

Tel. # 0092-51-905529201
Fax # 0092-51-9271400 & 9314100
Email: mdexp@pof.gov.pk

Page 1 of 14
POF 1262
(Foreign Supplies)



**GOVERNMENT OF PAKISTAN
PAKISTAN ORDNANCE FACTORIES
TENDER ENQUIRY**

To,

Dear Sirs,

Reference: Tender Enquiry # **Wah-1800-12-Acid Pumps-FP-D.O (X)**, Dt. **15th September 2020**

You are requested to submit quotations for the item (s) noted in the Schedule to the Tender. Offers should be sent duly sealed in an envelope. Please note the following instructions for filling the tender:-

1. **SUBMISSION OF TENDER**

- 1.1 Tenders will be opened at **1100** hours on **27th October 2020** and must reach as per address given below on or before **1030** Hours upto due date. The tender received late will not be entertained. You may witness the opening of the tender if you so desire. If a representative is deputed, he should bring a letter of authority from you.
- 1.2 Only one tender should be included in one envelope. The outside of the envelope should be inscribed with:-

Tender Enquiry No: **Wah-1800-12- Acid Pumps-FP-D.O (X)**

Tender to be opened on: **27th October 2020**

Address as follows: - **Bid Center, CR Section, C-04 Building, POF
Wah Cantt**

Tele: - **0092-51-9055-29201**

Fax: - **0092-51-9271400**

- 1.3 The bids received in factories may not be entertained.
- 1.4 If envelope does not indicate reference of T.E or received late the same may be returned un-opened.

2. **GENERAL INSTRUCTIONS REGARDING PREPARATION OF QUOTATIONS**

- 2.1 For material, the prices should be filled in column 5 and delivery date in column 6 or the schedule to this Tender Enquiry. The undertaking should be signed at the bottom of the Schedule which shall form the Quotation. You may use a separate sheet if necessary.

2.2 For Plant and Machinery, you are required to quote in two parts:-

Part I **"TECHNICAL OFFER"** It should exclusively give technical details and literatures/brochures of the offered pumps, electric motors and related accessories, validity date, delivery schedule and signed undertaking given of the schedule to this Tender Enquiry. It must not indicate price, costs etc.

Part II **"COMMERCIAL OFFER"** It should indicate the commercial terms e.g. price, terms of payment, mode of payment, mode of supply.

The commercial offer shall include;

- Price of pumps, electric motors & related accessories.
- Price of documentation.
- Item wise price of the spares.
- Price of Pre-Shipment Inspection.
- Total Price.

Each part should be placed in a separate sealed cover. The envelopes should be inscribed with: Part I "Technical Quotation without price" and Part II "Commercial Quotation with Price."

2.3 The quotation must remain valid for, at least 90 days from the date of opening of tenders.

2.4 The quotation should hold good for any reduced or enhanced quantities without notice.

2.5 In the event of non-acceptance of offer, intimation may be given to the Tenderers on their request.

2.6 Conditional offers or alternative offers are likely to be ignored.

2.7 Quotations should be based on **F.O.R** or **F.O.B**:

a) **In case of F.O.R Basis Supply:**

i. F.O.R. station of Dispatch basis, i.e. delivered free on rail, inclusive of packing and forwarding charges. The stores will be booked under Military Credit Note, to be provided by the purchaser.

and/or

Free delivery at POF's stores at **Gate # 6, Explosives Factory, POF WAH CANTT.**

In this case Octroi duty will be payable by the supplier.

ii. Taxes and Duties etc. where applicable, must be shown separately, quoting reference to Registration No. in cases of Sales Tax and relevant authority in the case of others. Offer without these clarifications and inclusive of Taxes and Duties may be ignored.

iii. Taxes and duties levied on or after Tender opening date or on or after the date offer was signed and dispatched will be allowed to include in the offered rates.

iii. Suppliers will furnish a certificate, issued by Excise & Taxation Deptt, that he has cleared all Professional Tax payable by him" Offers received without this certificate will be rejected.

- iv. Suppliers will render necessary information regarding hazardous effects on environment, of the materials/products supplied by them, in their quotations and shipping/dispatch documents.
 - v. If the requisite information is not furnished on the T.E forms or offer received is not conformity with the requirement of the T.E such offer shall be ignored.
 - vi. Payment of duties/Taxes including professional tax (where applicable) must be supported by proof of having paid these to concerned Govt. Taxation Deptt:
 - vii. Date and Stamp of the Postal Order must be visible.
 - viii. The payment to the registered supplier will be linked with the active taxpayer status of the supplier as per FBR database. If any registered supplier is not in ATL his payment would be stopped till he files his mandatory returns and appears on ATL of FBR.
 - ix. **TENDER FEE**
The tender must be accompanied by a non-refundable fee by means of a crossed postal order/pay order of **Rs 500/-** in favour of **Managing Director Explosives Factory POF Wah Cantt.**
 - x. **INSPECTION**
Supplies shall be subject to the inspection and acceptance by the competent inspection authority nominated by the Purchaser. Inspection facilities such as tools, test equipment, instruments etc. will be provided by the Suppliers in accordance with the relevant specifications.
Where considered necessary by the Purchaser, stores may be obtained on Warranty/Guarantee, subject to inspection on receipt. Rejected stores will be removed and replaced with the acceptable stores by the Supplier at his own expense, within a specified time.
 - xi. **BID MONEY**
 - Bid Money at the rate of 02% (for registered firms) and 05% (for unregistered firms) of the quoted value, should accompany the tender (with commercial offer) in the shape of Deposit At Call Receipt, from a scheduled Bank drawn in favour of:-
“Managing Director - Explosives”
Tenders received without Bid Money will be rejected.
 - Bid Money of the unsuccessful tenderers will be returned as soon as the scrutiny of the tenders is completed. Bid Money of the successful tenderers will be retained until the contract is finalized. Bid Money will be forfeited in case the quotation is withdrawn before the expiry of its validity date.
 - State owned organizations are not required to provide Bid Money.
 - Intimation regarding submission of bid money must be endorsed in technical offer.
- b) In case of F.O.B Basis Supply:**
- i. The consignment will be shipped through Pakistan National Shipping Corporation (PNSC). In case there is no PNSC service in the country of shipping, please quote on C & F basis. The freight should be indicated separately. Insurance premium should not be included in the quoted price. However where insurance is considered necessary, advice to that effect should be given in the quotation.
 - ii. Submission of the offer through an agent in Pakistan should be avoided. In case it is considered inevitable, the agent's quotation must invariably be accompanied by the original proforma invoice from the principals/manufacturers.

- iii. Country of origin and port of shipment to be stated.
- iv. The offer of principal must clearly indicate whether the rate quoted is inclusive of agent's commission, and if inclusive rate of commission included be specified.
- v. Suppliers will render necessary information regarding hazardous effects on environment, of the materials/products supplied by them, in their quotations and shipping/Dispatch documents.
- vi. If the requisite information is not furnished on the T.E form or offer received is not in conformity with the requirement of the T.E such offer shall be ignored.
- vii. **PRE-SHIPMENT INSPECTION**
The store shall be new and shall conform to the requisite specifications. The BUYER's Pre-shipment inspection officials (**02 members**) will carry out inspection at the SELLER premises. The duration of Pre-shipment Inspection will be **03 days**. All expenditures of the PSI and training team i.e. boarding, lodging, internal traveling, return air tickets and daily allowances @ 30% of the admissible amount for the visiting team will be borne by the SELLER.

3. **WARRANTY/GUARANTEE:**

- a. The store shall be accepted on Supplier's Warranty / Guarantee with regard to quality and quantity subject to these being technically checked/tested where necessary and accounted for on arrival at Consignee's ware-house in presence of supplier's rep (if desired by supplier) at their cost. The supplier shall render Warranty/Guarantee certificate in duplicate to the Purchaser on prescribed Performa (**Annex-B**) as soon as stores have been dispatched / delivered. This Warranty / Guarantee shall be binding on the Supplier for a period of **12 months** reckoning from the date of **successful trial run** of the pumps along with the related accessories.
- b. In case the stores on checking/test after receipt at the BUYER's factory are found not conforming strictly to the relevant specification and other particulars, or found broken during transit, the SELLER shall immediately replace the rejected/ broken store by acceptable stores free of cost and without any obligation to the BUYER. Rejected / broken stores shall be disposed by the SELLER under his own arrangements. The SELLER will warrant the good quality of all equipment supplied against all defects or failures due to faulty design, material or workmanship.

4. **ACCEPTANCE OF OFFERS**

The purchaser may reject all bids or proposals at any time prior to the acceptance of a bid or proposals, but is not required to justify grounds for its rejection. The purchaser shall incur no liability towards suppliers or contractors who have submitted bids or proposals.

5. **PERFORMANCE BOND**

5.1 **On F.O.R Basis**

- a) The successful bidders shall provide Performance bond within 30 days after issuance of letter of intent (LOI) at the rate of 10% of the total contract value, in the form of a Deposit At Call Receipt from a scheduled Bank; or, an un-conditional Bank Guarantee **valid for a period of 12 months after the successful final acceptance test of the store** in POFs on a prescribed format (**Annexure-C**). The Performance Bond will be in favour of C.M.A. POF Wah Cantt. It will be returned on satisfactory completion of the contract.
- b) If the Supplier fails to furnish the Performance Bond within the specified time, such failure will constitute a breach of the contract and the Purchaser shall be entitled to make other arrangements for purchase of the stores at the risk and expense of the Supplier.
- c) In the event of unsatisfactory performance or any breach of the Contract, Bank Guarantee / Deposit At Call Receipt shall be forfeited by the BUYER. The Bank Guarantee / Deposit At Call Receipt will be returned to the SELLER by M.D-Explosives, POFs Wah Cantt on request after its expiry or after satisfactory performance of the contract whichever is earlier.

5.2 **On F.O.B Basis**

- a) The SELLER will provide a Bank Guarantee to the tune of 10% of FOB value of the contract on the prescribed performa attached as **Annexure 'C'** for satisfactory execution of the order. It shall be covered by any Scheduled Bank in Pakistan. The Bank Guarantee shall be endorsed in favour of CMA POFs Wah Cantt. The Bank Guarantee shall be furnished by the SELLER within **45 days** from the date of opening of letter of credit. The Bank Guarantee will be **valid for a period of 12 months after the successful final acceptance test of the store**. If the successful trial run is delayed, the SELLER shall arrange the extension of **Bank Guarantee within 30 days from the date** of amendment of L.C. If the Guarantee is not revalidated, the same is liable to be encashed by the CMA (POFs) Wah Cantt.
- b) If the SELLER fails to furnish the Bank Guarantee within specified period, the BUYER reserves the right to cancel the contract and has the right to purchase the stores at the risk and expenses of the SELLER.
- c) In the event of unsatisfactory performance or any breach of the Contract, Bank Guarantee shall be forfeited by the BUYER. The Bank Guarantee will be returned to the SELLER by M.D-Explosives, POFs Wah Cantt on request after its expiry or after satisfactory performance of the contract whichever is earlier.

9. **FAILURE TO SUPPLY STORES**

- 9.1 The specified delivery period (time and date of delivery / dispatch of stores) is the essence of the contract. All deliveries must be completed by the specified date(s). In failure to deliver stores within the scheduled time shall have arisen from "Force Majeure" which the Purchaser may admit as reasonable ground for further time, he will allow such additional time (without imposing liquidated demurrage) as he may consider to have been required by the circumstances of the case, of which he will be the sole judge and his decision will be final, otherwise he will be entitled at his option:
- a. "In case of unsupplied portion of the contract and unsatisfactory performance, the contract shall be rescinded by forfeiture of security and guarantee by the authority which approved award of the contract".
 - b. "To recover liquidated damages when the government competent purchase officers on behalf of the government is satisfied that the failure to supply the stores within the scheduled delivery period has been for reason within the control of the suppliers and or if the government has suffered loss for reasons of belated delivery these liquidated damages if imposed will be recovered up to the rate of 2% but not less than 1% of the value of unsupplied quantity of the items per month or a part of a month for the period exceeding the original delivery period subject to the provision that the total liquidated damages thus leviable will be not exceed 10% of the total contract value of the particular stores which remained unsupplied either in part or in full."

OR

- c. To withhold any payment due to the supplier until the whole of the stores have been supplied and/ or to direct deduction or recover, where considered necessary.

OR

- d. To repurchase from elsewhere, at the risk and expense of the supplier, other articles of the same or similar description as he thinks fit to make good this default to the extent necessary, by canceling the contract, either wholly or for the unsupplied balance and with/ or without intimation to the supplier who shall be liable for any loss which the purchaser may sustain due to repurchase but shall not be entitled to any gain on repurchase.

10. **"FORCE MAJEURE"**

10.1 "Force Majeure" shall mean any event, Act / or other circumstances, not being an event, act or circumstances, under the control of the purchaser or of the supplier. The Supplier shall notify the Purchaser in writing of any such event within 15 days by Fax / Telex / Telegram of its commencement, which is relied upon by the supplier for its failure to comply with its obligation. The Purchaser shall have the right to conduct investigations to satisfy itself about the genuineness of the "Force Majeure" event. Non-availability of raw materials for the manufacture of stores, or of export permit for the export of the contracted stores from the country of its origin, shall not constitute "Force Majeure".

10.2 **FRUSTRATION**

If by reason of "Force Majeure" any consignment shall not be delivered by the due date, then the delivery period may be extended appropriately for the purpose provided the said consignment shall be ready within four calendar months of the stipulated delivery date. If the said consignment shall not be ready after the lapse of four calendar months as aforementioned, then the Purchaser shall have the right to cancel the contract informing the Supplier of the cancellation in writing. This, however, will not apply to consignments already accepted and delivered according to the terms of this contract. The Supplier will not be entitled to any compensation whatsoever as a result of this cancellation.

11. **PAYMENT**

Payment will be made as per following;

11.1 **On F.O.R Basis Supply**

100% payment will be made by the C.M.A(POF) through crossed cheque on receipt, commissioning and Final Acceptance Test of the pumps on our prescribed bill form supported by receipt voucher on full supply basis.

11.2 **On F.O.B Basis Supply**

- **80% payment** will be released against presentation of shipping documents and acceptance certificate issued by PSI team.
- **Balance 20% payment** will be released against the Final Acceptance Certificate, duly signed by the BUYER after the successful installation, commissioning & trial run of the store.

All Bank charges incurred in Pakistan in connection with the establishment of L.C. will be borne by the Purchaser, whereas all Bank charges incurred in connection with drawing of payment including charges for confirmation of L.C. by the advising Bank/Foreign Bank will be borne by the Supplier.

12. **DOCUMENTATION**

The SELLER will provide technical documents (4 sets in English language) as per following;

- i. Operational, Maintenance & Safety Manual.
- ii. Complete dimensional/Assembly drawings.
- iii. Spare parts catalogue.

13. **SECURITY OF INFORMATION**

The tenderer and his employees must not communicate any information relating to the sale/purchase of stores under this enquiry to any person other than the manufacturer or to any press or agent not authorized in writing by POFs to receive it.

Please return the Schedule to the Tender duly signed by the specified date, alongwith the specifications drawings etc. if any, enclosed herewith - even if you are unable to quote.

WARNING

In case the firm abstain from making offers or fail to return/acknowledge the tender form by the specified date on three consecutive occasions, no further tender enquiry may be issued to them and their names would liable to be removed from the approved list.

Yours faithfully,



(Muhammad Shafiq)

**Managing Director – Explosives Factory
for PAKISTAN ORDNANCE FACTORIES**

Office Tel. # 0092-51-905529201,

FAX # 0092-51-9271400

E-mail: mdexp@pof.gov.pk

PAKISTAN ORDNANCE FACTORIES

Schedule To Tender Enquiry No. **Wah-1800-12- Acid Pumps-FP-D.O (X)**

Dated **15th September 2020** to be opened on **27th October 2020**.

1) **Plant & Machinery: -**

Procurement of following Pumps alongwith related accessories:-

Centrifugal Single Stage Pump (to deliver Nitrating Acid feed for production of nitroglycerine) along with compatible electric motor fitted on pump with stainless steel base plate, starter, driver coupling (Flexible) with guard, anchoring bolts with anchoring chemical. (Details are Attached as " <u>Annexure-A</u> ")	02 Nos.
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2. **SPECIAL CONDITIONS:**

i) The store must be protected adequately and appropriately to the mode of dispatch against damage from environmental effects, water or other substances during the sea voyage and overland journey to withstand the rough handling involved in transit and provide proper preservation of materials while held in storage by the consignee.

ii) **EXPORT PERMIT**

It shall be the responsibility of the Supplier to obtain from the Government concerned all permits and export license, etc; required to enable consignment to be shipped immediately upon receipt of the shipping instructions from the Purchaser or any office appointed on his behalf.

iii) **INSTALLATION, COMMISSIONING & FINAL ACCEPTANCE TEST (FAT)**

Installation, commissioning and trial run / FAT of the delivered equipment will be performed by the BUYER within one (01) month after receipt of store at site.

Trial Run of the store will be based on successful operation of **96 working** hours at the specified parameters (for confirmation of capacity & total delivery head etc) of the store. In case of any deficiency & discrepancy, all related expenditures to fulfill the commitment shall be borne by the seller without any obligation to the Buyer.

iv) **REFERENCE LIST**

The Seller shall provide list of similar pumps which have been provided to different customers and which are still in operational condition. The said list shall explicitly mention Make, Model and country of origin of the said pumps.

3) **DRAWING**

Sketch # POF/X/610 of existing available infrastructure at site showing the following is attached as "**Annexure-D**";

- i. Inlet / Outlet lines.
- ii. Available Space.
- iii. Foundation.
- iv. Electrical Network.

4) **Undertaking**

Should our offer be accepted, we hereby undertake to supply the stores/render the services contracted on the basis of General Conditions of Contract embodied in Form POF 1282, and to deposit the performance bond within the prescribed time, failing which it will constitute a breach of contract, and POF will have the right to purchase the stores/services elsewhere at our risk and cost.

Place _____
Date _____

Signature of the Tenderer: _____
Name: _____
Position: _____
Address: _____
Income Tax G.I.R.No. _____

DETAILED SPECIFICATION CENTRIFUGAL PUMPS
FOR NITRATING ACID (QTY = 02 Nos.)

DESCRIPTION:

Centrifugal Single Stage Pump (to deliver Nitrating Acid feed for production of nitroglycerine) along with compatible electric motor fitted on pump with stainless steel base plate, starter, driver coupling (Flexible) with guard, anchoring bolts with anchoring chemical.

TECHNICAL DATA

1.1 PUMPS

i.	Type	: Centrifugal
ii.	Seal	: Hydrodynamic Seal impeller with back vanes or Additional seal expeller and shaft with seal cone and centrifugal governor. OR Mechanical Seal.
iii.	Media	: Sulphuric Acid (H ₂ SO ₄) = 60 - 63%, Weak Nitric Acid (HNO ₃) = 29 - 30% Water (H ₂ O) = 07 - 09% Nitroglycerine = 1 - 2% HNO ₂ = 0.5% (Maximum)
iv.	Capacity	: 100 Ltr/min.
v.	Suction & Delivery	: DN 50mm x 40mm
vi.	Total Delivery Head	: 25 meter
vii.	Suction Head	: Flooded
viii.	Media Temp.	: 04 °C to 25 °C
ix.	Ambient Temp.	: -3 °C to 50 °C
x.	Sp. Gravity	: 1.7

1.2 CONSTRUCTION MATERIAL

i.	Casing & Bridge / bracket	<u>SS 316 L</u> OR <u>ALLOY STEEL</u> compatible with the requisite acidic media
ii.	Impeller	
iii.	Shaft	
iv.	Bearing / seal housing	
v.	Base plate	
vi.	All other parts	

1.3 ELECTRIC MOTOR & STARTER

Electric Motor	Starter
i. Type = TEFC ii. Insulation = Class F iii. Power = Suitable to operate the pump. iv. IP rating = 55 v. Supply = 3 phase (AC 380-400 Volts) vi. RPM = 2900 vii. Body finished = Acid resistant. viii. Ambient Temp. = -3 ⁰ C to 50 ⁰ C Note: <u>Terminal plate must be fitted on motor with Cable Glands.</u>	Automatic Star delta starter suitable according to motor rating along with followings: i. Phase failure relay. ii. Phase reverse protection relay. iii. Electronic over current relay. iv. On and OFF push buttons. v. LED type indication lights. vi. Digital type ampere and volt meters. vii. Isolator switch. viii. IP-65 rated enclosure complete with cable glands & power cables as per motor capacity with 50 meter length for each starter.

1.4 SPARES

FOR PUMPS	FOR MOTORS & STARTERS
i. Pump Bearing = 02 Sets ii. Impeller = 02 Nos iii. Mechanical seal complete = 02 Sets iv. Shaft seals = 02 Sets v. Shaft with sleeve = 02 Nos vi. Anchoring chemical and anchoring bolts = 02 Sets vii. O-Rings complete set = 02 Sets	i. Motor Bearings = 02 Sets ii. Push buttons = 02 Nos. each type iii. Indication light = 02 Nos. each type iv. Contactor = 02 Nos. each type v. Ampere meter = 02 Nos. each type vi. Volt meter = 02 Nos. each type vii. Electronic over current relay = 02 Nos. each type viii. Phase failure relay = 02 Nos. each type ix. Phase reverse protection relay = 02 Nos. each type x. Cable Glands = 06 Nos.

WARRANTY / GUARANTEE CERTIFICATE

Firm's Name _____

Contract No. _____ **DATE** _____

1. We hereby guarantee that the goods supplied against the above contract are in all respect in accordance with the relevant specifications and terms of the contract and that the materials used, whether or not of our manufacture, are in accordance with the latest approved standard specifications complete, are of good workmanship / quality throughout, and that we shall replace free of cost, every article or part thereof which before use or in use, shall be found defective, or not within the limits and tolerance of specification requirements, or in any way not in accordance with the terms of the contract.

2. In case of our failure to replace the defective stores free of cost within the period specified by the Purchaser, we will refund the relevant cost.

3. The Warranty / Guarantee will remain valid for 12 months after the receipt Installation, commissioning and successful trial run of the Centrifugal pumps alongwith the related accessories.

Signature _____

Name _____

Status in the Firm _____

Dated _____

**BANK GUARANTEE FOR PERFORMANCE ON
JUDICIAL STAMP PAPER OF Rs.100/- OR AS
SUITABLE TO THE ACCOUNT OF BG.**

- i) Contract No. _____ Date _____
- ii) Name of Firm/Contractor _____
- iii) Address of Firm/Contractor _____
- iv) Name of Guarantor _____
- v) Address of Guarantor _____
- vi) Amount of Guarantee Rs. _____
(_____)
(in Words)
- vii) Date of Expiry of Guarantee _____

To: **The President of the Islamic Republic of Pakistan**
Through the **CMA POF WAH CANTT.**

Sir,

1. Whereas your good self have entered into Contract No. _____
_____ dated _____
with Messrs _____
(Full Name and Address)

hereinafter referred to as our customer and that one of the conditions of the contract is the submission of unconditional Bank Guarantee by our customer to your good self for a sum of Rs. _____ Rupees/FE(as applicable) _____

2. In compliance with this stipulation of the contract, we hereby agree and undertake as under:
- a) To pay you unconditionally on demand and / or without any reference to our customer and amount not exceeding the sum of Rs. _____ Rupees or FE (as applicable) _____ as which be mentioned in your written Demand Notice.
- b) To keep this Guarantee in force till _____
- c) That the validity of this Bank Guarantee shall be kept One clear year ahead of the original/extended delivery period or the warrantee of the stores which so ever is later in duration on receipt of information from our customer i.e. M/s _____

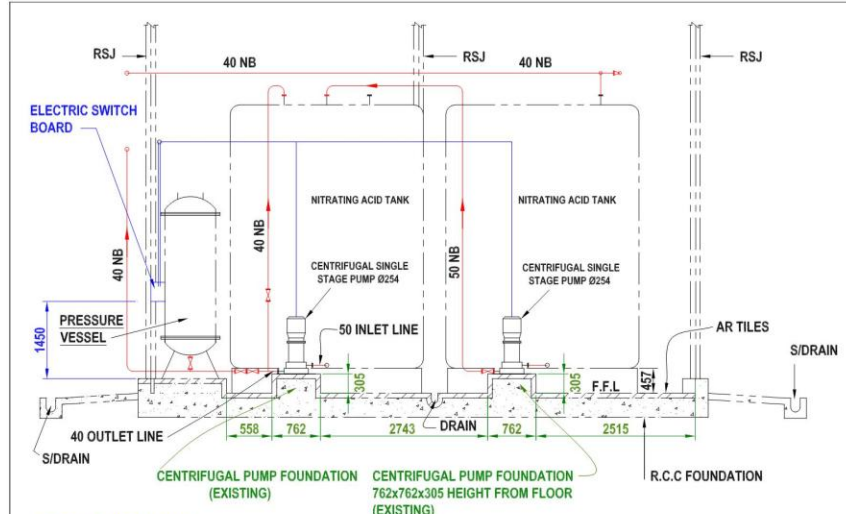
or from your office. Claim, if any must be duly received by us on or before this day. Our liability under this Bank Guarantee shall cease on the closing or banking hours on the last date of the validity of this bank Guarantee. Claim received thereafter shall not be entertained by us whether you suffer a loss or not. On receipt of payment under this guarantee, this document i.e. Bank Guarantee must be clearly cancelled, discharged and returned to us.

- d) That we shall inform your office regarding termination of the validity of this Bank Guarantee one clear month before the actual expiry date of this Guarantee.
- e) That with the consent of our customer you may amend/alter any term/clause of the contract or add/delete any term/clause to/from this contract without making any reference to us. We do not reserve any right to receive any such amendment/alternation or addition/deletion provided such like actions do not increase our monetary liability under this Bank Guarantee, which shall be limited only to Rs. _____
(Rupees _____)
- f) That the Bank Guarantee herein before given shall not be affected by any change in the constitution of the Bank or Customer/Seller or Vendor.
- g) That this is an unconditional Bank Guarantee, which shall be encashed on sight on presentation without any reference to our Customer/Seller or vendor.

Guarantor

Dated: _____

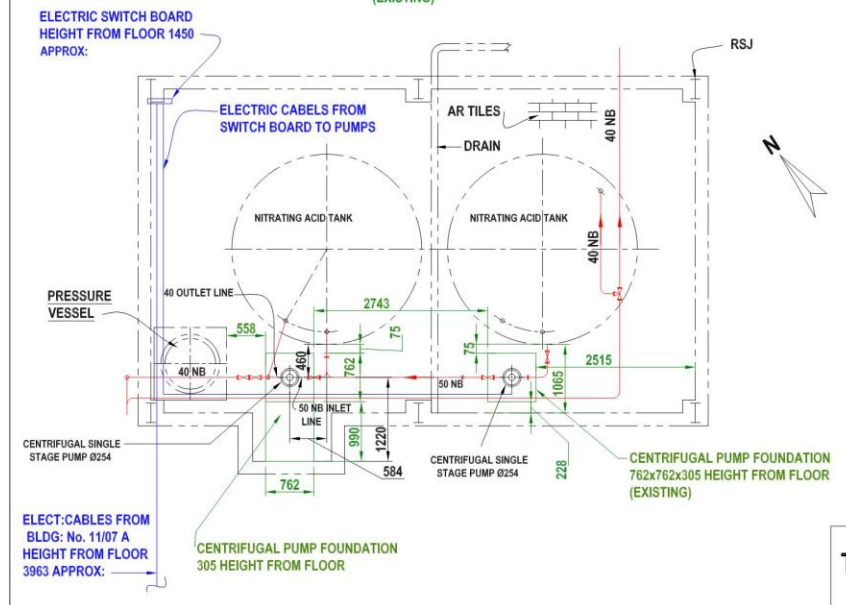
Bank Seal and Signatures



KEYS

ACID PIPE LINES	=	—————
ELECTRIC CABLES	=	—————
FOUNDATION	=	—————

- NOTES:-**
- 1- FIGURED DIMENSIONS ARE TO BE FOLLOWED
 - 2- ALL DIMENSIONS ARE IN M.M
 - 3- ALL LENGTHS OF ACID PIPE LINES ARE AS SUIT AT SITE
 - 4- ALL ELECTRIC CABELS ARE AS SUIT AT SITE



TITLE:- DETAIL OF ACID LINES AND FOUNDATION OF CENTRIFUGAL PUMP

SKETCH No :- POF / X /610