA).
 - e. Over speed protection.
 - f. Over travel protection.
 - g. Current, voltage & speed indicator.
 - h. On, Off and Earth leakage Indication.
 - i. Off position mech. and elect interlocking of drum controller/master controller/semi-master controller.
 - j. Circuit for emergency brake.
 - k. Emergency stop push button.

MINIMUM REQUIREMENT

- 1. Operating line contactor shall be of AC-4 duty-class and handling of motor line current by drum controller to be restricted as far as possible.
- 2. Matching and minimum setting characteristics of over current relay, circuit breakers and line contactors shall be provided.
- 3. Operation of haulage, during lowering shall be made with power supply to motor 'ON' Lowering under gravity shall be prohibited during normal use.
- 5.1.3 The frame shall have machined ends wells gusseted at comers securely bolted. It shall be adequately strong to prevent vibration, bucking of the frame and flanges and elongation.
- 5.1.4 The frame shall have suitably located machined pads for supporting drums unit, motor, gear box, bearing etc.
- 5.2 Drum.
 - 5.2.1 Drum barrel and flanges shall be of robust design and adequate thickness. The drums dimensions shall be suitably selected to accommodate required rope length and drum dia, rope dia ratio shall be so chosen so as to give optimum rope life. The dia of the drum shall not be less 60 times the diameter of the rope.

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- 5.2.2 The drum & cheeks and centre boss shall be of split type(in the haulage) with machined joints and securely butted together. Two cast iron brake rings/paths of adequate diameter shall be butted out both sides of the drum.
- 5.2.3 The drum design shall keep provision for easy dismantling transport facility.
- 5.2.4 The drum shall be keyed & supported on main shaft, with suitably designed & heavy duty bush bearings housed in pedestals at the two ends.

5.3 **Main Shaft**

The main shaft shall be adequate dimensioned & grounded(where bearing seats) to fine 1 limits. The materials of shaft shall be high tensile steel conforming to IS:1875(or equivalent.)

5.4 **Speed reduction**

- 5.4.1 The speed reduction will be through suitably designed, robust single unit gear box.
- 5.4.2 Gear unit rating design & selection shall conform to relevant IS/International standard and shall be suitable to meet the load fluctuations & jerking etc. Normally encountered in haulage operation .
- 5.4.3 A minimum service factor of 3 shall be considered while selecting the gearing units.

5.5 **LUBRICATION:-**

Suitable provisions shall be made for adequate lubrication of all the parts. Lubrications points/cups shall be easily accessible suitable drain pugs shall be provided where ever necessary.

5.6 **BRAKES**

5.6.1 **Service Brake**

- 5.6.2 The service brake of reliable design and adequate strength to meet the service requirement shall be provided on both sides of the drum. The brake shall be self holding caliper type fitted with brake shoes and easily replaceable brake linings and shall permit adjustment of brake shoes with the wear of lining.
- 5.6.3 The brakes shall be operated by arms of an ratchet through well designed brake lever linkage having foot pedal and screw down pillar with hand wheel.
- 5.6.4 The system shall be fitted with suitable counter weight to ensure release of brake when load is removed.
- 5.6.5 The braking torque shall not be less than 1.5 times the minimum static torque.
- 5.6.6 An adjustable hand wheel operated screw-down pillar arrangement will be service in 'ON' position.

5.7 **EMERGENCY BRAKE :-**

Suitably designed electrical-thruster brake shall also be provided on coupling between motor and gear box.

5.8 **DEPTH INDICATOR** :-

- 5.8.1 A suitable distance indicator to show position of tubs during inhaul & outhauls shall be provided.
- 5.8.2 The depth indicator shall be with reasonably large scale, shall be of reliable and proven design.

6.0 **ELECTRICALS**

6.1 Drive Motor.

- 6.1.1 Suitable NFLP/FLP, TEFC, horizontally, foot mounted, haulage duty rated slipping. Induction Motor, with at least half hour duty cycle shall be provided, speed of the motor shall be 1000/750 rpm.
- 6.1.2 The FLP, TEFC motors shall have IP-55 protection.
- 6.1.3 The Motor insulation of stator with class 'F'..
- 6.1.4 The motor shall be suitable for operation on 3 phase, 50 HZ ,550V,(+/- 10% fluctuation) system voltage.
- 6.1.5 The motor shall be provided with approved design cable entry arrangement to suit PVC cable.
- 6.1.6 Acceptable make of the motor: Kirloskar/Crompton/GEC/NGEF/ABB/MARATHON or other reputed brand with DGMS approval..

7.0 Control gear.

7.1 Circuit Breaker.

- 7.1.1 Reputed make dust proof, pedestal mounted air circuit panels comprising of :-
 - i) Triple pole magnetic over current release with adjustable time lag, under voltage release with no close device and provision for interlocking.
 - ii) Earth linkage protective device with core balance transformer and relay to trip 250mA-750mA primary leakage current with relay test button and transformer.
 - iii) Moving iron ammeter.
 - iv) Triple pole mechanically interlocked isolator.
 - v) Cable entries to suit PVC DWA Cable of required size.
 - vi) Triple pole contactor type circuit breaker continuously rated slipping Induction motor inherent U/V release, duty AC-4.
 - vii) HRC fuses for backup protection.
 - viii) Auxiliary sealing armored clamp for the inter locking cable.

7.1.2 Reputed make, air break, dust proof heavy duty reversing type controller provided with the following features.

- i) Floor mounted, vertical case and cover of steel plate incorporating crank type operating handle fitted with 'OFF' position trigger catch.
- ii) 7 notches of rotor resistance control in each direction(forward & reverse)
- iii) "OFF" posting electrically interlocked with the starter switch (circuit breaker) which allows starter to be made 'ON' with resistance in rotor circuit.

- 7.1.3 There shall be drum controller up to 90 KW& above that there shall be cam controller.
- 7.2.1 Reputed make,10 minute rated resistance units designed to a continuous creeping speed on first controller (designed to provide 120% starting torque notch) with rating of notches to get desired speeds and fitted with:
- i) Dustproof enclosure having a good dissipating capacity and thermal capacity.
 - ii) Thermal boxes.
 - iii) sealing boxes and armored clamps to suit PILCDWA/PVC cable of required size.
- 7.2.2 All the electricals shall be of DGMS approved type and proven design suitable to meet the haulage duty requirement under the service conditions laid down in the standard.
- 7.3 All the electricals shall be of approved type and proven design suitable to meet the haulage duty requirement under service conditions laid down in the standard.

8.0 **DRAWINGS**

A general arrangement drawing showing all the components, overall dimensions and total weight of the mechanical and electrical parts, must be submitted along with offer for scrutiny.

9.0 **AFTER-SALES-SERVICE:-**

The tenderer not indicating the after sales-services and supply of spares facility may not be considered. After sales service to be confirmed within 24 hours after the intimation on B/D .A quarter joint inspection report will be submitted and a copy will also be submitted to CGM(E&M) besides other. Trained Service persons will be provided free of cost at the time of installation and commissioning.

SPECIFICATION TUGGER HAULAGE

- A) **SCOPE :-** This specification broadly cover requirement for manufacturer and supply of Electric Motor driven Tugger to be used primarily for transportation of Coal (ROM) in underground Mines.
- B) **SERVICE CONDITIONS:-** The Tugger shall be extremely compact and of robust construction to withstand rough usage..
- 2.2 The unit shall be capable of performing satisfactory service in heavy dust laden atmosphere and ambient temperature of 45°C relative humidity of 98%..
- 2.3 The design and overall dimension of the mechanicals and electricals units shall be such that it can be easily dismantled and transported from one place to another.
- 2.4 This specification lays down general conditions and requirements. Any specific service conditions requirements so required and not covered herein shall be separately furnished/indicated.
- 3.0 **DEVIATION:-**
- 3.1 In case the tenderer is unable to comply with the requirements of the standard the same must be specifically spelt out while quoting against tender requirements and where not so mentioned, the tenders shall be fully responsible to meet all the conditions of this specification. Similarly any deviation from the standard laid down herein with a view to improve the performance of the equipment, shall be given due consideration provided full particulars with justification thereof and necessary supporting data/technical in formations are furnished along with the offer.
- 4.0 **DESIGN CONSTRUCTION AND TECHNICAL REQUIREMENTS:-**
- 4.1 The Tugger complete with drive, speed reduction unit and frame control gear shall be mounted on a common body and shall be designed to meet the technical parameters given at Annexure-I. The mechanicals and electrical shall be generally conforming to clauses 5&6 of this specification.
- 4.2 Overall dimensions shall be optimum & transportation shall be possible in a single a tub cage with minimum dismantling.
- 5.0 **MECHANICALS:-**
- 5.1 The bed frame shall be made from standard heavy rolled steel sections/spheroid graphite CI/Cast Steel of adequate size and shall be of such design that can be dismantled to facilitate transport and handling during installation.

Contd.....2/-

- 5.1.1 The bed frame shall be well settled at corners and securely bolted. It shall be adequately strong to prevent vibration, bucking of the frame and flanges and elongation of bolts, local undulation in the ground shall not affect alignment of working points and impair strength on bearing.
- 5.1.2 The frame shall have suitably located machined pads for mounting drum unit, motor, gear box, bearing etc.
- 5.2 Drum barrel and flanges shall be of robust design of adequate thickness. The drum dimensions shall be suitably selected to accommodate required rope length and drum dia/rope dia ratio shall be so chosen so as to give optimum rope life.
- 5.2.1 The drum shall be supported on a shaft with suitably rated heavy duty bush bearings.
- 5.2.2 Suitable provision shall be made for adequate lubrication and lubricating points shall be easily accessible.
- 5.3 The main shaft shall be of adequate dimension and ground hardened(where bearing seats) to fine limits. The material of shaft shall be high tensile steel conforming to IS 1875 Cl. III/IV or equivalent.)
- 5.4 Suitably designed epicyclical gear train having sun and planet gearing arrangement or equivalent arrangement for speed reduction should be incorporated for the transmission of power from motor to the haulage drum. The machine cut gear should be finally machined and housed to bring down the noise level to national/international standard.
- 5.5 Drive between motor to the drum should be so connected through speed reduction device that minimum vibration takes place and power transmission is as smooth as possible.
- 5.6 **BRAKES**
- 5.6.1 External hand operated band type friction brake of suitable design with renewable type lining(farodo or equivalent) shall be provided. The braking component shall be designed to provide adequate and positive brake power at least 50% over full load.
- 5.6.2 Anti-Back lash tension brakes of suitable design shall be provided. The brakes shall be automatically while un winding and free wheeling when winding rope and drums.
- 5.6.3 Provision for adjustment of brakes shall exist.
- 5.7 **CLUTCH:-**
- 5.7.1 A suitably designed planetary type gear train with band type clutch for jerk free operation shall be provided which allows to run the motor continuously and permits the load to be taken up quickly .
- 5.7.2 A toggle type high leverage clutch lever operating external friction type clutch shall be provided for the drum.

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5.7.3 The clutch rim/rach and the band shall be suitably designed for rapid heat dissipation and shall be of adjustable type.

5.8 Necessary heavy duty steel plate wire mesh guards shall be provided to cover maximum portion of the drum for safety of equipment operator.

5.9 Provision for lubrication will be made for the bearings.

5.9 Each part shall be so designed and fitted that these would be accessible without difficulty, easily removable and quick assembly. A General arrangement drawing showing all the components and total weight of the mechanical and electrical parts, will be submitted along with the offer for scrutiny.

6.0 **ELECTRICALS**

6.1 **DRIVE MOTOR**

6.1.1. Suitable FLP horizontally foot mounted and continuously rated Sq. cage induction Motor to met the service requirement shall be provided.

6.1.2 The motor shall be suitable for operation on 3 phases, 50 cycle 500-550V(\pm 10%) supply system. The applicable voltage requirement shall be specified in the tender enquiry.

6.1.3 Unless otherwise specified motor rpm shall be 1000(Sych.)

6.1.4 The motor shall be provided with approved designed cable entry arrangement to suit PVC DWA CABLE.

6.1.5 The motor shall confirm to IS 325(Current), IS 1231 other relevant IS Span.

6.1.6 The frame size of the motor will be 180L.

6.2 **CONTROL GEAR**

6.2.1 A suitable rated star-data mining type starter shall be provided.

6.2.2 The starter shall be air break contactor type.

6.2.3 The starter shall be complete with suitably designed std. protection.

- Inter locked off-load isolator.
- Under voltage release.
- Adjustable overload tripping mechanism(75% - 159%)
- Earth leakage, sensitive earth leakage(250-750 mA)
- Emergency push button operated tripping device.
- Ammeter.
- Voltmeter.

6.2.4 The starter shall have incoming and through going cable entery arrangement to suit PVC DWA Cable of required size.

6.3 FLP Electricals shall meet the requirement of IS:2148(latest) and shall have valid approval of the Director General of Miners Safety for use in group-I gassy mines.

Contd.....4/-

- 7.0 **APPROVAL OF DRAWINGS(APPLICABLE FOR ALL THE HAULAGES):-**
- 7.1 The manufacturer/supplier shall within one month of the placement of order, submit three sets of detailed general arrangement drawings for the approval of concerned Tech.head(E&M) before taking up the manufacture & supply of the equipment.
- 7.1.1 Any delay in getting the approval due to submission of incomplete technical information/drawing(s) shall be the responsibility of the manufacturer/supplier and shall not affect the delivery schedule, as agreed to in the purchase order.
- 8.0 Technical Documents and Drawings:
- 8.1 The supplier shall furnish adequate number of maintenance and operation manuals giving detailed instructions for operations, maintenance, trouble shooting, guide, lubricants, and other details. The manual shall be exhaustive and fully illustrated covering amongst others, the following vital details.
- 8.1.1 Description and arrangement of equipment and its sub-assemblies.
- 8.1.2 Technical Data.
- 8.1.3 Commissioning instructions.
- 8.1.4 Dismantling and assembly instructions along with instructions for special clearance, etc. to be maintained during assembly.
- 8.1.5 Recommended schedules of indigenously, available lubricants, preferably common grade for use round the year.
- 8.1.6 Manufacturer's name & bearing number(with equivalent) for anti-friction bearings.
- 8.1.7 Periodical inspection schedules.
- 8.1.8 Trouble shooting instructions for general troubles expected in formation.
- 8.1.9 Wear/Condemning limits for vital wearable components.
- 8.1.10 Instructions for reclining worm-out components.
- 8.1.11 List of special tools & tackles applicable and instructions for use.
- 8.1.12 Detailed packing and storage instructions for new equivalent and major overhauls.
- 8.1.13 Detailed sectional drawing showing all the parts and their nomenclature.
- 8.1.14 Part list giving details such as std. Part no. nomenclature qty. per unit & how to order etc.
- 8.2 The supplier shall furnish routing test reports for each of the equipment supplied and its sub-assembly.
- 8.3 In respect of flame proof equipment each set supplied shall be accompanied by approval certificate from DGMS for use in Coal Mines having gas group-I (Methane) and valid certificates to certify that the products bear IS mark and must be conditions laid down in certificate, from DGMS for Electricals, used.
- 8.4 The supplier shall submit certificate from the Electrical manufacturer that the electricals have been specially designed to meet the desired duty and service requirements.

Contd.....5/-

9.0 **GENERAL CONDITIONS FOR INSPECTION & CONDUCTING TESTS.**
(APPLICABLE FOR ALL THE HAULAGES)

- 9.1 All tests shall be conducted at the manufacturer's premises.
- 9.2 The supplier shall provide free of charge, labor and application required by the inspecting officer for and testing the whole unit and its components if required
- 9.3 The inspecting officer shall have the authority to adopt any method he may consider necessary to satisfy himself that all the proper materials and parts specified (Specn. And purchase order) have been actually used during the manufacture of the equipment.
- 9.4 The inspecting officer or representative of purchaser shall have access at all reasonable time for stage inspection, to these portions of the manufacturers works in which the production of equipment or its components is being carried out and where the testing is taking place..
- 9.5 Should any part of the equipment alteration or any defect appears during proto-type routine and other tests, the supplier shall without any extra charge make such alteration or rectify the defects to the satisfaction of the Inspecting officer. The equipment after such modification the changes may be subjected to such tests as considered necessary by the inspecting officer.
- 9.61 If the results obtained during the tests are found un-satisfactory, the supplier may affected minor changes/modifications to enable the equipment to satisfy the requirement at their own cost within a mutually agreed time between the purchaser and the supplier.
- 9.6 Any modification or alternation to the components and equipment during supply against the order shall be made only after the approval of Tech head (E&M), BCCL. The equipment after such modification or alterations may be subjected to such tests as considered necessary. The manufacturer shall have to make available all the requirement for inspection purposes if required.
- 10.0 **GUARANTEE:-**
- 10.1 The supplier shall guarantee for satisfactory performance of the unit and any part/component found to be defective either due to bad workmanship or design or faulty material shall be replaced free of cost. The free replacement of such parts shall be supplied expeditiously to the user of the equipment.
- 10.2 The supplier shall also arrange for the guidance by its complaint service Engineering staff, wherever and whenever called for.
- 11.0 **AFTER SALES SERVICE:-**
- 11.1 The manufacturer/supplier shall enclose a suitably designed service card bearing his company's name & address with consignment of each equipment. This service card shall be referred to manufacturer/supplier when his service shall be required. Other conditions same as in case of direct haulage.
- 11.2 The manufacturer /the representative shall inspect the equipment twice a year. A copy of the inspection report shall be forwarded to Tech.head (E&M), BCCL and the user of the equipment. Suitable entry shall be made in service Card.
- 11.3 The manufacturer shall arrange for the facilities such as stocking of critical spare parts and case of emergency arrangement for replacement of sub-assembly/unit at or near Dhanbad shall be made.

TECHNICAL AND GENERAL DATA(APPLICABLE FOR ALL HAULAGES
(TO BE FURNISHED BY THE BIDDER)

The tender shall furnish the following technical and other in formations at the time of submitting tender offer. The offers with late information/without the following in formations are likely to be ignored.

- 1.0 General.
- 1.1 Name of the supplier & address.
- 1.2 Name of the manufacturer and address of the works & office.
- 1.3 Name of local rep/service Engineer and address.
- 2.0 Technical data.
- 2.1 Type & Model.
- 2.2 Drum(s) Size.
- 2.2.1 Drum dia(mm) & thickness of drum shell/barrel(mm)
- 2.2.2 Drum width(mm) & thickness of plate(mm)
- 2.3 Rope size & Capacity.
- 2.3.1 Rope dia (mm).
- 2.3.2 Rope capacity(with 80 mm clearance between flanges/drum top and last layer of rope, after coiling full length of rope.
- 2.3.3 Average rope speed(in/sec.) at mid position of drum.
- 2.3.4 Rope Pull (kgs)
 - a) Bottom(FULLY UNCOILD ROPE POSITION)
 - b) Mid (half rope coiled on drum)
 - c) Top (full rope coiled on drum)
- 2.4 **SHAFT MATERIAL & IS EQUIVALENT**
- 2.4.1 Shaft dia at bearings/journals & span.
- 2.4.2 Dia of other shafts, materials span.
- 2.5 Type (s) Sizes of bearings and their location.
- 2.5.1 Lubrication arrangement & Lubricant used.
- 2.5.2 Designed bearing pressure.
- 2.5.3 Antifriction/Bush bearings number(s) brand(s) & name of the manufacturer.
- 2.6 Brakes.
- 2.6.1 No. of brakes type of each haulage.
- 2.6.2 Brake Power available.
- 2.6.3 System of speed reduction.
- 7.1 **NO. OF STAGES**
- 2.7.2 Gearing arrangement for each stage & reduction rations.
- 2.8 Material of other main parts of the Haulage.
- 2.8.1 Factor of safety for main components of the haulages.
- 3.0 Motor.
- 3.1 Type & make.
- 3.2 Frame size.
- 3.3 HP RPM Voltage & FLP/NFLP.
- 3.4 Class of Insulation.
- 3.5 Duty designed for.
- 3.6 Cable entries suitable for.
- 4.0 **CONTROL GEAR**
- 4.1 Type & make.
- 4.2 FLP/NFLP.
- 4.3 Protection provided .

APPENDIX - III

PRE DESPATCH INSPECTION CLAUSE: -

Pre-dispatch inspection of each consignment shall be carried out by M/s. Central Mine Planning & Design Institute Ltd (CMPDIL), Ranchi/their Regional Office as per the terms and conditions indicated hereunder:

Pre-dispatch inspection shall be carried out by M/s. CMPDIL (the above firm) as per their methodology. The third Party Inspection shall include examination of raw material, test certificate verification, continuous monitoring of quality assurance by manufacturer which will include regular and surprise visits. In brief, the scope and condition of inspection by M/s. CMPDIL will be as follows :

Checking and approval of test procedures/quality assurance plans.

Verification of records and documents of your works.

Verification of documents and test certificate of bought out items and cross checks.

You shall provide facilities for carrying out all necessary tests as required in the specification at your works else these will be carried out at an independent test house at your cost.

Final testing and checking of materials as per specifications.

M/s. CMPDIL will have full and free access to the premises of manufacturer during the process of manufacturing and during inspection activities.

Inspection fee @ 0.30% of total consignment billing (plus statutory levies like service tax etc on inspection fee) is to be paid to M/s. CMPDIL along with inspection call letter payable by DD which will be reimbursed subsequently by BCCL together with consignment billing.

Minimum 7 calendar days notice shall be given by the manufacturer to M/s. CMPDIL for arranging inspection within valid delivery period as per contract.

The ultimate responsibility for supply of correct materials as per requirement of relevant specification lies solely with the manufacturer in spite of clearance/acceptance by inspection authority i.e. M/s. CMPDIL. The manufacturer will be required to replace the material free of cost if found defective/unserviceable/not according to relevant specifications.

The charges for third party inspection and the cost of materials that would be required for destructive tests, if any, shall be reimbursed by BCCL together with the consignment billing. Such cost shall be reimbursed only if it is duly certified by M/s. CMPDIL.

Please send inspection call to M/s. CMPDIL, Ranchi/ their Regional. Office as per clause 7 & 8 above.

Final inspection shall be arranged by the consignee after receipt of the material at our destination.

The purchaser shall, at its discretion, have the right to test the ordered material in a Government Test House or in a test house nominated by the purchaser. In case of failure of the material after testing the cost of tests as well as of the material shall have to be borne by the supplier.

FOR AND ON BEHALF OF BCCL