

	ENQUIRY VALVES	Bharat Heavy Electricals Limited (A Government of India undertaking) HIGH PRESSURE BOILER PLANT PURCHASE DEPARTMENT/VALVES TIRUCHIRAPPALLI-620 014.	Phone: +91 (431) 257 7096/7412 Email: sivabala@bhel.in kraghu@bhel.in	
		ENQUIRY NO.	DATE	DUE DATE FOR QUOTATION
		ENSFV00218	02.05.2019	23.05.2019
		Please quote Enquiry No., and due date in correspondences <i>This is only a request for quotation and not an order.</i>		
<u>Date, Time & Venue of tender opening:</u> 23.05.2019 at 14.30 Hrs. at The Tender Opening Cell/Valves Room No. -26, Building -24 Bharat Heavy Electricals Limited Tiruchirappalli - 620014, Tamilnadu, India Email: tender_cell@bheltry.co.in		<u>Scope of supply</u> Supply of High Pressure Bypass Valves as per the purchase specification enclosed. -List of Annexures 01. Annexure 1A - SPEC-HP-0068-R00 02. Annexure 2A - GENERAL TERMS AND CONDITIONS 03. Annexure 2B - CONFIRMATION TO THE TERMS AND CONDITIONS 04. Annexure 2C - UNPRICED FORMAT 05. Annexure 2D - PRICED BID FORMAT 06. Annexure 2E - SCHEDULE OF DEVIATIONS FORMAT 07. Annexure 3A - PBG FORMAT 08. Annexure 3B - LIST OF CONSORTIUM BANKS		
Please, submit your lowest quotation in duplicate subject to our terms and conditions, for the above materials, so as to reach us on or before the due date by 14.00 Hrs. (IST) Quotations will be opened at 14.30 Hrs. (IST) on the due date in the presence of tenderers who may like to be present. Late tenders will not be considered.		Yours faithfully, For Bharat Heavy Electricals Ltd Sivabala Shanmugam Sr. Engineer/Purchase/Valves		

ANNEXURE 1A

VALVE SPECIFICATION



BHEL – Tiruchirappalli – 620014,
India

Valves Engineering and R&D

PURCHASE SPECIFICATION

DOC No: **SPEC:HP:0068** Rev: **00**

Effective Date: 26-03-2019

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Product: HP TURBINE BYPASS SYSTEM – PANKI 1x660 MW

Revision Record:

Rev. No	Date	Details of Revision
00	26 March 2019	First Release

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1. GENERAL

This specification, together with the data sheet attached herewith covers the requirements for the design, materials, construction details, manufacture, name plate marking, inspection, and testing of HP Bypass valves and hydraulic system. The offer shall be submitted along with all the documents mentioned in this specification.

- 1.1. Data sheet indicates the selection parameters of the HP Bypass valves, actuators, and associated hydraulic system components. However, bidder shall be responsible for sizing and selection of proper valve and hydraulic actuator meeting the indicated operating and design conditions.
- 1.2. The design, material, construction, manufacture, inspection and testing of valves shall conform to the latest applicable codes and standards.
- 1.3. The valves covered under this specification shall be governed by the following standards. However, the valves conforming to other International Standards may be acceptable, provided they are equivalent or superior to those listed below:
 - ANSI-American National Standards Institute
 - ASME-American Society of Mechanical Engineers
 - ASTM -American Society for Testing and Materials.
 - AWS-American Welding Society
 - ISA-Instrument Society of America
 - IBR – Indian Boiler Regulations
 - OSHA-Occupational Safety and Health Administration
 - DIN-Deutsche Industrie Norm
- 1.4. All materials, construction and design of the pressure parts shall conform in all respects to the applicable standards.
- 1.5. All materials shall be readily identifiable. Mill test reports shall be provided for all pressure boundary parts. These test reports shall be available for review at the Bidder's shops. Copies of these are to be submitted to BHEL.
- 1.6. Nothing in this Specification shall be construed as relieving the Bidder of his responsibility for compliance with all applicable codes and regulations.

2. APPLICATION

The bypass system would work in parallel with Turbine during load rejection in a coordinated manner with steam generator. However, during start-up of Boiler, to build matching steam parameters required for turbine and also during load transfer to turbine, the bypass system would function in a non-coordinated manner as per the operator demand. The bypass system in all cases establishes a parallel path of HP and IP/LP turbine through re-heater, which would enable the boiler to maintain the steam parameters ahead of HP and IP control valve as governed by Turbine requirement.

3. SCOPE

Scope of supply shall include HP Bypass steam control valves (2), Spray water isolation (1) and spray water control valves (2), electro-hydraulic actuators for the above valves and final control elements (proportional valves) and associated hydraulic power unit (HPU).

Offer shall include stainless steel piping connecting the HPU and actuators, connecting fittings, filters, hoses, additional accumulators, fast opening device, and all accessories required to make the HP Bypass system complete in all respects.



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All accessories, including but not limited to, steam blowing device, flushing device for oil pipeline flushing, filling and gauging device for accumulators, etc., required for ensuring continuous commercial operation shall also be in vendor's scope of supply.

From BHEL DCS, command of 4-20mA will be available to the vendor's equipment. Vendor shall be responsible for positioning the valves as per BHEL DCS's command. All the necessary equipment lie in the scope of the vendor.

Additional scope (loose supply) as indicated under Clause 4.5.

Clause 10 shall be referred for breakup of supply.

BHEL reserves the right to order any or all of the components / equipment included in the scope of supply.

4. DESIGN AND CONSTRUCTION

4.1 GENERAL

- 4.1.1 All control valves used in the systems shall be of tight shut off design (zero leak) at room temperature with maximum shut off differential acting across the valve. All control valves covered fall under the purview of IBR.
- 4.1.2 Valve parts shall not vibrate or chatter and shall not be unduly noisy. Low noise trim, if required, shall be provided to ensure the noise level within limit.
- 4.1.3 Design of the HP Bypass valves shall be such that the velocity of steam exiting the valve shall not exceed 100 m/s.
- 4.1.4 Valve seat shall be welded and the valve seat areas shall be stellited. Sealing arrangement shall be provided so that no leakage takes place through valve glands. Provide HP bypass valves with gland cooling arrangement, preferably using spray water, as per bidder's standard practice. Further, graphoil packing rings or equivalent arrangement shall be provided for valve glands.
- 4.1.5 The spray water valves shall be designed such that no separate warm up arrangement is required for spray water piping.
- 4.1.6 Necessary details for providing warming up arrangement of HP bypass valves shall be submitted along with the offer.
- 4.1.7 The spray valves for HP bypass shall have tight sealing arrangement in closed position so that no water can penetrate into the turbine with bypass valve closed.
- 4.1.8 Ensure HP bypass designed to accept continuous spray water at temperature corresponding to all HP heaters out of service and deaerator pegged at 1.5 ata. Spray water shall be sprayed at the most turbulent zone inside the valve having steam velocity in the order of 350 to 400 m/sec. The entire atomization and evaporation of spray water shall be complete within shortest possible distance but not exceeding 1.0m from the spray point.
- 4.1.9 All HP Bypass valves shall be butt weld type, edge preparation details of which shall be submitted by bidder.
- 4.1.10 The oil system for HP bypass system electro-hydraulic actuators shall be self-contained unit and shall meet system demand for all operating conditions. Oil system for HP bypass system shall be with 100% redundant pumps, motors, accumulators and control cubicles etc. A 3 μ filter shall be placed before each actuator.

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- 4.1.11 All the fittings used in the hydraulic piping and hydraulic hoses connecting the HPU and the valve actuators shall be in METRIC only.
- 4.1.12 2x100% separate cooling-cum-filtration circuits (with 3 μ absolute filters) shall be provided in order to maintain the cleanliness of the system and to ensure proper cooling. Cooling circuit shall cut in and out depending upon the control fluid temperature. Cooling can be with air/water. In case of water cooling, water quantity and quality requirements shall be furnished by the vendor along with the offer for arranging the same by purchaser.
- 4.1.13 Hydraulic Supply Unit circuit diagrams drawn on either metallic or plastic sheet in colour shall be riveted inside the door panel. Arrangements shall be made for mounting electric lamps inside the housing. Hydraulic power unit shall be with IP55 class protection or more.
- 4.1.14 Hydraulic accumulators shall be provided in the system to ensure positive supply of adequate oil to the hydraulic actuators, even when oil pump is not available. The accumulators shall be sized to ensure oil supply for two (2) complete stroking operations of actuators in the bypass system.
- 4.1.15 The accumulators shall be provided with Nitrogen pressurization system with bladder, shut off valves as required for the control system.
- 4.1.16 Provision shall be made to isolate any of the provided accumulators for maintenance without switching off the oil System.
- 4.1.17 To prevent over-pressure in the oil system, safety valves as necessary shall be provided.
- 4.1.18 Total oil piping offered for each 660 MW unit shall be of 200 metres length. If the sizes of pipes in hydraulic system are more than one, exact length of each size shall be decided during detail engineering. The oil system shall be designed to meet the above requirements.
- 4.1.19 The hydraulic oil pipes shall be supplied in lengths not exceeding 2.5m and to include minimum number of joints during erection.
- 4.1.20 Hydraulic actuators shall have the facility to keep the control valves “stay put” on oil supply failure or electric power failure.
- 4.1.21 HP Bypass steam control valves and spray water control valves should be equipped with position transmitters and 4 limit switches on each valve for measuring the position of the valve. Output of the position transmitter shall be 4mA (valve fully CLOSE) to 20 mA (valve fully OPEN).
- 4.1.22 Spray Isolation valve should be equipped with 4 Limit switches (i.e., 2 for open and 2 for close position).
- 4.1.23 Local position indicator scale shall be provided on actuator yokes to indicate position of valve locally.
- 4.1.24 Nameplates shall be of white non-hygroscopic material with engraved black lettering and shall be suitably fixed on both front and rear sides. The nameplates shall have the following details minimum.
 - 4.1.24.1 Manufacturer's Model Number
 - 4.1.24.2 Manufacturer's Serial Number
 - 4.1.24.3 Size and pressure rating for inlet & outlet
 - 4.1.24.4 Manufacturer's name/trade mark
 - 4.1.24.5 Month & year of manufacture

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- 4.1.25 The following details of final control elements for proportional valves with blocking function, Fast opening solenoid valves, feedback transmitter / limit switch shall be provided along with the offer.
- 4.1.25.1 Supply Voltage and variation in voltage
 - 4.1.25.2 Power rating
 - 4.1.25.3 Operating pressure
 - 4.1.25.4 Operating temperature
 - 4.1.25.5 Electrical connection details, etc,
- 4.1.26 Write up on recommended control system logic and interface requirements with input signals shall be provided along with the offer.
- 4.1.27 Field mounted junction boxes shall be supplied as per the following specification:
- 4.1.27.1 No. of ways - 12/24/36/48/64/72/96/128(as applicable) with 20% spares terminals.
 - 4.1.27.2 Material and Thickness - 4mm thick Fiberglass Reinforced Polyester (FRP) with protective coating.
 - 4.1.27.3 Cable entry: Bottom or Side
 - 4.1.27.4 Cable glands: Double compression type – Nickel plated Brass/ SS316 with PVC hoods.
 - 4.1.27.5 Mounting: Outdoor
 - 4.1.27.6 No. of terminals: As required with standardization with 20% spare of each size & type.
 - 4.1.27.7 Terminals: Phoenix /Wago (screw less rail mounted cage clamp type spring loaded suitable for conductor size up to 2.5 sq. mm)
 - 4.1.27.8 Grounding: Two terminals for body and shield ground
 - 4.1.27.9 Door: Hinged, lockable type.
 - 4.1.27.10 Accessories: Suitable mounting clamps and other accessories shall be in scope of bidder. The brackets, bolts, nuts, screws, glands, lugs required for erection shall be of SS304, included in bidder scope of supply. High voltage & insulation resistance test shall also be conducted. M6 Ni plated Brass earthing stud shall be provided (external 2 nos. internal 1 no.) Gasket (Normal)- Neoprene/Polyurethane thickness 6.0 mm. Silicon for high Temp. area.
 - 4.1.27.11 Colour: To be decided during detailed engineering & subject to owner's approval.
 - 4.1.27.12 Protection Class – Weather proof IP-65 minimum.



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4.2 HP BYPASS VALVES

4.2.1 HP Bypass steam control valves, spray water isolation and spray water control valves shall be selected for the steam parameters indicated in Data sheet of this specification (Clause 8).

4.2.2 HP BYPASS STEAM CONTROL VALVE CONNECTIONS (for piping)

Inlet side

Size : Inside Diameter 180 x Thickness 50.0

Material : SA335 P91

Outlet side

Size : Outside Diameter 508 x Thickness 30

Material : SA335 P22

4.2.3 HP BYPASS SPRAY ISOLATION VALVE(S) CONNECTIONS (for piping)

Inlet & Outlet sides

Size : Outside Diameter 168.3 x Thickness 27.5

Material : SA106 Gr.C

4.2.4 HP BYPASS SPRAY CONTROL VALVES CONNECTIONS (for piping)

Inlet & Outlet sides

Size : Outside Diameter 114.3 x Thickness 20

Material : SA106 Gr.C

4.2.5 Spray water connection to HP bypass valve pipe size & Material: OD114.3 x 20 & SA335 P22.

4.2.6 NOISE LEVEL

The equivalent 'A' weighted sound pressure level measured at a height of 1.5 metre above floor level in elevation and a distance of 1 metre horizontally from the nearest surface of any equipment / machine, furnished and installed under this specification, expressed in decibels to a reference of 0.0002 microbar, shall not exceed 85 dBA except for HP bypass valves, noise level shall be within the limit of 90 dBA.

4.2.7 VALVE SUPPORT

Valve with actuators shall be installed vertically.

4.2.8 OPERATING TIME

HP Bypass valves

Fast opening time : 2-3 sec for full stroke

Opening & Closing time (modulating control) : 10-12 sec for full stroke

HP Bypass spray valves

Opening & Closing time (modulating control) : 5-8 sec for full stroke

4.2.9 DRIP TRAY FOR VALVE ACTUATOR

For all actuators, a drip tray shall be provided to prevent oil from falling on valve body, in case of oil leakage.

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4.3 INSTRUMENTS IN OIL SYSTEM

- 4.3.1 Three nos. of pressure transmitters to be provided for header pressure measurement. All pressure transmitters shall be microprocessor based 2 wire type and HART protocol compatible.
- 4.3.2 Each of the cooling-cum-filtration circuits shall contain one flow switch at the inlet of the filter for flow indication to the DCS and one differential pressure indicator for alarm at DCS along with local indication for clogging.
- 4.3.3 All line filters (filter before the actuator) shall be equipped with differential pressure indicators for alarm at DCS along with local indication for clogging.
- 4.3.4 Suitable pressure gauges to be provided on the oil System.
- 4.3.5 Three nos. resistance temperature detectors along with temperature transmitters to be provided for measuring the temperature of the hydraulic fluid in the tank.
- 4.3.6 Suitable level gauges and 3 Nos. level transmitters to be provided on the Tank for level measurement.
- 4.3.7 Contact rating of all the transmitters to be furnished.
- 4.3.8 Number and type of instruments shall be subject to BHEL approval. Complete instrument list showing range, model no and set point of various instruments shall be furnished for BHEL approval.
- 4.3.9 All transmitters shall be selected such that all the measured values fall between 25% and 75% of the full scale range.
- 4.3.10 Output of all transmitters shall be 4-20mA. There should be a provision to adjust the set points.

4.4 C&I REQUIREMENTS

Vendor shall confirm the following without fail during enquiry stage without which the offer is liable to be rejected.

S.No.	Requirement	Vendor Confirmation
1	Positioner cabinet which positions the valve based on DCS command shall be provided.	
1.1	a) Power Supply requirement AC/DC to be mentioned. b) Cable scope of the same will be in vendor scope.	
2	Hydraulic Power Unit Controls has to be in DCS and Complete Logic has to be provided for implementation in DCS. Separate PLC control for Hydraulic Power Unit is NOT accepted.	
3	Complete Interface details with Termination details for Valves and Hydraulic Power unit has to be provided.	

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Local Operation Cum Indication shall be Provided.

EQUIPMENT	SIGNAL TYPE FROM DCS	DCS SIGNAL	Requirement	Vendor's remarks
HP BYPASS STEAM VALVES	AO	4-20mA Demand (4mA at 0% opening 20mA at 100% opening)	The offered system shall accept the indicated DCS signal.	
	AI	4-20mA Position Feedback to be provided to DCS	The offered system shall provide the feedback to DCS.	
	DO	FAST OPENING	Whether Potential Free/24 VDC/48 VDC Command from DCS to be clarified? If any other voltage, voltage value shall be indicated. Solenoid Current requirement shall be indicated.	
EQUIPMENT	SIGNAL TYPE FROM DCS	DCS SIGNAL	Requirement	Vendor's remarks
SPRAY CONTROL VALVES	AO	4-20mA Demand (4mA at 0% opening 20mA at 100% opening)	The offered system shall accept the indicated DCS signal.	
	AI	4-20mA Position Feedback	The offered system shall provide the feedback to DCS.	
SPRAY ISOLATION VALVE	DO	BD VALVE OPEN COMMAND	Whether Potential Free/24 VDC/48 VDC Command from DCS to be clarified? If any other voltage, voltage value shall be indicated. Solenoid Current requirement shall be indicated.	



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	DO	BD VALVE CLOSE COMMAND	Whether Potential Free/24 VDC/48 VDC Command from DCS to be clarified? If any other voltage, voltage value shall be indicated. Solenoid Current requirement shall be indicated.	
	DI	OPEN FEEDBACK	NO/NC contact shall be provided.	
	DI	CLOSE FEEDBACK	NO/NC contact shall be provided.	
Hydraulic Power Unit	AI	3 Nos. PRESSURE TRANSMITTERS	Each transmitter shall provide 4-20 mA output	
	AI	3 Nos. TEMPERATURE TRANSMITTERS	Each transmitter shall provide 4-20 mA output	
	AI	3 Nos. LEVEL TRANSMITTERS	Each transmitter shall provide 4-20 mA output	
	DI	2 Nos. DP INDICATOR SWITCH(CLOGGING)	NO/NC contacts for each switch shall be provided.	
	Details of any other transmitters / measuring instruments forming part of the Hydraulic Power Unit shall be provided			
	DO	PUMPS 1&2 ON COMMAND	Whether Potential Free/24 VDC/48 VDC Command from DCS to be clarified? If any other voltage, voltage value shall be indicated. Power requirement shall be provided.	
	DO	FILTER PUMPS -1&2 ON COMMAND		
	DO	COOLING FANS-1&2 ON COMMAND		
	DO	ACCUMULATOR CHARGING VALVES 1&2 ON COMMAND		
	DI	PUMPS 1&2 ON FEEDBACK	NO/NC contact shall be provided for each component and each signal	
Hydraulic Power Unit	DI	PUMPS 1&2 OFF FEEDBACK		
	DI	PUMPS 1&2 FAULT FEEDBACK		
	DI	FILTER PUMPS-1&2 ON FEEDBACK		
	DI	FILTER PUMPS-1&2 OFF FEEDBACK		
	DI	FILTER PUMPS-1&2 FAULT FEEDBACK		
	DI	COOLING PUMPS-1&2 ON FEEDBACK		
	DI	COOLING PUMPS-1&2 OFF FEEDBACK		

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DI	COOLING PUMPS-1&2 FAULT FEEDBACK	
DI	ACCUMULATOR CHARGING VALVES 1&2 ON FEEDBACK	
DI	ACCUMULATOR CHARGING VALVES 1&2 OFF FEEDBACK	

Legend: AI – Analog Input; AO – Analog Output; DI – Digital Input; DO – Digital Output

4.5 ADDITIONAL SCOPE (LOOSE SUPPLY)

4.5.1 SPECIAL TOOLS & TACKLES AND SPECIAL EQUIPMENT

Bidder shall submit with the equipment, complete set of all special tools, tackles required for site erection, assembly, disassembly and proper maintenance of HP Bypass system. Special equipment including, but not limited to, the following are included in the scope of supply.

- Oil flushing device – consisting of a filter with fittings suitable to be connected to the return line of the oil piping during flushing of the oil piping. Sufficient number of filter elements of all required micron ratings, as per the vendor's commissioning requirements shall be included in the supply.
- Nitrogen filling device – for filling nitrogen in the accumulators used in HP Bypass system, spare filter element for flushing device, etc.

One set of all special tools, tackles and special equipment shall be supplied.

4.5.2 STEAM BLOWING BLANKING ARRANGEMENT

Vendor shall supply one no. steam blowing blanking arrangement per HP bypass Valve along with the main equipment and furnish the blanking arrangement drawing for review. The offered steam blowing arrangement shall allow the steam blowing to be carried out after the valve is installed in the pipeline.

4.5.3 HYDRO TEST DEVICE

Device to be used during hydraulic testing of HP bypass system valves shall be supplied. Vendor shall supply one no. hydro test device per HP bypass Valve along with the main equipment and furnish the arrangement drawing for review.

4.5.4 SPARE PARTS FOR ERECTION & COMMISSIONING

It will be the responsibility of the bidder to provide all commissioning spares required for initial operation till satisfactory completion of the trial operation. Commissioning spares shall include minimum one set each of electrical connectors, gaskets, packing rings and seals for all valves, actuators, Hydraulic power unit, final control elements, fast opening devices and filters, one set of filter elements etc., The vendor shall furnish a list of all spares along with the offer and such list shall be reviewed by BHEL and mutually agreed to.

4.5.5 MANDATORY SPARES

Bidder shall submit detailed list of components that will be supplied against each item of Clause 11 and indicate price of each component separately. List of components to be supplied against each item will be approved by BHEL. BHEL reserves the right to order any or all of the components/items/quantity offered under Clause 11.

4.5.6 SPARE PARTS FOR 2 YEARS OF OPERATION



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Recommended spare parts list for 2 years of operation shall be furnished for each valve, actuator and HPU. Detailed list of spare parts with position no. shall be furnished in the O&M manual.

4.5.7 VALVE SEAT CUTTING & GRINDING MACHINE

Offer shall include 1 No. On-site HP Bypass valves seat cutting machine and 1 No. On-site seat grinding machine (common for both Units).

5.0 INSPECTION & TESTING

- 5.1 All HP Bypass valves shall be inspected, tested and stamped as per applicable code.
- 5.2 Material, Mechanical and Chemical tests shall be performed in a manner as specified in the relevant codes.
- 5.3 All valve pressure retaining parts shall be subjected to hydrostatic test pressure as required by the IBR and other applicable standards. The bidder shall guarantee his valve as capable of withstanding such hydrostatic tests and shall repair or replace, at his expenses, any item which fails to pass such tests at site.
- 5.4 Quality assurance plan for all components included in the scope shall be submitted along with the offer for BHEL's / owner's review & approval.
- 5.5 The material test certificates (correlated to melt number) shall be furnished by the bidder for identification and correlation.
- 5.6 For components like Body, Inlet & Outlet nozzles, Seat, Stem, plug, cage, Actuator cylinder, Yoke etc., material test certificates (typical) shall be furnished for identification & correlation.
- 5.7 100% Blue matching of seats shall be carried out and records shall be maintained for verification by BHEL.
- 5.8 Each HP Bypass valve and spray valve and pressure retaining parts shall undergo hydrostatic test as per IBR. Valves shall be inspected by independent inspecting authority approved by Indian Boiler Board and the test certificate in IBR Form IIIC duly countersigned by approved authority shall be submitted.
- 5.9 Seat Leakage test shall be conducted. There shall not be any visible leakage during this test. Form IIIC certificate to be furnished. Hydrostatic and seat leakage tests shall be witnessed by BHEL/end customer personnel.

6.0 ADDITIONAL REQUIREMENTS

- 6.1 Machined surfaces shall be suitably protected.
- 6.2 Valve ends shall be protected by means of metallic covers/polythene caps/rubber and protectors to prevent damage to ends & also to avoid foreign material entering the valve during transit & storage.
- 6.3 All the valves shall be packed suitably in wooden cases in order to avoid damage during transit and also during storage at site.
- 6.4 The Bidder shall adequately crate, block, anchor and protect equipment as required to prevent damage during overseas shipment and outdoor storage for a period of one (1) year at the site.
- 6.5 All threaded connections shall be plugged or capped with standard pipe plugs or caps.



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7 DOCUMENT REQUIREMENTS

The following documents shall form part of the offer.

7.1 Cv test shall be carried out for HP Bypass valves, spray isolation and spray control valves as per ISA 75.02 and test report shall be submitted along with the offer for BHEL approval. In case test report is already available on the same size / model / type / rating of the valve proposed to be supplied under this specification and the Cv test has been either conducted at any independent laboratory or has been witnessed by an external inspection agency, the same shall be submitted if Cv test has been carried out within 5 years from the date of technical bid opening.

7.2 Detailed CFD reports for the rated parameters (Refer Cl.8 of this specification), in lieu of Cv tests specified under Cl. 7.1 above, are also acceptable. CFD reports can be submitted after PO placement.

7.3 Cross sectional drawings and General arrangement drawing with mounting details and recommended orientation of actuators w.r.t valve, BOM, Face to Face & overall dimensions, marking for identification of recommended spare components.

7.4 Materials of all parts & trim details to be furnished by bidder along with quote. If non-ASTM materials are used, equivalent ASTM materials shall be indicated in the BOM.

7.5 Valve sizing calculations.

7.6 Sound Pressure Level calculations

7.7 Schematic drawing of the hydraulic circuit of the hydraulic power unit

7.8 Weight of each S.No. of Clause Nos. 10 & 11 of the specification

7.9 Datasheets of Valves, actuators

7.10 Data sheet of Hydraulic Power Unit indicating the supply pressure and all other pressure settings

7.11 Technical write-up on the function, operation and design features of valves and actuators

7.12 Technical write-up on the function, operation and design features of hydraulic power unit, hydraulic system and components

7.13 Oil piping connection diagram between the Hydraulic power unit and individual actuators

7.14 Oil piping sizes and grade of material

7.15 Catalogs and datasheets of all instruments, proportional valves, solenoids, etc., used in the HP Bypass system

7.16 Drawing / documents submission schedule.

7.17 Forces & Moments calculations for HP Bypass valves, weight of the valve when assembled with all the accessories.

7.18 Valve opening / closing time details.

7.19 Detailed Quality Plan for all valves, actuators, Hydraulic Oil System.

7.20 If the bid submitted has got any deviation from this technical specification, the bidder shall furnish full particular of such deviations. Deviations are to be furnished with specific mention to clause number. Only such deviations will be discussed and resolved. Reasons / explanation for such deviations shall be furnished. Any other notes / comments viz. "refer to forwarding letter" etc. is not acceptable.

7.21 Even if there is no deviation from the tender document, the Bidder shall indicate as "no deviations".



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Product: HP TURBINE BYPASS SYSTEM – PANKI 1x660 MW

The following documents shall be submitted after order placement:

- 7.22 Sectional Drawing for HP Bypass valve
- 7.23 Bill of material for HP Bypass Valve
- 7.24 Sectional Drawing for Spray Isolation valve
- 7.25 Bill of Material for Spray Isolation valve
- 7.26 Sectional drawing for spray Control valve
- 7.27 Bill of Material for spray Control valve
- 7.28 Characteristic curves for HP Bypass Valve
- 7.29 Characteristic curves for Spray Control Valve
- 7.30 Dimensional drawing of HP bypass Valve
- 7.31 Dimensional drawing of Spray Isolation valve
- 7.32 Dimensional drawing of Spray Control valve
- 7.33 Oil Supply unit scheme
- 7.34 Legend of Oil Supply unit scheme & Functional Write-up
- 7.35 Dimensional drawing of Hydraulic Power Supply Unit along with foundation details
- 7.36 Valve Data Sheet
- 7.37 HPSU Data Sheet
- 7.38 Description of Hydraulic operation of valves
- 7.39 Preheating arrangement of HP Bypass valves
- 7.40 Logics of Hydraulic Power Unit operation in Function Block Diagram (FBD) format
- 7.41 Terminal Wiring Diagrams of all the junction boxes used in the HP Bypass system
- 7.42 Instrument Datasheets
- 7.43 MQP of all valves and Hydraulic Power Supply Unit
- 7.44 Installation Instructions
- 7.45 Vendor shall submit the list of all the components which are bought from sub-vendors and furnish the make and model of each of the above components along with the offer.
- 7.46 Maximum allowable forces and moments on each weld end of the valve shall be indicated in the dimensional drawings of the valves.
- 7.47 Edge preparation details of all the valves shall be as per BHEL requirement. BHEL EP requirement will be provided after placement of P.O.
- 7.48 All Port Connection sizes, type of hose end connections and diameters for hoses near the actuators
- 7.49 Electrical and instrument Load List for the HP Bypass system.
- 7.50 Field Weld Schedule and erection instructions for Site engineers.
- 7.51 Shipment weight & volume details.
- 7.52 Equipment preservation procedure during shipment, pre-erection storage period & extended storage period.
- 7.53 Operation, Maintenance and erection manual consisting of details of all valves, hydraulic actuator, final control elements, feedback transmitters, solenoid valves and catalogues for bought out items - 8 hard copies and 8 soft copies after placement of order. One copy of detailed O&M manual consisting of, but not limited to, vendor manuals, troubleshooting guide, list of spares packed separately must accompany the shipment.

Product: HP TURBINE BYPASS SYSTEM – PANKI 1x660 MW

7.54 O&M manual shall include copies of all software required for operating / tuning / maintenance of the components / equipment of HP bypass system. Detailed procedures for calibration / tuning of such components / equipment using the software shall form part of the O&M manual.

7.55 All GA drawings, Test Certificates, Seat leakage test report, filled datasheets and Material test Certificates.

7.56 In case of loose supply of components/systems, necessary drawings & instructions for assembly/subassembly shall be provided.

The mere approval of documents like drawings, data sheets, wiring diagrams, actuator sizing calculations, flow calculations, etc., will not however relieve the bidder from meeting our specification requirements, relevant product and testing standard requirements and generally accepted engineering principles. Ultimately, the system has to perform satisfactorily at the service conditions and at the end user place.

8 SELECTION DATA FOR H.P. BYPASS VALVES

Parameter	Rated Capacity (65% BMCR)	House Load	Cold Start	Warm start	Hot Start	Mech. Design
Upstream Pr. (Kg/cm ² (a))	270	270	108	108	108	294.8
Upstream Temp. (°C)	593	593	390	450	530	596 (IBR) 601 (ASME)
Steam Flow (T/Hr)	1342.25	1342.25	545	545	545	---
Downstream Pr. (Kg/cm ² (a))	40.11	35.31	18	18	18	73.1
Downstream Temp. (°C)	360	360	360	360	360	375
Spray Water Pr. (Kg/cm ² (a))	302.35	302.35	110	110	110	375
Spray Water Temp. (°C)	142.5	142.5	111	139	139	200

NOTES:

- Flow indicated is for **TWO** numbers of valves.
- 15 % margin is to be provided on flow required for spray water temperature of 142.5°C
- HP bypass to be designed to accept continuous spray at a temperature of 110°C.
- All the valves shall be capable of functioning against full upstream pressure while downstream pressure is zero.
- Bidder shall attach the list of projects supplied with HP Bypass system for supercritical steam turbine generator units with a capacity of not less than 650 Ton/Hr for each valve for the above mentioned rated steam parameters, which are in successful operation for more than 1 year as on 02.11.2015. The performance certificate for HP Bypass system from at least 1 plant for meeting the above criteria shall be submitted at the time of the offer.
- Vendor shall offer only such equipment which will meet the provenness criteria as indicated against S.No. 5 above.



BHEL – Tiruchirappalli – 620014,
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Valves Engineering and R&D

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9 SUPERVISION DURING ERECTION-COMMISSIONING & TRAINING AT SITE

The vendor shall depute their representative at project site for erection & commissioning supervision. Charges for site supervision shall be included in the main offer for which the vendor has to provide justification in the offer. These charges shall be comprehensive and shall be inclusive of travel costs, accommodation and all other related expenses. Bidder shall consider 2 visits with a total duration of 7 days (excluding 2 days training program). This will be considered for offer evaluation.

The vendor shall conduct minimum 2 days training program at site regarding design/construction features, operation and maintenance of the supplied equipment (including C&I) for customer engineers and BHEL engineers during erection & commissioning.

The bidder shall clearly indicate the extent of association of their service engineer during erection and commissioning of the supplied equipment in their offer. Further, special instructions which are required to be followed at site during erection and commissioning shall be furnished by the vendor.

Product: HP TURBINE BYPASS SYSTEM – PANKI 1x660 MW

10 BREAK UP FOR SUPPLY OF HP BYPASS VALVES AND HYDRAULIC SYSTEM

Sl.No.	EQUIPMENT	PART NO.	QTY
1	HP Bypass steam control valve with Electro-hydraulic actuator, feedback transmitter assembly, final control elements and electronic positioner	974510190000	2 Nos.
2	HP Bypass Spray water Isolation valve with Electro-hydraulic actuator, limit switch assembly, final control elements and electronic positioner	974510190001	1 No.
3	HP Bypass Spray water control valve with Electro-hydraulic actuator, feedback transmitter assembly final control elements and electronic positioner	974510190002	2 Nos.
4	Hydraulic power unit with junction box assembly	974510190003	1 No.
5	Hydraulic system components including stainless steel piping of material SA213 TP316Ti connecting the HPU and actuators, connecting fittings, filters, hoses, additional accumulators, fast opening device, Non return valves, ball valves, throttle valves etc..	974510190005	1 Set
6	Special tools - Complete set of all special tools & tackles and special equipment like oil filterability test device, oil flushing device, nitrogen filling device, spare filter element for flushing device, steam blanking device, hydro test device, etc., required for site erection, assembly, disassembly and proper maintenance of HP Bypass system (Refer Cl. 4.5 for clarity on quantity to be offered)	974510190006	1 Set
7	Commissioning spares - One set of seal kit (packing rings, O-rings and gaskets) for HP Bypass valves and spray valves, one set of all electrical connectors, one set of seal kit for each actuator, one set of seal kit for Hydraulic power unit, one set of seal kit for final control elements, one set of seal kit for fast opening devices, one set of seal kit for filters and one set of filter elements	974510190007	1 Set
8	HP Bypass system valves seat cutting machine with tools and accessories		1 No.***
9	HP Bypass system valves seat grinding machine with tools and accessories		1 No.***

*** These items will not be considered for evaluation of offer.

Product: HP TURBINE BYPASS SYSTEM – PANKI 1x660 MW

11 MANDATORY SPARES REQUIRED FOR PANKI 1x660 MW

S.No.	Description	Part No	Qty	Unit
1	HP bypass steam control valve (Complete set of internals required to form valve assembly except for outer body)	974510190100	1	Set*
2	HP bypass control valve servomotor complete assembly	974510190200	1	No
3	Electro-Hydraulic Converter(servo valve/Proportional valve) for HP Bypass valve	974510190600	1	No
4	Pressure transmitter provided in hydraulic power unit	974510192300	1	No
5	Water injection valve for HP bypass system (complete set of internals required to form one injection valve assembly except for outer body)	974510190300	1	Set*
6	Bladder for accumulators in HP Bypass system (Set comprising of complete replacement in one TG unit)	974510190400	2	Set*
7	Actuator Seal Kit for HP Bypass Valve	974510191000	1	Set*
8	Actuator Seal Kit for Spray Control Valve	974510191100	1	Set*
9	Position feedback transmitter for HP Bypass Valve	974510190500	1	No
10	Position feedback transmitter for Spray Valve	974510190900	1	No
11	Amplifier Card for Proportional Valve of HP Bypass valve	974510191200	1	No
12	Amplifier Card for Proportional Valve of Spray Control valve	974510191300	1	No
13	Electro-Hydraulic Converter(servo valve/Proportional valve) for HP Bypass valve	974510190600	1	No
14	Electro-Hydraulic Converter(servo valve/Proportional valve) for Spray control valve	974510190700	1	No
15	Quick Opening Devices	974510191400	2	Set*
16	Seal Set for HP Bypass Proportional Valves	974510191500	4	Set*
17	Seal Set for Spray Control Proportional Valves	974510191600	4	Set*
18	Solenoid Valve for HP Bypass Valve	974510191700	1	No
19	Solenoid Valve for Spray Control Valve	974510191800	1	No
20	Filter elements for HPSU	974510191900	1	Set*
21	Hydraulic hoses for HP bypass system	974510192000	1	Set*
22	Seal Kit for HPSU	974510192100	1	Set*
23	HP bypass spray control valve servomotor complete assembly	974510192200	1	No
24	Electro-Hydraulic Converter(servo valve/Proportional valve) for HP Bypass valve	974510190600	1	No
25	Electro-Hydraulic Converter(servo valve/Proportional valve) for Spray control valve	974510190700	1	No
26	Position feedback transmitter for HP Bypass Valve	974510190500	1	No
27	Position feedback transmitter for Spray Valve	974510190900	1	No
28	Level Transmitter provided in hydraulic power unit		1	No**
29	Temperature transmitter provided in hydraulic power unit		1	No**
30	Pressure gauge provided in hydraulic power unit		1	No**
31	Temperature gauge provided in hydraulic power unit		1	No**
32	Level Gauge provided in hydraulic power unit		1	No**
33	Flow Gauge provided in hydraulic power unit		1	No**

Note for Cl. 11.0: * For Item No. 1, one Set shall consist of complete set of internals required for 1 HP Bypass steam control valve



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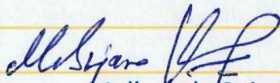
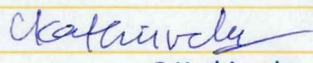
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For Item No. 5, one set shall consist of complete set of internals required for 1 No. of water injection valve
For Item No. 6, one set shall consist of complete set of accumulator bladders required for 660 MW
For Item No. 7, one set shall consist of seal kit for 1 No. HP bypass Valve Actuator
For Item No. 8, one set shall consist of seal kit for 1 No. Spray Control Valve Actuator
For Item No. 15, one set shall consist of all the components provided to achieve Quick opening. Vendor shall submit the details along with the quantity during offer submission.
For Item No. 16, one set shall consist of set of seals for one no. Proportional valve for HP Bypass valve
For Item No. 17, one set shall consist of set of seals for one no. Proportional valve for Spray Control valve
For Item No. 20, one set shall consist of filter elements required for one HPSU.
For Item No. 21, one set shall consist of 1 No. of hose of each type used in HP Bypass system, including the hoses in the HPSU (if any).
For Item No. 22, one set shall consist of set of seals for one HPSU

** These items will not be considered for evaluation of offer.

Signature		
Name	Mallemala/Sujana Vinod	C Kathirvelu
Designation	Manager	Addl. General Manager
Date	26 March 2019	26 March 2019
Action	Prepared By	Reviewed and Approved By

ANNEXURE 2A
GENERAL TERMS &
CONDITIONS



BHARAT HEAVY ELECTRICALS LTD

VALVES PURCHASE

Trichy - 620 014, India

GENERAL TERMS AND CONDITIONS

Enquiry Reference: ENSFV00218

1. QUOTATIONS:

- a. **BID system:** Offers are invited as per the format mentioned in "Confirmation to the Terms and Conditions" attached.
- Two part bid: The offers are invited in Two part bid system (Part I will be Techno-commercial bid and part II will be Price Bid). Techno-commercially suitable vendors alone will be intimated for price bid opening.
 - Single part bid: The offers are invited in Single part bid system (Price Bid alone). The vendor shall confirm to all of BHEL's technical & commercial conditions.

b. **Submission of tender:**

- i. Tender called through e-Procurement mode: The bidder shall submit the bid online in BHEL e-Procurement portal at <https://bhel.abeprocure.com/EPROC/>

~~The bidder would be required to register on the above e-procurement portal for submitting their bids. Offers through mail and Hardecopies are not acceptable.~~

- ii. Tender called through Non-e-Procurement mode: Each offer should be sent in double cover separately and the same should be sealed and super scribed with correct Tender No., item of supply and due date of opening. Two or more quotations should not be sent in one cover. Price Bid should contain only "Price per unit" for each type. Tender should send to the below mentioned address:

The Tender Opening Cell / Valves
Room No. -26, Building -24
Bharat Heavy Electricals Limited
Tiruchirappalli - 620014, Tamil Nadu, India
Or
Email ID: tender_cell@bheltry.co.in

- c. **Late tenders:** Tender received after 2.00 pm on due date will be considered as Late tender. Late tenders will not be considered under any circumstance.
- d. **Regulations:** 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 figures. Where there is difference between amount quoted in words and figures, amount quoted in words shall prevail.
- e. **PVC:** Price Variation clause not acceptable. Prices should be firm.
- f. **Catalogue:** Manufacturer's name, Trade Mark or Patent No. if any should be specified. Illustrative leaflets giving technical particulars are required along with quotation.
- g. **Samples:** Samples should be submitted separately if specially requested in tender before due date of the enquiry. They should be clearly marked with the enquiry No and date on the outside cover to facilitate identification.
- h. **GST Number:** GST registration number, HSN number (Item wise) with applicable taxes should be mentioned in quotation. If the vendor is not GST registered the offer is liable for rejection.
- i. **Deviation.** Any deviations from the specification are to be furnished separately as "Schedule of Deviation". If there is no deviation vendor should indicate "No Deviation".
- j. **Confirmation:** Confirmation for compliance is to be given in the offer for all the techno commercial conditions specified in the specification.

2. COMMERCIAL TERMS & CONDITIONS:

a. **Terms of Payment:**

For Indigenous Suppliers:

If the materials are receivable at BHEL Stores, Trichy:

Payment term is 100% direct EFT Payment after 60 days from the date of receipt and acceptance of materials. (if PBG is not applicable)

(or)

Payment term is 100% direct EFT payment after 60 days from the date of receipt and acceptance of materials and against 10% PBG valid for the warranty period. (if PBG is applicable)



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If the materials are receivable at site:

Payment term is 100% direct payment after 60 days from the date of dispatch against site acknowledgement (if PBG is applicable)

(or)

Payment term is 100% direct payment after 60 days from the date of dispatch against site acknowledgement and against 10% PBG valid for the warranty period (if PBG is applicable)

Any deviation in the above payment terms, any other conditions in payment terms or any other payment terms will not be accepted and offers will not be considered.

For Import Suppliers: Payment term is 100% payment on CAD basis after 60 days from the date of receipt of documents, specified in PO, at BHEL bank. Respective bank charges to respective account.

If supplier insists for LC, only Usance LC with 60 days' credit will be opened one month prior to material readiness. Further loading will be considered @ 1.5% on the offered value. Hence, supplier shall intimate the material readiness accordingly for opening LC. LC validity period will be 90 days and for any extension, applicable charges will be to suppliers account.

Any deviation in the above payment terms, any other conditions in payment terms or any other payment terms will not be accepted and offers will not be considered.

For New Suppliers: For new suppliers not registered with BHEL, Trichy for the product, payment shall be made 60 days after receipt and acceptance of materials.

In case of foreign supplier, first lot of mutually agreed quantities shall be supplied with payment as CAD basis after 60 days from the date of receipt and acceptance of material. If insisted for LC after acceptance of first lot, only usance LC with 60 days' credit will be opened one month prior to material readiness.

- b. Liquidated Damage:** Liquidated damages shall be 0.5% of the total order value or part thereof subject to a maximum of 10% of the total order value. For staggered delivery schedule, LD shall be 0.5% of the undelivered portion per week of the delay or part thereof subject to a maximum of 10% of the total order value.

Any deviation from the above LD clause, loading will be applied to the extent to which it is not agreed by the bidder (at offered value)

Under GST regime, BHEL has to discharge GST liability on LD recovered from suppliers/contractors. Hence applicable GST shall also be recoverable from suppliers/contractors on LD amount. For this Debit note will be issued by BHEL indicating the respective supply invoice number.

c. Delivery Terms:

For Indigenous Suppliers: FOR BHEL Trichy inclusive of freight and insurance

For import Supplies: CFR/CIF Chennai seaport as per incoterm 2010

- d. Validity of Offer:** Prices should be fixed and should be valid for period as mentioned in the "Confirmation to the Terms and Conditions" attached.
- e. Delivery period:** Delivery schedule will be as mentioned in the "Confirmation to the Terms and Conditions" attached. If supplier offers more than the required delivery period BHEL will operate 0.5% loading factor for evaluation of their offer for every week delay.
- f. Risk Purchase:** The purchaser at his option will be entitled to terminate the contract and to purchase elsewhere at the risk and cost of seller either the whole of goods or any part which the supplier has failed to deliver or dispatch within the time stipulated as aforesaid or if the same were not available, the best and the nearest available substitute therefore. Supplier shall be liable for any loss which the purchaser may sustain by reason for such risk purchases in addition to penalty at the rate mentioned in clause 2 b above. Non acceptance to risk purchase clause the offer is liable for rejection.
- g. Guarantee Clause:** The vendor shall give a guarantee for the performance of his supplies for a period of **eighteen months** from the date of dispatch or **twelve months** from the date of commissioning whichever is earlier.
- h. Miscellaneous:** Any conditions which might have been quoted by the seller and are in contravention to the terms of PO and which have not been specifically accepted by Purchaser will not be applicable to the contract/PO.
- i. Performance Bank Guarantee:** If tender Calls for Performance Bank Guarantee, vendor should provide a performance bank guarantee (PBG) in BHEL format for 10% of the total Purchase order value valid for warranty/guarantee period with an additional claim period of 2 months. PBG should be issued from list of consortium banks.



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- j. ~~Counter Offering:~~ If counter offering is applicable for the enquiry, the L1 rates will be counter-offered to other eligible vendors as per below points
- ~~▪ In case there are only two qualified offers for any item, the L1 rate will be counter-offered to the L2 vendor.~~
 - ~~▪ In case of more than two qualified offers for any item, the L1 rates will be counter-offered to maximum (n-1) vendors (where 'n' is the no. of techno-commercially qualified vendors) or the no. of vendors required as per the split ratio specified in the "Confirmation to the Terms and Conditions" attached, whichever is lower.~~
 - ~~▪ In case a lower ranked vendor does not accept the counter-offered rates, the rates may be offered to next higher ranked vendor.~~
 - ~~▪ The manner of splitting of the enquiry quantity across L1 and counter-offer accepted vendors will be as per the ratios mentioned in the "Confirmation to the Terms and Conditions" attached.~~

3. COMPLIANCE / ACCEPTANCE REQUIRED FOR FOLLOWING POINTS TO ENSURE INPUT TAX CREDIT

- a. Supplier shall mention their GSTN registration number in all their invoices and invoices shall be in the format as specified/prescribed under GST laws. Invoices shall necessarily contain Invoice number (in case of multiple numbering system is being followed for billing like SAP invoice no, commercial invoice no etc., then the Invoice No which is linked/uploaded in GSTN network shall be clearly indicated), item description as per PO, Quantity, Rate, Value, applicable taxes with nomenclature (like IGST, SGST, CGST & UTGST) separately, HSN/ SAC Code, etc.
- b. All invoices shall bear the HSN Code for each item separately (Harmonized System of Nomenclature)/ SAC code (Services Accounting Code).
- c. A declaration to the effect that all invoice particulars are/were uploaded in the GSTN network/ portal & all tax liability as per GST rules and regulations have been and will be discharged, shall be mentioned in the invoice. If not mentioned in the invoice, a separate declaration shall be submitted as per the requirement of BHEL.
- d. All documents like Mill Test Certificate, LR copy, Guarantee/Warranty certificate, work completion certificate, any other document mentioned in PO, shall be sent along with the vehicle/consignment. For all consignments received within the calendar month, input credit will be availed within that month in line with monthly returns filing cycle. In case of any discrepancy in the document or non-submission of documents mentioned in the PO, then BHEL will not be able to accept or account the material, in such case availing of tax credit will be deferred to next month or so.
- e. In case of discrepancy in the data uploaded by supplier in the GSTN portal or in case of any shortages or rejection in the supply, then BHEL will not be able to avail the tax credit and will notify the supplier of the same. Supplier has to rectify the data discrepancy in the GSTN portal or issue credit note (details to be uploaded in GSTN portal) for the shortages or rejections in the suppliers, within the calendar month notified by BHEL.
- f. For any such delay in availing of tax credit for reasons attributable to supplier (as mentioned above), interest (calculated @ SBI Base Rate + 6%) along with penalty (if any) will be deducted/recovered for the delayed period i.e. from the month of receipt till the month tax credit is availed, from the running bills.

4. SPECIAL PROVISIONS FOR MICRO AND SMALL ENTERPRISES (MSE):

- a. 25% of the tendered quantity is earmarked for MSE suppliers in this tender.
- b. Out of the 25% tendered quantity reserved for MSE suppliers, 4% shall be earmarked for procurement from MSE owned by SC/ST entrepreneurs and 3% shall be earmarked for procurement from MSE owned by women entrepreneurs.
- c. In case MSE vendor participating in the tender quotes within the price band of LI +15%, they will be allowed to supply the portion of the requirement subject to acceptance of LI price by MSE vendor. In case of more than one such MSE, the supply shall be shared proportionately.
- d. MSE suppliers can avail the intended benefits only if they submit along with offer, attested copies of either EM II certificate having deemed validity (Two years from the date of issue of acknowledgement in EM II) or valid NSIC certificate or EM II certificate along with CA certificate applicable for the year, certifying quantum of investment in plant and machinery within the permissible limit as per the act for relevant status (Micro or small) where the deemed validity of EM II is over. Date to be reckoned for determining the deemed validity will be the last date of technical bid submission. Non submission of such documents will lead to consideration of their bids at par with other bidders and MSE status of such suppliers shall be shifted to Non MSE supplier till the supplier submits these documents.
- e. Payment for MSE vendors will be as per MSMED Act, 2006.



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5. GENERAL CONDITIONS

- a. The manner of finalization will be as mentioned in the "Confirmation to the Terms and Conditions" attached. Separate orders will be released for each project and documents should be supplied for each order separately.
- b. BHEL reserves the right to increase or reduce the Tender Quantity and to NOT to order for some or all material based on the changes in project.
- c. BHEL shall have the right to visit vendor works during the execution of contract along with end customer for verifying status, inspection and testing of the material.
- d. BHEL reserves the right to negotiate or re-float the tender in case the quoted prices are not acceptable.
- e. Supplier shall arrange packing to avoid lose or damages during Road Transport, Site handling & Storage.
- f. BHEL reserves the right to finalize the tender either through price bid opening or through Reverse Auction route.
- g. BHEL reserves the right to reject the offer of a particular bidder due to unsatisfactory past performance in the execution of a contract at any of BHEL projects / units.
- h. The Drawings and Technical documents given in this enquiry are the sole property of BHEL. This should not be misused in any form.
- i. Purchase Order, PO Item serial number, Material code, Quantity should be clearly marked on the packing
- j. Confirmation for compliance is to be given in the offer for all the conditions specified above and to the respective Purchase Specification.
- k. If any supplier is not honouring their own quotation or any of its conditions within the validity period, the action will be taken against those suppliers in line with "Guidelines for suspension of business dealings with suppliers/contractors" (refer www.bhel.com)
- l. The bidder along with its associate/collaborators/sub-contractors/sub-vendors/consultants/service providers shall strictly adhere to BHEL fraud prevention policy displayed on BHEL website <http://www.bhel.com> and shall immediately bring to the notice of the BHEL management about any fraud or suspected fraud as soon as it comes to their notice.
- m. For this procurement, Public Procurement (Preference to Make in India), Order 2017 dated 15.06.2017 & 28.05.2018 and subsequent orders issued by the respective Nodal Ministry shall be applicable even if issued after issue of this NIT but before finalization of contract/PO/WO against this NIT. In the event of any Nodal Ministry prescribing higher or lower percentage of preference and/or local content in respect of this procurement, the same shall be applicable.

6. DOCUMENTATION:

- a. **With Consignment:** Duplicate for transporter copy, Original Invoice, Packing List, Delivery Challan, O&M manual (if applicable) Material Test Certificate, Test Certificates, Compliance Certificate, Guarantee/Warranty Certificate and other documents mentioned in PO/TDC/Drawing.
- b. **To Purchase:**
 - i. FOR BHEL TRICHY case- Original Invoice, Duplicate for transporter copy, Packing list, LWB and Delivery challan, GST declaration as mentioned in point 3 c.
 - ii. FOR Site case- Original Invoice, Original LWB, Original Packing List, Original IBR documents, Original despatch clearance Certificate and Inspection report, Test certificates as per PO, Original Site Acknowledgment etc.
- c. **Identification:** Material code, Purchase Order, PO item serial number, Unique serial number if any should be provided in all despatch documents, materials and packing clearly.

7. TENDER EVALUATION:

- a. **PART I Techno-commercial Bid.**
 - i. All vendors should submit General arrangement drawing, datasheet and C&I diagram (if any) of the offered product
 - ii. Point by point technical confirmation of all pages of our technical specifications and commercial conditions are required with your sign and seal along with techno commercial Offer.
 - iii. Offers from supplier not having technical capability or not agreed for commercial terms, will be rejected.
- b. **PART II Price Bid.**
 - i. Bidders qualified for both part I will be intimated for participating in priced bid opening/Reverse Auction.
 - ii. L1 bidder will be decided based on landed cost for the equipment to BHEL.
 - iii. For evaluation, the exchange rate shall be taken as TT selling rate of SBI on date of Part-1 bid opening.
 - iv. For tenders evaluated item sl. no. wise, in case there are multiple L1 offers for any item, the enquiry quantity for that item will be divided equally to all the L1 vendors.



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VALVES PURCHASE

Trichy - 620 014, India

GENERAL TERMS AND CONDITIONS

Enquiry Reference: ENSFV00218

8. INTEGRITY PACT (IP)

- a. IP is a tool to ensure that activities and transactions between Company and its Bidders/Contractors are handled in affair, transparent and corruption free manner. Following Independent External Monitors (IEMs) on the present panel have been appointed by BHEL with the approval of CVC to oversee implementation of IP in BHEL.

Sl	IEM	Address	Email
1	Shri D.R.S Chaudhary, IAS (Retd.)	E-1/164 Arera Colony Bhopal- 462016 (M.P.)	dilip.chaudhary@icloud.com
2	Mrs. Pravin Tripathi, IA & AS (Retd.)	D-423, Anupam Gardens, Lane IB, Neb Sarai, Sainik Farms, New Delhi-110068	pravin.tripathi@gmail.com

- b. If IP is applicable for the enquiry, the IP as enclosed with the tender is to be submitted (duly signed by authorized signatory) along with the techno-commercial bid (Part I, in case of two/three part bid). Only those bidders who have entered into such an IP with BHEL would be competent to participate in the bidding. In other words, entering into this pact would be a preliminary qualification.
- c. Please refer Section-8 of the IP for Roles and Responsibilities of IEMs. In case of any complaint arising out of the tendering process, the matter may be referred to any of the above IEM(s). All correspondence with the IEMs shall be done through email only.

Note:

No routine correspondence shall be addressed to the IEM (phone/post/email) regarding the clarifications, time extensions or any other administrative queries etc. on the tender issued. All such clarifications / issues shall be addressed directly to the tender issuing (procurement) department's officials whose contact details are provided below

(1)
S Sivabala
Sr. Engineer
Valves Purchase
24 Building, 3rd Floor,
BHEL, Trichy-620014
+91 431 2577096
sivabala@bhel.in

(2)
K Raghunathan
Sr. Manager
Valves Purchase
24 Building, 3rd Floor,
BHEL, Trichy-620014
+91 431 2577412
kraghu@bhel.in

ANNEXURE 2B
CONFIRMATION TO TERMS
& CONDITIONS



BHARAT HEAVY ELECTRICALS LTD

VALVES PURCHASE

Trichy - 620 014. India

CONFIRMATION TO TERMS AND CONDITIONS

Enquiry Reference: ENSFV00218

<u>TERMS & CONDITION</u>	<u>VENDOR CONFIRMATION</u>
a. Vendor should give confirmation to BHEL's Technical Specification. Any deviations from the specification are to be furnished separately as "Schedule of Deviation". If there is no deviation vendor should indicate "No Deviation".	
b. The offer has to be submitted as a Two-part bid (Techno-commercial & Price bid). The bids should strictly as per the formats enclosed. Offers which are NOT as per prescribed format will be rejected.	
c. The tender will be finalized on package basis	
d. Terms of Payment: <u>Import Supplier:</u> Payment term is 100% payment on CAD basis after 60 days from the date of receipt of documents, specified in PO, at BHEL bank. Respective bank charges to respective account.	
e. Liquidated Damage: Liquidated damages shall be 0.5% of the total order value or part thereof subject to a maximum of 10% of the total order value.	
f. Delivery Terms: Prices shall be quoted on " FIRM PRICE " basis only. <u>For import Supplies:</u> CFR/CIF Chennai Sea Port as per incoterm 2010	
g. Validity of Offer: Prices should be valid for 120 days from the date of part-1 bid opening of this tender.	
h. Delivery period: Delivery period should be 24 weeks from the date of purchase order. If supplier offers more than the required delivery period BHEL will operate 0.5% loading factor for evaluation of their offer for every week delay.	
i. Risk Purchase: The purchaser at his option will be entitled to terminate the contract and to purchase elsewhere at the risk and cost of seller either the whole of goods or any part which the supplier has failed to deliver or dispatch within the time stipulated as aforesaid or if the same were not available, the best and the nearest available substitute therefore. Supplier shall be liable for any loss which the purchaser may sustain by reason for such risk purchases. Non acceptance to risk purchase clause the offer is liable for rejection.	
j. Guarantee Clause: The vendor shall give a guarantee for the performance of his supplies for a period of twenty-four months from the date of dispatch or eighteen months from the date of commissioning whichever is earlier.	
k. Performance Bank Guarantee: Vendor should provide a performance bank guarantee (PBG), in BHEL format, for 10% of the total purchase order value, valid for warranty/guarantee period, with an additional claim period of 2 months. PBG should be issued from list of consortium banks.	
l. Documentation requirements: All documents as indicated in clauses 7.1 to 7.21 of SPEC:HP:0068 Rev: 00 have been attached along with offer.	

ANNEXURE 2C
UNPRICED BID FORMAT

FORMAT FOR SUBMISSION OF UNPRICED BID
(Unpriced Bid should strictly as per below format ONLY)

BHEL's enquiry ref:	ENSFV00218
Enquiry date:	05-05-2019
Project:	Panki 1x660 MW

Vendor name:	
Vendor's offer ref:	
Offer date:	

Section A: Prices of Full Valve Assembly

- Prices for valves should have to be valid for 120 days from the date of part-1 bid opening
- Purchase order for supply portion will be released immediately upon finalisation of tender
- Prices for commissioning assistance should be valid until the date of commissioning at site
- Purchase order for commissioning assistance portion will be released one week prior to actual requirement at site

Item wise rates

Sl. No.	Material Code	Material Description	Qty	UOM	Quoted/ Not Quoted
10	974510190000	HPBP VALVE ACTUATOR ASSY	2	NO	Quoted/ Not Quoted
20	974510190001	HPBP SPRAY ISOLATION VALVE ACT ASSY	1	NO	Quoted/ Not Quoted
30	974510190002	HPBP SPRAY CONTROL VALVE ACT ASSY	2	NO	Quoted/ Not Quoted
40	974510190003	HYDRAULIC POWER UNIT ASSY	1	NO	Quoted/ Not Quoted
50	974510190005	HYDRAULIC SYSTEM COMPONENTS	1	SET	Quoted/ Not Quoted
60	974510190006	SPECIAL TOOLS - HPBP	1	SET	Quoted/ Not Quoted
70	974510190007	COMMISSIONING SPARES-HPBP	1	SET	Quoted/ Not Quoted
80	974510190100	MAND.SPARS.HPBP STEAM CTRL VLV INTERNALS	1	SET	Quoted/ Not Quoted
90	974510190200	MAND.SPARS.HPBP CTRLVLV SERVO MOTOR ASSY	1	NO	Quoted/ Not Quoted
100	974510190600	MAND.SPARS.EH CONVERTER 4 HPBYPASS VALVE	1	NO	Quoted/ Not Quoted
110	974510192300	MAND.SPARS.PRESSURE TRANSMITTER OF HPSU	1	NO	Quoted/ Not Quoted
120	974510190300	MAND.SPARS.WTR INJCTN VLV INTERNALS	1	SET	Quoted/ Not Quoted
130	974510190400	MAND.SPARS.BLADDER FOR ACCLTRS IN HPBP	2	SET	Quoted/ Not Quoted
140	974510191000	MAND.SPARS.ACTUATOR SEAL KIT-HPBP VLV	1	SET	Quoted/ Not Quoted
150	974510191100	MAND.SPARS.ACTUATOR SEAL KIT-SP CTRL VLV	1	SET	Quoted/ Not Quoted
160	974510190500	MAND.SPARS.PFT FOR HP BYPASS VALVE	1	NO	Quoted/ Not Quoted
170	974510190900	MAND.SPARS.PFT FOR SPRAY VALVE	1	NO	Quoted/ Not Quoted
180	974510191200	MAND.SPARS.AMP.CARD-PROP VLV-HPBP VLV	1	NO	Quoted/ Not Quoted
190	974510191300	MAND.SPARS.AMP.CARD-PROP VLV-SP.CTRLVLV	1	NO	Quoted/ Not Quoted
200	974510190600	MAND.SPARS.EH CONVERTER 4 HPBYPASS VALVE	1	NO	Quoted/ Not Quoted
210	974510190700	MAND.SPARS.EH CONVERTER 4 HPBP SPRAY VAL	1	NO	Quoted/ Not Quoted
220	974510191400	MAND.SPARS.QUICK STROKING DEVICES	2	SET	Quoted/ Not Quoted
230	974510191500	MAND.SPARS.PROP VLV SEAL KIT-HPBP VLV	4	SET	Quoted/ Not Quoted
240	974510191600	MAND.SPARS.PROP VLV SEAL KIT-SP CTRL VLV	4	SET	Quoted/ Not Quoted
250	974510191700	MAND.SPARS.SOLENOID VALVE-HPBP VLV	1	NO	Quoted/ Not Quoted
260	974510191800	MAND.SPARS.SOLENOID VALVE-SP CTRL VLV	1	NO	Quoted/ Not Quoted
270	974510191900	MAND.SPARS.FILTER ELEMENTS-HPSU	1	SET	Quoted/ Not Quoted
280	974510192000	MAND.SPARS.HYDRAULIC HOSES	1	SET	Quoted/ Not Quoted
290	974510192100	MAND.SPARS.SEAL KIT FOR HPSU	1	SET	Quoted/ Not Quoted
300	974510192200	MAND.SPARS.SP CTRLVLV SERVO MOTOR ASSY	1	NO	Quoted/ Not Quoted
310	974510190600	MAND.SPARS.EH CONVERTER 4 HPBYPASS VALVE	1	NO	Quoted/ Not Quoted
320	974510190700	MAND.SPARS.EH CONVERTER 4 HPBP SPRAY VAL	1	NO	Quoted/ Not Quoted
330	974510190500	MAND.SPARS.PFT FOR HP BYPASS VALVE	1	NO	Quoted/ Not Quoted
340	974510190900	MAND.SPARS.PFT FOR SPRAY VALVE	1	NO	Quoted/ Not Quoted

Other charges (only if applicable)

Type of charge	Quoted/ Not Quoted
Packing Charges	Quoted/ Not Quoted
Inspection/Documentation Charges	Quoted/ Not Quoted
CFR Charges	Quoted/ Not Quoted
Any Other Charges (please specify)	Quoted/ Not Quoted

Commissioning assistance charges

Type of charge	Quoted/ Not Quoted
Lumpsome amount for commisioning assistance at site	Quoted/ Not Quoted
(should be inclusive of travelling, accomodation, service and all other charges for 2 visits of total seven (07) days and 2 days training on site during commisioning of valve)	
Per day charges for site assisstance, in case the requirement at site exceed 07 days	Quoted/ Not Quoted
(should be inclusive of travelling, accomodation, service and all other charges)	
(For information only. Will NOT be used for package rate calculation)	

Consignment package details (approximate details will suffice)

Net weight of the final packed consignment		Kgs
Dimensions of the consignment		L(mm) x B(mm) x H(mm)

Note:

- The prices for items/components that are to be supplied by the vendor's Indian office or counter-part, shall be quoted seperately. The prices for such items/components should be in INR only.
- The prices for services/support that are to be rendered by the vendor's Indian office or counter-part, shall be quoted seperately. The prices for such services/support should be in INR only.
- Commissioning charges should be mandatorily quoted. If any deviation is taken, stating that the commisioning charges will be quoted seperately, the offer will be rejected.

Signature & Seal of Vendor

ANNEXURE 2D
PRICED BID FORMAT

FORMAT FOR SUBMISSION OF PRICED BID
(Priced Bid should strictly as per below format ONLY)

BHEL's enquiry ref:	ENSFV00218
Enquiry date:	05-05-2019
Project:	Panki 1x660 MW

Vendor name:	
Vendor's offer ref:	
Offer date:	

Section A: Prices of Full Valve Assembly

- Prices for valves should have to be valid for 120 days from the date of part-1 bid opening
- Purchase order for supply portion will be released immediately upon finalisation of tender
- Prices for commissioning assistance should be valid until the date of commissioning at site
- Purchase order for commissioning assistance portion will be released one week prior to actual requirement at site

Item wise rates

Sl. No.	Material Code	Material Description	Qty (a)	UOM	Unit Price (b)	Item price (a x b)	Currency
10	974510190000	HPBP VALVE ACTUATOR ASSY	2	NO		0.00	
20	974510190001	HPBP SPRAY ISOLATION VALVE ACT ASSY	1	NO		0.00	
30	974510190002	HPBP SPRAY CONTROL VALVE ACT ASSY	2	NO		0.00	
40	974510190003	HYDRAULIC POWER UNIT ASSY	1	NO		0.00	
50	974510190005	HYDRAULIC SYSTEM COMPONENTS	1	SET		0.00	
60	974510190006	SPECIAL TOOLS - HPBP	1	SET		0.00	
70	974510190007	COMMISSIONING SPARES-HPBP	1	SET		0.00	
80	974510190100	MAND.SPARS.HPBP STEAM CTRL VLV INTERNALS	1	SET		0.00	
90	974510190200	MAND.SPARS.HPBP CTRLVLV SERVO MOTOR ASSY	1	NO		0.00	
100	974510190600	MAND.SPARS.EH CONVERTER 4 HPBYPASS VALVE	1	NO		0.00	
110	974510192300	MAND.SPARS.PRESSURE TRANSMITTER OF HPSU	1	NO		0.00	
120	974510190300	MAND.SPARS.WTR INJCTN VLV INTERNALS	1	SET		0.00	
130	974510190400	MAND.SPARS.BLADDER FOR ACCLTRS IN HPBP	2	SET		0.00	
140	974510191000	MAND.SPARS.ACTUATOR SEAL KIT-HPBP VLV	1	SET		0.00	
150	974510191100	MAND.SPARS.ACTUATOR SEAL KIT-SP CTRL VLV	1	SET		0.00	
160	974510190500	MAND.SPARS.PFT FOR HP BYPASS VALVE	1	NO		0.00	
170	974510190900	MAND.SPARS.PFT FOR SPRAY VALVE	1	NO		0.00	
180	974510191200	MAND.SPARS.AMP.CARD-PROP VLV-HPBP VLV	1	NO		0.00	
190	974510191300	MAND.SPARS.AMP.CARD-PROP VLV-SP.CTRLVLV	1	NO		0.00	
200	974510190600	MAND.SPARS.EH CONVERTER 4 HPBYPASS VALVE	1	NO		0.00	
210	974510190700	MAND.SPARS.EH CONVERTER 4 HPBP SPRAY VAL	1	NO		0.00	
220	974510191400	MAND.SPARS.QUICK STROKING DEVICES	2	SET		0.00	
230	974510191500	MAND.SPARS.PROP VLV SEAL KIT-HPBP VLV	4	SET		0.00	
240	974510191600	MAND.SPARS.PROP VLV SEAL KIT-SP CTRL VLV	4	SET		0.00	
250	974510191700	MAND.SPARS.SOLENOID VALVE-HPBP VLV	1	NO		0.00	
260	974510191800	MAND.SPARS.SOLENOID VALVE-SP CTRL VLV	1	NO		0.00	
270	974510191900	MAND.SPARS.FILTER ELEMENTS-HPSU	1	SET		0.00	
280	974510192000	MAND.SPARS.HYDRAULIC HOSES	1	SET		0.00	
290	974510192100	MAND.SPARS.SEAL KIT FOR HPSU	1	SET		0.00	
300	974510192200	MAND.SPARS.SP CTRLVLV SERVO MOTOR ASSY	1	NO		0.00	
310	974510190600	MAND.SPARS.EH CONVERTER 4 HPBYPASS VALVE	1	NO		0.00	
320	974510190700	MAND.SPARS.EH CONVERTER 4 HPBP SPRAY VAL	1	NO		0.00	
330	974510190500	MAND.SPARS.PFT FOR HP BYPASS VALVE	1	NO		0.00	
340	974510190900	MAND.SPARS.PFT FOR SPRAY VALVE	1	NO		0.00	
SUB TOTAL (i)						0.00	

Other charges (only if applicable)

Type of charge	Rate	Currency
Packing Charges		
Inspection/Documentation Charges		
CFR Charges		
Any Other Charges (please specify)		
SUB TOTAL (ii)	0.00	

TOTAL COST - SUPPLY PORTION (i + ii)	0.00
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Commissioning assistance charges

Type of charge	Rate	Currency
Lumpsome amount for commissioning assistance at site		
(should be inclusive of travelling, accomodation, service and all other charges for 2 visits of total seven (07) days and 2 days training on site during commissioning of valve)		
SUB TOTAL (iii)	0.00	

Per day charges for site assistance, in case the requirement at site exceed 07 days		
(should be inclusive of travelling, accomodation, service and all other charges)		
(For information only. Will NOT be used for package rate calculation)		

TOTAL PACKAGE COST (i + ii + iii)	0.00
--	-------------

Note:

- The prices for items/components that are to be supplied by the vendor's Indian office or counter-part, shall be quoted seperately. The prices for such items/components should be in INR only.
- The prices for services/support that are to be rendered by the vendor's Indian office or counter-part, shall be quoted seperately. The prices for such services/support should be in INR only.
- Commissioning charges should be mandatorily quoted. If any deviation is taken, stating that the commissioning charges will be quoted seperately, the offer will be rejected.

Signature & Seal of Vendor

ANNEXURE 2E
SCHEDULE OF DEVIATIONS
FORMAT

SCHEDULE OF DEVIATIONS

Enq Ref:

Offer Ref:

Date:

Commercial Deviation:

Annexure / Clause No.	Description	Supplier Deviation

Technical Deviation:

Annexure / Clause No.	Description	Supplier Deviation

We confirm acceptance of all the Technical and Commercial requirements as per BHEL Tender, except the above deviations.

Signature with Seal

ANNEXURE 3A
PRICE BANK GUARANTEE
FORMAT

BANK GUARANTEE FOR PERFORMANCE SECURITY

(Non-Judicial Stamp paper/e-stamp paper of appropriate value as per Stamp Act prevailing in the State(s))

Bank Guarantee No:

Date:

To

NAME

& ADDRESSES OF THE BENEFICIARY

IFSC AND MICR CODE

Dear Sirs,

1. In consideration of Bharat Heavy Electricals Limited (hereinafter referred to as the 'Employer' which expression shall unless repugnant to the context or meaning thereof, include its successors and permitted assigns) incorporated under the Companies Act, 1956 and having its registered office at _____¹ through its Unit at.....(name of the Unit) having awarded to (Name of the Vendor / Contractor / Supplier) (VENDOR CODE) with its registered office at _____² hereinafter referred to as the ' Vendor / Contractor / Supplier ', which expression shall unless repugnant to the context or meaning thereof, include its successors and permitted assigns), a contract Ref No.....dated³ valued at Rs.....⁴ (Rupees -----)/FC.....(in words.....) for⁵ (hereinafter called the 'Contract') and the Vendor / Contractor / Supplier having agreed to provide a Contract Performance Bank Guarantee, equivalent to% (... Percent) of the said value of the Contract to the Employer for the faithful performance of the Contract,

2. we,, (hereinafter referred to as the Bank), having registered/Head office at and inter alia a branch at being the Guarantor under this Guarantee, hereby, irrevocably and unconditionally undertake to forthwith and immediately pay to the Employer any sum or sums upto a maximum amount of Rs -----⁶ (Rupees -----) without any demur, immediately on first demand from the Employer and without any reservation, protest, and recourse and without the Employer needing to prove or demonstrate reasons for its such demand.

3. Any such demand made on the Bank shall be conclusive as regards the amount due and payable by the Bank under this guarantee. However, our liability under this guarantee shall be restricted to an amount not exceeding Rs. _____.

4. We undertake to pay to the Employer any money so demanded notwithstanding any dispute or disputes raised by the Vendor / Contractor / Supplier in any suit or proceeding pending before any Court or Tribunal, Arbitrator or any other authority, our liability under this present being absolute and unequivocal.

5. The payment so made by us under this Guarantee shall be a valid discharge of our liability for payment thereunder and the Vendor / Contractor / Supplier shall have no claim against us for making such payment.

6. We thebank further agree that the guarantee herein contained shall remain in full force and effect during the period that would be taken for the performance of the said Contract/satisfactory completion of the performance guarantee period as per the terms of the Contract and that it shall continue to be enforceable till all the dues of the Employer under or by virtue of the said Contract have been fully paid and its claims satisfied or discharged.

7. We.....BANK further agree with the Employer that the Employer shall have the fullest liberty without our consent and without affecting in any manner our obligations hereunder to vary any of the terms and conditions of the said Contract or to extend time of performance by the said Vendor / Contractor / Supplier from time to time or to postpone for any time or from time to time any of the powers exercisable by the Employer against the said Vendor / Contractor / Supplier and to forbear or enforce any of the terms and conditions relating to the said Contract and we shall not be relieved from our liability by reason of any such variation, or extension being granted to the said Vendor / Contractor / Supplier or for any forbearance, act or omission on the part of the Employer or any indulgence by the Employer to the said Vendor / Contractor / Supplier or by any such matter or thing whatsoever which under the law relating to sureties would but for this provision have effect of so relieving us.

8. The Bank also agrees that the Employer at its option shall be entitled to enforce this Guarantee against the Bank as a principal debtor, in the first instance without proceeding against the Vendor / Contractor / Supplier and notwithstanding any security or other guarantee that the Employer may have in relation to the Vendor / Contractor / Supplier's liabilities.

9. This Guarantee shall remain in force upto and including.....⁷ and shall be extended from time to time for such period as may be desired by Employer.

10. This Guarantee shall not be determined or affected by liquidation or winding up, dissolution or change of constitution or insolvency of the Vendor / Contractor / Supplier but shall in all respects and for all purposes be binding and operative until payment of all money payable to the Employer in terms thereof.

11. Unless a demand or claim under this guarantee is made on us in writing on or before the⁸we shall be discharged from all liabilities under this guarantee thereafter.

12. Any claim or dispute arising under the terms of this document shall only be enforced or settled in the Courts at Tiruchirappalli.

13. We..... BANK lastly undertake not to revoke this guarantee during its currency except with the previous consent of the Employer in writing.

Notwithstanding anything to the contrary contained hereinabove:

a) The liability of the Bank under this Guarantee shall not exceed.....⁶

- b) This Guarantee shall be valid up to⁷
- c) Unless the Bank is served a written claim or demand on or before (minimum 3 to 6 months from the expiry date)⁸ all rights under this guarantee shall be forfeited and the Bank shall be relieved and discharged from all liabilities under this guarantee irrespective of whether or not the original bank guarantee is returned to the Bank.

14. We, _____ Bank, have power to issue this Guarantee under law and the undersigned as a duly authorized person has full powers to sign this Guarantee on behalf of the Bank.

For and on behalf of
(Name of the Bank)

Dated.....

Place of Issue.....

BANK EMAIL ID:

BANK PHONE NO:

AUTHORISED SIGNATORIES CELL PHONE NO:

BANK FAX NO:

¹ NAME AND ADDRESS OF EMPLOYER I.e Bharat Heavy Electricals Limited

² NAME AND ADDRESS OF THE VENDOR /CONTRACTOR / SUPPLIER.

³ DETAILS ABOUT THE NOTICE OF AWARD/CONTRACT REFERENCE

⁴ CONTRACT VALUE

⁵ PROJECT/SUPPLY DETAILS

⁶ BG AMOUNT IN FIGURES AND WORDS

⁷ VALIDITY DATE

⁸ DATE OF EXPIRY OF CLAIM PERIOD

ANNEXURE 3B
LIST OF CONSORTIUM
BANKS

List of Consortium Banks *			
	Nationalised Banks		Nationalised Banks
1	Allahabad bank	19	Vijaya Bank
2	Andhra bank		Public Sector Banks
3	Bank of Baroda	20	IDBI
4	Canara Bank		Foreign banks
5	Corporation bank	21	CITI Bank N.A
6	Central bank	22	Deutsche Bank AG
7	Indian Bank	23	The Hongkong and Shanghai Banking Corporation Limited
8	Indian Oversea Bank	24	Standard Chartered Bank
9	Oriental bank of Commerce	25	J P Morgan
10	Punjab National Bank		
11	Punjab & Sindh Bank		Private banks
12	State Bank of India	26	Axis Bank
13	State Bank of Hyderabad	27	The Federal Bank Limited
14	Syndicate Bank	28	HDFC
15	State Bank of Travancore	29	Kotak Mahindra Bank
16	UCO Bank	30	ICICI
17	Union Bank of India	31	Indusind Bank
18	United Bank of India	32	Yes Bank

* wef 22.03.2016