TECHNICAL PRE-QUALIFICATION REQUIREMENT

Indent No	Item	Material Code	Specification No
20251878 Rev00	CALIBRATED FLOW NOZZLE ASSEMBLY (660 MW RATING SETS)	WS9734501500	ST45015 R00

Item Description: -

Calibrated flow nozzle is used to measure condensate flow accurately during Performance Guarantee test of TG cycle. Performance test is carried out as per ASME PTC-6 code, hence calibrated flow nozzle should meet all requirement of test code ASME PTC-6.

Qualification Criteria: -

Only the Bidder/Vendor i.e. Qualified Equipment Manufacturer (QEM) meeting the below mentioned criteria shall be considered for further evaluation. Vendor to state their response as per format below:

<table>
<tr><th>CLAUSE NO.</th><th>PRE- QUALIFICATION REQUIREMENT</th><th>VENDOR'S RESPONSE</th></tr>
<tr><td>1</td><td>The bidder/vendor should have designed, manufactured, tested & supplied Long Radius, Low Beta Ratio, Throat-Tap Flow Nozzle Assemblies in accordance with ASME PTC-6 (2004) AND
Meeting the technical parameters listed in Sl.No. (i), (ii), (iii) & (iv) of Table -1 below. AND
The Bidder/vendor must have supplied at least one (1) purchase order of same flow nozzle assembly to a thermal power plant, having capacity of 500 MW or above. The referred thermal power plant units should have been performance tested using the qualifying flow nozzle within 10 years from the date of issuance of purchase enquiry.
<u>OR</u>
The Bidder/vendor should have designed, manufactured, tested, and supplied Long Radius, Low Beta Ratio, Throat-Tap Flow Nozzle Assemblies in accordance with ASME PTC-6 (2004) AND
Meeting the technical parameters listed in Sl.No. (i), (ii), (iii) & (iv) of Table -1 below AND
The bidder/vendor must have supplied at least one (1) purchase order of same flow nozzle assembly and same qualifying flow nozzle should have been successfully calibrated in laboratory of international repute e.g. NABL accredited lab.
Table-I
<table>
<tr><th>Sl.No.</th><th>Parameter</th><th>Value/Medium</th></tr>
<tr><td>1</td><td>Internal diameter (ID)</td><td>12 inch or higher</td></tr>
<tr><td>2</td><td>Pressure taps</td><td>4(four) sets</td></tr>
<tr><td>3</td><td>Minimum Design Condensate Flow rate</td><td>1200T/hr</td></tr>
<tr><td>4</td><td>Working Fluid</td><td>Condensate</td></tr>
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</td><td>YES/NO

YES/NO</td></tr>
</table>

2.	In Support of the above clause no.1; QEM(Vendor/bidder) has to submit following documentary evidences: I. Experience list of supply of ASME PTC 6 flow nozzle II. Copies of Un-priced purchase orders (PO) for qualifying flow nozzles for at least one unit including detailed cross-section and assembly drawings of supplied flow nozzle & also *offer-stage* cross-section and assembly drawing of desired flow nozzle as per tender enquiry. Date for each purchase order placed should be within 10 years from the date of issuance of enquiry. III. A copy of the design calculation for required as well as supplied nozzle clearly indicating the calculation formula and the various correction factors like density correction, scale expansion etc. which the bidder has applied in the calculations for any one unit for which assembly and cross-section drawing are furnished (as per Sl. No-2(II) IV. Details of engineering, manufacturing, testing, calibration facilities including wet calibration certificate of supplied flow nozzle for which design documentation is furnished V. End user certificate, indicating the date of commissioning of the plant/equipment and successful use of flow nozzle assembly during performance testing of thermal power plant/equipment for any one supply	Document enclosed: **YES/NO** **YES/NO** **YES/NO** **YES/NO** **YES/NO**
3.	**Calibration & Testing facility requirement:** The bidder/vendor should have got the qualified flow nozzle (as per Clause No. 1) calibrated in a Laboratory of international repute e.g. NABL accredited lab, preferably by Weigh tank method with Reynolds number, Water Temperature and other flow conditions as close as possible to actual operating condition. Wherever, it is not possible to calibrate flow nozzle at the actual operating condition, the calibration Reynolds number should have been obtained in accordance with paragraph 4.8.16 & 4.8.17 of ASME PTC-6-2004. While calibrating the nozzle, the transition region of Reynolds number from 1.0 million to 4.0 million should have been covered.	Facility Available: **YES/NO**
4.	In support of the above clause no.3, QEM(Vendor/bidder) has to submit following documentary evidences: I. The accreditation details of Laboratory in which wet calibration of ASME PTC 6 flow nozzle was performed for nozzles in clause 2. Further bidder to inform name and accreditation details of laboratory proposed for calibration if different from earlier laboratory II. Wet calibration test certificate of flow nozzle as per ASME PTC-6-2004. It should at least include copies of calibration for each tap set (including tap	Document enclosed: **YES/NO**

	sets for which calibration may have not met ASME PTC-6-2004 criteria) indicating nozzle/ pipe diameter and calibration conditions, including calibration curves, calibration data and calibration results.	YES/NO

General Notes:

I. BHEL would open the price bid of only those bidders, who fulfill above pre-qualification requirements.

II. If the Design Parameters, Guaranteed Figures, Equipment Features etc., are not clearly brought out in the bid or not supported by the information required as per specification, or have not been considered in bidder's offer, in accordance with specification requirements of reliability, availability, operability and maintainability of the equipment, then BHEL has right to reject the bid(s) of such bidder(s)/vendor(s).

III. All the documents should be submitted by bidder in consolidated manner in English language.

Prepared By	Checked By	Approved By
Nikhil Chaudhary/ Manager/ STE-TC	Preetam Singh/Sr. Manager/STE-TC	Prabhat Singh/AGM/STE-TB & TC