



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)

ORIGINAL BY REGD. POST.

SUPPLY / PURCHASE ORDER	Under jurisdiction of Dhanbad Court and Jharkhand High Court only.
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Ref. No. Pur /112005/12-13/Horz.Pump/Cent./M&P/168 Dt: 29.11.2012

To, [I.R. no. 1120005(12-13) Dt. 07/04/12]

M/s. Flowmore Ltd.,
44, Kabir Road (1st Floor)
Kolkata-700026

VENDER CODE :

FAX : 033-

Sub. : This Office Tender no. :
BCCL/Pur/53/112005/12-13/Horz.Pump/Cent./06
Due & Opened on 19/06/12(Off-Line) , 20/06/12(On-line)

Ref: Your Offer no. : FL/KOL/SC/2012-13/EQ-014 Dated 14th June 2012 &
Subsequent correspondence on the above subject .

Dear Sirs,

With reference to the above, we , for and on behalf of BCCL , hereby place PURCHASE ORDER on you for supply of following items as per rate , terms and conditions indicated below :

1. SCOPE OF SUPPLY : HORIZONTAL PUMP SETS & BARE PUMPS

The detailed description along with specification / size of the Pump along with Qty. to be supplied , Unit Rate , other charges and Extended Value indicated at Annexure “ B “

2. TOTAL ORDER VALUE : The total order value will be Rs. 1,55,08,217.36 (Rupees One Crore Fifty Five Lakh Eight Thousand Two Hundred Seventeen and Paise Thirty Six) only on F.O.R. Destination basis .

3. Excise Duty & CESS : Will be paid extra at actual on proof of documentary evidence . However , offered rate indicated above .

CENVAT-Coal has become the excisable commodity with effect from March 2011.

In order to get CENVAT credit, the following information must be contained in the invoice issued by the supplier for Revenue and Capital goods:

- Serial number of the invoice ,
- Registration number,
- Address of the concerned central excise division,
- Name of the consignee,
- Description of the goods,
- Classification of the goods,
- Time and date of removal,
- Mode of the transport and vehicle registration,
- Rate of duty,
- Quantity and value of goods and

(Contd. Page-2)

- Duty payable thereon.

Following information must be contained in the said document for availing CENVAT credit on input service.

- Serial number,
- Name, address and registration no. of person providing taxable services,
- Name and address of the person receiving taxable services,
- Description, classification and value of taxable services provided or to be provided and Service tax payable thereon.

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

4. **CST.** : Will be paid at actual . However , the offered rate indicated above
5. **Packing & Forwarding Charges** : Inclusive .
6. **Freight & Insurance Charges** : To paid maximum indicated at Annexure-‘B’ .
7. **Mode of Despatch** : By Road on F.O.R. Destination , Freight paid basis .
NOTE : You will ensure safe & sound delivery of stores at consignee’s end .
8. **Road Permit** : Road Permit , if required , may be obtained directly from the Consignee under intimation to this office.
9. **Delivery Period** : Delivery schedule will be as under :
(a) For Pump Set with Electrical 550V , FLP - within 3-4 months or earlier
(b) For Pump Set with Electrical 3.3KV , FLP - within 4-5 months or earlier
(c) For Bare Pumps : 10 Pumps within 2 months or earlier and balance to be supplied @ 10 pumps per month thereafter or earlier
However , keeping in view of our extreme urgency, earliest delivery will be appreciated .
[Delivery period will be reckoned from 10th day of placement of this supply order.]
Any increase in the rate of taxes & duties beyond delivery period will be to your account .
10. **Consignee & Paying Authority** : Consignee & Paying Authority for this order will be

as under :

Consignee	Paying Authority
The Depot Officer , Central Stores , Ekra , B.C.C.L.	The General Manager(F) (MM) , MM Division , Koyla Bhawan , B.C.C.L. , Dhanbad

11. **Payment Term** : 100% payment will be made within 21 days of receipt and acceptance of the materials by the consignee or from the date of receipt of Bills, whichever is later.

12. **Submission of Bill** : 100% value of bill duly stamped , signed & pre-receipted in quadruplicate , as per terms of the order should be submitted for payment to the paying authority through consignee.

Bill should be submitted along with challan, Consignment note (if required) , packing list if any, guarantee/warranty certificate, fitment / Test certificate if required , proof of payment of freight charges if freight is claimed , documentary evidence of Excise duty payment if claimed, Price Certificate , Copy of Inspection Note of CMPDIL (If required) and other documents as per order .

(Note – All documents to be submitted shall be duly authenticated)

No payment will be made without submission of performance Bank Guarantee & security deposit , if covered in order .

Bank Details :

Name of Bank : Canara Bank , F-19, Cannaught Circus , New Delhi – 1

Account Style/Nature : Cash Credit .

Account No. : 0143261025009

13. **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.

14. **PRICE CERTIFICATE**: You should submit a certificate along with bill as stated below “The rates of the stores under this contract are the lowest at which we are selling to any other customer/Govt. Deptt./ Subsidiaries of CIL/ Other PSUs . If the materials are sold at any lower rate than that mentioned in this contract to any other agency , the same will automatically be applied to this contract from that date “ .

15. **Performance Bank Guarantee** – A Performance Bank Guarantee 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 in the standard format Appendix-III enclosed herewith .

No payment will be made without submission of the performance bank guarantee.

16. **Security Deposit** - Waived as being registered with DGS&D .

17. **Inspection** – Final inspection shall be carried out at the consignee end after receipt of materials by the concerned technical head or their authorized representative .

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 this office .

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 you , as agreed liquidated damages, a sum not less than 0.5% (half percentage) of the price of the stores which you have 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 you, on your account and risk , 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 your risk and cost 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 you, 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 you 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, you will pay BCCL on demand the remaining amount. You will not be entitled to any gain under this clause.

19. 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.

All other terms & conditions along with Technical Specifications and Scope of supply will strictly be as per our NIT and company's norms .

ALL DISPUTES ARE SUBJECT TO DHANBAD COURT AND JHARKHAND HIGH COURT JURISDICTION ONLY.

This contract is concluded with the issuance of this order . Two copies of the order is being sent to you . You are advised to acknowledge the receipt and acceptance of the order by returning one copy duly signed and stamped to this office positively within 15 days , failing which this order shall be deemed to have been accepted by you for execution .

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

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

INDENT & BUDGET CERTIFICATION REFERENCE

S.N.	Indent no. and Date	Budget Certification no. & dt.
1	BCCL/CGM(E&M)/F-C Indent /12-13/123 Dt. 14/03/12 & BCCL/CGM(E&M)/F-C Indent/ 12-13/125 Dt. 14/03/12 I.R. No. 1120005(12-13) Dt. 07/04/12	Earlier BC provided As Advance Budget Commitment for 12-13 vide ref. no. BCCL/HQ/PP/FIN/Sr.M/12-13/P&M/A-2/5/Indent Dt. 08.02.12 for Rs. 2,14,30,000.00 eBC No. 119 of HQ. for Rs. 170.36 Lakh [M/S Flow More- Rs. 1,55,08,217.36 & M/S Mather& Platt – Rs. 15, 27,648.27] eFC No. 130 Dt. 22/11/2012 for Rs. 1,70,35,865.63

Copy to:

1. Depot Officer, Ekra Central Stores.
2. GM(F)(MM) , MM DIV, Koyla Bhawan.
3. CGM(E&M), Koyla Bhawan.
4. MM(Tech Cell), MM Div,Koyla Bhawan.
5. Master File/Office Copy.
6. Spl. Cell , CMPDIL, Kanke Road , Ranchi
7. Copy to IEM

Justice Ashok Kumar Chakraborty (Retd), BB-69, Sector I ,Salt Lake, Kolkata – 700

ANNEXURE - ' B '

SCOPE FOR SUPPLY

S.N	Description	Qty. (Set)	Unit Basic Rate (Rs)	Extended Value
A	Horizontal Pump set complete with DGMS approved electrical of following duty parameters			
1	300M x 1000 GPM 3.3 KV	1	2464059.00	2464059.00
2	300M X800 GPM 3.3 KV -	1	2384467.00	2384467.00
3	220M X 600 GPM 550 V	1	1124811.00	1124811.00
4	125M X 400 GPM 550V	1	662183.00	662183.00
B	Horizontal Bare pumps without electrical for following duty parameters			
3	300 M X 600 GPM	2	469388.00	938776.00
4	180 M X 500 GPM	1	277550.00	277550.00
5	220 M X 500 GPM	1	321429.00	321429.00
7	150 M X 550 GPM	2	234694.00	469388.00
9	100 M X 500 GPM	1	125510.00	125510.00
11	75 M X 500 GPM	3	125510.00	376530.00
12	280 M X 1000 GPM	2	489796.00	979592.00
13	280 M X 800 GPM	5	469388.00	2346940.00
14	280 M X 600 GPM	4	408163.00	1632652.00
	Total			14103887.00
	E.D. & Cess @ 6.18%			871620.22
	Sub Total			14975507.22
	CST @ 2%			299510.14
	Freight & Insurance Charge for A1	1	30000.00	30000.00
	--- do -- A2	1	30000.00	30000.00
	--- do --A3	1	15000.00	15000.00
	--- do --A4	1	10000.00	10000.00
	--- do --B3	2	9300.00	18600.00
	--- do --B4	1	5400.00	5400.00
	--- do --B5	1	6300.00	6300.00
	--- do --B7	2	4500.00	9000.00
	--- do --B9	1	2500.00	2500.00
	--- do --B11	3	2500.00	7500.00
	--- do --B12	2	9700.00	19400.00
	--- do --B13	5	9500.00	47500.00
	--- do --B14	4	8000.00	32000.00
	Total Landed Value			15508217.36

[Technical Details will be as per Annexure “ A “]

ANNEXURE – ‘ A ‘

SPECIFICATION OF MULTISTAGE PUMP [VERTICALLY-SPLIT TYPE] [FOR HEAD 150 MTRS. AND ABOVE]

Multistage centrifugal pump build from a number of stages held together by body between two end cover which in turn to incorporate the suction and delivery branches respectively. The middle body shall contain the renewable guide passages to carry the liquid being pumped from the delivery of the one impeller to the eye of the next. The impeller is to be of single entry with all in-let in the same direction. The hydraulic balance valves shall be incorporated so as to cushion end thrust.

Pump will be suitable for handling Mine drainage water at (45°C) ambient temperature having specific gravity of 1.03 while operated at an altitude not exceeding 300 M above seal level and the net suction lift should not be less than 5M.

The speed of the pump will be 1500 (Syn) and the complete pump rotor shall be balanced statically to provide vibration free operation. All the pumps will also be tested hydraulically at one and half time the working head.

The materials of construction of these pumps shall be as below: -

End covers, Middle Bodies and Renewable guide tips/passages	- Close grained cast Iron as per IS-210 Gr. 220
Shaft	- EN-8 Steel (High Tensile)
Impellers	- Bronze IS 318 Gr.II
Sleeves	- Bronze
Balance Valve & seating bush	- Ph.Bronze
Neck rings & Neck bushes	- Bearing Bronze
Packing	- Standard graphite cotton
Bearing	- Ring Oil Lubricated split Bronze bust.

Indicator for wear of balance valve and required oil level gauge must be provided with the bearing at driving and non-driving ends.

All hydraulic parameters of the pumps shall be subject to tolerance as per IS-9137.

Note:-

- a) Impeller shall be of fully enclosed type of suitable shape and shall be statically balanced for smooth running.
- b) Each stage shall be provided with suitably designed renewable guide passage to discharge the liquid being pumped from one impeller to suction of the next impeller.
- c) The impeller shall be of single entry type with all inlet eye/suction in the same direction.
- d) There shall be provision for balancing the end thrust by hydraulic valve/disc made of bronze material.

(Contd. Page-2)

- e) The pump shall be fitted with the bush bearing of suitable design and shall be adequately rated to withstand the service requirement & heavy thrust load.
- f) Bearing shall have provision for lubrication.
- g) Suitable oil gauge shall be provided at driving & non-driving end of bush bearing.
- h) The motor shall be directly coupled to pump through well-designed pin type couplings alternatively any other suitable flexible/hydraulic coupling of adequate rating.]
- i) The motor and pump set along with coupling shall be supplied mounted on a common bed frame of adequate strength.

The pump shall be coupled directly through suitable flexible coupling continuously rated flameproof / NFLP squirrel cage inducting motor 1450 RPM and of adequate HP suitable for operation in AC, 3 Phase, 50 C/s, 3.3 KV/ 550V as the case may be ,insulation class 'F' , Foot mounted , TEFC/TETV .

Motor- NGEF/CGL/GEC/BHEL/SIEMENS/KIRLOSKAR/MARATHON
[Suitable for S – D Start]

- a) It should have margin of at least 10% over & above power required by pump at duty condition.
- b) It should be able to meet power requirement of pump at least 10% over rated head i.e. Motor should be capable of taking 10% overload.
- c) Performance characteristics shown on Head Vs Discharge to be submitted .

ADDITIONAL ACCESSORIES TO ACCOMPANY EACH PUMP SET

- a) Sluice valve of adequate size [(Cast Steel Body) , Class – 300]
MAKE : KIRLOSKAR / KSB / L&T / FOURESS
- b) Non-return valve of adequate size with bye-pass arrangement .
[(Cast Steel Body) , Class – 300]
MAKE : KIRLOSKAR / KSB / L&T / FOURESS
- c) Foot Valve with strainer (flange type) – C . I . Body
- d) Pumping funnel with test cock
- e) MS fabricated bedplate of adequate strength and size matched to take the pump coupled with the motor.
- f) Coupling guard and gauges to show head in FEET & discharge in GPM
- g) Standard tools and tackles.

STARTER SPECIFICATION (STAR – DELTA Type)

- a) The mining type starter would be successfully tested type at CPRI for the offered ratings . A copy of CPRI test report to be submitted to this effect .
- b) For FLP starter, valid DGMS approval will be submitted.
- c) Magnetic O/L protection with a range of 50% to 150%
- d) Off-load interlocked reversing isolator of capacity 300% of full load current.

(Contd. Page-3)

- e) Bush Bar- Through going electrolytic copper with shrink in PVC sleeves and having adequate cross-section and current rating not less than 400 Amps.
- f) Incoming- Outgoing and through going cable sealing dividing box suitable for mining type PVCDWA/PILCDWA cable.
- g) Contactor suitable for AC-3 duty and should be operated through Aux. Transformer. The capacity of contactor should be thrice the full load current
 - a) The contactor will be confirming to IS13947 (Part-IV/Sec-X) for LT and IS 12729 (1988) (amended if any) for H.T.
 - b) Technical literature and CPRI test report for type test suitable for Mines duty as per IS to be submitted.
- h) Ammeter and OFF/ON indicator lamp.
- i) All components will be of standard make only.
- j) Control wiring will be done by ISI marked copper wire of adequate size.
- k) Printed copy of circuit diagram to be fixed inside the door panel.
- l) Earth leakage protection on CBT principal of setting 250-750m A with test/reset push button and indicating lamps.
- m) Starter up to 100 HP will be DOL type and above 100HP will be star delta/ATS type
- n) All the equipments should be tested at respective manufacturers works & relevant test/ certificate should be furnished.
- o) FLP electrical shall have DGMS approval.
- p) After sales service & spares from and around Dhanbad to be indicated.

SPECIFICATION OF HORIZONTAL SPLIT CASING PUMP
[FOR HEAD BELOW 150 M]

The Horizontal Split Casing Pump built up from top and bottom cover, impellers suction delivery branches suitable for handling mine drainage water at 45°C ambient temperature having specific gravity of 1.03 at an altitude not exceeding 300 Mtr. above Sea level. The net suction lift should not be less than 5 Mtr.

The speed of pump will be 1500 (Synchronous) and a complete pump rotor shall be balanced statically and dynamically to provide vibration free operation. Pump will also be tested hydrostatically and 1 ½ times the working head.

The materials of construction of these pumps shall be as below :

Top & Bottom cover	: C.I.as per IS: 210 ; FG : 220
Shaft	: EN8 Steel/Eqvt. Steel
Impeller	: Bronze as per IS:318 , LG2-C/Eqvt.
Bearings with suitable lubrication arrangement	: Antifriction suitable for axial and radial thrust.

All Hydraulic parameter of the pump shall be subject to tolerance as per IS: 9137.

Note:-

- a) Impellers shall be of fully shrouded enclosed type of suitable shell statically and dynamically balanced for smooth running.
- b) The motor shall be directly coupled to pump through a well-designed pin type couplings, alternatively and other suitable flexible/hydraulic coupling of adequate rating.
- c) The motor and Pump set along with coupling, shall be supplied mounted on a common bed frame of adequate strength.

MOTORS:

The pump shall be coupled directly through suitable flexible coupling to a continuously rated flame proof/NFLP squirrel cage induction motor 1500 RPM (Sync.) of adequate H.P. suitable for operation in AC 3 Phase, 50 Cycles, 550 V , NFLP as the case may be, insulation class 'F', foot mounted, **TEFC/TETV** .

MAKE OF MOTOR : NGEF / GEC / BHEL / SIEMENS / KIRLOSKAR / ABB /
MARATHON -ALSTOM / BHARAT BIJLEE [suitable for S-D

start]

- a) It should have margin of at least 10% over and above power absorbed by the pump at +/- 10% of indicated head as on the performance curves .
- b) Suitable bearings with Lubrication arrangement to withstand axial & radial thrust at DE & NDE .
- c) Performance characteristics shown on Head Vs Discharge to be submitted .

ADDITIONAL ACCESSORIES TO ACCOMPANY EACH PUMP SET:-

- a) Cast Steel Sluice valve of adequate size (Class – 300) ;
Make – Kirloskar / L&T / Fouress/KSB
- b) Cast Steel Non return valve of adequate size with bye-pass arrangement
(Class – 300) ; **Make – Kirloskar / L&T / Fouress/KSB**
- c) C.I. Foot valve with strainer (Flange type) of adequate size .
- d) Priming Funnel with test cock
- e) M.S. Fabricated bed Plate of adequate strength and size matched to take vibration free load of the pump & Motor.
- f) Coupling guard, gauges to show head in feet / Meter and discharge in GPM (Flow meter)
- g) Standard tools & tackles.

STARTER [S – D Type]

Same as in case of Multistage Pumps

SPECIFICATION OF HORIZONTAL SPLIT CASING PUMP [BARE PUMP]

The Horizontal Split Casing Pump built up from top and bottom cover, impellers suction delivery branches suitable for handling mine drainage water at 45°C ambient temperature having specific gravity of 1.03 at an altitude not exceeding 300 Mtr. above Sea level. The net suction lift should not be less than 5 Mtr.

The speed of pump will be 1500 (Synchronous) and a complete pump rotor shall be balanced statically and dynamically to provide vibration free operation. Pump will also be tested hydrostatically and 1 ½ times the working head.

The materials of construction of these pumps shall be as below :

Top & Bottom cover	: C.I.as per IS: 210
Shaft	: EN-8 Steel /Eqvt. Steel
Impeller	: Bronze as per IS:318
Bearing	: Suitable for axial and radial thrust.

All Hydraulic parameter of the pump shall be subject to tolerance as per IS: 9137.

Note:-

- d) Impellers shall be of fully shrouded enclosed type of suitable shall be statically and dynamically balanced for smooth running.

SPECIFICATION OF MULTISTAGE PUMP [Head 150 M and above]

Multistage centrifugal pump build from a number of stages held together by body between two end cover which in turn to incorporate the suction and delivery branches respectively. The middle body shall contain the renewable guide passages to carry the liquid being pumped from the delivery of the one impeller to the eye of the next. The impeller is to be of single entry with all in-let in the same direction. The hydraulic balance valves shall be incorporated so as to cushion end thrust.

Pump will be suitable for handling Mine drainage water at (45° C) ambient temperature having specific gravity of 1.03 while operated at an altitude not exceeding 300 M above seal level and the net suction lift should not be less than 5M.

The speed of the pump will be 1500 (Syn) and the complete pump rotor shall be balanced statically to provide vibration free operation. All the pumps will also be tested hydraulically at one and half time the working head.

The materials of construction of these pumps shall be as below: -

End covers, Middle Bodies and Renewable guide tips/passages	- Close grained cast Iron as per IS-210 Gr. 20
Shaft	- EN-8 Steel (High Tensile)
Impellers	- Bronze IS 318 Gr.II
Sleeves	- Bronze
Balance Valve & seating bush	- Ph.Bronze
Neck rings & Neck bushes	- Bearing Bronze
Packing	- Standard graphite cotton
Bearing	- Ring Oil Lubricated split Bronze bust.

Indicator for wear of balance valve required oil level gauge must be provided with the bearing at driving and non-driving end.

All hydraulic parameters of the pumps shall be subject to tolerance as per IS-9137.

Note:-

- a) Impeller shall be of fully enclosed type of suitable shape and shall be statically balanced for smooth running.
- b) Each step shall be provided with suitably designed renewable guide passage to discharge the liquid being pumped from one impeller to suction of the next impeller.
- c) The impeller shall be of single entry type with all inlet eye/suction in the same direction.
- d) There shall be provision for balancing the end thrust by hydraulic valve/disc made of bronze material.
- e) The pump shall be fitted with the bush bearing of suitable design and shall be adequately rated to withstand the service requirement & heavy thrust load.
- f) Bearing shall have provision for lubrication.
- g) Suitable oil gauge shall be provided at driving & non-driving end of bush bearing.
- h) Performance characteristics shown on Head Vs Discharge to be submitted .

SCOPE FOR SUPPLY [ANNEXURE- ' A ']

S.N	Description	OFFERED MODEL
A	Horizontal Pump set complete with DGMS approved electrical of following duty parameters	
1	300M x 1000 GPM 3.3 KV	M590/BD – 5 STG
2	300M X800 GPM 3.3 KV -	M590/BD – 5 STG
3	220M X 600 GPM 550 V	M590L/BD – 6 STG
4	125M X 400 GPM 550V	P5923-150X100
B	Horizontal Bare pumps without electrical for following duty parameters	
3	300 M X 600 GPM	M590/BD – 5 STG
4	180 M X 500 GPM	M590L/BD – 5 STG
5	220 M X 500 GPM	M590L/BD – 6 STG
7	150 M X 550 GPM	M590L/BD - 4STG
9	100 M X 500 GPM	M5972-150X100
11	75 M X 500 GPM	M5972-150X100
12	280 M X 1000 GPM	M590/BD – 5 STG
13	280 M X 800 GPM	M590/BD – 5STG
14	280 M X 600 GPM	M590L/BD – 8 STG