



An ISO 9001
Company

Bharat Heavy Electricals Limited

(High Pressure Boiler Plant)

Tiruchirappalli – 620014, TAMIL NADU, INDIA

CAPITAL EQUIPMENT / MATERIALS MANAGEMENT

ENQUIRY	Phone: +91 431 257 79 38 Fax : +91 431 252 07 19 Email : tvenkat@bheltry.co.in Web : www.bhel.com
NOTICE INVITING TENDER	

TWO PART BID	Enquiry Number:	Enquiry Date:	Due date for submission of quotation:
Tender to be submitted in two Parts	2631300080	16.07.2013	16.08.2013

You are requested to quote the Enquiry number date and due date in all your correspondence. This is only a request for quotation and not an order.

Please note that under any circumstances both delayed offer and late offers will not be considered. Hence vendors are requested to ensure that the offer is reaching physically our office before 14.00 hrs on the Date of tender opening.

Item	Description	Quantity
10	Supply, Transportation, Erection and Commissioning of 13 KL LOX Cryogenic Storage Vessel as per the technical specification & commercial conditions applicable (to be downloaded from web site www.bhel.com or http://tenders.gov.in)	1 No.
20	Supply, Transportation, Erection and Commissioning of Liquid Oxygen Vaporizer Unit with Pressure Regulating Station as per the technical specification & commercial conditions applicable (to be downloaded from web site www.bhel.com or http://tenders.gov.in)	1 Set

Important points to be taken care during submission of offer

1. Checklist No. TRY/ IND/ 06 to be filled and enclosed along with the offer failing which, the offer will not be considered for evaluation.
2. All updates, amendments, corrigenda, etc., (if any), for each tender will be posted only on the above websites from time to time, as and when required, until each tender is opened. There will be no publication of such updates, amendments, corrigenda, etc., through newspapers or any other media.
3. Offer shall be evaluated as a single package. Hence all items (Item Sl. No. 10 and 20) should be quoted without fail any, otherwise your offer will not be considered. However prices shall be quoted item wise only.
4. Delivery required: Four months from the date of Purchase Order. Time period for Erection, testing and commissioning shall be one month from the date of intimation by BHEL to vendor for deputation of their Engineers for E &C
5. EMD for this tender will be ` 60,000.00

BHEL's General guidelines / instructions (refer MM/CE/GENL/001-EMD) including bank guarantee formats and list of consortium banks, commercial terms check-list can be downloaded from BHEL web site <http://www.bhel.com> or from the Government tender website <http://tenders.gov.in> (public sector units > Bharat Heavy Electricals Limited page) under Enquiry reference "2631300080".

Tenders should reach us before 14:00 hours on the due date Tenders will be opened at 14:30 hours on the due date Tenders would be opened in presence of the tenderers who have submitted their offers and who may like to be present	Yours faithfully, For BHARAT HEAVY ELECTRICALS LIMITED Sr.Manager / Capital Equipment / MM
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Maintenance & Services
Gas & services

ITEM; 01

Ref: BHE:M&S:Gas:

Date:02.07.2013

ITEM DESCRIPTION: SUPPLY,TRANSPORTATION , ERECTION& COMMISIONING-INCLUDING CCOE APPROVAL FOR **1X13 KL with 17 kg/Cm² LOX CRYOGENIC STORAGE VESSEL** AT BHEL/ TRICHY.

Sl.No	Description	BHEL Specification	Vendor's Offer	Deviation If any, vendor to be filled
1.0	NAME OF WORK	Supply , Erection & Commissioning for 1 X 13 KL Liquid Oxygen Cryogenic Storage Vessel With Fittings, Safety System , Etc. All Conforming To The Standards Mentioned As Per Statutorily Authorities Against Each Item On Establishing Facilities		
2.0	BRIEF DESCRIPTION OF WORK	M/s. BHEL / Trichy has proposed to set up 1 x 13 KL LOX storage facility in the premises of BHEL at TRICHY-14 to meet day to day oxygen gas requirement at a pressure of 5 to maximum 17 Kg/sq.cm with required valves, fittings, gauges, vents, drains as per the requirement of statutory authority and for the operational & maintenance convenient.		
3.0	SCOPE OF SUPPLY			
3.a	LOX STORAGE VESSEL with FITTINGS.	Quantity : 1 Set Consists of following items as per Sl. No. 3.a1 & 3.a2		
3.a1	LOX CRYOGENIC STORAGE VESSEL with FITTINGS.	1 No.		
3.a2	Foundation Bolts ,Washers & Nuts	1 Lot		
3.1.0	STORAGE VESSEL			
3.1.1	TYPE	Vertical, Cylindrical, Double Wall, Vacuum + Perlite Insulation with thermo siphon system .		
3.1.2	Net Liquid Oxygen Storage Capacity	13 KL		
3.1.3	Gross volume	Vendor to specify		
3.1.4	Fluid	Liquid Oxygen		
3.1.5	Working Pressure	17 Kg/Cm ² (g)		
3.1.6	Design Code	EN 13458 or ASME Design to be followed and Vendor to specify		
3.2.0	INNER VESSEL			
3.2.1	Material specification (Stainless steel)	Vendor to specify		
3.2.2	Gross volume of Inner Vessel	Vendor to specify		

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3.2.3	Net Liquid Storage Capacity	Vendor to specify		
3.2.4	Design & Manufacturing Code	EN 13458 or Vendor to specify		
3.2.5	Max. Allowable Working Pressure	24 kg/cm ² (g) or vendor to specify		
3.2.6	Design Pressure (Corrected For Vacuum)	25 Kg/cm ² (g) or Vendor to specify		
3.2.7	Hydrostatic Test pressure	Cold stretched or Vendor to specify		
3.2.8	Design Temperature	Minus 196 to plus 50 degree C or Vendor to specify		
3.2.9	Withdrawal Flow Rate	0 to 500 kg/hr or Vendor to specify		
3.2.10	Radiographic Control for inner tank and foots	100 % X-Ray For Long, CS joints and Foots.		
3.3	INSULATION			
3.3.1	Insulation	Fine Grain Perlite + Vacuum		
3.3.2	Vacuum Value	Less than 50 microns warm or Vendor to specify		
3.4	OUTER VESSEL			
3.4.1	Material specification (Carbon steel)	IS 2062Gr B or it's Equivalent		
3.4.2	Design Code	EN 13458		
3.4.3	Operating Pressure	Vacuum		
3.4.4	Design Pressure	Minus 1 Bar		
3.4.5	Hydrostatic Test pressure	Vendor to specify		
3.4.6	Design & Manufacturing Code	EN 13458		
3.5	VALVES AND FITTINGS			
3.5.1	Lower filling valve	DN 25,Make;HEROSE or Vendor to specify		
3.5.2	Upper filling valve	DN 25,Make;HEROSE or Vendor to specify		
3.5.3	Pressurizing valve	DN 25,Make;HEROSE or Vendor to specify		
3.5.4	Liquid delivery valve	DN 25,Make;HEROSE or Vendor to specify		
3.5.5	Stop valve (Pressurizer)	DN 25,Make;HEROSE or Vendor to specify		
3.5.6	Flow divertor valve	DN 25,Make;HEROSE or Vendor to specify		
3.5.7	Gas blow valve	DN 25,Make;HEROSE or Vendor to specify		
3.5.8	Liquid level detect valve	DN 25,Make;HEROSE or Vendor to specify		
3.5.9	Liquid charging line blow valve	DN 25,Make;HEROSE or Vendor to specify		
3.5.10	Inlet check valve	DN 25,Make;HEROSE or Vendor to specify		
3.5.11	Cryoregulator (combined function) consists of following component (a to d)	SAMSON/CASH ACME or Vendor to specify		
	a) Pressure build-up regulator	Vendor to specify		
	b) Non return valve	Vendor to specify		
	c) Economizer	Vendor to specify		
	d) Safety relief system	Vendor to specify		
3.5.12	Safety valves for inner vessel (2Nos.)	HEROSE or Vendor to specify.		
3.5.13	Safety valve for pipe line	HEROSE or Vendor to specify.		
3.5.14	Level gauge valves (2Nos.)	Vendor to specify		
3.5.15	Pressure balance valve	Vendor to specify		

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3.5.16	Level gauge	Vendor to specify		
3.5.17	Pressure gauge	Vendor to specify		
3.5.18	Vacuum probe valve	HEROSE or Vendor to specify		
3.5.19	Evacuation port	EDWARDS or Vendor to specify		
3.5.20	Auxiliary liquid valve to pump (Thermo siphon)	HEROSE or Vendor to specify		
3.5.21	Auxiliary gas valve	HEROSE or Vendor to specify		
3.5.22	Liquid Recirculation Valve	HEROSE or Vendor to specify		
3.5.23	Rupture discs (2Nos.)	Vendor to specify		
3.5.24	Safety device for outer vessel (Lift off plate)	Vendor to specify		
3.5.25	Filling joint (Flange SORF, ANSI B16.5, 300#)	Vendor to specify		
3.5.26	Pressure build-up coil	Vendor to specify		
3.5.27	MfgStd& MOC for all valves	All valves shall be SS materials and vendor to specify the manufacturing standard and MOC.		
4.0	OVERALL DIMENSION OF VESSEL			
4.1	Outside Diameter	Vendor to specify		
4.2	Overall Height	Vendor to specify		
5.0	WEIGHT of LOX VESSEL & FITTINGS			
5.1	Empty Weight [Approx]	Vendor to specify		
5.2	Full Weight(Approx) With Oxygen	Vendor to specify		
5.3	WELDING PROCESS:	Vendor to specify		
6.0	QUALITY PLAN & DRAWINGS;			
6.1	Flow Scheme Drawing.	To be furnished along with offer		
6.2	GA Drawing	To be furnished along with offer		
6.3	Foundation Drawing.	To be furnished along with offer		
6.4	The Bidder should arrange Quality plan for each work and get approved by Engineer concern.	Vendor to Confirm		
6.5	The Bidder shall follow relevant design section for Liquid Oxygen Storage System	EN 13458		
6.6	The Bidder should guarantee full capacity of Liquid Oxygen in the filled condition.	Vendor to Confirm		
6.7	The Bidder should furnish the maximum permissible evaporation losses , Liquid transfer losses of the proposed system.	Vendor to Confirm		
7.0	INSPECTION & TEST			
7.1	All test and inspection by	(a)All tests and inspections to be carried out under the control of third party . (b)List of CCOE approved third party inspecting agencies to be provided along with offer for BHEL approval		
7.2	Checking & approval of design and calculations	Vendor to Confirm		
7.3	Material inspection and stamp transferring separately	Vendor to Confirm		
7.4	Visual & dimensional inspection	Vendor to Confirm		
7.5	Plate orientation	Vendor to Confirm		
7.6	Radiographic control	Vendor to Confirm		
7.7	Hydrostatic test	Vendor to Confirm		

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7.8	Vacuum test	Vendor to Confirm		
7.9	Inspection of valves and fittings	Vendor to Confirm		
7.10	Any other inspection and test required	To be mentioned by offerer		
7.11	Inspection reports and test certificates.	The reports of the all tests & inspections with the inspection certificates of the tank to be submitted to BHEL after the completion of the tank & the inspections by third party inspecting agency .		
7.12	Hydro test report/certificate of inner vessel	Vendor to confirm		
7.13	Calibration chart	Vendor to confirm		
7.14	safety valve manufacturer Test certificate	Vendor to confirm		
7.15	Burst disc certificate	Vendor to confirm		
7.16	Test certificate for pressure building coil	Vendor to confirm		
7.17	Valves certificates	Vendor to confirm		
7.18	Regulator certificate	Vendor to confirm		
7.19	Component certificates(test & calibration certificates) (DP gauge &Pr.Gauge)	Vendor to confirm		
7.20	Fitting test certificate(Thermal relief valve)TRV, Needle Valve ,Flow Divertor)	Vendor to confirm		
7.21	LRS/BVS Report stamp transfer (Lloyd's Register of shipping/ bureau Veritas Industrial services)	Vendor to confirm		
7.22	Vacuum sealing & retention report (for Evacuated container).	Vendor to confirm		
7.23	Material identification report-inner vessel (inner shell, dish end, Nozzles, inner pipes)	Vendor to confirm		
7.24	Material identification report-outer vessel	Vendor to confirm		
7.25	Radiography chart for inner vessel	Vendor to confirm		
7.26	Radiography chart for outer vessel	Vendor to confirm		
7.27	Performance test for NER/ cold spot /pressure test of vessel report(whichever applicable)	Vendor to confirm		
7.28	MSLD Report of outer vessel	Vendor to confirm		
7.29	MSLD Report of inner vessel (Value of std leak, acceptable leak rate, leak rate observed, vacuum level in vessel etc0	Vendor to confirm		
7.30	UV Test report for cleanliness	Vendor to confirm		
7.31	Stage inspection report –inner (Nozzle& weld set up)	Vendor to confirm		
7.32	Stage inspection report –outer (Nozzle& weld set up)	Vendor to confirm		
7.33	Heat treatment report for applicable items	Vendor to confirm		
7.34	UV Test certificates for inner surface of inner vessel including baffles/stiffner&ppg)	Vendor to confirm		
7.35	Inspection Reports by Third Party agency	Vendor to confirm		
8.0	CLEANING& PAINTING:			
8.1	Outer Vessel	Pre coat by Inorganic Zinc DFT 90 Microns, Intermediate by Epoxy DFT 90 microns and Finish Coat by polyurethane DFT 60 Microns. Before painting for outer tank,		

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		the tank to be sand blasted with sa 2,5 quality.		
8.2	Inner Vessel	As per standard cleaning procedure of pickling , passivation and water cleaning.		
9.0	GENERAL CONDITIONS			
9.1	As built process & instrumentation diagram.	Vendor to confirm		
9.1	Do's & Dont' s	Vendor to confirm		
9.2	Material safety data sheet	Vendor to confirm		
9.3	Std operating procedure for warm filling	Vendor to confirm		
9.4	Std operating procedure for cryogenic storage vessel.	Vendor to confirm		
9.5	Liquid level Gauge calibration certificate & chart.	Vendor to confirm		
9.6	Volume equivalent chart.	Vendor to confirm		
9.7	Physical security arrangement.	Vendor to confirm		
9.8	Tank test certificate.	Vendor to confirm		
9.9	Emergency contact	Vendor to provide the details		
9.10	Tank document	Vendor to confirm		
9.11	STATUTORY REQUIREMENT	The Bidder should coordinate and obtain necessary clearance certificates with all Statutory bodies such as Explosives, Factory Inspectorate.etc., Charges on this account if any shall be indicated in the Price Bid separately & vendor to confirm.		
9.12	Bidder shall be in a position to design all Mechanical ,Electrical& Instrumentation equipment in the Liquefied Petroleum gas storage facilities . The Bidder shall take into consideration of all anchors parts , pipe lines, Excess flow valves, safety valves , isolation valves , regulating valves , line blinds, fittings and other miscellaneous equipment for the system to be in complete respect. The Bidder shall practice the most modern design and technology for the proposed system. The Bidder has to furnish general arrangement drawing with main components inner details such as storage tank , inner technical details including materials, Surface area ,etc.,	Vendor to Confirm		
9.13	The Bidder should arrange G A Drawing, Quality plan , P & I diagrams for each work and get approved by BHEL Engineer concerned.	Vendor to Confirm		
9.14	The Bidder should arrange for tank foundation obtaining construction	Vendor to Confirm		

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	approval CCOE / Nagpur .Selection , Inspection & despatch of material , Inspection / certification under Rule 33, Application and obtaining licences from CCOE / Nagpur , Inspection of Plant by Department of Explosive, Endorsement , Supply of documentation for the plant, Obtaining safety certificate from the competent authorities on completion of installation with in the licensed area , Training of our personnel in operation and maintenance are scope of the Bidder.			
9.15	Approval for manufacturing of LOX bullet with Fittings	Copy of approval certificate issued by CCOE for manufacturing of LOX bullet with Fittings to be enclosed		
9.16	Design approval	Design / Drawing approval for manufacturing & complete installation of LOX bullet with fittings , from CCOE / Nagpur & Local CCOE to be obtained .		
10.0	SAFE CUSTODY & PRESERVATION OF COMPONENTS			
10.1	The safe custody of storage vessel till commissioned and handed over will also under the scope of the contractor	Vendor to Confirm		
10.2	It is the responsibility of the supplier to apply touch up painting on all equipment before erection at his cost .	Vendor to Confirm		
10.3	Preservation of all equipment at all stages of handling, transporting to site of work or Pre Assy Yard , Pre - Assembly Erection, Testing, Commissioning , and till the unit is handed over to BHEL for regular operation.	Vendor to Confirm		
11.0	VENDOR'S BRIEF SCOPE OF SUPPLY			
		The Bidder should coordinate and obtain necessary clearance certificates with all Statutory bodies such Explosives, Factory Inspectorateetc., Charges on this account if any shall be indicated in the Price Bid separately in favor of BHEL.		
11.1	Supply, Installation and Commissioning of the entire system (as mentioned above specification) as per CCOE Norms and to Customer's Satisfaction.	Vendor to Confirm		
11.2	Scope restricted to Inside LOX Yard excluding vaporizer unit	Vendor to Confirm		
11.3	Providing all Technical Help required related to LOX Installation.	Vendor to Confirm		
11.4	Providing all related Drawings like P & I (Process &Instrumentation) and Layout Drawing, Complete Civil Drawings.	Vendor to Confirm		
11.5	Complete Initial Drawings Approval from CCOE (Chief Controller of explosives –	Vendor to Confirm		

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	Nagpur) & BHEL/Trichy.			
11.6	Complete 3rd Party Inspection for acquiring Rule for fabrication & installation of entire LOX Bullet & fittings.	Vendor to Confirm		
11.7	Obtaining Final License from CCOE – Nagpur towards the Installation.	Vendor to Confirm		
11.8	Endorsement of the CCOE License from Local CCOE office for utilization of system	Vendor to Confirm		
11.9	Training of operation & maintenance staff of LOX facilities.	Vendor to Confirm		
11.10	Providing complete Guarantee Certificates / Product Manuals and Tank History file for project in 4 sets. (1 Original + 3 Xerox copy)	Vendor to Confirm		
11.11	Successful Bidder shall deploy required manpower for Erection, Testing, Commissioning and Hand over of the liquid LOX storage facility installation for regular operation.	Vendor to Confirm		
12.0	BHEL SCOPE OF SUPPLY	Vendor to Confirm		
12.1	All civil work involved inside LOX Yard which includes Civil Pedestals for Tanks, Vaporizer Systems etc. will be carried out by BHEL for the entire Project and the required drawings details will have to be furnished by the Supplier to BHEL along with the offer or within two weeks of Purchase Order. The civil drawing should indicate the dynamic loading or foundation details of the vessel foundation drawing. 4 Set of GA drawing with foundation details are needed.	Vendor to Confirm		
12.2	Providing single point power source (panel board) for installation.	Vendor to Confirm		
12.3	Explosive Fees towards Drawing Approval and towards Final License Fees for 3 years as applicable.	Vendor to Confirm		
12.4	Required consumables like cutting gases, welding electrodes, Electricity etc for installation purposes .	BHEL will provide at free of cost.		
12.5	Crane facility, T&P, welding set ,gas cutting set required for unloading & installation of LOX SYSTEM at site	BHEL will provide at free of cost.		
13	PRE-DISPATCH INSPECTION AT SUPPLIERS WORKS	LOX BULLET with FITTINGS Shall be offered to BHEL Engineers at supplier's works for Pre-dispatch inspection.		
14	PROVE OUT AND ACCEPTANCE	After LOX bullet & their facilities have been installed & energized , demonstrations to be carried out for good working condition & ensuring operating parameters as per technical specification mentioned above.		

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15	WARRANTY	Warranty for products against defective materials and workmanship for a period of 12 months from the date of commissioning or 18 months from the date of dispatch whichever is earlier		
16	DETAILED SCOPE OF SUPPLY	Detailed scope of supply like Item wise Description ,Qty, Make to be submitted along with offer.		
17	Delivery schedule for supply of LOX vessel with fittings .	Four months from the date of issue of purchase order		
18	Erection, Testing & Commissioning	One Month from the date of receipt of Materials at site.		

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ITEM: 02

Ref: BHE:M&S:Gas:

Date:02.07.2013

DESCRIPTION :Liquid Oxygen Vaporizer Unit With Pressure Regulating Station

Scope: Supply, Transportation , Erection & Commissioning of Liquid Oxygen Vaporizer Unit With Pressure Regulating Station Including Pipelines Inside LOX Storage Yard For 1x13 KL LOX Storage Vessel At BHEL/Trichy/Tamil Nadu.

Scope of supply for one set consists the following items.

- A. Liquid oxygen ambient vaporizer unit -500 Kg/hr – One no.
- B. Pipe line and fittings inside LOX storage yard for Interconnecting above equipment including LOX vessel - One Set
- C. Pressure regulating system for ambient vapouriser-500 Kg/hr - One no.
- D. Liquid oxygen high pressure vaporizer unit -400 Nm³/hr - One no.

Sl.No.	Description	BHEL Specification	Vendor's offer	Deviation if any, vendor to specify
1.0	LIQUID OXYGEN AMBIENT VAPORIZER UNIT			
1.1	Quantity	1 No.		
1.2	Type	AMBIENT, SS 304, FIN		
1.3	Duty	Continuous duty 24x7 Hrs		
1.4	Material	SS 304		
1.5	Capacity	500 Kg/Hr		
1.6	Inlet Temp	Minus 196 degree C to Plus 45 degree C		
1.7	Outlet temp	10 degree C less than Ambient		
1.8	Heating medium	Ambient		
1.9	Surface Area	Minimum 600 sq. meter		
1.10	Working Pressure	25 Kg/cm ² (g)		
1.11	Design Pressure	Vendor to specify		
1.12	Hydrostatic Test Pressure	Vendor to specify		
1.13	Pneumatic Test Pressure	Vendor to specify		
1.14	Design Temperature	–196 °C to 50 °C		
1.15	Design & Manufacturing code(ASME std to be used)	ASME Sec VIII Div I Or Vendor to specify		
2	PIPE LINES AND FITTINGS WITH IN STORAGE YARD			
2.1	Quantity	1 Lot		
2.2	Pipes and fittings	The pipeline includes all the pipe fitting and pipe fittings such as Elbow, Tees Flanges, 'U' Clamp, Stud Nuts, Copper jumper, etc required within LOX storage yard connecting LOX vessel, vaporiser units and pressure regulating station.		
2.3	Material of Construction& Length	A 312 SS 304		
2.4	Working Pressure – Ambient Vaporiser	5 to 17 Kg/cm ² (g)		

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	& Pressure regulator.			
2.5	Design Pressure	Vendor to specify.		
2.6	Pneumatic /Hydrostatic Testing Pressure	Vendor to specify.		
3.0	PRESSURE REGULATING SYSTEM			
3.1	Quantity	1 set consists of 2 numbers (1 number working and 1 number standby)		
3.2	Inlet Pressure	17 Kg/cm ² (g)		
3.3	Outlet Pressure	5 to 17 Kg/cm ² (g)		
3.4	Flow Rate	0 - 500 Kg/hr		
3.5	Size	50 NB or Vendor to specify		
3.6	Pressure regulator	2 Nos.(1 working and 1 standby)		
3.7	Make	Vendor to specify reputed make.		
3.8	Safety valves	Vendor to specify		
3.9	Ball Valves	50 NB or Vendor to specify		
3.10	Pressure Gauge	Vendor to specify , Make shall be Warea/ALTOP/ H guru Fiebig/wika/Bourden/Honey well		
3.11	POP Off Valves	Vendor to specify details.		
3.12	Make	Sensus/Invensys/Kromschroder /Fisher/Honeywell or other reputed makes.		
4.0	LIQUID OXYGEN HIGH PRESSURE VAPORIZER UNIT			
4.1	Quantity	1 No.		
4.2	Type	Ambient, Finned full		
4.3	Duty	8 hrs per day,		
4.4	Material of finned tubes	Aluminium SB221 a96063T5		
4.5	Material of tubes	SA 312 TP 304		
4.6	Capacity	400 M3/Hr		
4.7	Inlet Temp	Minus 196 degree C to Plus 45 degree C		
4.8	Outlet temp	Vendor to specify		
4.9	Heating medium	Ambient		
4.10	Surface Area	Vendor to specify		
4.11	Max. operating Pressure	200 Kg/cm ² (g)		
4.12	Design Pressure	Vendor to specify		
4.13	Hydrostatic Test Pressure	Vendor to specify		
4.14	Pneumatic Test Pressure	Vendor to specify		
4.15	Model No.	Vendor to specify		
4.16	Inlet Connection	Vendor to specify		
4.17	Out let connection	Vendor to specify		
4.18	Design & Manufacturing code(ASME std to be used)	Vendor to specify		
5	OVERALL DIMENSION			
5.1	Inlet Flange size	Vendor to specify		
5.2	Outlet Flange size	Vendor to specify		
5.3	Empty weight(approx.)	Vendor to specify		
6.0	QUALITY PLAN &DRAWINGS;			
6.1	Flow Scheme Drawing.	To be furnished along with offer		
6.2	GA Drawing	To be furnished along with offer		

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6.3	Foundation Drawing.	To be furnished along with offer		
6.4	The Bidder should arrange Quality plan for each work and get approved by Engineer concern.	Vendor to Confirm		
6.5	The Bidder shall follow relevant ASME section for Liquid Oxygen vaporizer System	Vendor to Confirm		
6.6	The Bidder should furnish the maximum permissible evaporation losses , Liquid transfer losses of the proposed system.	Vendor to Confirm		
7.0	INSPECTION & TEST			
7.1	All test and inspection by	(a)All tests and inspections to be carried out under the control of third party . (b)List of CCOE approved third party inspecting agencies to be provided for BHEL approval		
7.2	Checking & approval of design and calculations	Vendor to Confirm		
7.3	Material inspection and stamp transferring separately	Vendor to Confirm		
7.4	Visual & dimensional inspection	Vendor to Confirm		
7.5	Hydrostatic test	Vendor to Confirm		
7.6	Pneumatic test	Vendor to Confirm		
7.7	Inspection of valves and fittings	Vendor to Confirm		
7.8	Any other inspection and test required	To be mentioned by offerer		
7.9	Inspection reports and test certificates.	The reports of the all tests & inspections with the inspection certificates to be submitted to BHEL after the completion of the inspections by third party inspecting agency.		
7.10	Hydro test report/certificate	Vendor to confirm		
7.11	Safety valve manufacturer Test certificate	Vendor to confirm		
7.12	Regulator certificate	Vendor to confirm		
7.13	Inspection Reports by Third Party agency	Vendor to confirm		
8.0	GENERAL CONDITIONS			
8.1	STATUTORY REQUIREMENT	The Bidder should coordinate and obtain necessary clearance certificates with all Statutory bodies such as Explosives, Factory Inspectorateetc., Charges on this account if any shall be indicated in the Price Bid separately & vendor to confirm.		
8.2	The Bidder should arrange G A Drawing, Quality plan , P & I diagrams, Layout drawing for each work and get approved by BHEL Engineer concerned.	Vendor to Confirm		
8.3	The Bidder should arrange for obtaining foundation construction approval CCOE / Nagpur .Selection ,	Vendor to Confirm		

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	Inspection & despatch of material , Inspection / certification under Rule 33, Application and obtaining licences from C C O E / Nagpur , Inspection of Plant by Department of Explosive, Endorsement , Supply of documentation for the plant, Obtaining safety certificate from the competent authorities on completion of installation with in the licensed area , Training of our personnel in operation and maintenance are scope of the Bidder.			
8.4	Approval for manufacturing of LOXvaporizer unit	Copy of approval certificate issued by CCOE for manufacturing of LOX vapouriser unit/system to be enclosed		
8.5	Design approval	Design / Drawing approval for manufacturing & complete installation of LOX vaporizer unit , from CCOE / Nagpur & Local CCOE to be obtaining .		
9.0	SAFE CUSTODY & PRESERVATION OF COMPONENTS			
9.1	The safe custody of vaporizer system till commissioned and handed over will also under the scope of the vendor	Vendor to Confirm		
9.2	It is the responsibility of the supplier to apply touch up painting on all equipment before erection at his cost.	Vendor to Confirm		
9.3	Preservation of all equipment at all stages of handling, transporting to site of work or Pre Assy Yard , Preassembly,Erection,Testing, Commissioning , and till the unit is handed over to BHEL for regular operation.	Vendor to Confirm		
10	VENDOR'S BRIEF SCOPE OF SUPPLY			
		The Bidder should coordinate and obtain necessary clearance certificates with all Statutory bodies such Explosives.		
10.1	Supply, Installation and Commissioning of the entire system (i.e vaporizers with regulating station as mentioned above specification) as per CCOE Norms and to Customer's Satisfaction.	Vendor to Confirm		
10.2	Scope restricted to Inside LOX Yard	Vendor to Confirm		
10.3	Providing all Technical Help required related to LOX Installation.	Vendor to Confirm		
10.4	Providing all related Drawings like P & I (Process &Instrumentation) and GA Drawing/Layout Drawing , Complete Civil Drawings.	Vendor to Confirm		
10.5	Complete Drawings Approval from	Vendor to Confirm		

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	CCOE (Chief Controller of explosives – Nagpur) & BHEL/Trichy.			
10.6	Complete 3rd Party Inspection for acquiring Rule for fabrication & installation of entire LOX vaporizer & fittings.	Vendor to Confirm		
10.7	Obtaining Final License from CCOE – Nagpur towards the Installation.	Vendor to Confirm		
10.8	Endorsement of the CCOE License from Local CCOE office.	Vendor to Confirm		
10.9	Training of operation & maintenance staff of LOX facilities.	Vendor to Confirm		
10.10	Providing complete Guarantee Certificates / Product Manuals and Tank History file for project in 4 sets. (1 Original + 3 Xerox copy)	Vendor to Confirm		
10.11	Required consumables like cutting gases, welding electrodes for installation purposes .	Vendor to Confirm		
10.12	The crane facility required for unloading & installation of LOX SYSTEM at site	Crane facility will be provided by BHEL at free of cost		
10.13	From single point power source (Panel board) to all concerned Electrical items	Vendor to Confirm		
10.14	All electrical items shall be flameproof.	Vendor to Confirm		
10.15	Bidders shall deploy complete set of Tools & Plant for Erection, Testing Commissioning, and Hand over of the liquid oxygen facility installation for regular operation.	Vendor to Confirm		
10.16	Fire fighting Equipments	Vendors to specify		
10.17	Spares required for two years for trouble free operation .	Vendors to specify		
11.0	BHEL SCOPE OF SUPPLY			
11.1	All civil work involved inside LOX Yard which includes Civil Pedestals for Tanks, Vaporizer System etc. will be carried out by BHEL for the entire Project and the required drawings details will have to be furnished by the Supplier to BHEL along with the offer or within two weeks of Purchase Order. The civil drawing should indicate the dynamic loading or foundation details of the vessel foundation drawing. 4 Set of GA drawing with foundation details are needed.	Vendor to Confirm		
11.2	Required tools and Plant, crane, welding set, Gas cutting set ,consumables like Electricity ,Gas & electrodes etc will be provided by BHEL free of cost for unloading and installation.	Vendor to Confirm		
11.3	Explosive Fees towards Drawing Approval and towards Final License Fees for 3 years as applicable.	Vendor to Confirm		

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11.4	Local NOC from District Magistrate from the date of receipt of drawing approval	Vendor to Confirm		
COMMON POINTS FOR ABOVE ALL EQUIPMENT/ITEMS				
12	PRE-DISPATCH INSPECTION AT SUPPLIERS WORKS	LOX vaporizer with regulating station Shall be offered to BHEL Engineers at supplier's works for Pre-dispatch inspection.		
13	PROVE OUT AND ACCEPTANCE	After LOX bullet & their facilities have been installed & energized, demonstrations to be carried out for good working condition & ensuring operating parameters as per technical specification mentioned above.		
14	WARRANTY	warranty for products against defective materials and workmanship for a period of 12 months from the date of commissioning or 18 months from the date of dispatch whichever is earlier		
15	DETAILED SCOPE OF SUPPLY	Detailed scope of supply like Item wise Description, Qty, Make to be submitted along with offer.		
16	DELIVERY SCHEDULE FOR SUPPLY OF Lox Vapouriser and pressure regulating station	Four months from the date of issue of purchase order		
17	ERECTION, TESTING AND COMMISSIONING	One month from the date of receipt of materials at site.		
18	SCOPE OF SUPPLY			
18.1	Liquid oxygen ambient vaporizer unit	1 No.		
18.2	Pipelines and fittings within storage yard	1 Lot		
18.3	Pressure Regulating System	1 set		
18.4	Liquid oxygen high pressure vaporizer unit	1 No.		

Qualifying criteria for Design,Supply& installation of 1X13 KL with 17 kg/Cm² LOX CRYOGENIC STORAGE VESSEL AND THEIR ACCESSORIES(ITEM NO.1 AND 2)

QUALIFICATION CRITERIA		
S.No	Description	Vendor to specify details
1	The tenderer should be CCOE approved fabricator of Pressure vessels under SMPV rules 1981(unfired).	
2	Vendor should submit performance certificates from the at least three customers where they have installed at least one complete equipment of Cryogenic Vessels for Liquid Oxygen (Or) Liquid Nitrogen 13 KL Storage vessels or more and accessories(Vapourisers and Pressure Regulating stations) with design pressure above 17 Kg/Sq.cm in the last five years for similar application and that should be performing satisfactory after one year after its commissioning till date (as on date of opening of tender).	
3	Vendors are advised to visit the site and get acquainted with the site condition before quoting. Lack of adequate data on site conditions in this cannot be a reason for any future claims and such claims are not arbitrable.	
4	The vendor should submit following details/copy of certificates along with the offer which are necessary for qualifying their offer.	
4.1	Copy of license as per above Sl.No.1.	
4.2	Performance certificates from at least three customers as per above Sl.No.2.	
4.3	Name and postal address of the customer / company where similar equipment commissioned.	
4.4	Name and designation of the contact person of the customer.	
4.5	Phone, FAX no and email address of the contact person of the customer.	
5	BHEL reserves the right to verify the information provided by vendor. In case the information provided by vendor is found to be false / incorrect, the offer shall be rejected.	