

BHARAT HEAVY PLATE & VESSELS LIMITED.,
 (A Subsidiary Bharat Heavy Electricals Limited)
 A Government of India Enterprises
 Visakhapatnam – 530 012 INDIA.
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NOTICE INVITING TENDER(NIT)

**Category of Tender: TWO BID
 (PRICED + UN - PRICED)**

**SUB: Retrofit and Reconditioning of LPG/HSD
 Fired 200T Bogie Hearth Stress Relieving
 WESMAN Furnace**

Our Ref: **MM/2/10/2076/CAP/W-459/5284**

DATE: 06.01.2012

Sealed quotations in duplicate are invited from suppliers on **or before 13.02.2012 SUPERSCRIBING OUR REFERENCE AND CATEGORY OF TENDER** on the cover, for supply of the under mentioned stores within the above due date, otherwise send **REGRET LETTER**, strictly subject to the Terms & Conditions attached herewith.
LATE TENDERS ARE NOT ACCEPTABLE.

ITEM No.	DESCRIPTION / SPECN. / SIZE	QTY
1.	Retrofit and Reconditioning of LPG/HSD Fired 200T Bogie Hearth Stress Relieving WESMAN Furnace (Estimated Cost of wok is Rs. 1 Crore)	1 No 's
	Encl: 1. Qualifying Criteria 2 pages 2. Technical Specifications 22 Pages 3. General Terms/ commercial terms and conditions (INCLUDING CHECK LIST) 9 pages	

For BHARAT HEAVY PLATE & VESSELS LIMITED,

For Dy. GENERAL MANAGER (MM)

RETROFIT AND RECONDITIONING OF LPG/HSD FIRED 200T BOGIE HEARTH STRESS RELIEVING WESMAN FURNACE

BRIEF SCOPE:

Complete retrofit and reconditioning of LPG/HSD fired 200T bogie hearth stress relieving WESMAN furnace with prove-out of geometrical and job accuracies, complete painting and handing over to Production at BHPV works by the vendor.

NOTES:

1. Vendor must submit complete information for all the clauses mentioned below. The offers meeting this clause would only be processed.
2. The column "**BIDDER'S OFFER WITH CONFIRMATION & COMPLETE TECHNICAL DETAILS**" of this format shall be filled in by the Vendor and submit along with the offer. Inadequate / incomplete, ambiguous, or unsustainable information against any of the clauses of the specifications / requirements shall be treated as non-compliance and lead to disqualification of the offer without asking queries.
3. The offer and all documents enclosed with offer should be in English language only.
4. Vendors **MUST** visit BHPV, Visakhapatnam and study the existing machine before submission of quotation. The cut-off date for visit to BHPV for inspection of furnaces, clarification to the vendors to be completed 7 days prior to the tender due date. There will be no further extension of due date.
5. Reconditioning of the Furnace must be completed with in 6 Months from the date of release of PO. Vendor to mobilize resources accordingly to complete the job in 6 Months in all respects.
6. Vendors must indicate makes of all components that are being supplied as a part of this tender clearly indicated in a separate sheet.

ADDRESS OF THE SUPPLIER :	ADDRESS OF THE INDIAN AGENTS :
TELEPHONE NOS.:	TELEPHONE NOS.:
FAX NOS.:	FAX NOS.:
E-MAIL ADDRESS:	E-MAIL ADDRESS :

**RETROFIT AND RECONDITIONING OF LPG/HSD FIRED 200T BOGIE HEARTH STRESS
RELIEVING WESMAN FURNACE**

QUALIFICATION CRITERIA FOR RECONDITIONING OF WESMAN FURNACE

SL NO	PRE-QUALIFICATION	Vendor's confirmation YES/NO
A.1.	PRE-QUALIFICATION REQUIREMENTS (Proofs to be enclosed for verification) All the following conditions are to be satisfied by the bidder. Documentary proof is to be enclosed with techno-commercial bid satisfying all these conditions. In case the bidder fails to enclose the same, the offer will be liable for rejection.	
	1. The party must be a reputed Manufacturer of LPG/HSD fired stress relieving Furnaces with at least 7 Years experience in this field (by 31.10.2011). The experience reference shall be for a period preceding immediately to the date given above. Party must submit at least one satisfactory certificate issued by customer. Copies of purchase orders/work orders and corresponding completion certificates should be submitted as proof for verification. The dates of the P.O / certificates should be with in this period only. Offers with out these documents will be rejected. List of the customers along with respective contracting officers addresses (including Phone no. /E-Mail ID) for whom machines were manufactured / rebuilt should be enclosed with the offer.	
	2. The annual turnover during the last three Years ending March 31 st 2011 should be at least 2 Crores (CA certified copy of balance sheet / P&L statements to be enclosed).	
	3. Latest Bankers' solvency (not later than six months from the date tender notice) for an amount of Rs 1.5 Crore from any Nationalized bank.	
	4. Experience of having successfully completed similar works during the last Seven Years (by 31.10.2011) should be either of the following. Three similar completed works costing not less than the amount each equal to 40% of the estimated cost. or Two similar completed works costing not less than the amount each equal to 50% of the estimated cost. or One similar completed work costing not less than the amount each equal to 80% of the estimated cost.	
A.2	Definition of "Similar Works" Manufacturer / Reconditioner of LPG/HSD fired stress relieving Furnaces of the following types. 1. Manufacturer of LPG/HSD fired stress relieving Furnaces. 2. Reconditioning jobs for LPG/HSD fired stress relieving Furnaces.	

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Brief description of existing Machine:

BHPV is having one number of WESMAN Furnace supplied M/s. WESMAN Engineering company Ltd, Kolkatta which was commissioned during the Year 1995 with the specifications mentioned below. At present the Furnace is working with frequent breakdowns.

The existing WESMAN furnace is a car bottom (Bogie Hearth) batch type LPG/HSD fired Stress Relieving Furnace. The furnace is divided into six equal temperature zones. The Bogie structure is fabricated in number of segments which is bolted/welded to form single rigid construction. Double row sand sealing arrangement between fixed portion and moving hearth furnace have been provided to prevent heat loss. 24 Nos. of burners have been provided out of which 12 nos. are located one row on one side wall and balance 12 nos. have been provided in other row on opposite side wall at the bottom, below of charge level between charge support saddles for flow of hot gases in unified flow pattern. The hot gases escape through number of flue ports located inside the furnace and are collected to a common flue duct leading to the chimney.

Damper is provided in main flue duct which is made of fabricated ISI304 plates and structural sections for furnace pressure controlling. During soaking, the furnace is provided with Wesman North American High Velocity Tempest Burners suitable for firing with LPG as fuel. The burners are of dual fuel type which are also suitable for firing with LDO/HSD as fuel.

Each burner is provided with automatic gas/electric pilot ignition system as well as flame failure device. The auto ignition system consists of gas/electric igniter fitted with spark plug, gas solenoid valve and ignition transformer. As the automatic system is not working, the burners are now being ignited manually.

The furnace is provided with one number of main door, which is conventionally counter weighted, motorized rise and fall type. The door drive unit consists of shafts, bearings, pulleys, chains, sprockets etc. The furnace bogie is an electro-mechanical drive unit consisting of motorized rope and drum type bogie haulage system, comprising of Electric motor, reduction gear box, thruster brake, rope winding drum, rope and other accessories. The speed of bogie is controlled by master controller which is coupled with grid resistance box (not working at present).

The furnace is lined with ceramic fiber material backed by Mineral wool blanket on side wall, end wall, door, roof as well as flue off take. The bottom portion of side wall as well as bogie, flue duct and part of chimney is lined with conventional refractory and insulation material.

At the time of installation, Microprocessor based PID controller, master programmer were provided for controlling six equal control zones of the furnace. At present the PID controller and master programmer are not working. The common programmer installed at the time of installation use to set the pre determined time temperature cycle to zonal controllers. As it is not working, the entire operation presently is being done manually.

Broad description is only given above for understanding. However it shall be ascertained by vendor during the visit before submitting the offer.

RETROFIT AND RECONDITIONING OF LPG/HSD FIRED 200T BOGIE HEARTH STRESS RELIEVING WESMAN FURNACE

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HEATING-COOLING CYCLE:

1. The stress relieving cycle comprises of three segments1. Heating 2. Soaking 3. Cooling.
2. During heating, the burners would fire at their high to elevate the temp of the charge.
3. During soaking, the burners would fire at a level sufficient to make up for the heat losses, which is very small.
4. During heating and soaking, the combustion air would be active and dilution air is not required.
5. At the end of soaking period, an event relay would be energized in the multi-function unit. A contact of this relay is used as input to PLC, which after ensuring that all the zonal dilution air valve are in close position, would start up the dilution air blower.
6. During cooling also, the PID controller act on the combustion air valve and try to reduce the temp. at the rate set in the programmer.

There are 2 annunciators situated on the top of front panel. Annunciation is through PLC. Flame 'ON' indication shall be from flame failure device situated near PLC/Instrument panel.

EXISTING INTERLOCKS :

1. Furnace door can be operated only when the bogie is in fully 'IN' or 'OUT' position.
2. Bogie can be operated only when the furnace is in fully 'UP' position.
3. Main gas solenoid valve and main oil solenoid valves to be disabled if
 - a. Combustion air pressure low
 - b. Gas pressure/oil pressure low
 - c. Failure of power
 - d. Atomizing air pressure lower
4. Main zonal gas solenoid valve and main zonal oil solenoid valve are interlocked with individual zone temperature high so as to disable the flow of fuel.
5. Oil solenoid valve and gas solenoid valve near each burner are interlocked such that in case of flame failure, the flow of fuel be disabled.

Most of the interlocks are not functioning at present. The above interlocks are to be replaced to restore originally designed functioning of furnace.

RETROFIT AND RECONDITIONING OF LPG/HSD FIRED 200T BOGIE HEARTH STRESS RELIEVING WESMAN FURNACE

The Technical data of the Existing Furnace is as follows.

SNO	DESCRIPTION	DIMENSION
1.0	Dimensions of Furnace	
1.1	Length	15,000 mm
1.2	Width	6500 mm
1.3	Height	6500 mm above charge support saddle of 300 to 350 mm height
1.4	Internal dimensions of the Furnace	
1.5	Length(Wall to wall)	17,000 mm
1.6	Width(Wall to wall)	7,240 mm
1.7	Inside height including charge support (Bogie top to roof)	7,400 mm
1.8	Approx. height of Bogie hearth from floor level	1000 mm
1.9	Max. gross charge weight	200 MT
1.10	Max load density on the Bogie	3. MT/M. Sq.
1.11	Holding/Soaking temperature	500-760 ⁰ C
1.12	Max. operating temp	800 ⁰ C
1.13	Temp uniformity	+ -10 ⁰ C during Holding/Soaking
1.14	Variation of temperature between any two points 5 Mtrs apart on the charge after attaining thermal equilibrium during heating/cooling	+ - 20 ⁰ C
1.15	Furnace wall skin temp. when furnace is operating at 800 ⁰ C	Within 20 ⁰ C above ambient temp. of 45 ⁰ C
1.16	Bogie walls skin temp. when furnace is operating at 800 ⁰ C	Within 55 ⁰ C above ambient temp.
1.17	Mode of heating	LPG or HSD
1.18	Gross charge load	200 MT at ambient
1.19	Furnace temp at the time loading	100 to 300 ⁰ C
1.20	Rate of heating	70 ⁰ C/Hr
1.21	Max anticipated fuel consumption base over	6.31 Million K.Cal/Hr
1.22	Connected fuel load	7.6 Million K.Cal/Hr
1.23	Fuel consumption for heating 200MT charge from room temp to 800 ⁰ C at a rate of heating of 70 ⁰ C/Hr(However the system is suitable for a rate of heating of 20 ⁰ C/Hr with full load of 200MT and 150 ⁰ C/Hr with partial load of around 100MT).	3,500 Kgs

**RETROFIT AND RECONDITIONING OF LPG/HSD FIRED 200T BOGIE HEARTH STRESS
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SNO	DESCRIPTION	DIMENSION
1.24	Allowable rate of cooling	70° C/Hr with full load of 200MT while cooling from soaking temp(500- 760° C) to 200° C. However the system shall be suitable for a cooling rate of 150° C/Hr with a partial load of around 100MT.
1.25	No fo burners	24
1.26	Type of burner	Wesman North American High Velocity Dual Fuel(LPG/LDO/HSD) Tempest III.
1.27	No of combustion air blower	2(1 working, 1 stand by)
1.28	Capacity of combustion air blower	11000 M.Cube/Hr at 1000mm WG directly driven by 75 HP motor.
1.29	Type of combustion air blower	Wesman centrifugal steel plate blower
1.30	No of dilution air blower	1
1.31	Capacity of dilution air blower	43330 M Cube/Hr
1.32	No of Bogie	1
1.33	Type of Bogie fuel haulage	Motorized rope and drum with slip ring motor, master controller, grid resistance and thruster brake for speed control
1.34	Bogie speed with full load of 200MT	3 Mtrs/Min
1.35	HP of Bogie drive motor	20HP
1.36	Type of door lifting	Motorized rise and fall type
1.37	Type of temp control	6 Zone temp control with multi point recording & automatic furnace pressure control
1.38	Furnace pressure controlling	1 No damper which is made of fabricated AISI-304 plates and structural sections.

RETROFIT AND RECONDITIONING OF LPG/HSD FIRED 200T BOGIE HEARTH STRESS RELEIVING WESMAN FURNACE

SNO	DESCRIPTION	DIMENSION															
1.39	Ceramic fiber lining <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Layer</th> <th style="text-align: left;">Description</th> <th style="text-align: left;">Quality</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">1st</td> <td>25mm thick ceramic fiber blanket</td> <td>1260° C grade 128 Kg/M³ density</td> </tr> <tr> <td style="text-align: center;">2nd</td> <td>50mm thick ceramic fiber blanket</td> <td>1260° C grade 96 Kg/M³ density</td> </tr> <tr> <td style="text-align: center;">3rd</td> <td>50mm thick ceramic fiber blanket</td> <td>1260° C grade 64 Kg/M³ density</td> </tr> <tr> <td style="text-align: center;">4th</td> <td>75mm thick ceramic fiber blanket</td> <td></td> </tr> </tbody> </table>	Layer	Description	Quality	1 st	25mm thick ceramic fiber blanket	1260° C grade 128 Kg/M ³ density	2 nd	50mm thick ceramic fiber blanket	1260° C grade 96 Kg/M ³ density	3 rd	50mm thick ceramic fiber blanket	1260° C grade 64 Kg/M ³ density	4 th	75mm thick ceramic fiber blanket		Side walls, end wall, roof, furnace door and side walls, end wall, roof, furnace door & flue off-take
Layer	Description	Quality															
1 st	25mm thick ceramic fiber blanket	1260° C grade 128 Kg/M ³ density															
2 nd	50mm thick ceramic fiber blanket	1260° C grade 96 Kg/M ³ density															
3 rd	50mm thick ceramic fiber blanket	1260° C grade 64 Kg/M ³ density															
4 th	75mm thick ceramic fiber blanket																
1.40	Power supply	415V +- 10%, 50Hz +- 3%, control circuit: 230V AC															
1.41	Wesman combustion air blower with suction filter, direct coupling driven	11000 m ³ /Hr at 20° C @ 1000mm WG (Total pressure) 75HP															
1.42	Butterfly type air shut off valve	Size: 550mm															
1.43	Low combustion air pressure switch	Adjustable range: 100 to 1000mm WG Fixed differential: 200mm WG fixed Setting at : 700mm WG															
1.44	Dual type combustion air pressure gauge 2 way cock having vent hole	Dial: 150mm, range: 0-1600mm WG															
1.45	Dial type combustion air pressure gauge with 2 way cock having vent hole	Dial:150mm, Range:0-1000mm WG															
1.46	Screw type butterfly valve with MS flapper and shaft	4" BSP															
1.47	Lubricated taper plug type gas shut off valve	Working pressure: 25 to 30 PSI. Gas main line															
1.48	Gas pressure regulator NA/Rockwell with ¼" Fpt pressure relief valve Inlet pressure: 60PSI Outlet pressure: Between 1 to 32OSI Max flow: 330NM ³ /Hr	Model: NA-7335-3-32/121-12															

**RETROFIT AND RECONDITIONING OF LPG/HSD FIRED 200T BOGIE HEARTH STRESS
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SNO	DESCRIPTION	DIMENSION
1.49	Pneumatically actuated butterfly type gas safety shut off valve, actuated through normally closed solenoid valve in compressed air line. Inlet pressure: 2 Psi Max flow: 330 NM ³ /Hr Valve size: 90mm Service : LPG	
1.50	24 point annunciator for burner flame failure with audio visual annunciation through PLC	
1.51	24 point annunciator for	<ul style="list-style-type: none"> a. Furnace pressure: high b. Furnace pressure: Low c. Combustion air pressure: low d. Gas pressure: Low e. Zone – 1 to 6 temp: high f. Start programmer g. Programmer 'ON' – 'RUN' h. Programmer – 'ON' – 'HOLD' i. Bogie IN j. Bogie OUT k. Door UP l. Door DOWN m. Ignition START n. T/C Failure
1.52	Microprocessor based 6 point strip chart temperature recorder	Range: 0 -1000° C Chart speed: 25mm/Hr

**RETROFIT AND RECONDITIONING OF LPG/HSD FIRED 200T BOGIE HEARTH STRESS
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2.0 HEATING SCHEDULE:

SNO	DESCRIPTION	TIME(Hrs)	CUMULATIVE TIME(Hrs)
2.1.	Light up burner and raise from 50° C to 150° C @25° C/Hr	4	4
2.2	Hold at 150° C	48	52
2.3	Raise 150 – 400° C @ 25° C/Hr	10	62
2.4	Hold at 400° C	24	86
2.5	Raise 400-800° C @50° C/Hr	8	94
2.6	Hold at 800° C	12	106
	COOLING SCHEDULE:		
2.7	Lower 800-400° C @ 50° C/Hr	8	114
2.8	Hold at 400° C	8	122
2.9	Lower 400° C to ambient temp of approx. 50° C/Hr	5	127
2.10	Burners to put off and blowers to run for 15 minutes		

**RETROFIT AND RECONDITIONING OF LPG/HSD FIRED 200T BOGIE HEARTH STRESS
RELEIVING WESMAN FURNACE**

SCOPE OF WORK: For the entire work defined, supply, erection and commissioning is included in vendor's scope.

S.No.	PARTICULARS	SPECIFICATION / DESCRIPTION	BIDDER'S OFFER (WITH CONFIRMATION & COMPLETE TECHNICAL DETAILS)
3.0	The following items are to be supplied and commissioned		
3.1	The existing all refractory bricks on the bogie must be replaced and lined with new conventional refractory insulation bricks.	Vendor to specify	
3.2	All the 24 nos. of burners with allied accessories, control valves etc are to be replaced with new burners. The type, model and specifications of the same are to be furnished by vendor.	Vendor to specify	
3.3	New UV flame failure device and auto ignition system for each burner(total 24 nos.) have to be provided.	Vendor to specify	
3.4	The burners shall be lighted by means of new spark plug ignitors with pilot burner system with LPG for ignition.	Vendor to specify	
3.5	The furnace shall be divided into 6 equal zones and all the zones shall be controlled by new PC-PLC based SCADA system. The make, model, and tech specs of PLC and SCADA system to be specified by vendor.	Vendor to specify	

**RETROFIT AND RECONDITIONING OF LPG/HSD FIRED 200T BOGIE HEARTH STRESS
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S.No.	PARTICULARS	SPECIFICATION / DESCRIPTION	BIDDER'S OFFER (WITH CONFIRMATION & COMPLETE TECHNICAL DETAILS)
3.6	The furnace zone temperature shall be automatically controlled through new mass-flow based instrumentation system. The tech details, type of system, instrumentation shall be furnished by vendor.	Vendor to specify	
3.7	The zone wise temperature control shall be through PLC which receives the temperature signals from zonal duplex thermocouples. Suitable quantities of new duplex thermocouples shall be provided.	Vendor to specify	
3.8	Over temperature controller for each zone working in conjunction with another zonal duplex thermocouple shall be provided.	Vendor to specify	
3.9	New main line damper shall be provided before chimney through PLC control for automatic control of Furnace pressure.	Vendor to specify	
3.10	The double sand seal trough, dipper plates between the bogie and fixed portion of side wall shall be replaced with new items.	Vendor to specify	
3.11	Suitable system to be designed and installed for automatic control of furnace pressure.	Vendor to confirm	
3.12	New safety interlocks must be provided wherever required particularly whenever the thermocouples fails, burners fails, solenoids open/closes, furnace pressure increases etc.	Vendor to confirm	
3.13	All limit switches have to be replaced with new.	Vendor to confirm	
3.14	All motor feeders must be provided with short circuit and overload protection.	Vendor to specify	
3.15	Where ever the refractory retainer castings for bogie and fixed hearth are not available, must be replaced with new castings. Strengthening of side support casting plates for retaining the bricks to be examined since these are getting broken frequently.	Vendor to specify	

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S.No.	PARTICULARS	SPECIFICATION / DESCRIPTION	BIDDER'S OFFER (WITH CONFIRMATION & COMPLETE TECHNICAL DETAILS)
3.16	Complete refractory, insulation and bricks for the bogie must be replaced.	Vendor to specify	
3.17	The refractory/insulation/bricks inside the furnace of side walls, top, bottom and at door must be replaced with new wherever damaged.	Vendor to specify	
3.18	<p>The following lining configuration shall be followed for refractory/insulation.</p> <p>a. Side walls below pre-fabricated curb hearth level blocks made of 40% (Curb block change) AL₂O₃ quality refractory Material</p> <p>b. Bogie hearth 115mm IS-8 Firebricks (fully change) 115mm IS-8 Firebricks 115mm HF Insulation bricks 10mm Asbestos board</p>	Vendor to confirm	
3.19	Pre-fired curb blocks shall also be provided all around the bogie corners made of 40% AL ₂ O ₃ quality material.	Vendor to confirm	
3.20	<p>Lining for Furnace end wall(1 meter from bottom of the lining) shall be provided as mentioned below.</p> <p>25mm thick ceramic fiber blanket 128 Kgs/m³ density, 1260° grade 50mm thick ceramic fiber blanket 96 Kgs/m³ density, 1260° grade 50mm thick ceramic fiber blanket 64 Kgs/m³ density, 1260° grade 75mm thick mineral wool blanket</p>	Vendor to specify	
3.21	New AISI-310 anchors with ceramic cup locks shall be provided for laying the ceramic fiber blanket.	Vendor to specify	

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S.No.	PARTICULARS	SPECIFICATION / DESCRIPTION	BIDDER'S OFFER (WITH CONFIRMATION & COMPLETE TECHNICAL DETAILS)
	COMBUSTION EQUIPMENT		
3.22	All the 24 nos of existing burners are to be replaced with new burners. The type, make, model, specification of burners shall be indicated by the vendor. The burners should be so realigned that during firing, flow of hot gases should be of uniform flow pattern to achieve high circulation and better temperature uniformity.	Vendor to Confirm	
3.23	Under oil firing system, all the solenoid valves, oil flexible hoses, WESMAN North American oil control valves are to be replaced with new ones.	Vendor to specify	
3.24	Under gas firing system, wafer style butterfly gas control valves have to be replaced with new ones.	Vendor to specify	
	FLAME MONITORING AND AUTO IGNITION:		
3.25	New electric ignition system with suitable flame failure device to be designed and installed with the following new items. <ul style="list-style-type: none"> a. 24 sets automatic ignition consisting of spark plug & ignition transformer with compensating cable. b. 24 sets Ultra violet flame failure device consisting of UV head with bulb & amplifier unit c. 24 nos. of gas solenoid valve for auto ignition d. 24 nos. of oil solenoid valves for auto ignition 	Vendor to specify	
3.26	For sequential interlocking & light up of burners, one no of burner management panel shall be provided.	Vendor to confirm	

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S.No.	PARTICULARS	SPECIFICATION / DESCRIPTION	BIDDER'S OFFER (WITH CONFIRMATION & COMPLETE TECHNICAL DETAILS)
	SAFETY INSTRUMENTS		
3.27	New air pressure gauge, air pressure switch, fuel pressure gauge, fuel pressure switch have to provided and installed.	Vendor to confirm	
3.28	Audio visual alarm annunciator shall be supplied installed on instrument panel. It must operate for the following mal-functions. <ul style="list-style-type: none"> a. Low combustion air pressure b. High gas pressure c. Low gas pressure d. Low oil pressure e. High temp of zone f. Flame failure g. Any unforeseen circumstances other than above 	Vendor to confirm	
3.29	In case of low combustion air pressure, low/high gas pressure and high temperature of furnace, the fuel solenoid valve of the main fuel line must be shut off whereas fire flame failure, respective solenoid valve near the burner must be shutoff.	Vendor to confirm	
	PIPING		
3.30	Combustion pipeline: Where ever the combustion air pipeline is damaged, that must be replaced with new pipeline. All the valves and fittings must be replaced with new. Oil Pipeline: Where ever the oil pipeline from oil pumping unit to individual burners are damaged, that must be replaced with new pipeline. All the valves and fittings must be replaced with new. LPG: Where ever the gas pipelines are damaged, they must be replaced with new pipeline. All the zonal valves, main shut off valves and fittings must be replaced with new.	Vendor to specify	

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S.No.	PARTICULARS	SPECIFICATION / DESCRIPTION	BIDDER'S OFFER (WITH CONFIRMATION & COMPLETE TECHNICAL DETAILS)
	INSTRUMENTATION:		
3.31	Temperature control through PLC-PC based with SCADA Software		
3.32	The furnace must be designed for automatic control system for zone temperature through PC-PLC based SCADA system in "Mass Flow" based control. The temperature control should be for each burner and for each zone through PLC.	Vendor to specify	
3.33	Complete furnace temperature control, burner management control and sequential operation of the control based system should be through PC-PLC based system with the following instrumentation set up. <ul style="list-style-type: none"> a. 12 Nos Simplex Cr/Al thermocouples with 20 Mtrs long compensating cable b. 6 sets of Ratio & PID temperature controllers constituted in PLC c. 6 Nos. Orifice plate for gas line d. 6 Nos. Orifice plate for air line e. 6 nos. gas flow transmitters f. 6 nos. air flow transmitters g. 6 nos. oil flow meter h. 6 nos. Electrical actuation motor for gas control valves i. 6 nos. Electrical actuation motor for air control valves j. 6 nos. Electrical actuation motor for oil control valves k. 6 nos gas solenoid valves l. 6 nos. Temperature controllers for over temperature control 	Vendor to specify	
	FURNACE PRESSURE CONTROL		
3.34	The pressure transmitter and rotary electrical actuator for flue exhaust damper actuation must be replaced with new items.	Vendor to specify	
3.35	Audio visual alarm annunciator for furnace pressure control as mentioned under safety requirements must be provided.	Vendor to specify	

**RETROFIT AND RECONDITIONING OF LPG/HSD FIRED 200T BOGIE HEARTH STRESS
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S.No.	PARTICULARS	SPECIFICATION / DESCRIPTION	BIDDER'S OFFER (WITH CONFIRMATION & COMPLETE TECHNICAL DETAILS)
3.36	All the solenoid valves and its accessories for furnace pressure control must be replaced with new.	Vendor to specify	
3.37	In case of low combustion air pressure, low oil pressure and high temperature of furnace, the fuel solenoid valves provided in the main fuel line shall be shut off whereas in case of flame failure, respective solenoid valves near the burners must be shut off immediately.	Vendor to specify	
3.38	Limit & Proximity Switches: All the limit and proximity switches must be replaced with new.	Vendor to specify	
3.39	Safety interlocks: New switchgears must be provided to ensure the following safety interlocks. <ul style="list-style-type: none"> a. Furnace door shall be operated when the bogie is in fully IN or OUT position. b. Furnace door shall be operated when the pneumatic clamps are disengaged. c. Bogie should operate only when the furnace is fully open condition. 	Vendor to specify	
	PLC AND CONTROL PANEL:		
3.40	The PLC and its accessories, relays shall be housed in a non-compartmentalized 2mm sheet steel construction conforming to IO-65. The panel should be self standing, dust free and vermin proof panel preferably with Panel Air conditioner. The panel doors shall be two leaf hinged type at both front and rear of panel.	Vendor to specify	
3.41	All incoming and outgoing cables shall be through 3mm thick gland plate provided at the bottom of the panel.	Vendor to specify	
3.42	One number of non-redundant type programmable Logic Controller(PLC) for the furnace shall be provided for interlocking & sequential control for furnace process control like temperature, pressure etc. The PLC should be with one higher end processor, with power supply module, required digital input/output cards, analog card, load process facility, T/C card etc.	Vendor to specify	

**RETROFIT AND RECONDITIONING OF LPG/HSD FIRED 200T BOGIE HEARTH STRESS
RELEIVING WESMAN FURNACE**

S.No.	PARTICULARS	SPECIFICATION / DESCRIPTION	BIDDER'S OFFER (WITH CONFIRMATION & COMPLETE TECHNICAL DETAILS)
3.43	<p>The following features must be available in PC-PLC based system.</p> <ul style="list-style-type: none"> a. Temperature and pressure data logging trending b. Overview of furnace c. Fault annunciation page and alarm logging d. Report generation e. Fault annunciation page and alarm logging <p>The following shall be viewed in the fault annunciation.</p> <ul style="list-style-type: none"> a. Furnace gas inlet pressure low. b. Furnace oil inlet pressure low c. Combustion air pressure low d. Furnace pressure low-alarm e. Furnace temperature high f. Summary of faults with description, date and time of occurrence 	Vendor to specify	
3.44	<p>The data logging for the following items shall be provided by the system.</p> <ul style="list-style-type: none"> a. Shift wise daily, monthly, Yearly report with process values/production figures and other process data. b. Logging and reports of events c. Historical data storage and trending 	Vendor to specify	
3.45	<p>One new higher end PC with 750GB Hard disk, DVD Writer, 4 nos of USB ports , 22" LCD monitor, 8GB RAM, HP color Laserjet(A4) Printer shall be provided. Make: HP/DELL/LENOVO</p>	Vendor to specify	
3.46	<p>The PID control loop shall be provided under PLC through Intelligent Software PIB block. The values and status of zone temperature shall be viewed in HMI screen of the Color Monitor provided for the furnace work station.</p>	Vendor to specify	
3.47	<p>In case the zonal temperature overshoots the maximum set value, it should shut off the zonal oil(fuel) valve. At the same time, the system should annunciate an audio visual alarm. The details of alarm and fault shall be logged in HMI.</p>	Vendor to specify	

**RETROFIT AND RECONDITIONING OF LPG/HSD FIRED 200T BOGIE HEARTH STRESS
RELIEVING WESMAN FURNACE**

S.No.	PARTICULARS	SPECIFICATION / DESCRIPTION	BIDDER'S OFFER (WITH CONFIRMATION & COMPLETE TECHNICAL DETAILS)
3.48	Orifice type flow meters shall be provided at main line for both LPG & Diesel to measure the flow. Vendor must supply the same and install. Vendor to specify the brand / model.	Vendor to specify	
3.49	MCC Panel: One number new MCC panel shall be provided with dust, vermin proof, sheet metal clad, floor mounted, totally enclosed for the operation of various motors and heaters.	Vendor to specify	
3.50	All power, control, reference cables, including termination material, cable racks, conduits, earthing material to be supplied new and commissioned.	Vendor to specify	
3.51	Any tools and tackles, instruments and materials required for further maintenance of BHPV shall be provided.	Vendor to specify	
3.52	PLC for controlling the logic operation. Make : Siemens / Fanuc / Heidenhain.	Vendor to specify	
3.53	Essential spare items, consumables, spare bricks, insulating material, refractory material must be supplied along with the items of retrofitting the furnace.	Vendor to specify	
4.0	The following items are to be retrofitted / reconditioned / repaired.		
4.1	The damaged ceramic fiber blankets on side walls, end walls, door and furnace roof have to be replaced with new.	Vendor to specify	
4.2	The fixed hearth of side wall, under ground flue duct shall be lined with conventional refractory and insulation bricks.	Vendor to specify	
4.3	The existing blowers to be checked and reconditioned.	Vendor to specify	
4.4	The furnace door rise and fall shall be checked and reconditioned for smooth lifting and lowering movement. The motor, connections, lifting and lowering arrangement, clamping arrangement, top and bottom sand seal arrangement to avoid leakages of hot gases should be thoroughly checked and reconditioned.	Vendor to specify	

**RETROFIT AND RECONDITIONING OF LPG/HSD FIRED 200T BOGIE HEARTH STRESS
RELEIVING WESMAN FURNACE**

S.No.	PARTICULARS / SPECIFICATION	DESCRIPTION	BIDDER'S OFFER (WITH CONFIRMATION & COMPLETE TECHNICAL DETAILS)
4.5	Very frequently, the furnace bed is not moving properly over the rails. Some of the wheels are coming out of the rails. Vendor to study the rail and bogie design analyze the reasons for failure to move properly and redesign the bogie/wheels etc if necessary. Electrical motor to move the bogie and brake system should be thoroughly checked and reconditioned / replaced. Gear boxes shall be replaced with new. After reconditioning/alignment of bogie, the movement should be smooth.	Vendor to specify	
4.6	At present, the bogie movement is taking huge time for moving into furnace and coming out of furnace. The speed of this bogie movement must be increased. 3 step Speed control must be provided for bogie movement.	Vendor to specify	
4.7	The bogie underneath cross ventilation system shall be checked and reconditioned.	Vendor's scope	
4.8	All sensitrol valves, Oil shut off valves, duplex pumping unit under oil firing shall be thoroughly checked and replaced if required.	Vendor's scope	
4.9	Under gas firing system, all limiting orifice valves in gas line, metering orifice valves, manual gas shut off valves (burner wise) shall be replaced / reconditioned.	Vendor's scope	
4.10	Under LPG gas train equipment the following items shall be thoroughly checked for replacement/reconditioning <ul style="list-style-type: none"> a. Gas filter b. Safety relief valve c. Gas governor d. Safety shut off valve e. Solenoid operated safety shut off valve(vent & cock) f. Pressure gauge g. High gas pressure switch h. Low gas pressure switch i. Manual gas shut off valve 	Vendor's scope	

**RETROFIT AND RECONDITIONING OF LPG/HSD FIRED 200T BOGIE HEARTH STRESS
RELEIVING WESMAN FURNACE**

S.No.	PARTICULARS / SPECIFICATION / DESCRIPTION	BIDDER'S OFFER (WITH CONFIRMATION & COMPLETE TECHNICAL DETAILS)
5.0	<p>Painting of the Furnace : Complete Furnace body, bogie, blower and all furnace related items etc., shall be painted with two coats of reputed brand of Premium enamel Apple Green color paint. Interior of the machine and table are to be painted with two coats of enamel paint(Color to be specified by BHPV at the time of PO). Wherever oil comes in contact with interior of the body, oil resistant paint to be used. Letters, numerals etc. will have to be painted with a different color as required / as indicated by BHPV at the time of final painting. For electrical panel boxes inside area is to be painted with two coats of white enamel paint. Painting should be carried out according to the standard procedure for painting including cleaning and removing old paint, applying metal primer putty etc. Good finish should be ensured. Overall furnace aesthetic view should be taken care of.</p>	Vendor to confirm.
6.0	<p>1. Dismantling of the furnace assemblies and bogie into individual parts, degreasing, chemically cleaning, pre-painting of structural parts, joint inspection to finalize the detailed list of</p> <ul style="list-style-type: none"> a. Spares to be bought out b. Spares to be manufactured <p>The list should be approved by BHPV. Drawings of spares to be manufactured and specifications for bought out items shall be submitted to BHPV by the vendor for approval.</p> <p>SPARES : For the above mentioned spare parts (electrical/ mechanical / electronics) required to be replaced beyond the spares quoted by the vendor along with offer, approved by BHPV after joint inspection, BHPV will supply spares available with them or procuring the spares.</p> <p>2. A separate tender will be floated for these spares (bought out spares and spares to be manufactured). The vendor shall also compulsorily participate in the above tenders quoting for all the spares. The spares will be ordered on the lowest party and the spares will be given to the vendor for assembly into the machine. No extra cost will be paid for the fitment and assembly of these spares.</p> <ul style="list-style-type: none"> a. Spares required to be replaced other than those agreed to during joint inspection will have to be approved by BHPV before such replacement is affected. Cost of such spares shall be absorbed by the Contractor. BHPV will not pay for these items. b. Prior intimation has to be given to BHPV by the contractor for deputing the team for joint inspection at BHPV / contractor works. 	Vendor to confirm

**RETROFIT AND RECONDITIONING OF LPG/HSD FIRED 200T BOGIE HEARTH STRESS
RELIEVING WESMAN FURNACE**

S.No.	PARTICULARS / SPECIFICATION / DESCRIPTION	BIDDER'S OFFER (WITH CONFIRMATION & COMPLETE TECHNICAL DETAILS)
6.1	Operational spares for 2 Years should be quoted separately.	Vendor to confirm
6.2	A spare parts manual should be provided along with the parts list.	Vendor to confirm
7.0	Prove-out test	
7.1	The required temperatures, safety features prove out, calibration of furnace, pressure gauges, temperature recorders, material temperature, furnace temperature etc must be shown to production and maintenance personnel of BHPV. The job trials for sufficient number of jobs must be shown to BHPV personnel. The heat treatment cycle and furnace temperature graphs must be certified by the quality department of BHPV.	
7.2	After successful job tests, the furnace should be handed over to production division for their trail run and regular heat treatment cycle would begin on the furnace. After completely satisfying themselves with regards to the heat treatment cycle, stress relieving jobs, temperature accuracies, loading capacity, complete functioning of furnace etc., the Production and maintenance personnel would then release the satisfactory performance certificate for the furnace. Only on receipt of such certificate, the work would be deemed as completed.	
8.0	BHPV's Scope of work:	
8.1	Material handling facilities to be given for Mechanical, Electrical and Instrumentation requirements which should come up during retrofitting.	
8.2	Oil, gas, water, compressed air etc required for testing the furnace will be provided by BHPV.	
8.3	All necessary documents, drawings available with BHPV related to Furnace will be given to vendor	
9.0	Miscellaneous	
9.1	The supplier should give a point-by-point reply to the specifications	

**RETROFIT AND RECONDITIONING OF LPG/HSD FIRED 200T BOGIE HEARTH STRESS
RELEIVING WESMAN FURNACE**

S.No.	PARTICULARS / SPECIFICATION / DESCRIPTION	BIDDER'S OFFER (WITH CONFIRMATION & COMPLETE TECHNICAL DETAILS)
9.2	<p>The following manuals should be supplied along with the retrofit of the furnace.</p> <ol style="list-style-type: none"> 1. Electrical Circuit diagrams – 3 sets 2. Circuit diagrams for all PCBs - 3 Sets 3. PLC print out in ladder form with symbols & comments – 3 Sets 4. O&M Manuals (hard copy & Soft Copy) for PLC, Instrumentation system – 3 sets 5. Programming Manual for PLC System – 3 sets 6. Furnace data(NC, PLC , setting & Alarm texts), drives data & PLC program(Soft copy) – 3 sets 7. Details of all Mechanical, Electrical, instrumentation, Electronics modifications & fittings with drawings – 3 sets 8. Spare parts manual – 3 sets 9. Complete block diagram with pipelines of furnace after retrofit -3 sets. <p style="text-align: right;">All the PLC programs, software, wiring diagram, circuit diagrams etc in CD – 2 sets.</p>	
9.3	<p>The operation manual should contain exhaustive details of the operation of Furnace.</p>	
9.4	<p>The supplier should provide at least 3 days training in operation, programming, interfacing and maintenance at BHPV for production and maintenance personnel.</p>	
9.5	<p>The supplier should provide 1 Year warranty from the date of retrofit & reconditioning of the Furnace.</p>	
9.6	<p>Operational spares for 2 Years should be quoted separately. The spares should include spare bricks, solenoid valves, limit switches, insulating material, relays, pressure gauges, instrumentation items, bogie wheels, A4 size color LaserJet printer and other essential spares.</p>	
9.7	<p>Place of Work: The supplier can execute the complete reconditioning and retro fitment activity at BHPV, Visakhapatnam or at supplier's works. If the furnace / bogie / blower parts are to be taken to the supplier's works, the transportation cost (to & fro, insurance) has to be borne by the supplier.</p>	

**RETROFIT AND RECONDITIONING OF LPG/HSD FIRED 200T BOGIE HEARTH STRESS
RELEIVING WESMAN FURNACE**

S.No.	PARTICULARS / SPECIFICATION / DESCRIPTION	BIDDER'S OFFER (WITH CONFIRMATION & COMPLETE TECHNICAL DETAILS)
9.8	All levers and handles if any, shall be Nickel-plated.	Vendor to specify
9.9	Name plates, instruction plates shall be replaced with new ones. One plate with Furnace specifications in full, name & address of reconditioning party, year of reconditioning etc. should be riveted on front / rear side of furnace.	Vendor to specify
9.10	Oiling points with periodicity, type of oil to be used shall be indicated on the furnace, if any.	Vendor to specify
9.11	Bar chart showing the time required for the following elements to be given covering the period of delivery quoted a) Dismantling of furnace at BHPV works b) Complete cleaning and joint inspection of components at BHPV works to identify parts for replacement and rework. c) Manufacturing, rework/repairing etc. of the components, completion of scraping work and sub-assemblies d) Complete retrofit & reconditioning work e) Re-erection & re-commissioning at BHPV works f) Job trial and prove out	Vendor to confirm
9.12	Any modifications carried out shall not sacrifice original temp ranges, safety features, bogie speed, refractory linings, original function of furnace etc.	Vendor to specify
9.13	<u>REWORK IN LIEU OF REPLACEMENT :</u> Reworks in lieu of replacement on all parts (bushes, box nuts, screw rods etc.) by machine grinding preferably / chrome plating / welding / machining etc. identified initially and also during joint inspection, BHPV will not pay extra.	Vendor to confirm
9.14	BHPV reserves the right to inspect the progress as well as workmanship at any stage of the work. Decision of BHPV Representative shall be final in the matter of inspection at any stage. Contractor shall extend necessary co-operation to enable such inspection.	Vendor to confirm
9.15	All discarded / replaced parts shall be returned to BHPV.	Vendor to confirm

**RETROFIT AND RECONDITIONING OF LPG/HSD FIRED 200T BOGIE HEARTH STRESS
RELEIVING WESMAN FURNACE**

S.No.	PARTICULARS / SPECIFICATION / DESCRIPTION	BIDDER'S OFFER (WITH CONFIRMATION & COMPLETE TECHNICAL DETAILS)
9.16	Any work (Mechanical, Electrical and Instrumentation) not mentioned in this scope of work to keep the Furnace in working condition with all features and accuracies are in the scope of the contractor.	Vendor to specify
9.17	The contractor is required to study the furnace, the scope of supply and certify the completeness of scope in order to execute the work. In case of any discrepancies in the scope of work, the contractor is required to highlight the same to BHPV before submission of the offer.	Vendor to specify
9.18	Lodging & Boarding facilities for the contractor personnel are at Contractor's scope (during dismantling period, re-erection & re-commissioning period and for troubleshooting during performance guarantee period). BHPV is not responsible for this.	Vendor to confirm
9.19	Interpretation: Any dispute of difference of opinion in respect of the interpretation, effect or application of this particular condition of the Contract or of the amount recoverable hereunder from the vendor shall be decided by the Contractee and the decision shall be final and conclusive.	Vendor to confirm
9.20	Subletting: The vendor shall not sublet or assign this work or any part thereof without the written permission of BHPV. In the event of the vendor subletting or assigning this work or any part thereof without such permission, BHPV shall be entitled to cancel the contract and execute the contract elsewhere at the risk and account of the vendor and the vendor shall be liable for any loss or damage which BHPV may sustain in consequence of or arising out of such contract elsewhere.	Vendor to confirm

COMMERCIAL TERMS AND CONDITIONS FOR SUBMISSION OF OFFER**1.0 QUOTATIONS**

Bidders shall submit the offer in TWO INNER ENVELOPES as indicated below which shall be sealed in one outer envelope.

Envelope I: This sealed envelope should contain all the copies of technical bid together with un-priced commercial bid. This envelope should be clearly marked “**Part I – Technical and Un-priced commercial bid**” Indicating Tender No., Due Date and Address & Reference of the Bidder.

Envelope II: This sealed envelope should contain price details this envelope should be clearly marked “**Part II - Price bid**” indicating Tender No., Due Date and Address & Reference of the Bidder.

Both the envelopes (Part I & II) shall be put in one cover, duly sealed, super scribing as Part I and Part II of Tender No., due date of opening and the address and reference of the Bidder

The above offer should reach this office on or before the due date by 14.00 Hrs (IST)
Tender should not be addressed to any Individuals name but only designation to

Dy. General Manager (MM)
BHARAT HEAVY PLATE & VESSELS LIMITED
VISAKHAPATNAM - 530 012 (A P), INDIA.

Tenders should be free from CORRECTION AND ERASURES. Corrections if any must be attested. All amounts shall be indicated both in words as well as in figures. Where there is difference between amount quoted in words and figures, amount quoted in words shall prevail.

Offers should be in ENGLISH and accompanied by technical literature catalogue and detailed dimensional drawings in ENGLISH or otherwise the offers will not be considered.

2.0 PART I (TECHNICAL & UN-PRICED COMMERCIAL BID)**2.1 Technical**

This part shall include / indicate the following:

- 2.1.1. Offer should contain complete scope of supply with all technical details, specifications, delivery and other commercial terms and conditions.
- 2.1.2. Point by point confirmation for the Technical Specification enclosed is to be provided. If there are any deviations the same should be clearly specified. Offers received without conformation to our specification will be rejected.
- 2.1.3. List of customers to whom same or similar equipment have been supplied along with performance certificates to be enclosed.
- 2.1.4. Relevant catalogue to be attached.
- 2.1.5. List of spares parts (with part numbers) for two years operation and maintenance should be attached.

2.1.6. Information on shipping weight and cubage (length, width & height) to be provided

2.1.7. In case of foreign bidder offer, the Principal's technical offer only should be enclosed.

2.2 Un-Priced Commercial

This part shall include / indicate the following

2.2.1. Port of shipment / Station of dispatch

2.2.2. Terms of payment

2.2.3. FOB/FCA price along with freight charges up to Chennai port (for foreign bidders) Ex-works/FOR Dispatch Station price along with freight charges up to BHPV Visakhapatnam (for Indian bidders)

2.2.4. Taxes, Service tax & duties including Cess applicable.

2.2.5 Delivery Schedule

2.2.6. Filled-in check list to be enclosed

2.2.7. Offer validity

2.2.8. Country of origin

2.2.9. Percentage of agency commission if any along with a copy of Agency agreement The FOB/FCA/CFR Prices quoted shall include the agency commission.

2.2.10. A copy of "Un-Priced Part II 'i.e., a copy of the Price Bid without the price details to be enclosed.

2.2.11 BHPV is eligible for availing CENVAT / VAT credit on both inputs and capital inputs. The suppliers invoice should separately indicate the amount of duty / taxes and should invariably mention the following details:

1. The Central excise registration number, range division and commission rate of the supplier's jurisdiction.
2. The rate of duty and 8 digit central excise tariff heading of the item supplied.
3. The TIN, VAT, CST registration number of the supplier.

The duplicate copy of the invoice is required for availing CENVAT credit and original copy for availing VAT credit, if purchased within the state.

In case of foreign bidders the duplicate copy of the electronic Bill of Entry along with TR6 challan should be made available for availing CENVAT credit on CVD, Cess (S) and SAD.

3.0 **PART II (PRICE – BID)**

This part should contain the schedule of price particulars and to be co-related to the technical details provided in Part-I

4.0 **OPENING OF TENDERS**

The Part I – Technical & un-priced commercial bid alone would be opened on the Tender opening date.

The Part II – Price bid of technically suitable Bidders alone would be opened. The Technically suitable Bidders would be informed about the Price Bid opening date. Clarifications if any required by BHPV FOR Technical evaluation / commercial evaluation would be sought from Bidders before opening of Part II – price bid.

GENERAL

5.1 Incomplete offers will not be considered.

5.2 **Fixed priced:** Prices quoted by the bidder shall be fixed and not subject to any escalation whatsoever during the period of bid validity and execution of the Purchase Order A bid submitted with an adjustable price will be treated as non- responsive and rejected Prices shall be written in words and figures. In the event of difference, the price in words shall be valid and binding. Unit prices shall be considered correct in the event of any discrepancy with regards to total price.

5.3 **Bid currency:** Indian bidders should submit the prices only in Indian Rupees. Foreign bidders may submit their bid in their home currency, which should be clearly indicated in the un-priced commercial bid as well as in the price bid.

- 5.4 **Terms of Delivery:** Bidders are required to quote their best delivery period. Foreign Bidders should submit their offer for net FOB/ FCA – Nearest Sea Port / Air Port as well as CFR / Chennai Seaport/ Airport. Freight charges up to Chennai port to be indicated separately. Indian Bidders should submit their offer for Dispatching station as well as FOR BHPV Visakhapatnam basis. Freight charges from works to BHPV Visakhapatnam to be indicated separately. Delivery from the date of Letter of Intent to be mentioned in the offer.
- 5.5 **Taxes and Duties:** All Taxes and Duties payable as extra to the quoted price should be specifically stated in offers along with CST & TIN No/ Tariff No. etc, failing which the purchaser will not be liable for payment of such Taxes and Duties (Our TIN No.28280189432, APGST No. VSP/04/1/1023 dated 24.08.1968. CST No.VSP/04/1/1012 dated 24.08.1968 & BHPV ECC No AAA CB 7076 N-XM001. Assessment circle Visakhapatnam.)
- 5.6 **Validity:** The offers for main equipment and spares shall be kept open for acceptance for a period of 120 days (one hundred and twenty days) from the dates of opening of the tender (part I)
- 5.7 **Terms of Payment:**
- 5.7.1 **Indian Bidders:**
- 5.7.1.1 90% payment (90% of basic price + 100% Taxes) will be made within 45 days of receipt of material and balance 10% will be made after acceptance of material/commissioning of the equipment at BHPV, Visakhapatnam and on submission of Performance Bank Guarantee.
- 5.7.2 **Foreign Bidders**
An Irrevocable letter of Credit shall be established for 80% of FOB/FCA/CFR/ (excluding Indian Agent's commission) 2 months prior to shipment and valid for 3 months for negotiation against shipment Letter of Credit shall be opened through a branch of State Bank of India in the country where order shall be placed. In case, in the country where order is placed, State Bank of India is not there, Letter of Credit will be confirmed by foreign banker. Balance 20% of FOB/FCA/CFR value shall be paid through sight draft on Commissioning & acceptance of the equipment at BHPV Visakhapatnam, against submission of 10% performance bank guarantee. All Bank charges outside India are to supplier's account. Lump sum erection and commissioning charges if any, shall be payable after satisfactory erection & commissioning of the equipment by sight draft against certificate issued by the competent authority.
- 5.7.3 **Common to both India & Foreign Bidders.**
Erection & Commissioning (E&C) charges will be released after deduction of Income Taxes as per the Govt. of India rules. The TDS certificate will be issued by BHPV. Applicable service tax on E&C charges will be payable extra. The liability of depositing the same to the Govt. will be of the supplier.
- 5.7.4 **Loading criteria common to both Indian and foreign bidders:** Vendor should accept the payment terms specified above. However for any deviation to the payment terms offered with reference to the above criterion will be loaded with prime lending rate of SBI prevailing on date of opening of price bid + 2%, which shall be computed for the differential period between BHPV terms of payment and the offered basic price.
- 5.8 DUNS number (allotted by M/s. DUN & Bradstreet) shall be mentioned in your offer.
- 5.9 **Guarantee:** The equipment shall be guaranteed for a period of 18 months from the date of supply or 12 months from the date of commissioning and acceptance whichever is earlier.
Offers from vendors not accepting to the requested guarantee period will be rejected.

5.10 **Contract Execution Bank Guarantee (CEBG):** The successful tenderer shall furnish a Bank Guarantee from any Nationalized Bank for 5% of Purchase Order value (FOR Dispatching station value – Excluding taxes, duties, freight & insurance – for Indian bidders) & (FOB/FCA value – excluding freight & insurance – for foreign bidders) confirming that the order will be executed as per the terms and conditions and this should be valid till final dispatch date (LR/GR/BL/AWB) with additional 2 months claim period. Letter of Credit will be processed only after receipt of CEBG. The CEBG is to be furnished within 3 weeks from the date of Purchase order.

Offers from vendors not accepting to submit CEBG will be rejected.

5.11 **Performance Bank Guarantee (PBG):** The supplier shall furnish a Bank guarantee from any Indian Nationalized Bank approved by BHPV in the format, given by BHPV along with purchase order for 10% of the Purchase Order value (FOR Dispatching station value – Excluding taxes, duties, freight & insurance – for Indian bidders) & (FOB/FCA value – excluding freight & insurance – for foreign bidders) valid for period of guarantee with additional claim period of 2 months.

Offers from vendors not accepting to submit PBG will be rejected.

The CEBG & PBG shall be obtained from any Indian Nationalized Bank

5.12 **Liquidated damages:** Delivery of the goods specified in the purchase order should be made within the time prescribed. Failure to dispatch the materials in the time as per the delivery quoted in our Purchase Order would make the supplier liable to an un-conditional penalty at the rate of ½% of the value of goods for each week of delay subject to a maximum of 10% of the Purchase Order value.

5.12.1 **Loading Criteria for Liquidated Damages:** Any deviation from above LD Clause to the extent for which LD is not agreed by the vendor i.e., differential % value will be loaded on basic price, e.g. If some vendor agrees for say maximum of 6% LD then his price will be loaded by 4% (10 – 6) of his quoted basic price.

5.13 **Risk purchase:** If the supplier fails to deliver the goods within the delivery specified in the Purchase Order, BHPV will be entitled to terminate the contract and to purchase elsewhere at the risk and cost of the seller either the whole of the goods or any part which the supplier has failed to deliver or dispatch within the delivery period mentioned in the Purchase Order.

Offers from vendors not accepting the above Risk Purchase terms will be rejected.

5.14 **Indian Agent & Agency commission:** An Indian Agent can represent only one Foreign Manufacturer against a particular Tender. The FOB/FCA/CFR price quoted by the Foreign bidder shall include the agency commission. However, the agency commission component payable to their Indian Agents shall be shown separately in the offer. This will be paid by BHPV in India Rupees, on satisfactory commissioning & acceptance of the equipment. Copies of current Agency Agreement / Authorization Letter in respect of Agency Commission shall be furnished along with offer. For calculation of Rupee equivalent of Agency Commission exchange rate as prevailing on the date of Purchase Order will be taken.

5.15 **Short shipment / Warranty replacement:** In case of any short shipment in the main equipment / spares, customs duty levied on such supplies, shall be borne by the supplier. Any warranty replacement during the warrantee period shall be on FOR, BHPV - Visakhapatnam, basis.

- 5.16 **Inspection & Testing:** All goods shall be subject to inspection by BHPV or its authorized representatives at supplier's works or at BHPV stores. The supplier will not charge for the facilities provided for inspection of goods. In case of machine tools the machine would be inspected and proved at supplier's works prior to dispatch however, final inspection and acceptance of the machine will be carried after installation of the machine at BHPV, Visakhapatnam.
- 5.17 **Operating and Maintenance manuals:** The Bidders shall clearly mention in their offer that Operating Maintenance Manuals as called for in the Technical Specification in the required number of copies will be provided.
- 5.18 **Cenvat & VAT credit. (for Indian Bidders only):** The quotation must indicate Tariff item number and rate of Excise Duty applicable. The original Excise Duty Gate Pass will be required to be furnished in case charges to us. If the bidder is availing Cenvat credit for his input materials, the effect of proforma credit should be passed on to the purchaser.
- 5.19 **Packing:** The Supplier shall arrange for packing suitably in all respects considering the peculiarity of the material involves for normal transport by sea / air / rail road and suitably protected against effect of tropical salt laden atmosphere in the event of shipment being delayed at ports.
- 5.20 **Salient Points of HSE** (Health, Safety & Environment) that are to be considered while submissions of offer are:
- 5.20.1 Consumption benchmarks related to output shall be provided wherever applicable for key input resources (energy/fuels/chemicals)
- 5.20.2 Competency requirements for operation, maintenance and calibration, if any, shall be communicated
- 5.20.3 If any Hazardous chemicals as per MSIHC (Manufacturing, Storage and import of Hazardous Chemicals) Rules 1989/94/2000 are used, the MSDS shall be provided, along with on site & OFF site emergency plan (as applicable).
- 5.20.4 The noise level at operator level shall be within 90 Dba
- 5.20.5 OH&S (Occupational Health and Safety) control measures for safe working of machine as applicable shall be specified
- 5.20.6 The machine/equipment shall be fitted with guard for rolling and moving parts and shall comply with applicable OH&S legislations and Factories Act 1948
- 5.20.7 The supplier shall submit the layout drawing of operating controls, displays etc and operating instructions to enable ergonomics evaluation and approval
- 5.20.8 The recommended PPE (Personal Protective Equipment) for the equipment shall be furnished
- 5.20.9 Alarm System (both visual and audible) and Automatic switch off of the equipment shall be provided for any intrusion, overloading, short circuiting or any malfunctioning of the equipment.
- 5.20.10 Details of all hazardous / harmful substances discharges as by-products / wastes during operations of the machine / equipment, such as fumes, gases, dust particles, aerosols UV./IR (Ultra violet / Infra red) radiations, etc shall be furnished, along with their concentrations and their TLV, (Threshold Limit Value)

- 5.20.11 Appropriate pollution control measures shall be proposed to keep the emissions from the machinery / processes within the prescribed limit as stated in Environment Protection Rules 1986.
- 5.20.12 All furnaces, process units, DG sets, paint booths, shot blasting chambers, etc shall be provided with stack(s) of sufficient height as per guidelines laid down in the Environment Protection Rules 1986.
- 5.20.13 wherever industry specific standards are not available for control of pollutants, general emission standards shall be used
- 5.20.14 Chemicals banned due to their negative impact on the environment shall not be used on the process
- 5.20.15 Fuels with sulphur content less than 0.05% shall be proposed.
- 5.20.16 Details regarding nature of waste generated and appropriate disposal practices available shall be provided, along with the operation procedure of the plant / process.
- 5.20.17 Hazardous chemicals and flammable substances shall be transported only through authorized transporters and all safety practices as laid down in applicable legislative requirements such as Central Motor Vehicle Rules, Manufacture, Storage and Import of Hazardous Chemical 1989, etc. shall be followed.
- 5.20.18 Primary materials used in the equipment shall be specified and they shall be eco - friendly.
- 5.21 Evaluation of offers shall be on the basis of delivered cost (Net cash outflow to BHPV).
- 5.22 BHPV also reserves its right to allow to the Public Sector Enterprises ordering and price preference facilities as admissible under the existing policy.
- 5.23 BHPV reserves its right to reject a tender due to unsatisfactory past performance in the execution of a contract at another project / unit.
- 5.24 BHPV shall be at liberty to reject or accept any tender, part or in full, at their own discretion and any such action is not liable for any question or claim against BHPV.
- 5.25 BHPV reserves the right to go for a Reverse Auction (RA) instead of opening the submitted sealed bid, which will be decided after technical evaluation. Information and general terms and conditions governing RA are given below.

GENERAL TERMS AND CONDITIONS OF RA (REVERSE AUCTION)

Against this enquiry for the subject item/system with detailed scope of supply as per enquiry specifications. BHPV may resort to "REVERSE AUCTION PROCEDURE" i.e., ON LINE BIDDING ON INTERNET.

1. For the proposed reverse auction, technically and commercially acceptable bidders only shall be eligible to participate.
2. BHPV will engage the services of a service provider who will provide all necessary training and assistance before commencement of on line bidding on internet.
3. BHPV will inform the vendor in writing in case of reverse auction, the details of service provider to enable them to contact & get trained.

4. Business rules like event date, time, start price, bid decrement, extensions etc. also will be communicated through service provider for compliance.
 5. Vendors have to fax the Compliance form in the prescribed format (provided by Service provider) before start of Reverse auction. Without this, the vendor will not be eligible to participate in the event.
 6. BHPV will provide the calculation sheet (e.g., EXCEL sheet) which will help to arrive at “Total Cost to BHPV like Packing & Forwarding charges, taxes and Duties, Freight charges, Insurance, Service Tax for Services and loading factors (for non-compliance to BHPV standard Commercial terms & conditions) for each of the vendor to enable them to fill-in the price and keep it ready for keying in during the Auction.
 7. Reverse auction will be conducted on scheduled date & time.
 8. At the end of Reverse Auction event, the lowest bidder value will be known on the network.
 9. The lowest bidder has to Fax the duly signed Filled-in prescribed format as provided on case-to-case basis to BHPV through Service provider within 24 hours of Auction without fail.
 10. Any variation between the on-line bid value and the signed document will be considered as sabotaging the tender process and will invite disqualification of vendor to conduct business with BHPV as per prevailing procedure.
 11. In case BHPV decides not to go for Reverse Auction procedure for this tender enquiry, the Price bids and price impacts, if any, already submitted and available with BHPV shall be opened as per BHPV’s standard practice.
- 5.26 **Force Majeure clause:** If at the time during the continuance of this contract the performance in whole or in part by either party of any obligations under this contract shall be prevented or delayed by reason, of any war, hostilities, acts of the public enemy, civil commotion, sabotage, fires, explosions epidemics, quarantine, restrictions or acts of GOD (hereinafter referred to as events) then provided notice of happening of any such events is given by either party to other within twenty one days from the date of occurrence thereof neither party shall reason of such events be entitled to terminate this contract nor shall either party have any such non performance and delay is resumed as soon as practicable after such events has come to an end or ceased to exist, if the performance in whole or part of any obligation under this contract is prevented or delayed by reason or any such event claims for extension of time shall be granted for period considered reasonable by the purchaser subject to prompt notification by the seller to the purchaser of the particulars of the events and supply to the purchaser if required of any supporting evidence. Any waiver of time in respect of partial installment shall not be deemed to be a waiver of time in respect of remaining deliveries.

CHECK LIST

Bidder's acceptance to BHPV's Standard Commercial Terms & Conditions.

Applicable for Indian bidders

(To be submitted along with the offer – please do not change the format)

BHPV Tender No: & Date:	Bidders Confirmation / response
Technical Confirmation to BHPV's Specification	Furnished /Not Furnished
Prices have been quoted on "FIRM PRICE" basis only.	Yes / No
Prices have been quoted on "F.O.R BHPV" basis only.	Yes / No
Validity of offer (we require a minimum period of 120 days from the date of Tender Opening – please Specify)	
Sales Tax (please Specify)	
Excise Duty (please Specify)	
Delivery period from the date of Purchase Order (please Specify). A loading @ ½ % of the Purchase Order value per week will be done for the grace period requested. For evaluation 4 weeks will be considered as one month. Vendors quoting a delivery period beyond the 'the requested delivery plus the allowed grace period' is liable for rejection.	
Liquidated damages as per clause 5.12 (we require acceptance to @ ½% per week subject to a maximum of 10%).	
Risk Purchase as per clause 5.13 (Offers from vendors not accepting the Risk Purchase terms will be rejected)	Yes / No
Payment terms : 90% payment will be made within 45 days of receipt of material and balance 10% will be made after acceptance of material/commissioning of the equipment at BHPV Visakhapatnam and on submission of Performance Bank Guarantee.	
Contract Execution Bank Guarantee (CEBG) as per Clause 5.10 (Offers from vendors not accepting to submit CEBG will be rejected)	Yes / No
Performance Bank Guarantee (PBG) as per Clause 5.11 (Offers from vendors not accepting to submit PBG will be rejected)	Yes / No
Guarantee as per clause 5.9 (The equipment shall be guaranteed for a period of 18 months from the date of supply or 12 months from the date of commissioning and acceptance whichever is earlier). (Offers from vendors not accepting to the requested guarantee period will be rejected)	Yes / No
Approximate Net Weight of the total Consignment	
Approximate Gross Weight of the total Consignment	

Signature & Office Seal of the bidder

CHECK LIST

Bidder's acceptance to BHPV's Standard Commercial Terms & Conditions.

Applicable for foreign bidders (To be submitted along with the offer – please do not change the format)

BHPV Tender No: & Date:	Bidders Confirmation / response
Technical Confirmation to BHPV's Specification	Furnished / Not Furnished
Prices have been quoted on "FIRM PRICE" basis only.	Yes / No
Prices have been quoted on "F.O.R BHPV" basis only.	Yes / No
Validity of offer (we require a minimum period of 120 days from the date of Tender Opening – please Specify)	
Currency in which quoted (please Specify)	
Port of loading (please Specify)	
Country of Origin (please Specify)	
Sales Tax (please Specify)	
Excise Tax (please Specify)	
Delivery period from the date of Letter of Intent (please Specify)	
Liquidated damages as per clause 5.12 (we require acceptance to @ ½% per week subject to a maximum of 10%)	
Risk Purchase as per clause 5.13 (Offers from vendors not accepting the Risk Purchase terms will be rejected)	Yes / No
Payment terms (An irrevocable Letter of Credit shall be established for 80% of FOB/FCA/CFR (excluding Indian Agent's Commission) 2 months prior to shipment and valid for 3 months for negotiation against shipment. Letter of Credit shall be Opened through a branch of State Bank of India in the country where Order shall be Placed. In case, in the Country where order is placed State Bank of India is not there, Letter of credit will be opened through our bankers or as permitted by Government of India. Letter of Credit will not be confirmed by foreign banker. Balance 20% of FOB/FCA/CFR value shall be paid through sight draft on Commissioning. & acceptance of the equipment at BHPV, Visakhapatnam against submission of 10% performance Bank Guarantee. All Bank charges outside India are to Supplier's account. Lump sum erection and Commissioning charges, if any shall be payable after satisfactory erection and Commissioning of the Equipment by sight draft against Certificate issued by the competent authority as per clause 5.7.2)	
Agency commission (refer clause 5.14)	Acceptable / Not acceptable
Contract Execution Bank Guarantee (CEPG) as per Clause 5.10 (Offers from vendors not accepting to submit CEBG will be rejected)	Yes / No
Performance Bank Guarantee (PBG) as per Clause 5.11 (Offers from vendors not accepting to submit PBG will be rejected)	Yes / No
Guarantee as per clause 5.9 (The equipment shall be guaranteed for a period of 18 months from the date of supply or 12 months from the date of commissioning and acceptance whichever is earlier). (Offers from vendors not accepting to the requested guarantee period will be rejected)	Yes / No
Approximate Net Weight of the total Consignment	
Approximate Gross Weight of the total Consignment	

Signature & Office Seal of the bidder