


NTPC LTD
CPG-1/VDC Raipur


Qualifying Requirement (QR) for Vendor Enlistment for “Carbon Fibre composite Drive Shafts & couplings for Cooling Towers” for Various NTPC Stations (CAT-1)

A)	MEG DETAILS		
	1	MEG No	57MEG-05
	2	MEG DESCRIPTION	Vendor Enlistment for “Carbon Fibre composite Drive Shafts & couplings for Cooling Towers” for Various NTPC Stations (CAT-1)
	3	MEG RESPONSEBILITY	CPG-1/ VDC
	4	ENLISTMENT CATEGORY	Category-1
B)	<p>Technical Criteria of QR:</p> <ol style="list-style-type: none"> 1. The applicant should be a manufacturer of carbon fibre shafts. 2. The applicant should have supplied carbon fibre shafts in last 5 years from the date of application for enlistment. 3. The applicant should have in house testing facilities for meeting the requirements of Sl.no. B) points a) &b) of NTPC Standard Quality Plan. 		
C)	<p>Documents to be submitted as proof of meeting the stipulated Qualifying Requirements as stated at B) above</p> <p>QR-1: Latest annual report OR NSIC / SSI / MSME registration certificate / BIS license / ISO certificate / Certificate of registration from the concerned excise department / any other statutory document as a proof of being manufacturer of the required material.</p> <p>QR-2: PO copies for supply orders</p> <p>QR-3: Proof of in-house testing facilities (picture of the testing facility, invoice of ownership(optional), instruments valid calibration certificate).</p> <p>NTPC can ask more documents if felt necessary.</p>		
D)	<p>Other Documents to be uploaded: In addition to the documents required in support of Qualifying Requirements as stated at C) above, following documents are also required to be uploaded by the applicants applying for enlistment: -</p> <ol style="list-style-type: none"> 1. Three POs of the highest executed values of similar works during previous five years from the date of application. Copy of Invoice / Completion certificate from the concerned buyer/s in support of successful execution of supply against the POs to be submitted. 		

	<p>2. Audited balance sheet including Profit & Loss statement for the previous three completed financial years reckoned from the date of application. In case the audited result for the preceding financial year is not available, certification of financial statements from a practicing-chartered accountant is to be uploaded. In case, applicant is not able to submit the certificate from practicing chartered accountant certifying its financial parameters, the audited results of the three consecutive financial years preceding the last financial years shall be considered for evaluating the financial parameters. Further, a certificate would be required from the CEO/CFO stating that the financial results are under audit as on date of application and certificate from the practicing chartered certifying the financial parameters are not available</p> <p>3. Any other documents in addition to the above which the applicant wants to submit.</p> <p>NTPC can ask more documents if felt necessary.</p>
E)	<p>NOTE-1</p> <p>Similar works means: ‘Supply of carbon fibre shafts with or without its couplings’ in last 5 years from the date of application for enlistment.</p>
	<p>NOTE-2</p> <p>1. The executed value means Basic value of quantity of similar works executed/supplied against the reference PO (also applicable to partly executed POs as on date of application). Where PO value is composite (i.e., including Taxes etc.), the applicant to give item-wise break-up of Composite PO value mentioning Basic Value, Taxes etc.</p>
F)	<p>TECHNICAL REQUIREMENTS</p> <p>ATTACHED</p>
G)	<p>QUALITY PLAN (IF APPLICABLE)</p> <p>ATTACHED</p>
H)	<p>Category of Enlistment</p> <p>CATEGORY-1</p>

CLAUSE NO.	TECHNICAL REQUIREMENTS			
	<div style="text-align: right;"></div> <p style="text-align: center;">COOLING TOWERS – CARBON FIBRE COMPOSITE DRIVE SHAFTS AND COUPLINGS</p> <p>Fully floating, Tubular construction, Carbon Fibre Composite drive shafts with non-lubricated flexible coupling at each end with no intermediate coupling</p> <p>1.0 Design Inputs for shafts* (Site specific data-to be provided at the time of tendering)</p> <ul style="list-style-type: none"> a) Distance Between Shaft Ends (DBSE): b) Motor-rated power (kW) c) Motor-rated torque (N-m) d) Motor pull out torque (N-m) e) Motor speed (RPM) f) Motor shaft diameter g) Motor shaft keyway size h) Gearbox shaft diameter i) Gearbox shaft keyway size j) Fan diameter k) Fan speed (RPM) l) Number of fan blades m) Service Factor: The minimum service factor for the shaft on the rated torque of motor shall be 2.0. Each drive shaft shall be torque tested as per service factor specified before dispatch. n) Critical speed safety factor: The fan shaft shall be designed in such a way that the first critical speed shall be at least 115% (or as per latest manual of CTI) of the operating speed of the shaft. o) The shaft shall be dynamically balanced as per ISO 21940. <p>2.0 Material of Construction:</p> <ul style="list-style-type: none"> a) The drive shaft spacer, spacer flanges & flexible elements shall be made of Carbon Fibre composite material. Spacer flanges shall be integral part of the spacer itself. b) Hardware (Nuts, bolts, washers): SS 316 c) Couplings/ Hubs: CF8M d) The carbon fibre composite material should be Ultraviolet Ray stabilized. 			
USSC CPG1 – PPG/BOP	Rev - 00	TECHNICAL SPECIFICATIONS	COOLING TOWERS – CARBON FIBRE COMPOSITE DRIVE SHAFT	PAGE 1 OF 1

STANDARD QUALITY PLAN

	Item: - Carbon Fiber Drive Shaft Assembly	SQP NO:	CPG-QA-SQP- M037	P 1/1	Prepared (Ganpati Jha)	Approved (Sunil Malani)
		Rev.	00	Date		

SL. NO.	COMPONENT/ OPERATION	CHARACTERISTICS	QUANTUM OF CHECK		REFERENCE DOUMENT	ACCEPTANCE NORM	FORMAT OF RECORD	D	AGENCY		REMARKS
			M	N					M	N	
A) Raw Material/Bought Out Item Check											
1	Carbon composite	Mechanical properties, UV stabilization compliant	1/Lot		Tender/PO Specs/NTPC approved DRG/DS	TC/IR			P	V	
2	Epoxy Resin	Chemical composition, shelf life	1/Lot		Tender/PO Specs/NTPC approved DRG/DS	TC/IR			P	V	
3	Flexible element	Appearance, mechanical properties incl hardness	100%		Tender/PO Specs/NTPC approved DRG/DS	TC/IR			P	V	
4	Hub (Motor & Gear Box side)	Chem. comp., Mech. Properties, Dimensions	1/Lot		Tender/PO Specs/NTPC approved DRG/DS	TC/IR	Y		P	V	
B) Finished Product/Final Inspection											
	Drive Shaft Assembly	a) Dynamic Balancing	100%	10%	ISO 1940 grade 6.3	IR	Y	P	W	Witness by NTPC/authorized representative shall be on randomly chosen sample/s. NTPC shall review Mfrs test report for balance quantity	
		b) Dimensions incl. key way, Bonding strength between shaft & flange, Torque Testing	100%	10%	Tender/PO Specs/NTPC approved DRG/DS	IR	Y	P	W		
		c) Grade verification for accessible alloy steel item by PMI	100%	10%	Tender/PO Specs/NTPC approved DRG/DS	IR		P	W		

Notes:-

1. Y mark in Column 'D' means such document shall be furnished by the manufacturer / supplier.
2. Calibrated equipments required for performing the tests in presence of NTPC or authorized representative, shall be arranged by the supplier without any extra cost.
3. Reference and Acceptance norms shall be derived from following in the same sequence i) NTPC Approved drawing / data sheet; ii) NTPC tech specs; iii) Purchase Order; iv) Relevant national standard. v) Relevant International standard; vi) Manufacturer's standard vii) Good Engineering practices

Abbreviations:-

IR	Inspection Record / Report	M/Mfr	Manufacturer	P	Perform	DRG	Drawing	TC	Test Certificate
N	NTPC Ltd or authorized representative	Specs	Specifications	W	Witness	DS	Data Sheet	V	Review of records