

Tender Ref: BL/LC/MAN/CP02GL/LT/202122/0047/Price

Dated: 21.06.2021

Due date: 02.07.2021

Sub: Inviting online price bids for Manufacture and Supply of 3 KL MS Glass Lined Reactor as per specification at SBU Chemicals, Manali – Reg...

Ref: EOI/Techno-commercial Tender: BL/LC/MAN/CP02GL/LT/202122/0047 due on 31.05.2021 and subsequent correspondence, if any.

**1. TENDER QUANTITY**

**3KL MSGL Reactor - 1 No**

**2. ITEM TECHNICAL SPECIFICATIONS**

Refer Annexure – 1 (Technical Scope and Specific Conditions) (4pages), Annexure- 2(for Major Specifications as finalised) (5 pages); Refer tender (EOI) and subsequent correspondence for more details and scope of supply.

**3. PRICE**

3.1 Only after techno-commercial evaluation based on the unpriced offer (Techno- commercial bid) and subsequent clarifications, if any, the qualified /shortlisted parties are asked/allowed now to submit their price bids online.

3.2 The price to be submitted at our e-portal only, as per the indicative format below:  
(Submission of offline price bids will disqualify the bidders's participation in the tender)

**(a) MANUFACTURE AND SUPPLY OF 3 KL MSGL REACTOR AS PER SPECIFICATION**

Item	Particulars	Formula (if any)
1	Unit Of Measurement	Nos
2	Basic Price per unit	A
3	FREIGHT (Including Insurance) per unit	B
4	TOTAL BASIC PRICE (Including freight & Insurance)	C= SUM (A+B)
5a	CGST (Enter applicable Rate in %)	D1=C* (Applicable CGST Rate in %)
5b	SGST (Enter applicable Rate in %)	D2=C* (Applicable SGST Rate in %)
	OR	
6	IGST (Enter applicable Rate in %)	D3=C* (Applicable IGST Rate in %)
7	Total Cost	E= SUM(C+(D1+D2) or D3)
8	Less: CGST	F= D1
9	Less: SGST	G= D2

10	Less: IGST	H= D3
11	Landed Cost	I= (E - (F+G) or H)
12	Unloading	By BL
13	HSN Code of the tendered item	To be provided by Vendor

**Note:**

**Related Civil/Mech/Electrical work, if any, for erection and erection work of the equipment, will be carried out by BL. However, supervision of commissioning and testing of the equipment is in Vendor's scope. Charges for supervision of commissioning and testing to be included in the basic price as above. No other extra charges are payable by BL**

The basic price should include the Freight, transit insurance, loading charges at supply premises, packing and forwarding. Price quoted should be on FOR Manali basis in **Rs. per unit.**

**Vendor has to provide the applicable GST rate in % in the relevant fields as above during price bidding. If a vendor quotes with CGST & SGST, then they may ENTER "0" (Numerical Zero) in IGST field and similarly, If a vendor quotes with IGST, then they may ENTER "0" (Numerical Zero) in CGST & SGST fields.**

Changes in statutory levies like GST and any taxes as applicable on the product shall be reimbursed at actuals based on documentary proof. Taxes and duties as applicable shall be clearly mentioned.

The vendor has to quote their price as per the above format.

**3.3 No Change in the accepted price structure on the basis of landed cost at our Manali works shall be permitted during the period of contract under any circumstances.**

**4. SECURITY DEPOSIT (SD)**

Successful tenderer shall be required to submit within 10 days of issue of LOI / PO, SD equivalent to 3% of the total order value rounded off to the nearest thousand rupees by a/c payee pay order / demand draft / irrevocable BG as per our format with a validity of further 3 months from expiry of the contract. The BG format will be issued to successful bidder. No interest will be payable on the SD held with us.

If SD is not received within 10 days from date of LOI/PO, the amount will be deducted from the vendor's bills, if any.

The Security Deposit paid by Pay Order/Demand Draft/Bank Transfer shall bear no interest and shall be refunded to successful bidder, only on successful delivery of the tendered item

All sums of compensation or other sums of money as determined, if any, payable by the bidder may be deducted from the Security Deposit.

**Security deposit is liable to forfeiture in the event of:**

- a. Not supplying the after Acceptance of Purchase Order.
- b. Successful Bidder fails to deliver the product as per the terms & condition of the Purchase Order.
- c. Successful Bidder violates the tender conditions.
- d. If the performance of the bidder is found to be unsatisfactory.
- e. Any unilateral revision made by the successful bidder during the validity period of the contract.

**5. PAYMENT TERMS**

**5.1 Payment terms are as accepted and confirmed by vendors through their offers and subsequent correspondence prior to this price tender.**

**Note: In case of payment terms differing from our original tender terms, suitable adjustments will be made in arriving at the landed cost while price comparison.**

**Advance Bank Guarantee/Security Bank Guarantee/Performance Bank Guarantee format shall be given to successful tenderer and if the tenderer is submitting BG, it shall be strictly as per our BG format only. In case of advance payment, ABG shall be submitted within 10 days from the date of LOI/PO. However, Advance against ABG is payable only on receipt of Security Deposit (SD).**

**5.2 Supply will be complete only if all relevant documents etc are submitted. Relevant Material test certificate for bought out items to be submitted along with dispatch.**

**5.3 Payment will be made only to the bidder or principal on whom the Purchase Order is placed. If offer states that payment is to be made to bidder's financier / creditor, the offer will stand rejected.**

**6. GUARANTEE**

**6.1 The party shall stand guarantee for material, workmanship and performance for a period of 12 months from the date of commissioning or 18 months from the date of supply, whichever is earlier.**

**6.2 The warranty/guarantee shall extent to the equipment and components manufactured by you or your vendor. In case of prolonged breakdown of equipment during warranty, the warranty period shall be extended proportionately.**

**6.3 During the above period, the party shall attend/repair/rectify /replace any defects whatsoever in material, workmanship and performance and make equipment ready for normal performance.**

## **7. DELIVERY**

**Delivery period shall be as given in your offer and subsequent confirmation, if any.**

Also, it is to be noted that clear detailed drawing shall be submitted for approval along with Quality Assurance Plan (QAP) within 10 days from the date of LOI/PO. BL will revert with approval, with correction if any, within 7 days.

The delivery period mentioned above is inclusive of inspection & testing/transit time. No additional time shall be given separately for inspection/testing/transportation. Hence vendor has to plan and inform BL regarding the readiness of the equipment for inspection/testing with 1 week notice period, and BL shall confirm on inspection & testing within 2 days from the inspection notice given by the vendor.

Corrections/modifications as suggested by BL during inspection & testing to be implemented by the vendor within the mutually agreed period by BL & Vendor, based on the nature of corrections/modifications suggested.

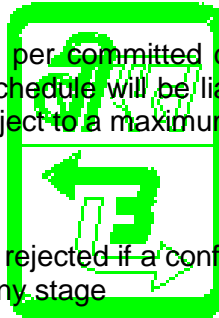
**Any delay in submission of Bank Guarantee, drawings etc & delay due to inspection & testing/transportation will be counted into delivery time taken by vendor only**

## **8. LD Clause:**

The reactor shall be delivered as per committed delivery schedule without fail. Any delay in delivery as per agreed schedule will be liable for imposition of LD @0.5% of the total order value per week subject to a maximum of 5% on total basic value.

## **9. CONFLICT OF INTEREST**

The bids of any tenderers may be rejected if a conflict of interest between the tenderer and the Company is detected at any stage



## **10. RISK PURCHASE**

Without prejudice to other provisions in the tender, in the event of the vendor failing to supply within the stipulated delivery period, BL shall have the right and option to procure the products from alternate sources, at the risk and cost of the vendor, without further intimation. In case of rejection and with no request for re-test from vendor against the rejection or on confirmation of rejection after re-test, if dispatch of replacement material is not made within mutually agreed time period, BL shall have the right to procure the product from alternate sources, at the risk and cost of the vendor, without further intimation.

## **11. DELIVERY TO PLANT**

Purchase Order under this tender will be placed for DELIVERED supplies. Transit Risk for the supplied material, Insurance coverage thereof will be borne by the supplier.

## **12. INSPECTION & TESTING**

**Refer clause 3.0 of Annexure-1 of this price tender and as confirmed.**

### 13. ARBITRATION

Any dispute or difference arising under this Contract shall be referred under jurisdiction of Chennai to a sole arbitrator to be appointed by the Chairman & Managing Director, Balmer Lawrie & Co. Limited and the provisions of Arbitration and Conciliation 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 therefore and is final and binding on the parties. The proceeding shall be conducted in English language and courts at Chennai will have exclusive jurisdiction to settle any dispute arising out of this contract.

### 14. GST TAX FORMALITES & COMPLIANCE WITH REGULATIONS

Vendor shall warrant that all goods covered by this agreement / contract are dispatched and delivered in strict compliance with all applicable laws, regulations, labour agreements, working conditions and technical codes and requirements as applicable from time to time. The vendor shall execute and deliver such documents as may be required to effect or to evidence such compliance.

The vendor shall issue the GST invoice so that equivalent amount may be availed as GST / applicable tax credit by BL. Vendor / vendor's nominated transporter shall ensure handing over of the GST paid invoice for availing concerned levy to the Company at the time of delivery of the consignment.

All laws and regulation required to be incorporated in this charter are hereby deemed to be incorporated by these references: BL and / or their authorized representatives disown any responsibility for any irregularity, contravention or infringement of any statutory regulations in the manufacture and / or supply of goods covered by this agreement / contract.

**The processing of invoice should be as per the GST Act. Any penalties due to the non-adherence will be deducted from your invoice.**

### 15. ANTI-PROFITEERING CLAUSE

GST Act anti-profiteering provisions mandates that any reduction in tax rates or benefits of inputs tax credits be passed on to the customer by way of commensurate reduction in prices. Vendors to take note of the same and pass such benefits to BL while quoting their price.

### 16. FORCE MAJEURE

Any delay in or failure of performance of either party 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, decrees of any Government or Governmental authority, 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 notice of the concerned Officer of the buyer in writing within 7 days of such occurrences.

The period of time, if any, lost on any of these counts shall not be counted for the contract period. The decision of buyer arrived at after consultation with vendor, shall

be final and binding. Such period of time shall be extended by the buyer to enable the vendor to deliver the items within such extended period of time. As soon as the cause of Force Majeure been removed, the party whose liability to perform its obligation has been affected shall notify the other of such cessation and inform the other party the actual delay incurred in such affected activities. Any such event, whenever it occurs, provided that it prevents, affects or delays the party in performing contractual obligation, shall justify the claim of Force Majeure.

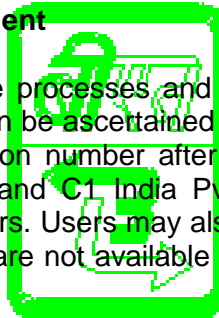
During the pendency of Force Majeure conditions, the Agreement and the obligations there under shall stand suspended provided the notice as required above is given in time. If such event continues beyond 14 days, the parties to this Agreement hereby agree to discuss and decide the course of action to be adopted in this regard including the possibility and manner of terminating the Agreement.

## **17. CONDITIONS / PROCEDURE FOR BID SUBMISSION**

The bidder would be required to register on the e-procurement market place <https://balmerlawrie.eproc.in> and submit their price bids online. **No offline price bids shall be entertained by the Tender Inviting Authority.** The bidders shall submit their price bid displayed in e Procurement web site.

## **18. Bid Submission Acknowledgement**

The user should complete all the processes and steps required for bid submission. The successful bid submission can be ascertained once acknowledgement 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.



## **19. SUBMISSION OF PRICE BID (ON-LINE ONLY)**

- 19.1 Only after techno-commercial evaluation based on the EO/ unpriced offer (Techno-commercial Bids) and subsequent clarifications, if any, the qualified / shortlisted vendors are asked/ allowed now to submit their price bid online.**
- 19.2 Vendors to submit their price online only, as per the indicative format as per [clause 3](#) as sought in our e-procurement portal.**
- 19.3 SUBMISSION OF OFF- LINE PRICE BID WILL DISQUALIFY THE BIDDERS's PARTICIPATION IN THE TENDER**

## **20. VALIDITY OF OFFER**

Your price offer should be valid for our acceptance up to **30 days** from the due date of this tender (**i.e. From 02.07.2021**).

## **21. DISCLAIMER CLAUSE**

Neither 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.

**All other terms and conditions are as per our tender, techno-commercial bids and subsequent correspondences only.**

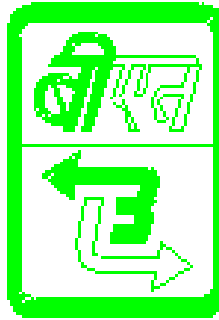
**For Balmer Lawrie & Co Ltd**

**Sr Manager (SCM – Capex & Projects)**

**Encl:**

**Annexure- 1 - Technical Scope and Specific Conditions**

**Annexure-2 –Technical Requirements for 3KL MSGL Reactor**



**Annexure – 1 (Page 1 of 4)**

**TECHNICAL SCOPE AND SPECIFIC CONDITIONS**

**1.0 Scope of supply** shall include but not be limited to the following:

- 1.1 Scope shall include fabrication, inspection, testing, packing and dispatch of 3KL MSGL Reactor (1No)
- 1.2 Supplier shall submit detailed drawing of the 3KL MSGL Reactor, Quality Assurance Plan (QAP), Welding procedure specification (WPS) to BL/its nominated Third party inspection agencies for approval within 10 days from placement of PO/LOI.
- 1.3 Procurement of all the materials whatsoever required meeting the scope of supply.
- 1.4 Supplier shall fabricate & supply the Reactor as per given specification sheet and approved drawing.
- 1.5 All welds shall be carried out by TIG method.
- 1.6 Pickling and Passivation (Weld surface cleaning) of the weld shall be carried out as per standard procedure. All inside welds shall be ground smooth.
- 1.7 Any other item / activity which is not listed here but is required for the completion of main equipment and its various components as specified in Specification sheet and enquiry documents shall also be the responsibility and shall be included in supplier's scope of supply.
- 1.8 The Reactor shall be inspected BL/TPI as per Clause 3.0 Inspection & Testing.
- 1.9 **Hydro testing** shall be carried out as per applicable standards and the same shall be witnessed by **TPI/BL** as given in specification.
- 1.10 For jacket hydrotesting of coil shall be carried out **at test pressure as per ASME section VIII** and same shall be witnessed by TPI/BI as given in specification.
- 1.11 Testing water shall have Chloride content not exceeding 40 ppm.
- 1.12 Equipment shall be dried & thoroughly cleaned both inside & outside by blowing hot compressed Air. All water, dirt, sand, weld metal, spatter & foreign material to be removed.
- 1.13 Test gaskets shall be of similar specification as service gasket & shall be replaced by new gaskets after testing.
- 1.14 All the material to be supplied with MTC in original from reputed testing laboratories only.
- 1.15 Supplier shall submit 3 sets of all the Final – As built drawings in hard copy and one set of soft copy in DVD/CD.
- 1.16 Packing & Transportation for the delivery of the equipment is in Party's scope



**Annexure – 1 (Page 2 of 4)**

**2.0 Material of Construction**

Material of Construction shall be as per specification sheet / BL approved drawing / additional requirements as given in BL Enquiry document.

**3.0 Inspection and Testing**

3.1 The entire job of procurement of Raw material for fabrication, welding, qualification of welders and welding procedures, testing etc shall be carried out under a third party inspection agency (TPI).

3.2 Third Party to be lined up by Supplier and their Inspection charges shall be borne by Supplier only & list of 3<sup>rd</sup> Party is as below:

- M/s. Lloyds Registers Asia (LRIS)
- M/s. Bureau Veritas Industrial Services (BVIS)
- M/s. Projects & Development India LTD (PDIL)

3.3 The TPI shall include but not limited to the following

SL No.	Activity	BL Requirement
1	1) Certification of QAP & WPS 2) Raw material Identification/correlation 3) Material Testing Review. (Bought our Material test report)	Review of record and witnessing (As applicable) by TPI
2	Fabrication Process & Dimensional Check	Review of record and witnessing (As applicable) by TPI
3	DP Check of circumferential/longitudinal weld seams	Vendor to retain the test certificates & offer to TPI during final inspection
4	Inspection of NDT tests	-do-
	1) Final Hydrotest/ Water Fill Test 2) Documentation & Certification and 3) Final release for dispatch	Witnessing, Review of records and issue of final release for dispatch of TPI/BL

3.4 All Raw materials shall be inspected at source by authorised inspection agency and test certificates with due identification shall be submitted. Nozzle fit up clearance will be by BL/ or its TPI

3.5 Following NDT requirements are mandatory in addition to the requirements of code/specifications:

3.5.1 Dye penetrant test shall be carried out for the following:

- Root run and final layer of all but welds
- Shell to bottom plate fillet welds
- Flange to shell/dome fillet welds
- Nozzle to shell/dome/bottom plate welds

3.5.2 Spot radiography shall be applicable to all pressure welds ie., longitudinal & circumferential

3.5.3 Complete equipment and Jacket shall be hydro tested in presence of the inspection authority. Duration of test shall be 1 hr minimum.

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**4.0 Cleaning & Despatch**

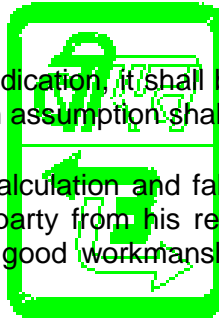
- 4.1 After water fill testing, the equipment shall be dried, thoroughly cleaned from inside and outside and shall be free from all shop dirt, loose scale, grease etc.,
- 4.2 All machined surfaces, bolting and flange faces shall be properly protected from rust and mechanical injury during transit and storage
- 4.3 SS Name plate of Size 250 mm X 150 mm with code No. details of equipment etc shall be provided in conspicuous place.
- 4.4 Responsibility of transportation, packing & forwarding of equipment shall be with the supplier
- 4.5 All spares shall be properly packed, marked and sent separately along with equipment

**5.0 General Conditions**

5.1 Any deviation from herein stipulated specifications and other enquiry documents shall be clearly mentioned in the offer under 'Deviations' with proper reference to clause number

5.2 In the absence of any such indication, it shall be assumed that the offer complies with all the requirements and such assumption shall be strictly binding on the party

5.3 Approval by BL for design, calculation and fabrication drawing of the equipment will not in any way absolve the party from his responsibility towards correctness of design/drawing, proper material, good workmanship and performance guarantee of the equipment.



5.4 All the revised and final drawings/document/ specifications only will be considered and for any dispute, BL's decision will be final and binding on the party.

5.5 Equipment shall be considered acceptable for dispatch only after issuance of Final inspection clearance by BL/it's TPI

However, the responsibility of party shall end only after successful performance test at site.

**6.0 BL Scope**

Unloading of the equipment and other parts at BL factory, lifting and shifting to equipment location.

**7.0 Commissioning**

Any defects found in the material and workmanship during the commissioning shall be rectified by the party immediately, free of cost. If required, vendor's representative shall be available at the time of commissioning at BL site and charges if any towards supervision of commissioning shall be included in the basic price.

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**8.0 Guarantee**

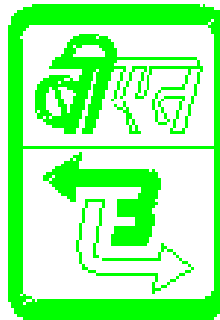
8.1 The party shall stand guarantee for material, workmanship and performance for a period of 12 months from the date of commissioning or 18 months from date of supply, whichever is earlier.

8.2 During the above period, the party shall attend / repair / rectify / replace any defects whatsoever in material, workmanship and performance and make the equipment ready for normal performance

**9. Time Schedule**

Complete equipment as per the above scope of supply shall be supplied along with BL's dispatch clearance, within the delivery schedule committed from the date of receipt of approved drawing from BL

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**TECHNICAL DATA SHEET FOR GL PHOTO REACTOR***(Please check item no:28 which is more critical for fixing immersion UV lamp)*

Page 1 of 4

Sl. NO.	PARTICULARS	DESCRIPTION	BL REQUIREMENT	VENDOR'S OFFER
1	<b>REACTOR TYPE</b>	TYPE OF REACTOR	MS GLASS LINED (PLUG FREE) - MONOBLOCK TYPE	As offered and confirmed by shortlisted vendors
2	<b>WORKING CAPACITY</b>	WORKING CAPACITY OF THE REACTOR	3000 L	
3	<b>DESIGN CODE</b>	STANDARD TO BE FOLLOWED FOR MANUFACTURING THE REACTOR	ASME SECTION VIII DIV.I (OR LATEST AMENDMENT THEREOF)	
4	<b>SERVICE OF REACTOR</b>	REACTOR SHALL BE USED FOR SULPHO-CHLORINATION REACTION IN PRESENCE OF UV RADIATION. CHEMICALS TO HANDLE ARE GIVEN UNDER BL REQUIREMENT COLUMN	SULPHUR DI OXIDE, CHLORINE, MOLTEN WAX, PALM OIL, MUTTON TALLOW & LINEAR ALPHA OLEFINS	
5	<b>JACKET</b>	JACKET SHALL BE USED FOR HEATING AS WELL AS COOLING PURPOSE AND SHALL BE WITH BAFFLE PLATE. MATERIALS TO HANDLE ARE GIVEN UNDER BL REQUIREMENT COLUMN	COOLING WATER/ STEAM	
6	<b>DESIGN PRESSURE</b>	INNER VESSEL	-1 TO 6 BAR	
		JACKET SIDE	-1 TO 6 BAR	
7	<b>DESIGN TEMPERATURE</b>	INNER VESSEL	-25 TO 200 DEG C	
		JACKET SIDE	-25 TO 200 DEG C	
8	<b>HEAT TRANSFER AREA</b>	BETWEEN JACKET & REACTOR	10 M2 (APPROX.)	
9	<b>DIMENSIONAL DETAILS</b>	INNER VESSEL OUTER DIA	1600 MM	
		OUTER DIAMETER INCLUDING JACKETED PART	1700 MM	
		OVERALL HEIGHT	2050 O/S to O/S (Refer Drg)	
		INNER VESSEL THICKNESS (APPROX.)	16 MM (min.)	
		TOP/ BOTTOM THICKNESS	18 MM (min.)	
		JACKET THICKNESS (APPROX.)	12 MM (min.)	
		GLASS LINING THICKNESS (MM)	1 TO 2.2 MM	
10	<b>CORROSION ALLOWANCE</b>	CORROSION ALLOWANCE FOR SHELL	1.5 MM (MAX.)	
		CORROSION ALLOWANCE FOR JACKET	1.5 MM (MAX.)	

## Annexure – 2

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Sl. NO.	PARTICULARS	DESCRIPTION	BL REQUIREMENT	VENDOR'S OFFER
11	MATERIAL OF CONSTRUCTION OF INNER VESSEL	SHELL/ HEADS & BLIND FLANGES	CS PLATE EQUIVALENT TO DIN EN 10028 P235GH (ENAMEL QUALITY)	As offered and confirmed by shortlisted vendors
		WELDING NECK FOR BODY FLANGE & NOZZLES	DIN EN 10028 P235GH (ENAMEL QUALITY)	
		GASKET FOR MANHOLE, BODY FLANGE & NOZZLES	PTFE ENVELOPED CAF INSERT WITH SS CORRUGATED RING	
		NOZZLE BOLTS	CARBON STEEL (IS : 1363 / 1367)	
12	MATERIAL OF CONSTRUCTION OF JACKET	SHELL, HEAD	A 516 GR. 60/ 70 WITH C=0.27 MAX.	
		FLANGES	FORGED C.S. A 105	
		COUPLING & PLUGS	A 516 GR. 60/ 70 OR C.S. FORGING	
13	MOC FOR GLASS LINING	GLASS LINING	WHITE GLASS OF SUITABLE CHARACTERISTICS	
14	SUPPORT TYPE	LUGS SHALL BE USED FOR SUPPORTING THE REACTOR	4 NOS.	
15	RADIOGRAPHY TEST	FOR INNER VESSEL	100% ULTRASONIC TESTING	
16	JOINT EFFICIENCY TEST	FOR VESSEL SHELL	100% TESTING	
17	CLEANING & PAINTING	THE EXTERNAL SURFACE SHALL BE PROPERLY PREPARED BY SHOT BLASTING AND PAINTED WITH EPOXY PRIMER & SMOKE GREY PAINT SO AS PREVENT CORROSION	EPOXY PRIMER-1 COAT SMOKE GREY- 2 COATS	
18	INSPECTION & TESTING (IN PRESENCE OF BL REPRESENTATIVES)	HYDROSTATIC TEST FOR SHELL	7 BAR	
		HYDROSTATIC TEST FOR JACKET	7 BAR	
		HYDROSTATIC TEST FOR DOUBLE MECHANICAL SEAL	7 BAR	
		SPARK TEST FOR GLASS LINING WHILE INTERNAL INSPECTION(ONCE)	AT 20000 VOLTS	
		SPARK TEST FOR GLASS LINING WHILE FINAL INSPECTION (IN PRESENCE OF BL REP.)	AT 10000 VOLTS	

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Sl. No.	PARTICULARS	DESCRIPTION	BL REQUIREMENT	VENDOR'S OFFER
19	<b>AGITATOR (AGITATOR LENGTH &amp; SWEEP DIA TO BE DISCUSSED &amp; FROZEN WITH BL DURING DESIGN STAGE)</b>	TYPE	SINGLE STAGE PROPELLER AGITATOR	As offered and confirmed by shortlisted vendors
		LOCATION	TOP MOUNTED	
		SWEEP DIA	700 MM appx	
		RPM	60 TO 100	
20	<b>SHAFT SEALING WITH SUITABLE COOLING PLAN</b>	TYPE	DOUBLE MECHANICAL SEAL	
		ROT. FRM D.E.	CLOCKWISE	
		FACES DETAILS	CARBON V / S CERAMIC	
		SPEED	0 TO 250 RPM	
		EQUIPMENT TYPE	G.L. TOP ENTRY	
		MAKE	EAGLE BURGMAN/ FLOW SERVE/ ROLON	
21	<b>MOTOR WITH VFD</b>	TYPE	FLP & FLANGE MOUNTED	
		POWER CONSUMPTION	7.5 HP (MIN.) (VENDOR TO SPECIFY AS PER DESIGN)	
		DRIVE TYPE	VFD	
		MAKE OF VFD	ABB/ AMTECH / SIEMENS	
		PROTECTION	IP-55	
		MAKE	CROMPTON GREAVES/ BHARAT BIJLI/ KIRLOSKAR	
22	<b>GEAR BOX</b>	TYPE	INLINE HELICAL GEAR BOX	
		MAKE	BONFIGLIOLI/ SEW	
23	<b>GAS SPARGER DETAILS</b>	IT SHALL PASS THE MIXED GASES IN UNIFORM MANNER INSIDE THE REACTOR	PTFE LINED DIP PIPE	
24	<b>THERMOWELL WITH SENSOR</b>	TOP	STRAIGHT THERMOWELL CUM BAFFLE WITH TANTALUM TIP	
		BOTTOM	THERMOWELL WITH TANTALUM TIP	
25	<b>FLUSH BOTTOM VALVE</b>	GLASS LINED PNEUMATICALLY OPERATED FBV SHALL BE PROVIDED	100 X 80 MM	
26	<b>MANHOLE COVER</b>	TYPE	SPRING BALANCE TYPE	
		SIGHT GLASS	DN 100	
		DIMENSION	350/ 450 MM	

SI. NO.	PARTICULARS	DESCRIPTION	BL REQUIREMENT	VENDOR'S OFFER
27	WEIGHT	EMPTY WEIGHT	VENDOR TO SPECIFY	As offered and confirmed by shortlisted vendors
		FULL WEIGHT (FILLED WITH WATER)	VENDOR TO SPECIFY	
28	NOZZLES (AS DETAILED IN INDICATIVE DRAWING)	INLET FOR CHARGING RAW MATERIALS (MOLTEN WAX/ MUTTON TALLOW/ ETC)	SIZE & ORIENTATION AS PER INDICATIVE DRAWING IT SHALL BE WITH SUITABLE DRAFT ARRANGEMENT	
		MIXED GASES INLET THROUGH DIP PIPE	SIZE & ORIENTATION AS PER INDICATIVE DRAWING	
		VENT FOR UN-REACTED GASES	SIZE & ORIENTATION AS PER INDICATIVE DRAWING	
		OPPOSING TOP & BOTTOM NOZZLES SHALL BE ON ONE AXIS AND BTM. NOZZLE SHALL BE PROVIDED WITH SUITABLE TEFLON BUSH FOR FITTING IMMERSION LAMP. <b>(MOST CRITICAL)</b>	ORIENTATION AS PER INDICATIVE DRAWING TOP NOZZLE- 150 MM BOTTOM NOZZLE- 200MM	
		INLET FOR THERMOWELL	SIZE & ORIENTATION AS PER INDICATIVE DRAWING	
		JACKET INLET	SIZE & ORIENTATION AS PER INDICATIVE DRAWING	
		JACKET OUTLET	SIZE & ORIENTATION AS PER INDICATIVE DRAWING	
		OUTLET FOR DRAINING PRODUCT	SIZE & ORIENTATION AS PER INDICATIVE DRAWING	
		SPARE NOZZLES (BLIND COVER WITH TEFLON BUSH)	SIZE & ORIENTATION AS PER INDICATIVE DRAWING	

**NOTE:-**1. Indicative drawings for the Reactor with Agitator Assembly, Nozzle Orientation & Immersion Lamp Assembly - as attached in techno-commercial /EOI tender for vendor's reference.

2. Numbers, orientation and sizes of the nozzles shall be same as indicated in the indicative drawing though it is subject to BL acceptance during the Drawing Approval stage.

3. Vendor shall engage listed party for carrying out Third Party Inspection of the equipment (as per Annexure-1 Cl.3).

4. The Quality Assurance Plan (QAP) for above equipment must be got approved by the BL Engineer of Contract before starting production and schedule be intimated thereafter, so that the Employers representative may visit vendor's/ sub-vendor's works for any quality check during production at any time.

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