

Domain :	bhel.abcpurchase.com		
Parent department:	BHEL Trichy		
Unit name	:	BHEL Trichy	
Purchase group	:	FB Sub-Dely(Mech).	RFQ/NIT/Enquiry Officer : SRIKESH NAYAR
Event ID	:	47209	RFQ/NIT/Enquiry no. : 1802000587
Enquiry Date	:	09/09/2020 05:30:00	
Tender Description	:	PLUG VALVE FOR NTPC UNCHHAR PROJECT	
Terms & Conditions	:	Offers from only Indigenous Suppliers will be accepted in this Tender 01) The Tender will be operated on TWO PART BID basis and you are requested to submit Techno-commercial bid and Price bids in E-procurement site.(Vendors who are not having DSC, shall obtain the same & quote accordingly). For details related to bidding through e-procurement site (abcpurchase) please visit URL - https://bhel.abcpurchase.com. Refer the following documents in the site -minimum system requirement & Bidder manual. 02) Vendors to note that their offer shall be in line with our enclosed specification requirement only (TOS:MOU/TPBHEL/PLUG VALVES-API-6FA), duly attached with enquiry. Any deviation may lead to rejection of the offer. NTPC. RQP - RQP/0000-999-QVM-P-163/Rev.01 is to be followed for this tender. 03) Please give point wise confirmation to the above specifications. 04) Please fill up the PQR(Annexure-1) and applicable commercial terms and conditions (Annexure-A) and submit the same along with the techno- commercial bid for evaluation. Pls. note that, offers not meeting the PQR criteria, will not be considered for further evaluation. 05) The tender will be considered as a single package basis for evaluation and ordering. 06) Delivery term: The quote shall be on FORBHEL Trichy stores basis, inclusive of Packing & forwarding, Freight to your account. Transit Insurance is on BHEL scope.Total commodities rates shall include material cost, freight, packing & forwarding and type test charges (if any) etc. Ex-Works Contracts will not be entertained. 07) The materials are required for NTPC Unchahar project 08) Please take note of loading factors for commercial deviations indicated in the Annexure - A. Offer will be evaluated on total cost to BHEL and after all loadings as applicable.. 9) Bid should be free from correction, overwriting, using corrective fluid. etc. Any interlineation, cutting, erasure or overwriting shall be valid only if they are attested under full signature (s) of person (s) signing the bid. 10) The bidder has to keep track of any changes by viewing the addendum / Corrigendum's issued by the Purchaser on time-to- time basis in the E-Procurement platform. The Company calling for tenders shall not be responsible for any claims/problems arising out of this. 11) Before uploading scanned documents, the bidders shall sign on all the statements,	

documents, certificates uploaded by him, owning responsibility for their correctness / authenticity.

12) Disclaimer Clause : The Organization (Bharat Heavy Electricals Ltd.) nor the service provider (ABC procure.) is responsible for any failure of submission of bids due to failure of internet or other connectivity problems or reasons thereof.

Enclousers:

01) Annexure1 (Pre - Qualification Criteria).

02) Annexure A (Commercial terms & conditions and Loading Factors)

03) BHEL Technical specifications TOS:MOU/TPBHEL/PLUG VALVES-API-6FA

04) NTPC. RQP - RQP/0000-999-QVM-P-163/Rev.01

05) Annexure C for MSE conditions

06) Make in India declaration format

07) CA certificate format

08) Third party non-disclosure agreement

09) No deviation certificate

10) Paintinf scheme for Unchahar project

Product / service / work keywords	:	plug valve,		
No. of Bid Parts	:	Multiple	Envelope	: Techno-commercial bid , Price bid
Type of contract	:	Goods	Project duration / delivery or completion period	: 03 months from document approval
Download document	:	Before login	RFQ floated under the policy	: PP-PURCHASE POLICY
Estimated Category	:	E	Delivery/Location At	: BHEL Trichy Stores Ward 26
Delivery Date	:	30/11/2020 05:30:00	Inspection by Agency	: BHEL TPIA/BHEL/NTPC/Customer
Inspection Location	:	At vendor works, before dispatch	Min. bid required	: 01

Bid submission configuration

Bid evaluation	:	Grand Total Package	Bidding access	: Open Tender
Base currency	:	INR	Bidding type	: NCB/Indigenous

Key configuration

Pre-bid meeting	:	Don't allow
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Dates configuration

Document downloading start date	:	10/09/2020 16:00:00	Document downloading end date	:	23/09/2020 14:00:00
Bid submission start date	:	10/09/2020 16:00:00	Bid submission end date	:	23/09/2020 14:00:00

Bid opening date : 23/09/2020 14:01:00

Document / EMD / Security fee detail

Document fees : Not required EMD : Not required

Information for Online Participation

Bidder who wish to participate in this tender needs to procure Digital Certificate as per Information Technology Act-2000 using that they can digitally sign their electronic bids. Bidders can procure the same from any or the CCA approved certifying agencies, or they may contact e-Procurement Technologies Ltd. at below mentioned address and they will assist them in procuring the same. Bidders who already have a valid digital Certificate need not to procure the same. In case bidders need any clarification regarding online participation, they can contact,

e-Procurement Technologies Ltd.

Corporate Office:

Address : A-201/208, Wall Street - 2, Opp. Orient Club,
Nr. Gujarat College, Ellis Bridge,
Ahmedabad - 380006, Gujarat(INDIA)

Digital Certificate Contacts

Contact Person : Mr. Himalay Vaishnav

Cell : +91-9099090830

Phone Nos. : +91-9099090830

Fax No :

e-Mail : info@abcProcure.com

Support Team Contacts

Contact Person : BHEL Support Team Ahmedabad

Cell : +91-9265562819

Phone Nos. : +91-79-68136849/50/48

Fax No :

e-Mail : Bhel.Support@abcProcure.com

Bidder who wish to participate in e-Tender need to fill data in predefined forms of Price bid available in respective tender only. After filling data in predefined forms bidders need to click on final submission link to submit their encrypted bid. Bidder need to submit Document Fees, EMD & Reference Documents in hard copy if such instruction are given by tendering authority. As Per the new Inter-operability guidelines released by Controller of Certifying Authorities(CCA), the Secured Socket Layer(SSL) certificate for a e-procurement application is generated on a new algorithm, SHA2.

Also, the Digital Certificates that will be applicable for these platforms have to be SHA2 algorithm complaint. For the same, the users have to ensure that they have Windows XP(SP3)/Windows Vista/Windows7 installed in their respective PC/Laptop. In case of Windows XP Service pack - 3, if you get any issue you can install the SSL patch, which is available at our download section of our e-Tender/e-Auction Portal and also at our corporate website www.abcprocure.com just below the label of "Knowledge section".

Fraud Prevention

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 BHEL Management about any fraud or suspected fraud as soon as it comes to their notice.

Preference to Make in India

Offers from Foreign vendors will not be considered. Offers of local vendors with less than the minimum local content as prescribed in this Tender will also not be considered. In the absence of any such information in the tender, the required minimum local content shall be 20%

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 purchase preference and/ or local content in respect of this procurement, same shall be applicable. Default margin of purchase preference shall be 20% to local suppliers with default minimum local content of 50%.

Memorandum of Understanding

**M/s BHEL
Trichy – 620014**

and

M/s: _____

Address:

For supplying

**PLUG VALVES
(API-6FA)**

MOU NO : MOU / TPBHEL /PLUG VALVES (API-6FA) REV.00

Contents

Scope

Standard Section

1.0 General conditions

2.0 Technical requirements

3.0 Documentation requirements

Project specific section

4.0 Project requirements

SCOPE

The specification is bifurcated in two broad sections, one is the “standard section” another is “project specific section”.

Project specific section is the variable part of the specification. It contains all the requirements of a specific project over and above the requirements of the standard section.

Memorandum of Understanding (MOU) for supplying PLUG VALVES – API 6FA.**1.0 GENERAL:**

- 1.1.1 Sections 1.0, 2.0, and 3.0 are standard and Section 4.0 will be furnished along with enquiry to the vendors for their acceptance.
- 1.2 In case of any difference between the details given in Section 4.0 and other sections, Section 4.0 shall be considered as final and binding and the vendors shall meet this requirement for that particular project.
- 1.3 Pointwise compliance to this specification is required. Deviations, if any, shall be brought out during offer stage itself. Pre commissioning spares (if applicable) with price break up as per the list (vide Section 4.0) shall be supplied along with the equipment.
- 1.4 Pre commissioning spares (if applicable) with price breakup as per the list (vide section 4.0) shall be supplied along with the equipment.
- 1.5 Two years recommended Spares list (vide Section 4.0) with price break up, if required, shall be enclosed.
- 1.6 If any special or non-standard tools are required for installation, operation or maintenance, the same shall be supplied along with the equipment.
- 1.7 Trouble-free operation of the equipment shall be guaranteed for a period of 12 months from the date of commissioning OR 18 months from the date of dispatch whichever is earlier.
- 1.8 Materials shall be dispatched on “Door Delivery with or without Consignee Copy attached basis to avoid demurrage at transporter’s go down”.
- 1.9 Since the vendor’s works alone is approved by BHEL, it is agreed the vendor will manufacture this item in their own works only and will not off-load the jobs to any other suppliers without the written approval by BHEL. All components shall be packed in such a way that they should not get damaged during transport.
- 1.10 BHEL and the Vendor shall have an involvement, which will commence at bid stage and follow through the completion and acceptance, thus ensuring total conformity to Purchaser’s requirements.

2.0 SPECIFICATIONS**2.1 Codes & Standards:**

The equipment shall be designed to meet the governing standards as applicable and also meet with the local standards where the equipment is installed. In case of any information not specified in this technical delivery conditions these standards will be binding.

2.2 Technical Specification:

1.	Type of Valve	Taper Plug valve as per API-6D with i) Short pattern detachable hand lever for sizes up to NB100 for manual operation. ii) Gear unit for sizes NB150 and above for manual operation.
2.	Type of operation	Manual / Motorized as per enquiry. In case of Motorized valve, refer TCI:318/Rev:01 for Electrical Actuators.
3.	Flow Medium	LFO as per IS 15770-2008, HSD as per IS 1460 / HFO as per IS 1593-1982 /HPS & LSHS as per IS11489-1985
4.	Material of Construction a. Body b. Plug c. Gland d. Hand lever	Cast Iron / Cast Steel for ANSI 150# ; Cast Steel for ANSI 300# Cast or Forged carbon steel Carbon steel Carbon steel
5.	End Connection	Flanged to ANSI rating.
6.	Leakage test	Leak proof as per API598 standard.
7.	Fire Safe Test	As per API 6FA standard.
8.	Operating parameters (Max)	a. For ANSI 300 lbs rating: 30kg/cm ² (g)180°C b. For ANSI 150 lbs rating: 4 kg/cm ² (g),70°C
9.	Marking	Stainless steel name plate with following details: size, rating, tag number, valve open/close position & material code.
10.	Painting & Packing	As per contract requirement enclosed / manufacturer standard (in the absence of contract requirement).

2.3 Plug Valve Sizes (Manual / Motorized):

S.No	Class 150#
1.1	NB 50
1.2	NB 80
1.3	NB 100
1.4	NB 150
1.5	NB 200
1.6	NB 250
1.7	NB 300
1.8	NB 350
1.9	NB 400
2.0	NB500

S.No	Class 300#
2.1	NB 50
2.2	NB 80
2.3	NB 100
2.4	NB 150
2.5	NB 200
2.6	NB 250

Vendor shall submit documents mentioned in clause 3.0 for selected variants for both manual & motorized options.

3.0 DOCUMENTS TO BE SUBMITTED**3.1 Along with Offer.**

- 3.1.1 Compliance to the MOU (MOU number, as applicable, shall be confirmed)
- 3.1.2 Point wise compliance or deviations to the project specific requirements of Section 4.0 of the MOU specification.
- 3.1.3 Overall dimensional assembly drawing for selected variants.
- 3.1.4 Actuator datasheets.
- 3.1.5 Filled in data sheet given in Section 4.0

3.2 After Placement of Order/Along with the supply.

- 3.2.1 Following documents shall be submitted along with the supplies
 - a. O&M instruction in soft version
 - b. Dimensional drawing
 - c. Actuator data sheets

4 PROJECT RELATED INFORMATION

4.1 Project Name :

4.2 Customer No. :

4.3 Data sheet – PLUG VALVE:

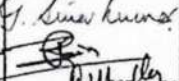
S.No	Description	BHEL Requirement	Vendor Confirmation
01	BHEL Material Code		
02	Actuator Type	Type-1 / Type-2 / Type-3 as per TCI:318/Rev:01	
03	Tag No's:		
04	Special Contract Requirements		

Technical Pre-Qualification Requirement (PQR) for Plug Valves

(Metallic seated)

1. The vendor shall be an established manufacturer of plug valves (Metallic seated, Manual / motorized) suitable for fuel oil system applications as per API-6FA and having adequate Engineering, Manufacturing, testing & servicing facilities and also having valid API certification as on date of enquiry. Vendor shall furnish technical backup documents in proof for above requirements.
2. The supplier shall have experience of having supplied plug valves (metallic seated) of sizes as per enquiry of class rating #150 and class rating #300 meeting API-6FA for Power plants / Refinery or application of similar severity as specified in the enquiry. Supplier shall submit documents in proof of the same.
3. The plug valves offered shall be from the existing regular manufacturing range of the supplier. Vendor shall provide the manufacturing catalogue or general reference list for the metallic seated plug valves along with offer.
4. Proven track record is required. Minimum one end user certificate for the satisfactory operational performance of their supplied plug valves is required as a proof.
5. In case of ordering, the Vendor shall have the responsibility for the followings and same to be confirmed point wise.
 - i) Vendor should have the component replacement responsibility in case of defect / failure.
 - ii) Experts from Vendor's side shall associate in commissioning activities at site, if required.
 - iii) Vendor should ensure the product performance during erection & commissioning.
6. Backup document checklist to meet PQR:

S. No	Document description	Check list
1	Documents to meet Clause(1)	☐
2	Valid API certification	☐
3	Supply reference document (PO /Inspection Reports)	☐
4	Product Catalogues	☐
5	Min. one end user certificate	☐
6	Confirmation to clause (5)	☐

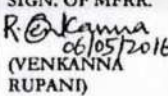
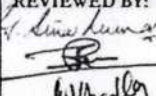
		MANUFACTURER'S NAME AND ADDRESS: BHEL TIRUCHIRAPPALLI & NTPC APPROVED SUB-SUPPLIERS		REFERENCE QUALITY PLAN						TO BE FILLED IN BY NTPC			
				ITEM: Plug Valves for Fuel Oil System of SG Package - PTFE Sleeved & Metallic Seated. Size: 25 to 300 mm; Rating: 150/300 Operation: Lever/Gear/ Electric Actuator		CQP NO.: 2677 REV. NO.: 02 DATE: 06/05/2016 PAGE: 1 OF 2		SIGN. OF MFRR.  (VENKANNA RUPANI)		QP NO.: 0000-999-QVM-P-163 REV. NO.: 02 DATE: 06-05-2016 PAGE: 1 OF 2 VALID UPTO: 05.05.2019		REVIEWED BY: 	
SL. NO	COMPONENT & OPERATIONS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	AGENCY			REMARKS	
									M	C	N		
1	2	3	4	5	6	7	8	9	D*	**10		11	

1.0 Raw Materials												
a) Body, Cover, Plug & Seat	a. Dimensions	Major	Measurement	100%	As per BHEL appd. Drawing	IR		P	-	-	-	IR=Goods receipt & Inspection report
	b. Surface Defects	Major	Visual	100%	No surface defects are acceptable	IR		P	-	-	-	
	c. Chem. Comp.	Major	Lab test	100%	Relevant standard	Foundry	✓	P	V	V	V	** Reports will be submitted for review
	d. Mech. Prop.	Major	Mech test	100%		TC	✓	P	V	V	V	
	e. Radiography (For Body)	Major	RT**	10%	ASME B16.34	IR	✓	P	V	V	V	
	b) PTFE Sleeve, wedge ring, Diaphragm	Major	Dimensional	100%	Purchase Order / Drawings.	IR		P	-	-	-	
	a. Dimensions	Major	Physical	100%	As per BHEL Appd. Drawing	IR	✓	P	V	-	-	
	c. Thrust Collar, Plug Stem, Equalizer Ring, Static Eliminator & Metal Diaphragm	Major	Dimensional	100%	As per BHEL Appd. Drawing	IR		P	-	-	-	
	a. Dimensions	Major	Physical	100%	No surface defects are acceptable	IR		P	-	-	-	
	b. Surface Defects	Major	Chem. Anal	100%	As per BHEL Appd. Drawing/Spec	IR	✓	P	V	V	V	Supplier / Lab TC will be issued
d. Fasteners (Stud / Nuts)	a. Dimensions	Major	Dimensional	100%	As per BHEL Approved. Drawing	IR		P	-	-	-	
	b. Surface Defects	Major	Physical	100%	No Surface Defects are Acceptable	IR		P	-	-	-	
	c. Chem. Comp.	Major	Chem. Anal.	100%	As per BHEL Appd. Drawing	IR		P	V	V	V	* Supplier /Lab TC will be issued
	d. Mech. Prop.	Major	Mechanical	100%	ASTM A 193 Gr.B8 /ASTM A 194 Gr.8*	IR	✓	P	V	V	V	
e. Worm Gear Actuator (NTPC approved makes)	a. Surface Defects	Major	Physical	100%	No Surface Defects are Acceptable	IR		P	V	-	-	
	b. Mounting Dimensions *	Major	Physical	100%	Drawing / Tech. Spec.	IR		P	V	-	-	*Supplier's dimensional report will be issued
	c. Operation	Major	Physical	100%	Technical Specification	IR		P	V	-	-	
f. Rotor / Electrical Actuator (NTPC approved makes)	a. Mounting Dimensions *	Major	Physical	100%	As per BHEL Appd. Drawing	IR	✓	P	V	-	-	* As per ISO 5211
	b. Performance	Major	Physical	100%	Smooth Operation	IR	✓	P	V	@	@	@ Review of CHP clearance report as per approved QP for Electrical Actuator

LEGEND: * RECORDS, IDENTIFIED WITH "TICK" (✓) SHALL BE ESSENTIALLY INCLUDED BY SUPPLIER IN QA DOCUMENTATION.
 ** M: MANUFACTURER/SUB-SUPPLIER, C: MAIN SUPPLIER//NOMINATED INSPECTION AGENCY, N: NTPC; P: PERFORM W: WITNESS AND V: VERIFICATION. AS APPROPRIATE; CHP: NTPC SHALL IDENTIFY IN COLUMN AS 'W', MIC- MILL / MANUFACTURER'S TEST CERTIFICATE; D: RECORD OF DATA FOLDER; QCR- QUALITY CONTROL RECORD; HC- HISTORY CARD
LEGEND: C1: Class (A: Critical, B:Major, C:Minor);
 IR: Inspection Report

Note: NTPC Inspection Engineer to check, approval date/ revision no. of reference documents at the time of Inspection

FORMAT NO.: QS-01-QAI-P-10/F1-R1

		MANUFACTURER'S NAME AND ADDRESS: BHEL TIRUCHIRAPPALLI & NTPC APPROVED SUB-SUPPLIERS		REFERENCE QUALITY PLAN						TO BE FILLED IN BY NTPC			
				ITEM: Plug Valves for Fuel Oil System of SG Package - PTFE Sleeved & Metallic Seated. Size: 25 to 300 mm; Rating: 150/300 Operation: Lever/Gear/ Electric Actuator		CQP NO.: 2677 REV. NO.: 02 DATE: 06/05/2016 PAGE: 2 OF 2		SIGN. OF MFRR.  (VENKANNA RUPANI)		QP NO.: 0000-999-QVM -P-163 REV. NO.: 02 DATE: 06-05-2019 PAGE: 2 OF 2 VALID UPTO: 05-05-2019		REVIEWED BY: 	
SL. NO	COMPONENT & OPERATIONS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	AGENCY			REMARKS	
									M	C	N		
1	2	3	4	5	6	7	8	9	D*	**10		11	

2.0 INPROCESS CONTROLS												
	A) Machining of Body	a. Dimensions	Major	Dimensional	100%	As per Approved Drawing	IR		P	V	-	
		b. Surface Defects	Major	Visual	100%	No Surface Defects are Acceptable	IR		P	V	-	
		c. Hydro shell Test	Major	Physical	100%	As per Approved Drawing	IR		P	V	-	
	B) Machining of Cover & Plug	a. Dimensions	Major	Dimensional	100%	As per approved drawing	IR		P	V	-	
		b. Surface Defects	Major	Visual	100%	No surface Defects are acceptable	IR		P	V	-	
	C) Hardness of plug	a. Plug DP test	Major	Visual	100%	No surface Defects are acceptable	IR	✓	P	V	V	
b. Hardness of plug		Major	Physical	100%	Hardness as per Spec/ Drg / NTPC approved data sheet	IR		P	V	V		
3.0 FINAL INSPECTION & TESTING												
3.1	Assembled Valves with lever / gear / Electric actuator	a. Dimensions	Major	Dimensional	100%#	Tech. Spec. / Approved Drg. of BHEL. / NTPC Appd. Data Sheet (5th Ed. appd. dty.)	IR	✓	P	W	W	#Witness of 10% for M/s BHEL (C) & M/s NTPC (N).
		b. Hydro Shell Test	Major	Physical	100%#		IR	✓	P	W	W	
		c. Hydro Seat Test	Major	Physical	100%#		IR	✓	P	W	W	
		d. Air Seat Test	Major	Physical	100%#		IR	✓	P	W	W	
		e. Performance Test with lever/Gear/Elec. Actuator	Major	Physical	100%#	Smooth Operation (with job actuator)	IR	✓	P	W	W	See Note 1.
		f. Fire Safe (PTFE Sleeved -External Leakage only, Metallic Seated – Both External & Internal leakage)	Major	Physical	Type Test	API 6FA (# In case the fire safe test as per API 6FA has not been witnessed by NTPC within five years, then the test as per API 6FA is to be carried out in the presence of NTPC.	IR	✓	P	V	V	
		In case the fire safe test as per API 6FA has been witnessed by NTPC within five years, reports shall be submitted to NTPC for verification.)										
4.0	Painting & Packing (Wherever applicable)	a. Surface Finish	Major	Physical	100%	As per manufacturer Std.	IR		P	-	-	
		b. Paint thickness	Major	Physical	100%	Min. 50 microns	IR		P	V	V	As per NTPC Engg approved painting scheme

- NOTE: 1. Plug Valves shall be procured from NTPC approved vendors.
 2. All review documents for review shall be submitted during Witness / Final Inspection to BHEL QC/NTPC.
 3. All the Materials of Construction shall be as per the Approved Drawing/Data Sheet.

LEGEND: * RECORDS, IDENTIFIED WITH "TICK" (✓) SHALL BE ESSENTIALLY INCLUDED BY SUPPLIER IN QA DOCUMENTATION. ** M: MANUFACTURER/SUB-SUPPLIER, C: MAIN SUPPLIER//NOMINATED INSPECTION AGENCY, N: NTPC, P: PERFORM W: WITNESS AND V: VERIFICATION, AS APPROPRIATE; CHP: NTPC SHALL IDENTIFY IN COLUMN AS 'W'; MTC: MILL / MANUFACTURER'S TEST CERTIFICATE; D: RECORD OF DATA FOLDER; QCR: QUALITY CONTROL RECORD; HC: HISTORY CARD LEGEND: C1: Class (A: Critical, B: Major, C: Minor); IR: Inspection Report	Note: # NTPC Inspection Engineer to check, approval date/ revision no. of reference documents at the time of Inspection
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FORMAT NO.: QS-01-QAI-P-10/F1-R1



An ISO 9001
Company

Bharat Heavy Electricals Limited
(High Pressure Boiler Plant)
Tiruchirappalli-620 014, Tamil Nadu, India
Dept: MATERIALS MANAGEMENT/BOI

Annexure – A - Terms and Conditions
ACCEPTANCE OF TECHNO - COMMERCIAL TERMS & CONDITIONS BY THE
BIDDERS

Description of the Equipment:		Plug valve (Manual & Motorised , Metallic Seated) for NTPC Unchahar R & M project
Enquiry No:		Enq No 1802000587/14
Dt. 09.09.2018	Terms and conditions	Vendor's confirmation
1 (a)	<u>Technical:</u> Supply shall be as per BHEL's Technical Specifications (TOS:MOU/TPBHEL/PLUG VALVES-API-6FA) attached with the enquiry, without deviation. NTPC. RQP - RQP/0000-999-QVM-P-163/Rev.01 is to be followed for this tender Pl note that document approval (Drawings/Technical documents and RQP) by BHEL and NTPC/Customer is applicable.	
1 (b)	Inspection by BHEL Approved Third Party Inspection Agencies/BHEL/NTPC/Customer at vendor works before dispatch is applicable. Shipment shall be made only after obtaining despatch clearance from BHEL/MDCC from NTPC/Customer.	
1 (C)	Confirmation & submission of all PQR documents as per annexure -1 (Technical pre-qualification requirements) Note: Vendors not meeting PQR will be rejected.	
1 (d)	Offer will be considered as package basis for evaluation & ordering, as indicated in the tender. Evaluation will be on total cost to BHEL, after all loadings as applicable.	
1 (e)	Pl note that your offer consideration is subject to Techno- Commercial Suitability & customer approval before Price bid opening.	
2	<u>Firm Price:</u> The quoted / finalised rates shall be Firm till execution of the supplies. Offer with Price Variation Clause (PVC) will not be considered.	
3	The tender will be operated in two part bid system. One-part consisting of Technical bid with Commercial terms & conditions and other part is Price Bid. Based on the above and other conditions, as well as technical capability, vendors will be short-listed. The Techno-commercial bid will be opened on the due date and based on the suitability of techno-commercial bid, the price Bid of the techno-commercial suitable qualified vendors will be considered and opened on a suitable date with due intimation to vendors.	
4	<u>Delivery term :</u> The quote shall be on FOR BHEL Trichy Stores basis (Tamil Nadu state). Packing & forwarding and Freight to yours account. Transit Insurance is on BHEL scope <u>Ex-Works Contracts will not be entertained.</u>	

5	<u>Payment term:</u> “100% direct EFT payment after 60 days from the date of receipt & acceptance of material at our stores.	
6 (a)	<u>Liquidated damages:</u> Delivery of the goods specified in the purchase order should be made within the time prescribed. Failure to dispatch the materials in the time as per the delivery quoted in our Purchase Order would make the supplier liable to an un-conditional LD at the rate of 0.5% of the order value per week of the delay or part thereof subject to a maximum of 10% of the total order value. In case of PO placements, required documents have to be submitted for approval within 15 days from the date of PO & reply for any further clarification has to be within 7 days. Any delay beyond the above specified period will be considered during LD calculation.	
6 (b)	<u>Loading Criteria on LD term for arriving the L1 rate:</u> Any deviation on BHEL LD clause, loading (Offered Value) will be applied to the extent to which it is not agreed by the bidder. *Acceptance of LD on undelivered portion will be loaded at the rate of 10% (max).	
7 (a)	<u>Guarantee / Warranty Period:</u> The offered system shall be guaranteed for 18 months from the date of supply or 12 months from the date of commissioning, whichever is earlier	
7 (b)	<u>Loading Criteria:</u> <u>Guarantee / Warranty Period:</u> No Deviation is permitted. If still vendor offered any deviation on the Guarantee / warranty period, it may lead to rejection of offer.	
8	<u>Risk purchase:</u> If the supplier fails to deliver the goods within the delivery specified in the Purchase Order, BHEL will be entitled to terminate the contract and to Purchase elsewhere at the risk and cost of the seller either the whole of the goods or any part which the supplier has failed to deliver or despatch within the delivery period mentioned in the Purchase Order.	
9	<u>Delivery Period:</u> 03 months from document approval	
10	LR date will be considered for LD calculation.	
11	<u>Validity:</u> 120 days minimum from techno commercial bid opening (Part-1). Any Deviation with respect to validity your offer is liable for rejection. Ensure your quoted rates will have 120 days minimum validity from techno commercial bid opening. The delay in responding to BHEL technical clarification beyond four days will be subsequently added to the validity period, Revised Price Bids will not be encouraged.	
12	<u>Inspection and testing requirements:</u> Inspection and testing requirements are to be carried out as per the specification and BHEL/Customer approved Drawing (All documents shall	

	be submitted within 15 days from the date of PO for our approval), Technical spec & QP and all test certificates are to be submitted in complete set. Inspection notice period: For TPI inspector visit to vendor works, a minimum of 3 working days' notice period for indigenous vendors and 30 working days' notice period for import vendors is required well in advance from the proposed date of inspection	
13	<u>Repair & replacements:</u> Within the guarantee period vendor has to replace / rectify the defective/ damaged items on free of cost within a reasonable time of reporting from our end.	
14	Documents are to be submitted along with technical bid (Part-1) 01. Covering letter 02. Unpriced offer. 03. Filed technical specification 04. Filed BHEL Terms and condition sheet (Annexure-A) 05. Catalogue's 06. PQR (Special Conditions annexure -1) 07. List of Spare parts 08. Third party non-disclosure agreement Documents are to be submitted along with Price bid (Part-2) 01. Priced offer Note: All the pages of documents are to be signed and stamped by authorized signatory of the company.	
15	<u>MSE Applicability as per Annexure C. The vendors shall furnish valid certificates (Latest audited CA certificate & UAM) as per annexure C, for availing the benefits of MSE with deemed validity in the offer itself.</u> Note: As per Gazette Notification no. S.O. 2119(E) dated 26.06.2020 issued by Ministry of MSME regarding change in definition of Micro, Small & Medium Enterprises (MSMEs) applicable w.e.f. 01.07.2020, you are hereby requested to obtain 'UDYAM Registration' and submit the same. <u>Note for MSE vendors.</u> 1. Udyam Registration is a new process of MSME Registration launched by the Ministry of Micro, Small and Medium Enterprises on July 1, 2020 2. All existing enterprises registered under EM-Part-II or UAM or any other registration issued by any authority under the Ministry of MSME are required to register again on the Udyam Registration portal (https://udyamregistration.gov.in). Such enterprises are required to apply and obtain Udyam Registration on or after 1st July 2020. 3. On registration, an enterprise is assigned with a permanent identity number, known as "Udyam Registration Number". An e-certificate, namely, "Udyam Registration Certificate" will be issued on completion of the registration process. 4. The MSE status of existing enterprises registered prior to 30th June 2020 shall be valid only till 31st March 2021. (i.e.) Udyam Registration Certificate is mandatory for all MSME enterprises from 1st April 2021.	

16	<u>Make in India:</u> For this procurement, Public Procurement (Preference to Make in India), order 2017 dated 15.06.2017, 28.05.2018 & 04.06.2020 issued by DPIIT 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 purchase preference and/ or local content in respect of this procurement, same shall be applicable. Default margin of purchase preference shall be 20% to local suppliers with default minimum local content of 50%. “For this procurement, the local content to categorize a supplier as Class I local supplier/ Class II local Supplier/ Non- Local supplier and purchase preference to Class I local supplier, as defined in Public Procurement (Preference to make in India), Order 2017 dated 04.06.2020 issued by DPIIT. In case of subsequent orders issued by the nodal ministry, changing the definition of local content for the items of the NIT, The same shall be applicable even if issued after issue of This NIT, but before opening of part-II bids against his NIT” For more details, pls. refer the 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.	
17 a	<u>Important Information w.r.t GST:</u>	
	Kindly indicate the GST No of your Firm	
	Kindly Indicate the HSN Code for the Enquiry item.	
	Please indicate the applicable GST % (IGST, SGST, CGST)	
	Kindly Note the BHEL Trichy Unit GST NO : 33AAACB4146P2ZL	
	Response to Tenders for Indigenous supplier will be entertained only if the vendor has a valid GST registration number which should clearly have mentioned in the offer. If any specific exemption is available, a declaration with due supporting documents need to be furnished for considering the offer.	
18 b	<u>In Case of Order Placement:</u> 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.	
	All invoices shall bear the HSN Code for each item separately (Harmonized System of Nomenclature)/ SAC code (Services Accounting Code).	

	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.	
	All dispatch and quality 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	
	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	
	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 for the delayed period i.e. from the month of receipt till the month tax credit is availed, from the running bills.	
	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. For this, Debit note will be issued by BHEL indicating the respective supply invoice number. Debit note will be available on our B2B portal.	
Note:	BHEL may negotiate the L1 rate, if not meeting our budget/estimated cost. BHEL may re-float the tender opened, if L1 price is not the acceptable price to BHEL. Any deviation in specified commercial terms- Annexure B, will lead to rejection of offer. Any other Techno –Commercial Terms indicated by the vendor in their offer elsewhere will be ignored. BHEL will proceed with tender evaluation as per Annexure A only.	

Vendor's Seal and Signature

Annexure C

Clause: Special Provisions for Micro and small Enterprises (MSE):

1. In case MSE vendor participating in the tender quotes within the price band of L1+15%, they will be allowed to supply the complete package requirement subject to acceptance of L1 price by MSE vendor.
2. In case of more than one such MSE, the counter offering will be to the lowest quoted MSE vendor subject to fulfilment of Point No.1
3. MSE suppliers can avail the intended benefits only if they submit along with the offer, attested copies of either EM II certificate having deemed validity (Five years from the date of issue of acknowledgement in EM II) or valid NSIC certificate or EM II certificate along with CA certificate (Format enclosed) 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.
4. Declaration of UAM number by MSE bidders is mandatory. Failing which, such bidders will not be able to enjoy the benefits as per Public Procurement Policy for MSEs Order, 2012.
5. Payment for MSE Indigenous vendors will be as per MSMED Act 2006

Certificate by Chartered Accountant on letter head

This is to Certify that M/S
(hereinafter referred to as 'company') having its registered office at
is registered under MSMED Act 2006, (Entrepreneur
Memorandum No (Part-II) dtd:.....
Category: (Micro/Small)). (Copy enclosed).

Further verified from the Books of Accounts that the investment of the company as per the
latest audited financial year as per MSMED Act 2006 is as follows:

1. **For Manufacturing Enterprises:** Investment in plant and machinery (i.e. original cost
excluding land and building and the items specified by the Ministry of Small Scale Industries vide its
notification No.S.O.1722(E) dated October 5, 2006 :
Rs.....Lacs
2. **For Service Enterprises:** Investment in equipment (original cost excluding land and building and
furniture, fittings and other items not directly related to the service rendered or as may be notified under the MSMED
Act, 2006:
Rs.....Lacs

(Strike off whichever is not applicable)

The above investment of Rs.....Lacs is within permissible limit of
Rs.....Lacs forMicro / Small (Strike off which is not applicable)
Category under MSMED Act 2006.

Or

The company has been graduated from its original category (Micro/ Small) (Strike off which is not
applicable) and the date of graduation of such enterprise from its original category is
(dd/mm/yyyy) which is within the period of 3 years from the date of graduation of such
enterprise from its original category as notified vide S.O. No. 3322(E) dated 01.11.2013 published
in the gazette notification dated 04.11.2013 by Ministry of MSME.

Date:



(Signature)

Name -

Membership number -

Seal of Chartered Accountant

 429-024	PURCHASE / MM / FB SUB DELIVERY – ENQUIRY - DEVIATION		
Page		OF	
DATE			
DESCRIPTION	Plug Valve		
SPECIFICATION	MOU/TPBHEL/PLUG VALVES- API-6FA	DRG. No.	
QUALITY PLAN	NTPC. RQP - RQP/0000-999-QVM-P-163/Rev.01		
DOC. REFERENCE	BHEL ENQ. CALLED FOR	FIRM'S ALTERNATE OFFER	

CERTIFIED THAT OTHER THAN THE ABOVE DEVIATIONS, WE ARE ACCEPTING ALL THE OTHER SPECIFICATIONS AND REQUIREMENTS IN FULL TO YOUR ENQUIRY

STATION:

DATE: _____ SIGNATURE OF FIRMS REPRESENTATIVE _____ FIRM SEAL _____

- NOTE: 1. Deviations should be taken only in the extreme case.
2. If necessary, use additional sheets with page control number.

BHARAT HEAVY ELECTRICALS LIMITED

Tiruchirappalli - 620 014



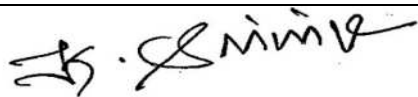
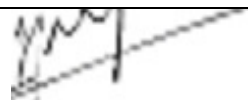
**NTPC LTD – FERROZ GANDHI UNCHAHAR THERMAL POWER
PROJECT**

1X500MW –STAGE IV

CUSTOMER NO: U5-0685

PAINTING SCHEDULE

NTPC Drawing No: 1450-001R-SGTR-PVM-W-001A

Prepared by	K. Srinivasan Engineer/Plant Lab		Document No: PL: C3 - PS / 0685
Reviewed by	L. Gragori SM/Plant lab		Revision No: 01 Dated: 03.04.2014
	A. Arunachalam SM /PE/FB		
Approved by	Dr. K. P. Dhandapani AGM / Plant Lab		Signature Not Verified Digitally signed by Rajesh Handa Date: 2014.04.15 17:27:51 IST Reason: CAT N Location: NTPCEOC Sheet No. 01 of 11.

m:\ chem. \ contracts 13\ntpc-FGUTPP\psword_00.d

RECORD OF REVISIONS

Rev. No	Date	Details of revision	Remarks
00	07.01.2014	New	This is in line with Appendix-C (Tech. MOM) page no. 107 to 109 of 827 of MOM between NTPC & NBPPL held from 21-06-2013 to 28.06.2013.
01	03.04.2014	DFT of primer and finish coats, total DFT are changed in Sl.no. 1.	Changes incorporated as per comments under CAT.IVR approval by NTPC 'Transmittal for documents/ drawings' Ref: CC: PE: 1:125 & NTPC DRG.NO: 1450-001R-SGTR-PVM-W-001A Dt.02-04-2014.

Sl. No.	PGMA / Description	Surface Preparation & Surface Profile	Primer coat		Intermediate coat		Finish coat			Total DFT μm (min)
			Paint	No. of coats	Paint	No. of coats	Paint	No. of coats	Shade	
1 PS 1AC2	Drum (Except Internals), Drum suspension 04 – 126,146	SSPC-SP3/ Power Tool Cleaning	Red Oxide Zinc phosphate Primer (Alkyd Base) to IS 12744 DFT= 30 μm per coat	2	--	--	Synthetic Enamel paint (Long Oil Alkyd) to IS 2932 DFT= 20 μm per coat	2	Inter-national-Orange Shade No: 592 of IS 5	100
2 PS5	Drum internals 04-136; 48-019	SSPC-SP1/ or SSPC – SP3 Solvent / Power Tool Cleaning	Rust Preventive Fluid to PR: CHEM: 09 – 04 DFT=25 μm per coat	1	--	--	--	--	--	25
3 PS19RC	Buck stays 08 – 001, 003,006,007,111,380,382,400 08 – 501,503,901,907,910 Boiler supporting structures 35 – 111, 112,121,122,130,140,150, 35 – 211,212,213,214,221,222,231,232 35 – 311,312,321,322,331,332,341,342 35 – 351, 352,361,362,381,382,383,390 35 – 441,442,443,451,452,453,511,512	Blast cleaning to SA2 ½ (Near white metal) with surface profile 35-50 μm	Inorganic Ethyl Zinc Silicate Primer DFT=75 μm per coat	1	Epoxy Based MIO /TiO2 Pigmented Intermediate Coat DFT=75 μm per coat	1	#Epoxy Finish Coat, DFT=35 μm per coat + # Aliphatic Acrylic PU Paint DFT=30 μm per coat	2 1	Grey White Shade To RAL 9002	250

Out of 2 coats of Epoxy based finish paint, one coat of Epoxy finish paint shall be given at shop / subcontracting works and second coat of Epoxy finish and one coat of aliphatic Polyurethane paint shall be applied at site.

S. No.	PGMA / Description	Surface Preparation & Surface Profile	Primer coat		Intermediate coat		Finish coat			Total DFT μm (min)
			Paint	No. of coats	Paint	No. of coats	Paint	No. of coats	Shade	
3 PS19RC	35-513,521,522,523,531,532,533 Galleries, Stair-ways & inter connecting walkways 36 – 110,130,150,311,312,313,314 36 – 315,321 to 327, 331 to 335,341 to 348,351 to 355, 361 to 363, 391to 393,610, 620, 621, 740. 38-210,299,310,381,410,510,610, 38-611,710 ID system structures 39 – 101,102,141,142,150,300,301 39 – 304,305,306 Duct supports 48-015,115,145,205,225,235,385, 435,465,485,495,665	Blast cleaning to SA2 ½ (Near white metal) with surface profile 35-50 μm	Inorganic Ethyl Zinc Silicate Primer DFT=75 μm per coat	1	Epoxy Based MIO /TiO2 Pigmented Intermediate Coat DFT=75 μm per coat	1	#Epoxy Finish Coat, DFT=35 μm per coat + #Aliphatic Acrylic PU Paint DFT=30 μm per coat	2 1	Grey White Shade To RAL 9002	250

Out of 2 coats of Epoxy based finish paint, one coat of Epoxy finish paint shall be given at shop / subcontracting works and second coat of Epoxy finish and one coat of aliphatic Polyurethane paint shall be applied at site.

Sl. No.	PGMA / Description	Surface Preparation & Surface Profile	Primer coat		Intermediate Coat		Finish coat			Total DFT μm (min)
			Paint	No. of coats	Paint	No. of coats	Paint	No. of coats	Shade	
4 PS9	Components >95° C Insulated/Uninsulated other than components in Column 5 & 7 Ring Headers, Down Comers, Hot air Headers outside the gas path etc. 05-137, 147, 158, 159, 227, 229, 231, 239, 251, 439 07-102,104,106,107,215,216,217, 218,223,225,226,231,232,393, 631 18-002,003,010,020 10-135,178,191,195,218,235,278,283,291 10-295,315,687 15-174,177,278, 279 17-807; 19-701,702,903 21-600, 24-300,303,315,320,324,327,328, 375 30-215,219 31-010,102,104,105 42-020,030,070,120,128,150,152,154,157, 42-158 48-032,202,207,212,222,232,372,382,386 48-388,432, 462,482 48-492,494,662, 667	SSPC-SP3/ Power Tool Cleaning	Heat Resistant Aluminium Paint to IS 13183 Gr. II/DFT 20 μm per coat	2	--	--	--	--	--	40

Sl. No.	PGMA / Description	Surface Preparation & Surface Profile	Primer coat		Intermediate Coat		Finish coat			Total DFT μm (min)
			Paint	No. of coats	Paint	No. of coats	Paint	No. of coats	Shade	
5 PS2	Loose tubes, SH, RH & Eco. coils, 11- 036,038,077,078,095,336,338 11-377,378,395,606,608,716,717,718,767 11-768,769,787,791,916,917,918,967,968 11-969,987,991 12-178,395,495,515,524,554,603, 619, 803, 805,850 12-852,900,903,906,914,917,924,927 12-928,944,948,954,968 16- 077,079,377,379; 19-814,824,884,914,924,984	SSPC – SP2 or SSPC – SP3 Hand tool / Power tool cleaning	Red Oxide Zinc Phosphate Dip coat primer to PR: CHEM: 09 – 03 DFT=35 μm per coat	1	--	--	--	--	--	35
6 PS1A1	Components < 95° C other than components in Sl.No.3 07-601;12-506; 21-601,604,605,606 24-301, 304, 313,326, 335, 336, 337, 340, 341,350,351,352,374, 987 30-235;35-995 36-613 37-010 39-302; 41-350,390,710 42-001,002,005,010,046,065 43-004,005,104,105 45-200,321,325,326,710; 47-261,263 48-012, 014, 022, 112, 114, 132, 142, 144,152, 200 67-204,272,276, 283,801,802,803 95-485,495; 96-186,187,189; 97-585,592; 99-100,200.	SSPC-SP3/ Power Tool Cleaning	Red Oxide Zinc phosphate Primer (Alkyd Base) to IS 12744 DFT= 30 μm per coat	2	--	--	Syn. Enamel paint (Long Oil Alkyd) to IS 2932 DFT= 20 μm per coat	2	Smoke Grey Shade No: 692 of IS5	80

PL: C3-PS / 0685 / 01										
Sheet 6 of 11										
Sl. No.	PGMA / Description	Surface Preparation & Surface Profile	Primer coat		Intermediate coat		Finish coat			Total DFT μm (min)
			Paint	No. of coats	Paint	No. of coats	Paint	No. of coats	Shade	
7 PS3	Components >95° C coming in the gas path; commissioning spares & Erection materials 04-988; 06-400, 431, 631,633,634,637,641,643 06-644, 651,653,655,670 10- 182,183,185; 11-491; 12-403, 993; 17-407,776;18-702 19-850,851;21-602,603, 987,988; 24-988,989,993 30-103,105,211,212,220 31-993 32-010,210 35-993 ; 36-993; 37-810; 48-204, 214, 224, 234, 384, 434, 464, 484, 664,916,993; 65-200,710,736; 67-200, 710; 96-193; 97-282,590,591; 99-099	SSPC-SP3/ Power Tool Cleaning	Red Oxide Zinc phosphate Primer (Alkyd Base) to IS 12744 DFT= 30 μm per coat	2	--	--	--	--	--	60
8 PS6	Hand rails and posts, ladders / rungs 35 – @821,822, @823,851 36 – @820, 851, 852,853 38 – @820,850 39 – @820,850 Floor Grills, Step treads 35 – 811,36-811,812,813,814 38 – 810, 39 – 810	a) Hot dip Galvanizing to a coating weight of 610 g/m ² (minimum) and to a coating thickness of 87.0 microns (minimum). Refer Notes given below **								

Notes **: The Guard plates, Hood Ladders and Stringer channels shall be painted as per painting scheme prescribed in Sl.No: 03.

PAINTING SCHEME FOR VALVES

Sl.No.	PGMA / Description	Surface Preparation & Surface Profile	Primer coat		Intermediate coat		Finish coat			Total DFT μm (min)
			Paint	No. of coats	Paint	No. of coats	Paint	No. of coats	Shade	
09 PS 9/10	Cast carbon steel valves (Conventional) Cast alloy steel valves (Conventional) All API valves, QCNRV, SV & SRV Silencers 21-800,825,850 24-320,324,325,327, 328, 360, 361, 365,380,383, 385; 42-300,358; 48-915 Seal Boxes & Doors etc. 09-001,002,303,503;28-220	SSPC-SP3/ Power Tool Cleaning	Heat Resistant Aluminium Paint to IS 13183 Gr.I/II	2	--	--	--	--	--	40
	Forged valves	Phosphating	To a coating weight of 1500 mg per sq.ft.	--	--	--	--	--	--	--
1AS2	Soot Blower components 20-051,054,201,204,511,794,962,988;	SSPC-SP3/ Power Tool Cleaning	Red Oxide Zinc phosphate Primer (Alkyd Base) to IS 12744 DFT= 30 μm per coat	2	--	--	Syn. Enamel paint (Long Oil Alkyd) to IS 2932 DFT= 20 μm per coat	2	Verdigris Green Shade No. 280 of IS5	80
	HP / LP system	SSPC-SP3/ Power Tool Cleaning	Heat Resistant Aluminium Paint to IS 13183 Gr.I	2	--	--	--	--	--	40

Sl.No.	PGMA / Description	Surface Preparation & Surface Profile	Primer coat		Intermediate coat		Finish coat			Total DFT μm (min)
			Paint	No. of coats	Paint	No. of coats	Paint	No. of coats	Shade	
10 PS15	For CLH & VLH* PGs 07,08,12,17,19,21,24,47,48 &80 07- 402 to 405, 431, 502 17-304,504,904,919,929 19-306,506,507,905 to 907 24-353;48-206,395	Abrasive blast cleaning to Sa 2 ½ 35- 50 microns	Epoxy zinc rich primer To IS 14589 Gr. II % VS=35, (min) DFT=40 microns per coat	1	--	--	Aliphatic acrylic Poly-urethane paint % VS=40.0 (min) DFT=30.0 microns per coat	1	Phirozi Blue Shade No. 176 of IS5	70
11 PS8A	Components > 95 C, un-insulated Fuel pipes 47-200,264,266,267,268,269,710,858	SSPC-SP3/ Power Tool Cleaning	General purpose Aluminium paint to IS 2339	2	--	--	--	--	Aluminum	40
12 PS 1BE	All Columns below '0' level (embedded in concrete) PGs 35,36,38 39	SSPC-SP3/ Power Tool Cleaning	HB Chlorinated Rubber Based Zinc Phosphate primer % VS=40, (min) DFT=50 microns per coat	1	--	--	--	--	Grey	50

*- For components other than CLH & VLH, Painting scheme shall be as given in Sl. No. 6.

NOTES:

1. Rust Preventive Coating should be given on HSFG Bolt and nut threads.
2. Machined surfaces and all retainers are to be applied with a coating of Temporary Rust Preventive oil.
3. All threaded and other surfaces of foundation bolts and its materials, insulation pins, Anchor channels, Sleeves shall be coated with Temporary Rust Preventive Fluid and during execution of civil works; the dried film of coating shall be removed using organic solvents.
4. Ground shade/colour of Finish paints & identification tag/Band for equipments, pipings pipe service, boiler supporting structures and other boiler components shall be followed as per NTPC doc. No.QS-01-DIV-W-4 (Rev. 1) which is available with BHEL.
5. PGMA's under Sub-Vendor items are not indicated. For all bought-out and sub-vendors items including PGMA's mentioned above falling under the scope of BHEL the same scheme as for main equipment as covered in this document shall be followed.
6. This painting Schemes is valid for only Customer No: 0685-NTPC – FGUTPP.
7. No painting is required for Stainless Steel, non-ferrous & galvanized components.
8. Wherever inside surfaces of components under PGMA 48 – XXX & others, need protection till erection, two coats of Red-oxide zinc phosphate primer paint to IS12744 to a DFT of 60 microns shall be applied, after power tool cleaning.
9. The Temporary Rust Preventive coating that already been applied on any components, tubes, pipes etc., shall be visually inspected for good adherence. If the coating is intact, direct coating of alkyd based red oxide paints over the coating is permitted. In case, the coating is to be removed by suitable solvents / heating to 350 –400 °C for an hour before primer paint application –but, in this case, it should be ensured that the minimum surface cleanliness required for primer paint application shall be SSPC – SP2 (equivalent – Hand Tool cleaning).
10. In components, wherever plates / sheets of thickness less than or equal to 5 mm and rods/tubes/drain pipes are used, power tool / hand tool cleaning to SSPC – SP3 / SP2 shall be followed and the painting shall be done as described in Sl.No.6.
11. For all commissioning components-erection materials (xx-993) two coats of Red oxide Zinc Phosphate Primer shall be applied to meet the temporary protection till erection, after power tool cleaning.
12. Touch-up painting of damaged areas shall be carried out as per clause 3.05.04, Part B. Sub section D-01, Section VI of the technical specification of EPC package of Singrauli STPP stage III – 1x500MW.
13. All components covered under different PGMA's are to be painted In case any component is left out, the same shall be deemed to be included under the relevant section based on paint logic approved.
14. For very small components like clamps etc. scheme no.6 shall be followed.
15. For very small components with weldable primer at edges, the entire component shall be applied with weldable primer.
16. Painting scheme for all temporary structures like 04-196 shall be PS 1AE i.e. 1 coat of Red oxide Zinc Phosphate primer (Alkyd Base) to IS 12744-DFT-30 µ and 2 coats of Synthetic Enamel paint (Long Oil Alkyd) to IS 2932-DFT-2X20µ Shade Yellow –Shade No. 356 of IS 5- Total DFT 70µ.
17. For internal protection of Pipes, tubes, headers and other pressure parts, Volatile Corrosion Inhibitor (VCI) pellets shall be put (after sponge testing/ draining/ or drying) and subsequently end capped. The dosage of VCI pellets shall be approximately 100 g/ Cu.m. For tubes typically 4 – 5 tablets per end are to be put. For C & I items the dosage of self-indicating Silica Gel (colourless) shall be 250 g/ cu.m. (About 2 to 3 bags weighing approximately 100 grams each). VCI pellets shall not be used for stainless steel components and its composite associates.
18. All threaded components of spring assemblies and turnbuckles shall be galvanized and achromatized to 15 microns minimum thickness.

Painting Scheme – Details for procurement & application purposes

Sl.No.	Generic nature of paint	Theoretical Covering Capacity Sq.m per Litre.	No. of pack	Volume solids, % (min)**	DFT in microns (min) per coat	Shade	Shade No. to IS5	Mode of appln.	Over coating interval, Hrs.
1	Inorganic ethyl zinc silicate to IS 14946 –Main Coat	8	2	60	75	Grey	--	Spray only	16
2	Poly amide cured Epoxy based Tio2/MIO pigmented intermediate coat	6	2	60	100	Grey/ Brown	--	## Spray	24
3	Epoxy based polyamide cured finish paint to IS 14209	10	2	40	40	Smoke Grey	692	Spray	24
4	Aliphatic acrylic polyurethane paint to IS 13213	10	2	40	30	Grey Phirozi – Blue.	RAL 9002 176	Spray Spray	24 24
5	Heat resistant Aluminium paint to IS 13183 Grade I	10	1	-	20	--	--	Brush / Spray	24
6	Red oxide zinc phosphate primer paint to IS 12744	10	1	--	25-30	-	--	Brush / Spray	12
7	Red oxide Zinc Phosphate Dip coat primer paint to PR: CHEM: 09-03	10	1	--	35	--	---	Dip	12
8	Long oil alkyd synthetic enamel finish paint to IS2932	10	1	--	15-20	Reqd. shade	Corrpdg. Shade no.	Brush / Spray	12
9	Temporary Rust preventive fluid to PR: CHE: 09 – 04	10	1	--	25	--	--	--	12
10	Epoxy Zinc rich primer to IS14589 Gr.II	8	2	35	40	Grey	--	Spray	24
11	General purpose Aluminium paint to IS 2339	10	2	--	20	Aluminum	--	Brush	12
12	HB Chlorinated Rubber Based Zinc Phosphate Primer-Colour Grey	8	1	40	50	Grey	--	Brush / Spray	12

Brush painting is accepted, if recommended by the Paint suppliers. The covering capacity of paints specified is only approximate. The paints and Rust Preventive fluid shall be procured from BHEL's approved suppliers. ** Values are indicative.

Painting of Damaged Areas

(Areas where the paint has deteriorated badly by erosion and areas where the paint film has lost its adhesion and where the steel has rusted appreciably, should be repainted as follows)

Sl.No.	Components	Surface Prepa- ration	Primer coat		Intermediate coat		Finish coat			Total DFT μm (min)
			Paint	No. of coats	Paint	No. of coats	Paint	No. of coats	Shade	
1	Paint damaged components fall under Sl.no: 3	Power tool cleaning to bare metal	Epoxy zinc rich primer to IS 14589 Grade II to a DFT of 40 mic/coat T.DFT 100mic	2	As given in scheme	1	As given in scheme	3	As given in scheme	250
2	Paint damaged components fall under Sl.no: 10	Power tool cleaning to bare metal	One coat of Epoxy zinc rich primer to IS 14589 Grade II to a DFT of 40 microns	1	--	--	As given in scheme	1	As given in scheme	70
3	Paint damaged components fall under Sl.no: 1,2,4,5,6,7,9.	Power tool cleaning to bare metal	As given in scheme	As given in scheme	--	--	As given in scheme	As given in scheme	As given in scheme	As given in scheme



BHARAT HEAVY ELECTRICALS LIMITED,
THIRUCHIRAPALLI-620 014

CONTROLS & INSTRUMENTATION/FOSSIL BOILERS

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**Technical specification
for Electrical Actuator
(Open/Close duty & Inching duty applications)**

Specification Number :- TCI : 318/Rev. 00

Revision History

Rev. No.	Date	Description	Prepared	Reviewed	Approved	
					Engineering	QA
			M. Muruga Prabu	V.M. Selvaraj	D. Mahendrababu	R.M Vairavan
00	09-12-2013	Initial release	-sd-	-sd-	-sd-	-sd-



SL. No.	Details	Requirements			Vendor's compliance
1	Site Conditions	Ambient Temperature : -20° C to +50° C Relative Humidity : 95% Atmosphere : Tropical, dusty, salty, corrosive and highly polluted			
2	Actuator Application	Open/Close duty, suitable for Valve applications. Suitable gearboxes shall be coupled (if required) to achieve the torque requirements of the load. Actuator mounting shall be suitable to the load requirement.			
3	Actuator type	Type 1	Type 2	Type 3	
		Electrical Actuator with integral starter. The Starter shall be as per technical specification.	Electrical Actuator without integral starter	Electrical Actuator with integral starter and 9 pin plug and socket arrangement. The Starter shall be as per technical specification.	
4	Actuator Construction	Totally enclosed weatherproof construction meeting IP 65 protection class requirements. All the gears available in the actuator shall be of metal (Fibre gears are not acceptable). Actuator shall have self locking facility.			
5	Manual operation through Hand-wheel	Shall have a lever and hand wheel mechanism for manual operation. The hand wheel mechanism shall be designed such that it is declutched automatically when the power supply to the motor, is restored.			



SL. No.	Details	Requirements	Vendor's compliance
6	Torque requirement	Shall be designed to meet with the required torque at the output shaft as per the load requirement. The adjustable range of run torque and starting torque of actuator shall be indicated (in kgm) for the actuator offered.	
7	Operating time	The operating time of the actuator required for the complete travel has to match with the load requirement.	
8	Supply voltage	415 V, 3 phase AC supply, 50Hz.	
9	Power supply variation	The actuator shall operate without any trouble under power supply voltage variation of $\pm 10\%$ of the rated value, power supply frequency variation of $\pm 5\%$ of the rated value, combined voltage and frequency variation of 10% of the rated value.	
10	Motor construction	Shall be of Totally Enclosed, Self Ventilated construction with weather proof enclosure conforming to IP-65. Shall have double shielded, grease lubricated anti-friction bearings.	
11	Motor Insulation	Shall have class F insulation with temperature rise of the motor winding limited to Class B. Motor winding shall be tropicalised suitable for the site conditions indicated above. Temperature rise over ambient temperature of 50° C shall be 70° C.	



SL. No.	Details	Requirements	Vendor's compliance
12	Motor duty cycle	The duty cycle of the motor shall be short time S2 duty cycle rated for the period of operation of 15 minutes or rated for 3 successive open-close operations whichever is longer. For inching duty, motor shall be suitable for 150 starts/hour.	
13	Motor Starting	Motor shall be suitable for direct on-line starting. Starting current shall be limited to 6 times the full load current exclusive of tolerance. Shall be capable of starting at 85% of rated voltage and Running at 80% of rate voltage for a period of 5 minutes.	
14	Standards	Actuator shall be conforming to IS-9334 or any other equivalent international standard for all requirements. Motor shall be conforming to IEC-60034, IS-325 or any other equivalent international standard for all requirements.	
15	Motor Thermostat	Motor winding shall be provided with inbuilt thermostat connected in series (one thermostat in each phase) and shall be wired to terminal box.	
16	Space heater for Motor	Shall have a space-heater with suitable rating and the power supply shall be derived internally from the main power supply.	



SL. No.	Details	Requirements	Vendor's compliance
17	Earth terminals	2 Nos. of earth terminals shall be provided on the body of the motor.	
18	Torque & position limit switches	2 numbers of adjustable torque limit switches (one for open and one for close), each with 2 NO and 2 NC potential free contacts. The torque limit switches shall have calibration in Kg-m (for whole actuator including gear box if supplied), so that the switches could be easily set to any desired value, within the range specified for each actuator. Torque switches shall be bypassed in both the end positions using the position Limit switches available at the other end of the travel. Actuators shall have provision for bypassing the torque switch during initial 5% opening of valves. 4 numbers of position limit switches, rotary drum type capable of being set at any position (2 nos. for open and 2 nos. for close) each with 2 NO & 2 NC potential free contacts. All Gear train mechanism shall be made of suitable metal only. Shall be enclosed in a dust & weather proof compartment and the compartment shall have enough space suitable for calibration. Contacts of limit and torque switches shall be Silver plated having high conductivity and non -corrosive type. Contact rating of all the above limit switches shall be 5 A at 240 V AC and 0.5 A at 220 V DC.	
19	Local position indicator	Shall be provided to indicate 0 to 100% travel.	



SL. No.	Details	Requirements	Vendor's compliance
20	Position Feedback transmitter	For inching duty applications, position feedback transmitter has to be supplied. Shall be 2 wire, non-contact type (LVDT) electronic position transmitter with an output of 4-20 mA DC and shall be loop powered from external power supply. The output shall also be capable of driving minimum 500 ohms load in the control circuits.	
21	Internal wiring	Shall be done with 1.5 sq.mm PVC insulated, stranded copper wire of 650V grade for control signals. For Power circuits, internal wiring shall be done using suitable size of stranded cables, taking care of the motor current rating. Ferrules should be used for easy identification. Internal wiring and the terminal block drawing shall be neatly pasted on the internal side of the terminal box.	
22	Terminal box	All terminals of the position limit switches, torque limit switches, space heaters shall be terminated in the terminal box. The terminals shall be of cage clamp type suitable for the cables of size 2.5sq.mm. Minimum 6 numbers of spare terminals shall be made available in the terminal board. Terminal box of actuator shall be weatherproof conforming to IP 65 and shall have enough space for connecting cable glands/plug and sockets. Terminal box shall be fitted with a removal front cover-plate.	
23	Cable Termination philosophy	Vendor to refer respective terminal block drawing (Type 1/Type 2/Type 3). Power Cable :- (Common to Type1/Type 2/Type 3)) Double compression type, Brass with Nickel plated cable glands shall be provided for the termination of power cable. Motor terminals shall be of stud type. Cable gland along with blanking washers shall be	



SL. No.	Details	Requirements	Vendor's compliance
		selected suitable for the power cable sizes as indicated below. a) Upto 3 kW – 3C x 2.5 sq.mm. Copper, OD – 17 mm $\pm$ 2 mm. b) > 3 kW & upto 7 kW - 3C x 6 sq.mm, Aluminium, OD – 19 mm $\pm$ 2 mm. c) > 7 kW & upto 13 kW - 3C x 16 sq.mm., Aluminium, OD – 22 mm $\pm$ 2 mm. d) > 13 kW & upto 24 kW - 3C x 35 sq.mm., Aluminium, OD-25 mm $\pm$ 2 mm. Termination of Control Cable (Type 1 & Type 2) :- For Type 1 and Type 2 actuators, 3 Nos. of Double Compression type, Brass with Nickel plated cable glands have to be supplied for the termination of the control/instrumentation cables suitable for a cable OD of 18mm. Termination of Control Cable (Type 3) :- For Type 3 actuator, 9 Pin plug & sockets (2 Nos. wired + 1 No. spare as loose supply) shall be provided to suit 4 pair 0.5 sq.mm. Copper overall shielded (16 mm OD), instrumentation cable. The socket shall be fixed on the terminal board and wired to the terminal blocks as per the wiring drawing.	
24	Fasteners	All fasteners used in the equipment shall be of a corrosion resistant material.	
25	Paint & finish	All external Parts shall be finished and painted to produce a neat and durable surface which would prevent Corrosion & Rusting.	
26	Lubricant	The gear box of the actuator shall be either oil filled or grease filled.	
27	Inspection & Testing	For the purpose of inspection & testing of electrical actuator, Quality Plan Ref. QA:CI:STD:QP:13 has to be referred.	



SL. No.	Details	Requirements	Vendor's compliance
Technical Description of the Electronic Integral Starter (Has to be referred, if applicable)			
1	Integral starter	Control logic of the starter shall be designed using suitable electronic control circuit. The starter shall have the following minimum features : • Power supply isolation switch & fuses of suitable rating. • Thermal Over load relay. • Lockable Local- Off -Remote selector switch. • Push buttons for Local Operation (OPEN, CLOSE, STOP) • Indication lamps (OPEN, CLOSE, TRIP) • Remote Signal interface • Output Contacts • Status/Fault annunciation	
2	Open/Close Command	Interposing relays of coil burden $\leq 2.5\text{VA}$ shall be provided to initiate opening and closing using 24V DC signal from the external control system. Actuator shall also be suitable for remote operation by potential free contacts for Open/Close & Stop, the necessary 24V DC power supply shall be derived internally. Open/Close command termination logic with position and torque limit switches shall be suitably built inside the starter Electrically & mechanically interlocked contactors shall be provided for forward and reverse operation. Contactor rating shall be sufficient to withstand the extreme conditions like valve jamming and instantaneous reversal of motor.	



SL. No.	Details	Requirements	Vendor's compliance
3	Protection Features in Starter	Shall have various protection features such as Single Phasing prevention, Wrong phase sequence protection, Overheating protection through thermostat, Short Circuit protection, Overload, Supply Under Voltage, over and above other standard protection features as per manufacturer's design.	
4	Control Supply	Control supply voltage of the starter shall be 24V DC. If other control voltage rating is used, then the same shall be derived internally by the manufacturer. Necessary primary and secondary fuses shall be provided. Opto isolation circuit shall be provided with suitable coupling relays for 24V DC commands from external control system.	
5	Local Operation	Provision shall be available to operate the actuator locally. Lockable local/remote selection shall be provided on the front panel of the actuator.	
6	Status indication	The following status indication signals shall be provided in the actuator over and above the standard signals available in the actuator as per the manufacturer's standard • Actuator Open • Actuator Close • Actuator in travel	



SL. No.	Details	Requirements	Vendor's compliance
7	Output Contacts	A Common potential free contact for collective fault annunciation of following faults such as Thermal Overload trip, Motor Thermostat trip, Control supply failure, Power Supply Failure/Single Phasing, Local/Remote switch in LOCAL/OFF, Torque Switch acted along with Other protections acted shall be provided for customer use. Potential free contacts shall be provided for Local/Remote/Off positions of the selector switch.	
8	Fault Annunciation	The following fault annunciation signals shall be provided in the actuator over and above the standard signals available in the actuator as per the manufacturer's standard • Open Torque Switch/Close Torque Switch acted • Motor thermostat trip • Motor Overload relay acted Actuator shall have necessary provision for diagnosing the fault locally.	
9	General features to be provided in the actuator	Open Torque Switch shall be bypassed initially for 3 seconds or 5% of the valve travel. It should be possible to reverse the direction of travel for inching duty application. Automatic phase correction facility and single phasing prevention shall be provided.	



SL. No.	Details	Requirements	Vendor's compliance
10	Details to be furnished	The ratings of the various components of the starter, various signal exchanges to/from the starter and the wiring interconnections shall be clearly indicated in the wiring drawing of the actuator.	

 BHEL - TRICHY	THIRD PARTY NON-DISCLOSURE AGREEMENT	Doc.No. : ISMS-04/TP/011	
		Ver. No: 3.0	Rev. No: 00
		Date : 27 - 10 - 14	

THIRD PARTY NON-DISCLOSURE AGREEMENT

I, _____, on behalf of the _____ (Name of Company), acknowledge that the information received or generated, directly or indirectly, while working with BHEL, Trichy on contract is confidential and that the nature of the business of the BHEL, Trichy is such that the following conditions are reasonable, and therefore:

I warrant and agree as follows:

I, or any other personnel employed or engaged by our company, agree not to disclose, directly or indirectly, any information related to the BHEL, Trichy Without restricting the generality of the foregoing, it is agreed that we will not disclose such information consisting but not necessarily limited to:

- Technical information: Methods, drawings, processes, formulae, compositions, systems, techniques, inventions, computer programs/data/configuration and research projects.
- Business information: Customer lists, project schedules, pricing data, estimates, financial or marketing data,

On conclusion of contract, I, or any other personnel employed or engaged by our company shall return to BHEL, Trichy all documents and property of BHEL, Trichy, including: drawings, blueprints, reports, manuals, computer programs/data/configuration, and all other materials and all copies thereof relating in any way to BHEL, Trichy 's business, or in any way obtained by me during the course of contract. I further agree that I, or any others employed or engaged by our company shall not retain copies, notes or abstracts of the foregoing.

This obligation of confidence shall continue after the conclusion of the contract also.

I acknowledge that the aforesaid restrictions are necessary and fundamental to the business of the BHEL, Trichy and are reasonable given the nature of the business carried on by the BHEL, Trichy I agree that this agreement shall be governed by and construed in accordance with the laws of country.

I enter into this agreement totally voluntarily, with full knowledge of its meaning, and without duress.

Dated at _____, this ____ day of _____, 20__.

Name

Company

Signature