29.03.2025

Mandatory Pre-Qualification requirements for Vortex flow meter W96415002767 as per TG60665

Description: - The vortex flow meter is used to measure volume flow of De-mineralized water at outlet of bushing in Turbo generators. The vortex flow meters shall be suitable for mounting in horizontal/vertical direction of flow with flanged connections.

Mandatory Pre-Qualification requirements

1.0 The vendor should be a regular manufacturer of Vortex flow meter with following technical requirements-

Sl No.	Parameter	Value
(i)	Application fluid	DM Water
(ii)	Flow rate	≤ 25 m^3/hr.
(iii)	Size	≤ 1 inch (NB25)
(iv)	Working Pressure	1.5 bar (minimum)
(v)	Measuring accuracy	±0.75% or better
(vi)	Electrical output	4-20 mA, 2 wire output HART Protocol

2.0 In support of above, vendor shall furnish technical details in below mentioned format for at least five (5) nos. of vortex flow meter for the P.O. executed in past 10 years (from date of enquiry) along with P.O. copies meeting requirements as per point no. 1 above.

S. No.	Brief technical details	Data	P.O. Ref. No.	Name & address of customer	Date of supply
	- Application fluid	DM Water			
	- Working pressure				
	-Working Temperature				
	- Flow rate				
	- Material of body/flanges/inside parts				
	-Measuring accuracy				

3.0 Vendor to furnish the test certificate for calibration and hydraulic test of vortex flow meter for any one of the P.O. submitted against clause 2. Vendor to also furnish the NABL accreditation details of calibration facility.

4.0 Acceptance certificate from one of the vendor's end user of Vortex flow meter to be provided for any one of the P.O. submitted as per clause 2.0. Acceptance certificate should contain information like item details and its application.

29.03.2025

Mandatory Pre-Qualification requirements for Vortex flow meter W96415002910(dual sensor) & W96415002902(single sensor) as per TG60665

Description: - The vortex flow meter is used to measure volume flow of De-mineralized water at outlet of stator winding in Turbo generators. The vortex flow meters shall be suitable for mounting in horizontal/vertical direction of flow with flanged connections.

Mandatory Pre-Qualification requirements

1.0 The vendor should be a regular manufacturer of Vortex flow meter with following technical requirements-

Sl No.	Parameter	Value
(i)	Application fluid	DM Water
(ii)	Flow rate	≥50 m^3/hr.
(iii)	Working Pressure	1.5 bar (minimum)
(iv)	Measuring accuracy	±0.75% or better
(v)	Electrical output	4-20 mA, 2 wire output HART protocol
(vi)	No. of sensor	Single/ Dual

2.0 In support of above, vendor shall furnish technical details in below mentioned format for at least five (5) nos. of vortex flow meter for the P.O. executed in past 10 years (from date of enquiry) along with P.O. copies meeting requirements as per point no. 1 above.

S. No.	Brief technical details	Data	P.O. Ref. No.	Name & address of customer	Date of supply
	- Application fluid	DM Water			
	- Working pressure				
	-Working Temperature				
	- Flow rate				
	- Material of body/flanges/inside parts				
	-Measuring accuracy				
	-No. of sensors for flow measurement.				

3.0 Vendor to furnish the test certificate of Vortex flow meter for any one of the P.O. submitted against clause 2. Vendor to also furnish the NABL accreditation details of calibration facility.

4.0 Acceptance certificate from one of the vendor's end user of vortex flow meter to be provided for any one of the P.O. submitted as per clause 2.0. Acceptance certificate should contain information like item details and its application.

adani	**ASSESSMENT OF SUPPLIER**

Name of item/equipments for which assessment is required:----------

1.0 GENERAL INFORMATION :-

1.1) Name of the company	
1.2) Address of their Regd. office with telephone No., Fax No.& E-Mail	
1.3) Address of the Supplier's factory / works with telephone No., Fax No.& E-Mail a) Weekly off :- b) Shift working per day:-	 a) ---------- b)One/Two/Three
1.4) Address of the Supplier's Branch offices with telephone No., Fax No.& E-Mail	
1.5) Nature of the firm: (Govt. Undertaking / State Govt. Undertaking / Private Company /Co-operative society / Partnership Firm / Proprietorship / Any other)	
1.6) Nature of Business (Manufacturing Unit / Agent / Distributor / Stockiest)	
1.7) Year of establishment	
1.8) Year of commencement of manufacturing	
1.9) Name of the Chief Executive/ Proprietor & Plant Manager	

1.10) Contact Person	

(Name, Designation, Address, Telephone no. , Mob. No. Fax & Email)	
1.11) Total Nos. of employees (Attach organization chart)	i) Administration & Commercial ----- ii) Engineering & Technology --------- iii) Manufacturing ---------- iv) Quality ---------- v) Maintenance ---------- vi) Site Management ---------- vii) Other ---------- viii) Total ----------
1.12) Total area of the Factory a) Covered b) Uncovered	
1.13) Electrical Power and alternative arrangement for power: (Give Details)	

2.0 FINANCIAL INFORMATION:-

	Year 1	Year 2	Year 3
2.1) Share Equity Capital			
2.2) Long Term Debt			
2.3) Investment in :- i)Land & building ii)Plant & Equipment iii) Other Fixed Assets			
2.4) Net Current Assets			
2.5) Net Current Liabilities			
2.6) Sales			
2.7) Profit before tax			
NOTE:- Copies of annual Balance Sheet for the last three years along with audit report to be submitted.			

3.0: <u>TECHNICAL INFORMATION</u> :-

adani	**ASSESSMENT OF SUPPLIER**

3.1 Manufacturing Capacity for the item / equipment for which approval is required

Sl. No	Name of Product	Licensed Capacity	Installed Capacity

3.2 Brief details of the item / equipment manufactured in the past three years:-

Sl. No.	Item Description	Specn/Grade/Size	Annual Production in the last three Years		

3.3 Manufacturing facilities including material handling facilities:-

Sl. No.	Description of machines used for manufacturing	Capacity, Size	Make	Yr of installation	Limitations	Remarks

3.4 Measuring, inspection, testing and heat treatment facilities (in house):-

Sl.No.	Description of equipment	Size, range, Capacity & accuracy	Make	Last date of calibration

3.5 Measuring, inspection, testing and heat treatment facilities (out sourced):

Sl. No.	Description of test	Name of the agency carrying out the test

3.6 Foreign collaboration, if any:

adani	**ASSESSMENT OF SUPPLIER**

Product	Name & address of the Collaborator	Year of Collaboration	Whether current or not

3.7 Details same/ similar item supplied in the last three years:-

Item description	Specn.& size	Major Customer Name	Project Name	Po. No. & date	Qty	Year of Supply	Remark

3.8 Source of raw materials:-

Description of raw materials	Name & address of the suppliers

3,9 Copies of Qualification Approval / Type Test certificates / Test Reports for the item / equipment witnessed by any independent agency may be attached.

3.10 Furnish process flow chart including inspection stages

3.11Details and experience of technical personnel (Head of various departments)

3.12Performance feed back if any – Attach feed back certificates.

4.0 <u>QUALITY MANAGEMENT SYSTEM</u>:-

4.1 Furnish organization chart of Quality department including NDT (non destructive test) personnel

4.2 Whether QA system is certified as per ISO- 9001? If yes then attach a copy of the certificate.

4.3 Incoming material control:-

A formalized supplier rating, evaluation & certification programme which includes quality performance criteria.	i)Whether such procedure exist? ii) Whether system is effective? iii)Whether records are available?	Yes/No Yes/No Yes/No
Verification of incoming material prior to storage	i)Whether such procedure exist? ii) Whether system is effective? iii)Whether records are available?	Yes/No Yes/No Yes/No

4.4 Process control:-

Work instructions have been documented by the sub supplier and followed by the worker.	i)Whether such procedure exist? ii) Whether system is effective? iii)Whether records are available?	Yes/No Yes/No Yes/No
Required tools, jigs & fixtures are identified and used.	i)Whether such procedure exist? ii) Whether system is effective? iii)Whether records are available?	Yes/No Yes/No Yes/No
Procedure for qualification & revalidation of qualification of welder and NDT operator or any other special processes	i)Whether such procedure exist? ii) Whether system is effective? iii)Whether records are available?	Yes/No Yes/No Yes/No
Testing facilities for Chemical, Mechanical, Electrical and NDT tests. Trained personnel carry out the tests and records are maintained.	i)Whether such procedure exist? ii) Whether system is effective? iii) Whether records are available? iv) Whether details of trained personnel submitted?	Yes/No Yes/No Yes/No Yes/ No
Preventative maintenance activities are performed critical machines and records maintained.	i)Whether such procedure exist? ii) Whether system is effective? iii)Whether records are available?	Yes/No Yes/No Yes/No
Material identification and acceptance status is maintained throughout the manufacturing process and storage.	i)Whether such procedure exist? ii) Whether system is effective? iii)Whether records are available?	Yes/No Yes/No Yes/No
Identification / Preservation, & Packing procedures	i)Whether such procedure exist? ii) Whether system is effective? iii)Whether records are available?	Yes/No Yes/No Yes/No

4.5 Control of non-conformance:-

Record of rework /rectification	i)Whether such procedure exist? ii) Whether system is effective? iii)Whether records are available?	Yes/No Yes/No Yes/No
System of review and analysis of repeated non-conformities/ failures and their prevention in future.	i)Whether such procedure exist? ii) Whether system is effective? iii)Whether records are available?	Yes/No Yes/No Yes/No

4.6 Calibration of measuring & testing equipments:-

System of calibration of gauges, fixtures and instruments	i) Whether such procedure exist? ii) Whether system is effective? iii)Whether records are available?	Yes/No Yes/No Yes/No
Master gauges / standards are traceable to recognized national standards.	i) Whether such procedure exist? ii) Whether system is effective? iii)Whether records are available?	Yes/No Yes/No Yes/No

4.7 Inspection & testing of finish product:-

System of inspection and testing of finished product exits.	i)Whether such procedure exists? ii) Whether system is effective? iii)Whether records are available?	Yes/No Yes/No Yes/No

4.8 System of recording, attending and monitoring customer complaint & corrective action.

System of recording, attending and monitoring customer complaint and corrective action exits.	i) Whether such procedure exist? ii) Whether system is effective? iii)Whether records are available?	Yes/No Yes/No Yes/No

4.9 Any other information:-

Enclosures:-

Place: Signature

Date: Name and Designation

Seal

MANUFACTURER'S NAME AND ADDRESS		STANDARD QUALITY PLAN			TO BE FILLED BY BHEL	TO BE FILLED BY BHEL
BHEL	VENDOR'S NAME	ITEM	**FLOW METER (Vortex Type)**	QP NO. QA/BE/QP/925	REV. 00	Date: 07.03.2022
		Drg. No.	As per PO			
		Spec.	TG60665			
		Spec. Rev.	As per PO	Page 1 of 1		

SL. NO.	COMPONENT & OPERATIONS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORDS	D	AGENCY M	AGENCY B	AGENCY N	REMARKS
1	2	3	4	5	6	7	8	9		10			11
1.0	**RAW MATERIALS**												
1.1	Flange, body, sensor, bluff body and all water contact parts	Chemical composition	Major	Measurement	1 sample/lot	Ord. Drg./Spec.	Ord. Drg./Spec.	MTC	√	P	V	-	
1.2	Electronic housing	Chemical composition	Major	Measurement	1 sample/lot	Ord. Drg./Spec.	Ord. Drg./Spec.	MTC	√	P	V	-	
2.0	**FINAL TESTING**												
2.1	Visual & Dimensional check	--	Major	Measurement	100%	Ord. Drg./Spec.	Ord. Drg./Spec.	IR	√	P	W	-	
2.2	Hydraulic test	--	Major	Physical	100%	Ord. Drg./Spec.	No leakage	IR	√	P	W	-	
2.3	Calibration test	--	Major	Physical	100%	Ord. Drg./Spec.	Ord. Drg./Spec.	IR	√	P	W	-	
2.4	Electrical output check	--	Major	Electrical	100%	Ord. Drg./Spec.	Ord. Drg./Spec.	IR	√	P	W	-	
2.5	Compliance to technical specification	--	Major	Review	100%	Ord. Drg./Spec.	Ord. Drg./Spec.	COC	√	P	V	-	
2.6	Marking	--	Major	Review	100%	Ord. Drg./Spec.	Ord. Drg./Spec.	-	-	P	V	-	
2.7	Packing	--	Major	Review	100%	Ord. Drg./Spec.	Ord. Drg./Spec.	-	-	P	V	-	

Note: 1. Witness by inspection agency to be random 10% of each material code (minimum 1 pieces per material code) from each lot. However, vendor to carry out 100% tests internally and tests report shall be reviewed by inspection engineer during inspection at Vendor's works. 2. Manufacturer to maintain calibrated instrument having better accuracy than the item under the test. Inspection engineer shall check the same.

Digitally signed by Sachin Jain
Date: 2023.09.22 14:43:03 +05'30'

MANUFACTURER/ SUBCONTRACTOR	LEGEND: ORD.: PURCHASE ORDERING, DRG: BHEL APPROVED DRAWING, SPEC: BHEL SPECIFICATION, MTC: MATERIAL TEST CERTIFICATE, T.C.: TEST CERTIFICATE, I.R.: INSPECTION REPORTS, COC: CERTIFICATE OF CONFORMANCE, M: MANUFACTURER / SUBCONTRACTOR B: BHEL / NOMINATED INSPECTION AGENCY, N: CUSTOMER, 'P': PERFORM, 'W': WITNESS, 'V': VERIFICATION, "√" RECORDS IDENTIFIED WITH 'TICK' SHALL BE ESSENTIALLY INCLUDED BY CONTRACTOR IN QA DOCUMENTATION. ALL 'W' INDICATED IN COLUMN 'N' SHALL BE 'CHP' OF CUSTOMER	FOR CUSTOMER USE	APPROVED BY