



बामर लॉरी एण्ड कं. लिमिटेड  
**Balmer Lawrie & Co. Ltd.**

**REFINERY & OILFIELD SERVICES**  
**21, Netaji Subhas Road**  
**Kolkata 700 001**

**TENDER DOCUMENT**

**FOR**

**SUPPLY OF MASS FLOWMETERS**

**Tender No.: ROFS/CAPEX/20-21/ENQ/03**

**Dated: 10.07.2020**

**Tender Due date & Time: 30.07.2020, 16:00 Hrs.**

**PART-I (Un-Priced)**

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**CHECK LIST FOR SUBMISSION OF TENDER  
(TO BE SUBMITTED WITH UN-PRICED PART)**

Tenderers are requested to fill up this Check List and attach supporting documentary evidence.

SI No.	Submission of Document	Bidder's Confirmation/Submission (Yes / No)
1	Earnest Money Deposit	
2	90 days validity of the offer confirmation	
3	Audited Annual Reports (for past three years)	
4	Copy of Work Order and Completion Certificates for similar supplies as per Pre-qualification Criteria	
5	Authorization Letter from OEM for dealers	
6	Power of Attorney of the Signatory	
7	PAN	
8	Provident Fund Registration	
9	GSTIN Registration	
10	Valid MSE Registration certificate as per NIT	
11	In case of SC/ST or woman entrepreneur, please provide details as per tender	
12	<b>Price Schedule</b> in Un-priced Bid duly blanked out and signed	
13	<b>Tender Document</b> (along with addendum if any) duly signed and stamped on all pages	
14	<b>Price quoted</b> strictly as per Tender price schedule	
15	<b>Payment Terms</b> in compliance to tender requirement	
16	<b>Delivery Period</b> in compliance to tender requirement	
17	<b>LD clause</b> in compliance to tender requirement	
18	<b>Warranties and Guarantee</b> in compliance to tender requirement	
19	All others Technical & Commercial Terms & Conditions shall remain unaltered as per Tender document	



**Balmer Lawrie & Co. Ltd.**  
**Refinery & Oilfield Services**  
**NOTICE INVITING TENDER**

Tender No. : ROFS/CAPEX/20-21/ENQ/03  
 Date : 10/07/2020  
 Due Date & Time : 30/07/2020, 16:00 Hrs  
 Date & Time of Opening : 30/07/2020, 17:00 Hrs

**BALMER LAWRIE & CO. LTD. (BL)** invites online offers from well established, reputed OEM or their dealers for design, engineering, manufacture, testing, calibration and supply of **two (2) Nos. Mass Flowmeter**.

**1.0 SCOPE OF WORK**

The scope of supply covers design, manufactures, testing at manufacturer's premises, calibration and supply of **two (2) nos. Mass Flowmeter** as defined in Technical Specification, Data Sheet, scope of work and elsewhere in this tender. Both the Flowmeters should be delivered separately in a properly packed condition suitable for transportation by road.

**2.0 PRE-QUALIFICATION (PQ) CRITERIA**

- i) Average annual turnover of the tenderer shall be minimum of **Rs 11 lakh** during last three financial years ending 31st March, 2019 preferably in related business. The tenderer/bidder shall submit Balance Sheet/Profit & Loss Account for last 3 years. Instead of Balance Sheet/Profit & Loss Account, the bidders can submit Income Tax Return also.
- ii) The tenderer/bidder should have successfully supplied Mass Flowmeters of the following minimum values during past seven (7) years ending last day of month previous to the one in which tenders are invited: -
  - a) **3 jobs** each of value not less than **Rs 4.8 Lakh** or
  - b) **2 jobs** each of value not less than **Rs 6 Lakh** or
  - c) **1 job** of value not less than **Rs 9.6 Lakh**
 Copy of purchase orders and completion certificates / commissioning should be enclosed as supportive documents.

**OTHER REQUIREMENTS**

- iii) Copy of PAN Card, GST Registration Certificate
- iv) Tender document duly signed and company seal (as an acceptance of all our terms and conditions) shall also be submitted
- v) 'Affidavit' in non-judicial stamp paper in case of proprietorship firm, "Partnership Deed" in case of Partnership Firm," Memorandum & Article of Association" in case of Limited Company.
- vi) In case of authorized dealer, the tenderer shall submit valid authorization letter from their principal.

### **3.0 DELIVERY PERIOD**

Time is the essence of the contract. Mass Flowmeters shall be delivered within **16 (Sixteen) weeks** on **Ex-Works basis** from the date of Letter of Intent (LOI)/ Purchase Order (PO) whichever is earlier. The delivery time is inclusive of calibration at FCRI.

Place of delivery will be intimated later before dispatch. Freight charges shall be paid/reimbursed at actuals on submission of original consignment note.

### **4.0 TENDER DOCUMENTS**

Tender Documents comprise two parts viz. Part-I (Un-priced) and Part-II (Priced). The Un-priced Part consists of Notice Inviting Tender, Instruction to Bidders, Technical Specifications, Data Sheets and other formats. The Priced Part consists of Price Schedule.

### **5.0 VALIDITY OF OFFER**

Tenderers shall keep their offer valid for a period of **90 (ninety) days** from the due date of this tender. Validity may be extended, if so advised by BL.

### **6.0 EARNEST MONEY DEPOSIT (EMD)**

EMD of **Rs 6,000 (Rupees Six Thousand only)** shall be paid online while submitting the bid. However, registered MSME vendors, as mentioned in subsequent clause, are exempted from submission of EMD. EMD of successful tenderer/s will be retained with us till submission of Security Deposit. EMDs of unsuccessful tenderers will be released after finalization of order.

Registered MSE vendors shall be exempted from need to furnish EMD, subject to their submission of valid registration certificates (as per clause 16) covering the tendered items/services. Declaration of Udyog Aadhar Memorandum [UAM] number by the MSE vendors on Central Public Procurement Portal [CPPP] is mandatory to qualify for availing the benefits as per Public Procurement Policy for MSEs.

- 6.1 EMD of successful tenderer/s will be returned after submission of Security Deposit. No interest shall be payable towards EMD amount.
- 6.2 For the unsuccessful bidders, the EMD will be refunded only after the successful bidder has accepted the work/purchase order and the acknowledgment of the same has been received by BL/the owner.
- 6.3 EMD is liable to forfeiture in the event of:
- a) Withdrawal of offers during validity period of the offer
  - b) Non-acceptance of order by the bidder within the stipulated time after placement of order.
  - c) Any unilateral revision made by the bidder during the validity period of the offer.
  - d) Non-performance of the bidder during the tenure of work.
  - e) Bidders submitting false/fabricated/bogus documents in support of their credentials

**7.0 SECURITY DEPOSIT**

The tenderer, with whom the contract is decided to be entered into and intimation is so given will have to make a Security Deposit @ 2.5% of the basic Order value in the form of Demand Draft drawn in favor of Balmer Lawrie & Co. Ltd. payable at Kolkata or Bank Guarantee valid till completion of supply executed by any Scheduled bank within 15 days from the date of intimation of acceptance of their tender, failing which Balmer Lawrie & Co. Ltd. reserves the right to cancel the Order. Security Deposit shall be released after completion of the supply.

**8.0 BASIS OF EVALAUTION**

Bidders will be selected through evaluation of their Unpriced Bids based on fulfillment of pre-qualification criteria i.e. submission of all required PQ documents and other required documents, EMD/MSME Certificate as per the instructions contained in the tender document. Price Bids will be opened only for the bidders whose Unpriced Bids (Part-I) are found to be acceptable. The tenderer shall fill the rates & amounts both in words and figures. The amount against each item is also to be filled in. In case of any discrepancy, the amount quoted in words shall be taken as correct. L1 Bidder will be determined based on total amount comprising basic amounts including Calibration Charges + Packing & Forwarding charges on ex-works basis. Freight charges will be reimbursed at actual since delivery addresses which may be at multiple-locations will be intimated after readiness of materials.

**9.0 SPLIT ORDER**

Refer MSME clause for further details mentioned elsewhere in this documents.

**10.0 FORCE MAJEURE**

Any delay in or failure of the performance of either part hereto shall not constitute default hereunder or give rise to any claims for damage, if any, to the extent such delays failure of performance is caused by occurrences such as Acts of God or an enemy, expropriation or confiscation of facilities by Government authorities, acts of war, rebellion, sabotage or fires, floods, explosions, riots, or strikes. The Vendor shall keep records of the circumstances referred to above and bring these to the notice of the Engineer-In-Charge in writing immediately on such occurrences. The amount of time, if any, lost on any of these counts shall not be counted for the delivery period. On decision of BL/Owner arrived at after consultation with the Vendor, shall be final and binding. Such a determined period of time be extended by the Owner to enable the Vendor to deliver the items within such extended period of time.

If Vendor is prevented or delayed from the performing any of its obligations under this agreement by Force Majeure, then Vendor shall notify Owner the circumstances constituting the Force Majeure and the obligations performance of which is thereby delayed or prevented, within seven days of the occurrence of the event.

**11.0 ARBITRATION**

Any dispute or difference arising under this Contract shall be referred under jurisdiction of Kolkata to a sole arbitrator to be appointed by the Chairman & Managing Director, Balmer Lawrie & Co. Ltd. and the provisions of Arbitration Act, 1996 including any statutory modifications or enactment thereof shall apply to the Arbitration proceedings. The fees of the arbitrator, if any, shall be shared equally by both the parties. The award shall be a speaking award stating reason therefor and is final & binding on the parties. The proceeding shall be conducted in English language and courts at Kolkata will have exclusive jurisdiction to settle any dispute arising out of this contract.

**12.0 JURISDICTION**

Notwithstanding anything contained in any other law, the courts in the city of Kolkata along shall have jurisdiction in respect of all or anything arising under this agreement and any award or awards made by the sole arbitrator

**13.0 TERMINATION OF CONTRACT**

In case of violation/breach of any agreed terms and conditions of contract and persistently failure/negligence to observe and perform all or any of the acts, deeds, matters or things to be observed and performed by the Supplier requiring the Owner to observe or perform the same, BL may cancel/terminate this contract . In such case, the EMD and/or Security Deposit of the Supplier will be forfeited.

**14.0 RIGHT OF ACCEPTANCE/REJECTION**

Mere issue of tender document, participation in e-procurement portal and submission of bids does not necessarily qualify for consideration of bids. Conditional offer or offer with deviations will not be accepted. M/s Balmer Lawrie & Co. Ltd. reserve the right to accept or reject any tender either in part or in full without assigning any reason whatsoever.

**15.0 NON-CONFORMANCE**

Tenders not conforming to the above mentioned requirements are liable to be rejected.

**16.0 TENDER CONDITIONS FOR BENEFITS / PREFERENCE FOR MICRO & SMALL ENTERPRISES (MSES)**

- 16.1 MSEs must have a valid Udyog Aadhar Number (UAN) to avail the benefits/preference available vide Public Procurement Policy for MSEs
- 16.2 MSEs participating in the tender must submit UAN registration certificate along with their unpriced bid.
- 16.3 The successful bidder should ensure that the UAN is valid till the end of the contract period.
- 16.4. The MSEs who have applied for registration or renewal of registration with any of the above agencies/bodies, but have not obtained the valid certificate as on close date of the tender, are not eligible for exemption/preference.

- 16.5. Price Preference - Subject to meeting terms and conditions stated in the tender document including but not limiting to prequalification criteria, 25% of the total quantity of the tender is earmarked for MSEs registered with above mentioned agencies/bodies for the tendered item. Where the tendered quantity can be split, MSEs quoting a price within a price band of L1+15% shall be allowed to supply 25% of total tendered quantity provided they match L1 price. In case the tendered quantity cannot be split, MSE shall be allowed to supply total tendered quantity provided their quoted price is within a price band of L1+15% and they match the L1 price. In case of more than one such MSEs are in the price band of L1+15% and matches the L1 price, the supply may be shared proportionately.

For Further clarity in this regard a table is furnished below:

Type of Tender	Price Quoted by MSE	How to Finalize the Tender
Can be split	L1	Full Order on MSE
Can be split	Not L1 but within L1+15%	25% order on MSE subject to matching L1 price
Cannot be split	L1	Full Order on MSE
Cannot be split	Not L1 but within L1+15%	Full Order on MSE subject to matching

- 16.6 Out of the 25% target of annual procurement from micro and small enterprises, 4% has been earmarked for procurement from MSEs owned by SC or ST entrepreneurs and 3% from within 25% has been earmarked from supply from the MSEs owned by Woman entrepreneurs. Provided that, in event of failure of such MSEs to participate in tender process or meet tender requirement and L-1 price, 4%/ 3% sub-target for procurement earmarked for MSEs owned by SC or ST entrepreneurs and woman entrepreneurs respectively shall be met from other MSEs.
- 16.7 To qualify for entitlement as SC/ST owned MSE, the SC/ST certificate issued by District Authority must be submitted by the bidder in addition to certificate of registration with any one of the agencies mentioned in paragraph (I) above. The bidder shall be responsible to furnish necessary documentary evidence for enabling BL to ascertain that the MSE is owned by SC/ST. MSE owned by SC/ST is defined as:
- In case of proprietary MSE, proprietor (s) shall be SC/ST
  - In case of partnership MSE, The SC/ST partners shall be holding at least 51% shares in the enterprise.
  - In case of Private Limited Companies, at least 51% share shall be held by SC/ST promoters.
- 16.8 To avail the price preference in this tender, the bidder has to submit MSE certificate issued for goods/services involved in tender.

## 17.0 **CONFLICT OF INTEREST**



The bids of any tenderer may be rejected if a conflict of interest between the bidder and the company is detected at any stage.

#### **18.0 PAYMENT TERMS**

- i) **90% of the basic order** value along with full taxes shall be paid after receipt of Mass Flowmeters in good conditions in respective location/s and submission of bill/invoice along with relevant test certificates, guarantee certificates and calibration certificate.
- ii) **10% of the basic order** value shall be paid after submission of Performance Bank Guarantee (PBG) of equivalent amount valid with validity of 18 months from the date of supply or 12 months from the date of commissioning whichever is earlier. PBG shall be submitted after completion of deliveries.

#### **19.0 WARRANTIES & GUARANTEES**

Vendor shall guarantee BL against any and all defects in manufacturing, workmanship, materials and performance for a period of twelve (12) months from the date of commissioning or eighteen (18) months from the date of supply whichever is earlier. Should any defect develop during the guarantee period, it shall be remedied promptly free of charge by the Vendor and all expenses for transportation of goods necessitated for such repairs or replacement shall be borne by the vendor.

#### **20.0 INSPECTION & TESTING**

All materials and components will be subject to inspection by BL/authorised representatives of BL as per the relevant codes, standards and specification. All arrangement & costs, if any, for conducting tests during inspection at vendor's works will be deemed to be included in the quoted prices.

Before commencement of despatch, Mass Flowmeters, duly calibrated, shall be stamped clear for transportation to Balmer Lawrie's worksite by the Inspector and a note of acceptance will be released by the Inspector to the Vendor indicating acceptance of the goods offered by the Vendor for inspection. Only after the release of such note, it will be deemed that the goods (or concerned part thereof) are acceptable to BL.

It shall be the option of BL/ authorised representative to allow the Vendor to replace the rejected goods or to cancel the Order for the goods rejected. All costs for carrying out inspection including that required for making arrangements for the same shall be borne by the Supplier.

#### **21.0 LIQUIDATED DAMAGES**

A reduction @**0.5% of the basic order** value per week or part thereof subject to a maximum of **5% of the basic order** value will be applicable for delay in delivery period.

#### **22.0 TAXES & DUTIES**

GST shall be mentioned separately as per price schedule. Any taxes and duties other than GST shall be included in the basic rate. **Prices should be firm** till completion of the supply and no escalation for whatsoever reason shall be granted.

**23.0 TYPE OF BID**

Bidder should submit offer on Two-part (Un-priced & Priced )basis through on-line in Balmer Lawrie's e-procurement portal. Hardcopy of Unpriced-bid shall be submitted to Balmer Lawrie's office as mentioned later. A blank copy of price schedule should be submitted along with the un-priced bid.

For further clarification on tender document, please contact Sri Samir Biswas, Manager (Commercial), Phone no +9133 2222 5706, Fax no. : + 91-33 2222 5333, E-Mail : biswas.s@balmerlawrie.com.

Yours faithfully,  
*for,* **BALMER LAWRIE & CO. LTD.**

**(Amitava Bandyopadhyay)**  
**HEAD (ROFS)**



**Balmer Lawrie & Co. Ltd.**  
**Refinery & Oilfield Services**

**INSTRUCTIONS TO BIDDER REGARDING BID SUBMISSION**

**1.0 PROCEDURE FOR BID SUBMISSION**

The Tender Document comprises of two Bids viz Unpriced Part – I and Priced Part – II. The submission of offer can only be made through e-bidding as per following guidelines :

**1.1 BID SUBMISSION**

The bidders shall submit their response through bid submission to the tender on e-Procurement platform at <https://balmerlawrie.eproc.in> by following the procedures given below. The bidder would be required to register on the e-procurement market place <https://balmerlawrie.eproc.in> and submit their bids on line. The bidders shall submit their offers comprising the Tender Document (Part-I), duly filled up (wherever required), stamped and signed along with all pre-qualification documents, EMD. The bidders shall download the tender document, upload the same along with scanned copies of all the relevant certificates, documents etc., duly filled in, stamped and signed, in support of their eligibility criteria/NIT in the e-Procurement web site. However, bulky documents which could not be uploaded may be sent along with Unpriced Bid (Part-I) of the Tender Document, duly stamped and signed to the Tender Inviting Authority before date of tender opening along with the bank draft towards EMD amount (unless otherwise MSME). A copy of Priced Bid **without rate and amount** but with percentage of taxes and duties should be submitted along with Unpriced Bid. **Priced Bid, as displayed in the site, should be downloaded, filled up the rates, amount and uploaded to Balmer Lawrie e-procurement site under 'Uploading Priced Bid' link in 'Bid common Form'.**

**1.1.1 Registration with e Procurement platform**

For registration and online bid submission tenderer may contact the following officials at the HELP DESK of M/s C1 India on browsing to the website <https://balmerlawrie.eproc.in> during business hours (10:00 a.m. to 06:30 p.m.) from Monday to Friday (Excluding holidays of the Company):

Mr TirthaDas (Kolkata)	<a href="mailto:tirtha.das@c1india.com">tirtha.das@c1india.com</a>	+91-9163254290	MON - FRI
Mr Partha Ghosh (Kolkata)	<a href="mailto:partha.ghosh@c1india.com">partha.ghosh@c1india.com</a>	+91-8811093299	MON - FRI
Mr CH. Mani Sankar (Chennai)	<a href="mailto:chikkavarapu.manisankar@c1india.com">chikkavarapu.manisankar@c1india.com</a>	+91-8939284159	MON - SAT
Ms Ujwala Shimpi (Mumbai)	<a href="mailto:ujwala.shimpi@c1india.com">ujwala.shimpi@c1india.com</a>	+91-22-66865608	MON - FRI
Helpdesk Support (Kolkata)		+91-8017272644	MON - SAT
<b>Escalation Level 1</b>			
Mr.Tuhin Ghosh	<a href="mailto:tuhin.ghosh@c1india.com">tuhin.ghosh@c1india.com</a>	+91-8981165071	

### **1.1.2 Digital Certificate authentication**

The bidder shall authenticate the bid with his Digital Certificate for submitting the bid electronically on e-Procurement platform and the bids not authenticated by digital certificate of the bidder will not be accepted on the e-Procurement platform.

All the bidders who do not have Digital Certificates need to obtain Digital Certificate. They may contact Help Desk of C1 India Pvt. Ltd.

### **1.1.3 Submission of Hard copies**

After submission on-line bid, bidders are requested to submit the demand draft towards EMD along with original Affidavit and pre-qualification & documents (i.e. Unpriced Bid) which could not be uploaded due to its bulkiness to the following Tender Inviting Authority on/before the due date of opening date under cover of Unpriced Bid, Part - I.

Head (ROFS)  
Balmer Lawrie & Co. Ltd.  
Refinery & Oil Field Services  
21, Netaji Subhas Road  
Kolkata – 700 001

The above documents & EMD (unless bidder is a registered MSME under specific category) can be submitted either in person or through courier or by post. **Under no circumstances, physical copy of Price Bid should accompany with these documents. If price bid is submitted in hardcopy, the bid will summarily be rejected.**

Balmer Lawrie shall not take any responsibility for any delay or non-receipt of said documents. If any of the documents furnished by the bidder is found to be false / fabricated, the bidder is liable for black listing, forfeiture of the EMD, cancellation of work and criminal prosecution.

The bidder is requested to get a confirmed acknowledgment from the Tender Inviting Authority as proof of submission of hard copies.

### **1.1.4 Corrigendum to tender**

The bidder has to keep track of any changes by viewing the addendum/ Corrigendum's issued by the Tender Inviting Authority on time-to- time basis in the e-Procurement platform. The Company calling for tenders shall not be responsible for any claims/problems arising out of this.

### **1.1.5 Bid Submission Acknowledgment**

The user should complete all the processes and steps required for bid submission. The successful bid submission can be ascertained once acknowledgment is given by the system through bid submission number after completing all the processes and steps. Tender Inviting Authority and C1 India Pvt. Ltd. will not be responsible for incomplete bid submission by users. Users may also note that the incomplete bids will not be saved by the system and are not available for the Tender Inviting Authority for processing.

**Before uploading scanned documents, the bidders shall sign on all the statements, documents, certificates uploaded by him, owning responsibility for their correctness/authenticity.**

**1.1.6 Disclaimer Clause**

The Company (Balmer Lawrie & Co. Ltd.) nor the service provider (C1 India Pvt. Ltd.) is responsible for any failure of submission of bids due to failure of Internet or other connectivity problems or reasons thereof.

Fax/e-mail offers shall not be accepted. The company will not accept any responsibility for any delay in receipt or non-receipt of bidding document sent by post. Offers not conforming to the above mentioned requirements are liable to be rejected.

## **TECHNICAL SPECIFICATION**

### **1.0.0 INTENT OF SPECIFICATION**

This specification is intended for procurement of 2 Nos. Mass Flowmeter.

### **2.0.0 SCOPE OF WORK / SUPPLY**

Design, manufacture, making arrangement for inspection & testing, calibration by FCRI and supply of **2 Nos. Mass Flow Meters** to our worksite as per intimation prior to readiness & despatch.

Mass Flowmeters (Coriolis type) are intended to measure and meter Crude Oils and Recovered Oil along with feed pump and booster pump. The proposed Mass Flowmeters shall be able to monitor Mass Flow Rate and Totalised mass flow accurately at both locations where it shall be installed.

### **3.0 SYSTEM DESCRIPTION AND REQUIREMENT**

Crude Oil Meter (COM) shall consist of but not limited to the following components:

#### **3.1 Coriolis Flow Meter (CFM)**

- a) CFM should comprise of the Coriolis Flow Sensor (CFS) and Remote Flow Transmitter (RFT), providing mass flow rate, totalized mass flow, volumetric flow, totalized volumetric flow, density, temperature and others, if any.
- b) CFM shall be NEMA 4X housing
- c) RFT shall be field mounted (upto 10 Meter from flow sensor ), Nema 4X.

#### **3.2 System Requirements**

- i) All instrument and controls in the package shall be designed, fabricated or selected in accordance with the requirements of this specification, codes & standards.
- ii) Each instrument and control device shall be attached permanently with its 316 SS tag plate showing the instrument tag number, manufacturer, model & serial numbers, calibration range engraved on it.

#### **3.2 Coriolis Flow Meter (CFM)**

The CFM shall be capable of directly measuring the mass flow rate based on the Coriolis principle. The device shall be capable of measuring both Newtonian and Non-Newtonian liquids. The accuracy and reliability of the device will not be affected by change in viscosity, density, temperature, pipe vibration or flow profile etc. Environmental effects of temperature or pressure shall be fully characterized by the manufacturer. Steam tracing is to be provided for all flow meters in additive lines. Meter supporting details is to be furnished along with the offer. Diagnostic features available in the meter are to be mentioned in the offer.

This specification together with the attached data sheets covers the mandatory minimum requirements for Coriolis flow meters to be furnished for LOB metering.

The Vendor shall take full responsibility for the technical integrity and proper operation of the instrument under the specified operating controls. Since the Coriolis flow meters are meant to measure crude/recovered oil, hence pressure drop, repeatability and accuracy are of prime most importance for all measurement modes. Pressure drop calculation should be based on the maximum operating flow rate and viscosity. Vendor to furnish the sizing sheet.

### **3.3 Environmental Conditions**

The RFT shall be suitable for use in an industrial, humid atmosphere with an ambient temperature limit of 5°C to 55°C and relative humidity limits of 90% to 100%.

### **3.4 Electrical Safety**

CFM will be installed in Refinery/oil installations with our BLABO mechanized tank cleaning system.

### **3.4 Enclosure**

The RFT enclosure shall have an ingress protection code IP-65 according to IEC529.

### **3.4 Electrical Connections**

Cable entries : ¾" NPT

Unused cable entries shall be plugged off with metal plugs of suitable materials composition.

Termination : The Vendor's signal cable termination points shall be of the screwed type, suitable for a cable with a wire size of 1.5mm<sup>2</sup> minimum.

### **3.5 Remote Flow Transmitter (RFT)**

The RFT electronics shall be of microprocessor based SMART type with HART. The CFM diagnostics should be available to review configuration at site inside the transmitter. The transmitter has to be remote mounting type and integral mounting type transmitter will be rejected. Both the transmitters in the refinery/oil installation will be mounted in pipelines connected with feed/booster pumps such that all the information for each of the CFM is available at one location. The transmitter would have LCD/LED digital display for mass flow rate and totalized mass flow.

Wiring terminals and RFT shall be housed in separate compartments, to keep the RFT sealed during wiring up of the signal cable or accessing with the SMART hand held configurator during providing or maintenance.

### 3.6 RFT Output Signal and Power Supply

#### Output Signals

The RFT output signals shall be galvanically isolated from input, power supply and each other.

One active 4-20 mA analog output (allowable load  $\geq 600$  ohms) corresponding to mass flow rate.

#### Power Supply

The CFM system should be suitable for a power supply of 230 VAC $\pm$  10%, 50 Hz.

### 3.7 Minimum Performance of the Coriolis Flow Meter

#### (i) Mass Flow Measurement

- Accuracy :  $\pm 0.15\%$  of rate (for Mass Flow),  $\pm 0.005\text{g/cc}$  for density
- Repeatability : Included under accuracy

(ii) The minimum flow cut-off shall be adjustable from zero upwards

(iii) The ambient temperature effect on milliamps outputs shall not be greater than  $+0.005\%$  of span/ $^{\circ}\text{C}$ . Additionally, vendor to provide scheme for offsetting the ambient temperature effect on the performance of the RFT, since any drift of the output of the RFT will affect the meter performance.

(iv) The accuracy statement should be as per ISO standard and reflect the true performance of the meter in the field. It should be a composite accuracy statement for the CFM and must be a measure of the combined effect of repeatability, linearity, hysteresis and accuracy per ISO/DIS 11631 standards. The CFM would be used for crude/recovered oil application. Hence, the compliance is mandatory.

(v) The over range limits shall be 22 mA and 15 KHz for the analog and frequency output in the RFT.

(vi) Vendor to provide online temperature compensation. The compensation should be performed in the Coriolis flow transmitter.

(vii) Zero stability should be as low as 6.82 kg/hr.

#### Radio Frequency Interference (RFI) on Sensor and Transmitter

The RFI effect on sensor and transmitter shall not be greater than  $\pm 1\%$  of span at 3V/m per IEC 801.3 – 1984 over a 20 MHz to 1000 MHz range.



### **3.8 Minimum COM Requirements for the CFM**

The CFM would be used for critical batching application for a specialized lube blending recipe; hence the following is required as a minimum:

- i) Software lock in the RFT to prevent or disable any accidental access (through Local operator interface, HART hand-held configurator or any other changes in hardware settings internal to the RFT) of any functions or trimming of any parameter that could have a impact on the Product quantity or quality being metered.
- iii) Vendor's experience / reference list in supplying exactly similar quoted model for 2 years of operation in crude Oil application. The proven track record in full fledge crude oil application is mandatory. Without proper and complete information, vendor is liable to be rejected without further notice.

### **3.9 Material and Construction Requirements**

The complete CFM shall consist of a single material of construction sensor, a RFT and a vendor supply sensor to transmitter armoured interconnection cable. The distance between the CFS and RFT should be up to 10 Meter (Min).

#### Coriolis Flow sensor:

Wetted parts : SS316L  
Sensor enclosure : SS304  
Flange : SS316L  
Measuring tube : SS316L

The sensor design should not have any O-rings or multiple material of construction wetted parts. The sensor should be of dual tube design and single tube meters will be rejected.

#### Remote Flow Transmitter

RFT enclosure : Epoxy polyester-painted cast aluminum

### **3.10 Process Connections**

The process connections shall be RF flanged to DIN 2526, Type C Flange with face finish RMS 125~250 of micro-inch finish.

### **3.11 Marking and Identification**

#### **Identification**

Each CFS shall be provided with corrosion resistant plate fixed, showing the following information :

Manufacturer's trade mark or name  
Model no. / serial no. including applicable option codes

Mass flow range  
Output signal range  
Pressure and temperature rating  
Electrical protection code for hazardous atmospheres  
Mechanical enclosure protection code according IEC-529  
Note : Purchaser specified calibrated range shall not be marked on the sensor or transmitter.

### **Marking**

The pressure containing parts shall be marked in accordance with the material standards. Castings shall have the charge or heat number cast into the body.

### **3.12 Calibration, Inspection and Testing**

#### **Calibration**

Vendor shall get the Mass Flow Meters calibrated by **FLUID CONTROL RESEARCH INSTITUTE**, Kanjikode West, Palakkad – 678 623, Kerala as per following :

- Flow Measurement : By CORIOLIS Method
- Calibration Range : 0 to 165000 kg/hr
- Flow Accuracy : +0.2%
- Mode of Calibration: Water / Oil

#### **Inspection and Testing**

The inspection and testing requirements are in addition to manufacturing and fabrication standards of the vendor. Before the flow meters will be released for shipment to the site, a “release for shipment” note has to be signed by an appointed inspector.

Inspection and testing will involve one or more of the following:

- 1 Visual examination of the CFM.
- 2 Calibration certificates issued by FCRI to review for both CFMs.

### **3.13 Packing and Shipping**

The CFM shall be prepared for shipment and the ends shall be protected. Packing shall be separate for each component of the CFM (i.e. RFT separated from CFS). Appropriate precaution should be taken during packing and transport to avoid any kind of damage that will affect the satisfactory operation of the meters.

### **3.14 Site Test**

Once the installation is completed, the Vendor shall perform local operation test to ensure that all equipment are operating properly. A full operational test shall be carried out. Vendor shall be responsible to exhibit the performance specification under normal plant operation for acceptance of the meters by engineer in charge.

**Vendor shall provide the following necessary information in his quotation:**

- (a) Power consumption for the system
- (b) Weight of equipment
- (d) Dimensions of equipment

**1.13 VENDOR SERVICES / TECHNICAL SUPPORT**

The Vendor shall propose an inclusive “Day Rate” (including expenses) for the services of a hands-on experienced engineer who must be fully conversant with the equipment offered. Vendor shall maintain adequate and competent technical support staff for any future maintenance and modifications to the system.

**DATA SHEET**

JOB NO. :		CLIENT : IN HOUSE			
ITEM : MASS FLOWMETER		PROJECT : TANK CLEANING SYSTEM			
TAGNO. :		SECTION			
<b>A Physical Specification</b>					
1	Measuring Tube	:	Double Curved Tube		
2	Mounting	:	Directly on pipe		
3	Protection	:	Explosion proof ; EEx ib IIB T4		
4	Temperature	:	0-50 °C		
5	Quantity	:	2 (two) Nos.		
<b>B Process Condition</b>					
1	Service	:	Crude Oil		
2	Process Temperature	:	0-110 °C		
3	Operating Pressure	:	5.5 kg/ cm <sup>2</sup> (design parameter should be at least 10% more)		
4	Operating Flow	:	150000 kg/hr (design parameter should be at least 10% more)		
5	Operating Specific Gravity Range	:	0.8- 0.95		
6	Operating Viscosity	:	21 cSt at 40 °C		
7	Process Connection	:	80 mm DIN 2526, Type C Flange		
8	Electrical Connection	:	¾ " NPT(F)		
<b>C Functional Specification</b>					
1	Functional Specification	:	Direct measurement of Mass Flowrate		
2	Type	:	Coriolis, Electronic, Microprocessor based		
3	Power Supply	:	230 V AC		
4	Power Requirement	:	Vendor to specify		
5	Output	:	(i) 4-20 mA DC, isolated corresponding to Mass Flowrate (ii) 4-20 mA DC, isolated corresponding to Density		
6	Local LCD Display	:	(i) Mass Flowrate & Totalised Mass (ii) Volume Flowrate & Totalised Volume (iii) Density		
<b>D Performance Characteristics</b>					
1	Minimum accuracy	:	± 0.2% for Mass Flow ± 0.005 g/cc for Density		
2	Pressure Drop across Mass Flowmeter	:	Vendor to specify		
3	Calibration Range	:	0- 150000 kg/hr for Mass Flow 0- 2.0 g/cc for Density		
<b>E MOC</b>					
1	Sensor Housing	:	SS 304L		
2	Flange	:	SS 316L		
3	Measuring Tube	:	SS 316L		
		<b>Balmer Lawrie &amp; Co. Ltd</b> Refinery & Oil Field Services			
<b>REV.</b>	<b>DESCRIPTION</b>	<b>BY</b>			
THIS DATASHEET IS THE PROPERTY OF BALMER LAWRIE & CO. LTD. AND SHALL NOT BE DISCLOSED TO A THIRD PARTY, COPIED OR USED WITHOUT WRITTEN CONSENT OF BALMER LAWRIE & CO. LTD.			BY	DATE	TITLE
		PREPARED	SD		DATA SHEET FOR MASS FLOWMETER
		CHECKED			
		APPROVED	AB		
DOCUMENT NO. :		MFM- 1	REV.: 0	SHEET NO.	

**ATTACHMENT-I****PROFORMA FOR PERFORMANCE BANK GUARANTEE****To**

**Balmer Lawrie & Co. Ltd.**  
Refinery & Oilfield Services  
21, Netaji Subhas Road  
Kolkata – 700 001

BG No. : \_\_\_\_\_  
DATED : \_\_\_\_\_  
VALID UPTO : \_\_\_\_\_

This deed of Guarantee made this \_\_\_\_ day of \_\_\_\_ 20\_\_ by the \_\_\_\_\_ a Bank registered under the \_\_\_\_\_ and having its registered office at \_\_\_\_\_ and wherever the context so requires includes its successors and assigns (hereinafter called 'The Surety') in favour of Balmer Lawrie & Co. Ltd. a Company registered under Indian Companies Act and having its registered office at 21, Netaji Subhas Road, Kolkata 700001 and wherever the context so requires include its successors and assign (hereinafter called the Company).

**Whereas**

1. The Company has placed a Purchase Order No. \_\_\_\_\_ dated \_\_\_\_\_ (hereinafter referred to as the Order) on M/s. \_\_\_\_\_ a Company registered under Indian Companies Act 1956 having its registered office at \_\_\_\_\_ and whereas the context so require includes its successors and assigns (hereinafter called or referred to as the Supplier).
2. Under the terms of the order, the supplier is required to furnish the Company at his own cost a Bank Guarantee for an amount of Rs. \_\_\_\_\_ (Rupees \_\_\_\_\_ only) being the amount equivalent to \_\_\_\_% of the total value of the order for fulfilling the contract.
3. The Surety at the request of the Supplier, agreed to issue Bank Guarantee in terms of the said order on behalf of the Supplier and the Company has agreed to accept the same. It is hereby stipulated and agreed that the Supplier shall repair or replace free of cost equipment, machinery, its parts and components found defective on account of Workmanship or defective material or inferior manufacturer, as mentioned in Warranty & Guarantee clause of the order for a period of 12 months from the date of last delivery or 18 months from the date of commissioning.
4. The Surety binds himself to pay to the extent of Rs. \_\_\_\_\_ in case of failure on the part of the Supplier to perform this guarantee provided the Company inform the Surety in writing to this effect.
5. Notwithstanding anything contained hereinafter the liability of the Surety in respect of this guarantee is restricted to Rs. \_\_\_\_\_ being \_\_\_\_ % value of the order.
6. The Surety shall not be discharged or released from this guarantee by any arrangement between the Company and the Supplier with or without consent of the Surety or by any alteration in the obligation of the parties or by any indulgence, forbearance whether as to payment time performance or otherwise.
7. Notwithstanding anything contained hereunder, our liability under this Guarantee shall be restricted to Rs. \_\_\_\_\_ and the guarantee shall remain in force upto \_\_\_\_\_ 20\_\_ unless a claim is lodged under this Guarantee within three months from the date of expiry of Bank Guarantee, your rights under the Guarantee shall be forfeited and we shall be relieved and discharged from all liabilities thereunder.

In witness whereof the said Surety subscribed and set its name and seal here onto \_\_\_\_\_ the day of 20\_\_\_\_.

Place : \_\_\_\_\_  
Date : \_\_\_\_\_

**ATTACHMENT - II**

**DETAILS OF EXPERIENCE**

Tenderer shall give information of similar supply carried out during past five (5) years strictly as per the proforma given below.

Sl. No.	Full particulars of similar supply made by the Vendor	Supply Value	Completion time as stated in the Order	Actual Completion time	Year of completion	Name & Postal address of Client with Telephone/Fax No.
1	2	3	4	5	6	7

Certified that the above information is correct.

**ATTACHMENT – III****DEVIATION STATEMENT (IF ANY)**

**Please list clearly all Techno-commercial tender clauses against which a deviation / exception sought failing which it shall be deemed that the vendor has accepted the tender clause.**

SL. NO.	TENDER REFERENCE (Page no., Clause No., Paragraph)	SUBJECT	DEVIATION / EXCEPTION PROPOSED

**ATTACHMENT – IV****QUALITY PLAN**

**Please include all tests to be carried out by Vendor's QC Department and the tests to be witnessed by BL / their Authorized representative**

Sl. No.	Activity	Examination by Manufacturer	Inspection by BL / Authorized Representative	Records to be submitted by Manufacturer



**ATTACHMENT – V****VENDOR'S INFORMATION**

<b><u>Sl no.</u></b>	<b><u>Description</u></b>	<b><u>To be filled in by the Tenderer</u></b>
1	Name1 (max. 35 char.)	
2	Name2 (max. 40 char.)	
3	Street/House No. (max. 50 char.)	
4	Street1 (max. 40 char.)	
5	Street2 (max. 40 char.)	
6	PIN Code (Postal Index No. e.g. "700001") (max. 6 char.)	
7	City/Place (e.g. "Kolkata" or "Dehradun") (max. 40 char.) or as the name of the city	
8	Country ("India" or "England" or as the name of country be)	
9	State (Name the state from where the office of Vendor/Supplier operates)	
10	First Tel. No. (With STD Code): (e.g. 033-22225280 or 022-66552814) (max. 30 char.)	
11	First Fax No. (with STD Code)	
12	Contact Person	
13	First Mobile No.	
14	E-mail Address) (max. 40 char.)	
15	PAN No. :	
16	GSTIN Registration No. :	
17	GSP Name (GST Suvidha Provider)	
18	Bank Name (max. 60 char.)	
19	Street (max. 35 char.)	
20	City (max. 35 char.)	
21	Branch (max. 40 char.)	
22	IFSC Code	
23	MICR Code	
24	Account No.	
25	Type of Account (Current, Savings, etc.)	

Seal and Signature of the Vendor



बामर लॉरी एण्ड कं. लिमिटेड  
**Balmer Lawrie & Co. Ltd.**

**REFINERY & OILFIELD SERVICES**  
**21, Netaji Subhas Road,**  
**Kolkata 700 001**

**TENDER DOCUMENT**

**FOR**

**SUPPLY OF MASS FLOWMETERS**

**Tender No.: ROFS/CAPEX/19-20/ENQ/02**

**Dated: 10.07.2019**

**Tender Due date & Time: 30.07.2019, 16:00 Hrs**

**PART-II (Priced)**

**NOTES:**

- 1.0 Details of the item under this Schedule shall be read in conjunction with this note and corresponding Specifications, data sheets and Tender documents.
- 2.0 The tenderer should quote for all items in the Price Bid. The rates should be expressed in English both in figure and words. Where discrepancy exists between the two, rates expressed in words will prevail. Similarly, if there is any discrepancy between unit rate and total amount, the unit rate will prevail. All entries shall be in English language.
- 3.0 The rates should be quoted in the same units as mentioned in the tender schedule of quantities.
- 4.0 Every page of the tender document including annexure/enclosures shall be stamped and signed by the tenderer or his authorized representative thereby indicating that each and every page has been read and the points noted.
- 5.0 Bidder should quoted their rates on Ex-works basis. However, despatch of materials to the destinations shall be under bidder's scope. Freight charges shall be paid/reimbursed at actuals on submission of original consignment note.



**BALMER LAWRIE & CO. LTD.  
REFINERY & OIL FIELD SERVICES**

**PRICE SCHEDULE**

Sl. No	Item Description	Qty (Set)	Rate (Rs)	Amount (in figures) (Rs)	Amount (in words) (Rs)
1.0	Design, Engineering, Manufacturing, Inspection, Testing, Calibration by FCRI and supply & delivery of Mass Flowmeters as per data sheet including sensor, transmitter, signal cable from sensor to transmitter, cable glands and all other accessories required. Mass Flow Meter : 80 NB size	2			
<div style="border: 1px solid black; padding: 10px; width: fit-content; margin: 0 auto;"> <p style="color: red; font-weight: bold; margin: 0;">BIDDER NOT TO QUOTE HERE</p> </div>					
2.0	Packing & Forwarding	%			
3.0	<b>TOTAL BASIC BEFORE GST</b>				
4.0	<b>GST (.....bidder to specify %)</b>				
5.0	<b>GRAND TOTAL WITH GST (3+4) (Ex-Works)</b>				

NOTE - Quoted price should include cost towards Calibration by FCRI and site visit of vendors' engineer for observation of Flow-Meter performance & validation in respect of tender specification.

**Name of the Bidder** :  
**Signature** :  
**Seal of the**  
**Company** :  
**Date** :