

PROJECT: NTPC Dadri 4 x 490MW (BHEL W.O no: G 501 and G 502) CONTRACT NO: CS-6130-109-9-FC-NOA-6641 PACKAGE: FGD PACKAGE MAIN CONTRACTOR: BHEL - RANIPET SUB CONTRACTOR & ADDRESS: (To be filled by VENDOR)		CONTRACT QUALITY REQUIREMENTS (CQR) for ELECTRICALLY OPERATED HOISTS used in FGD APPLICATION NTPC Dadri 4 x 490MW (BHEL W.O no: G 501 and G 502)	DOC.NO: BAP/QR/G501-G502/ /Dadri/ EOH 001 Rev NO.: 00 PAGE : Page 1 of 1 DATE: 31.07.2021	##Enquiry No: ## Supplier Name & Address: ##Offer reference: ##Date: Contact Official Name: Mobile no: Email id:
Sl. NO.	DESCRIPTION	BHEL/NTPC Requirements		##Specific confirmations by the vendor


ITEM: ELECTRICALLY OPERATED HOISTS

01	Quality plan Requirement	Vendor shall confirm to meet the requirement of SQP ref no. SQP QP No. 0000-999-QOM-S-053 Rev 00 dt 05.04.2013 and arrange to submit the SQP duly endorsed (signature and stamp) in all pages along with duly filled in Endorsement sheet for accepting the QAP in totality in the event of Purchase Order.	
02	Type test requirements	Vendor shall confirm for successful conduction & completion of all the tests & type tests if any as indicated in the attached SQP ref no. SQP QP No. 0000-999-QOM-S-053 Rev 00 dt 05.04.2013.	
03	Inspection Methodology	BHEL/BHEL AIA and Ultimate customer NTPC Inspection as per this SQP is must before dispatch. No material shall be dispatched without BHEL/Ultime Customer NTPC, inspection with required CHP/MDCC clearances.	
04	For inspection call	To raise inspection call by BHEL/BHEL AIA inspection including for type test witnessing, vendor is requested to contact Mr R Kesavan, DGM (QC-Proc), Mobile no: +91 9443006303., Email id: Kesavan@bhel.in and Mr Zeeshan Ali, Sr.Engineer (QC-Proc), Mobile no: +91 9443149691., Email id: zeeshan@bhel.in for inspection related activities for immediate response / resolution.	
05	Packing	Required Packing & preservation shall also to be ensured as per requirements stipulated in Engg spec / drg / data sheet/PO condition to avoid any damage during transit., handling damages & storage at site.	
06	Painting	Paint color and coating thickness to be ensured as per requirements stipulated in Engg spec / drg / data sheet.	
07	Document package	Specific confirmation for Document Package in the event of an order (2 hard copies + 2 CDs in PDF file) is to be given containing the following with proper linkages (.) (i) Index Sheet (ii) SQP (iii) TCs identified by BHEL/NTPC for record for "CHP" and Verification portion as given in. (iv) Final Inspection Report + all applicable Test Certificates (v) BHEL/BHEL authorized Inspection Agency report + TC (vi) Type test reports conducted/submitted with approval (vii) NTPC CHP/MDCC	

##Supplier signature with seal

Necessarily to be filled up by the vendor at the time of offer itself otherwise their offer may not be considered w.r.t Quality Requirements being customer specific requirements.

ENDORSEMENT SHEET FOR QP
REFERENCE / STANDARD / FIELD QUALITY PLAN (RQP/ SQP/RFQP/SFQP)

TO BE FILLED IN BY SUPPLIER AT TIME OF SUBMISSION			To be filled in by NTPC
PROJECT NAME	NTPC Dadri 4 x 490MW (BHEL W.O no: G 501 and G 502)	<u>2REVIEW & ENDORSEMENT BY NTPC</u> PROJECT SPECIFIC QP NUMBER ALLOTTED QP NO: REV. NO.: 00 DT :	
CONTRACT NO.:	CS-6130-109-9-FC-NOA-6641		
MAIN SUPPLIER	M/S.BHEL, RANIPET , TAMIL NADU., INDIA		
MANUFACTURER WORKS & ADDRESS	(TO BE FILLED BY EOH MANUFACTURER)		
ITEM /EQUIPMENT / SYSTEM/ SUB-SYSTEM DETAILS i.e. MODEL TYPE/SIZE/RATING etc.	ELECTRICALLY OPERATED WIRE ROPE HOIST FOR FGD APPLICATION		
APPROVED QP NO.: RQP/SQP/RFQP/SFQP	0000-999-QOM-S053 Rev No. 00 dt 05.04.2013		
Confirmation by Main Supplier (TICK WHICHEVER APPLICABLE)		(TICK APPLICABLE)	
I. That the item/ component is identical to that considered for SQP approval.		The MQP/RQP/SQP is endorsed for this project without any change	
II. That there are minor changes in the item/ component with respect to that considered for MQP/RQP/SQP approval, however the same do not affect the contents of MQP/RQP/SQP			
III. That there are minor changes in the item/ component with respect to that considered for MQP/RQP/SQP approval, however the same affect the MQP/RQP/SQP slightly, as indicated below / in attached sheet.			
		The SQP is endorsed for this project with changes as indicated. <u>DISTRIBUTION OF ENDORSEMENT OF</u> A) MQP/RQP/SQP: 1. MAIN SUPPLIER (WITH A COPY OF MQP/RQP/SQP) 2. MANUFACTURER 3. RIO 4. CQA-SPL 5. CQA-O/C B) RFQP/SFQP: 1. MAIN SUPPLIER (with a copy of MQP/RQP/SQP) 2. MANUFACTURER 3. NTPC FQA (with a copy of MQP/RQP/SQP) 4. NTPC Erection (with a copy of MQP/RQP/SQP) 5. CQA-SPL 6. CQA-O/C	
SIGN.: (Main Supplier) DATE:	(TO BE FILLED BY EOH MANUFACTURER) SIGN.: (Manufacturer) DATE:	NTPC (Reviewed /Approved by/ Date & Seal)	



ITEM (MATERIAL, CLASS, GRADE, RATING, RANGE, SIZE ETC)

ELECTRIC OPERATED HOIST
UPTO SWL 15 T

STANDARD QUALITY PLAN

CONFORMING TO CODE:
IS: 3938

QIP NO. 9000-999-QOM-S-063

REVIEWED BY:

APPROVED BY:

REV. NO. 00

H S MAURYA

DATE 05.04.2013

S SINGH

PAGE Page 1 of 4

M K ASTHANA

VALID UPTO 04.04.2016

RAJEEV GARG

ACCEPTANCE NORM

Format of RECORD

AGENCY

M C N

REMARKS

SN	COMPONENT & OPERATIONS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE	Format of RECORD	AGENCY			REMARKS
				M	C/N		NORM		M	C	N	
1.	2.	3.	4.	5.	6.	7.	8.	9.	D	10.	11.	

A. RAW MATERIAL INSPECTION:

A.1	MS PLATES FOR STRUCTURAL MEMBERS & FABRICATED ROPE DRUM	CHEMICAL & MECHANICAL PROPERTIES	MAJOR	CHEM & MECH	1 SAMPLE/HEAT	MATERIAL SPECIFICATION AS PER APPROVED DATA SHEETS/DRAWINGS	MTC	✓	P	V	V	IN THE ABSENCE OF CORRELATED TC CHECK TESTING SHALL BE DONE ONLY FOR THICKNESS ≥ 25 MM
A.2	PIPE FOR ROPE DRUM (IF SEAMLESS PIPE IS USED)	ULTRASONIC TEST OF PLATES	MAJOR	NDT	100%	ASTM A-435	IR	✓	P	V	V	
A.3	FORGINGS/ ROLLED BARS FOR GEARS, PINIONS, WHEELS, AND BRAKE DRUM	CHEMICAL, MECHANICAL PROPERTIES & ACID ETCHING	MAJOR	CHEM & MECH	1 SAMPLE / HEAT SIZE	MATERIAL SPECIFICATION AS PER APPROVED DATA SHEETS/DRAWINGS.	MTC	✓	P	V	V	
		ULTRASONIC TEST FOR SEAMLESS PIPE	MAJOR	UT	100%	ASTM E-213	IR	✓	P	V	V	
		CHEMICAL & MECHANICAL PROPERTIES	MAJOR	CHEM & MECH	1 SAMPLE/ HEAT/ SIZE/ HT BATCH	MATERIAL SPECIFICATION AS PER APPROVED DATA SHEETS/DRAWINGS	MTC	✓	P	V	V	IN THE ABSENCE OF CORRELATED TC CHECK TESTING SHALL BE DONE ONLY FOR DIA ≥ 40 MM.
		ULTRASONIC TEST	MAJOR	NDT	100%	ASTM A-388	IR	✓	P	V	V	

B. BOUGHT OUT ITEMS :

B.1	HOOKS	MAKE & IDENTIFICATION	MAJOR	VISUAL	100%	100%	HOOK TC FROM COMPETENT AUTHORITY/ APPROVED MAKES	T/C	✓	P	V	V	REFER ANNEX I FOR MAKE	
		CHEMICAL & MECHANICAL PROPERTIES	MAJOR	CHEM & MECH	1 SAMPLE/ HEAT/ HT BATCH	MATERIAL SPECIFICATION AS PER APPROVED DATA SHEETS /DRAWINGS	MTC	✓	P	V	V			
		PROOF LOAD TEST	MAJOR	MECHANICAL	100%	100%	IS:15860/ IS: 5748	IR	✓	P	V	V		
		INTERNAL DEFECTS BEFORE & AFTER PROOF LOAD TEST	CRITICAL	NDT	100%	100%	ASTM – A 388	REFER NOTE - 1	IR	✓	P	V	V	ON SHANK PORTION ONLY
B.2	WIRE ROPES	IPPT TEST BEFORE & AFTER PROOF LOAD TEST	CRITICAL	NDT	100%	100%	ASTM E-165	NO DEFECT	IR	✓	P	V	V	
		MAKE & IDENTIFICATION	MAJOR	VISUAL	100%	100%	APPROVED MAKES			✓	P	V	V	REFER ANNEX I FOR MAKE
		DIMENSION & BREAKING STRENGTH	MAJOR	REVIEW	100%	100%	IS: 2268 / APPROVED DATA SHEET		MTC	✓	P	V	V	
		MAKE/ TYPE/ RATING	MAJOR	VISUAL	100%	100%	NTPC APPROVED DRAWING/ DATA SHEET/ NTPC SPECIFICATION / IS:325		IR	✓	P	V	V	REFER ANNEX I FOR MAKE
B.3	MOTOR	ROUTINE TESTS	MAJOR	REVIEW	100%	100%			MTC	✓	V	V	V	
		MAKE/ TYPE/ RATING	MAJOR	VISUAL	100%	100%	NTPC APPROVED DRAWING/ DATA SHEET/ NTPC SPECIFICATION / APPROVED MAKES		IR	✓	P	V	V	REFER ANNEX I FOR MAKE
		BACKLASH, TOOTH CONTACT & REDUCTION RATIO	MAJOR	REVIEW	100%	100%			MTC	✓	V	V	V	
		NO. LOAD RUN TEST (NOISE LEVEL, TEMP RISE & OIL LEAKAGE)	MAJOR	REVIEW	100%	100%	NTPC APPROVED DRAWING/ DATA SHEET/ NTPC SPECIFICATION / NO LEAKAGE		MTC	✓	V	V	V	
B.4	GEAR BOX													

LEGEND: * RECORDS, IDENTIFIED WITH 'TICK' (✓) SHALL BE ESSENTIALLY INCLUDED BY SUPPLIER IN QA DOCUMENTATION.
** M: MANUFACTURER/SUB-SUPPLIER C: MAIN SUPPLIER N: NTPC P: PERFORM W: WITNESS AND V: VERIFICATION AS APPROPRIATE. CHP: NTPC SHALL IDENTIFY IN COLUMN 'N' AS 'W'



ITEM (MATERIAL, CLASS, GRADE, RATING, RANGE, SIZE ETC)

ELECTRIC OPERATED HOIST
UPTO SWL 15 TON

STANDARD QUALITY PLAN

CONFORMING TO CODE :
IS: 3938

OP NO. 0000-999-QOM-S-063
REV. NO. 00
DATE 06.04.2013
PAGE 2 of 4

REVIEWED BY: H S MAURVANKAR
S SINGH
M K ASTHANNA
RAJEEV GARG
APPROVED BY: P. C. Woldia

SN	COMPONENT & OPERATIONS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK		REFERENCE DOCUMENT	VALID UPTO	ACCEPTANCE NORM	Format of RECORD	AGENCY			REMARKS
					M	C/N					M	C	N	
1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.				
B.5	BRAKES - E/W/ EHT	MAKE/ TYPE/RATING	MAJOR	VISUAL, REVIEW	100%	100%	NTPC APPROVED DRAWING/ NTPC SPECIFICATION/ IS: 9938	04.04.2016	APPROVED DRAWING/ NTPC TECH. SPECS/ APPROVED MAKES	IR	✓	P	V	REFER ANNEX-1 FOR MAKE
B.6	LIMIT SWITCH/ OVERLOAD RELAY/SPU/ CONTACTOR/ CONTROL TRANSFORMER/ PUSH BUTTON/ TERMINAL BLOCK/ INDICATING LAMP/ SELECTOR SWITCH	MAKE/ TYPE/RATING	MAJOR	VISUAL	100%	100%	NTPC APPROVED DRAWING/ NTPC SPECIFICATION/ IS: 9938			IR	✓	P	V	REFER ANNEX-1 FOR MAKE
B.7	CABLES - LT POWER/ CONTROL/ EPR FLEXIBLE TRAILING	MAKE/ TYPE/RATING	MAJOR	VISUAL	100%	100%	NTPC APPROVED DRAWING/ NTPC SPECIFICATION/ IS: 1554/ IS: 9988/ IS: 4289/ IS: 7098			IR	✓	P	V	REFER ANNEX-1 FOR MAKE
B.8	WVFD (AS APPLICABLE)	MAKE/ TYPE/RATING	MAJOR	VISUAL	100%	100%	NTPC APPROVED DRAWING/ NTPC SPECIFICATION/ APPROVED MAKES			IR	✓	P	V	REFER ANNEX-1 FOR MAKE
B.9	CONTROL PANEL & PENDENT STATION HOUSING/ BOX	MAKE/ TYPE/RATING	MAJOR	VISUAL	100%	100%	NTPC APPROVED DRAWING/ NTPC SPECIFICATION/ APPROVED MAKES			IR	✓	P	V	REFER ANNEX-1 FOR MAKE
C	IN PROCESS INSPECTION:													
C.1	ROLLING & WELDING OF ROPE DRUM (FABRICATED)	WPS, FOR SWPO ROLLING & WELD EDGE PREPARATION	MAJOR	REVIEW VISUAL & MEASURE	100%	100%	APPROVED WPS, ASME SEC. IX MANUFACTURING DRAWING/ APPROVED WPS	ASME SEC. IX DIV. 1 (UGS-86)	ASME SEC. IX DIV. 1, APP. 6/ B DIVISION - I, UW-51 & UW-52	QW-481-484	✓	P	V	REFER NOTE-2
C.2	ROPE DRUM WHEELS, PULLEYS & HOOK SHANK AFTER MACHINING	POST WELD HEAT TREATMENT NDT TEST ON WELD RADIOGRAPHY OF BUTT WELD JOINTS VISUAL & DIMENSIONAL NDT ON MACHINED SURFACES	MAJOR	REVIEW DPT RT VISUAL & MEASURE DPT	100%	100%	ASME SEC. V ASME - SEC. V MANUFACTURER'S DRAWINGS	ASME SECTION - VIII DIV. 1, APP. 6/ B DIVISION - I, UW-51 & UW-52	SR CHART DPT REPORT RT FILMS & REPORT	✓	P	V	V	SR CHART REVIEW BY NTPC DURING FINAL INSPECTION FLW REVIEW BY NTPC DURING THE FINAL INSPECTION. CHP

LEGEND: * RECORDS IDENTIFIED WITH TICK (✓) SHALL BE ESSENTIALLY INCLUDED BY SUPPLIER IN QA DOCUMENTATION.
** M: MANUFACTURER/SUB-SUPPLIER G: MAIN SUPPLIER N: NTPC P: PERFORM W: WITNESS AND V: VERIFICATION. AS APPROPRIATE. CHP: NTPC SHALL IDENTIFY IN COLUMN 'V' AS 'V'

FORMAT NO.: QS-01-QA1-P-10/F1-R1

1/1

ENGG. DIV/JOA&I

ITEM (MATERIAL, CLASS, GRADE, RATING, RANGE, SIZE ETC)				STANDARD QUALITY PLAN				CONFORMING TO CODE :			
ELECTRIC OPERATED HOIST UPTO SWL 15 TON				IS: 3938				Q.P. NO.	0000-999-QOM-S-053	REVIEWED BY:	APPROVED BY:
								REV. NO.	00	H S MAURYA	
								DATE	05.04.2013	S SINGH	
								PAGE	Page 3 of 4	M K ASTHANA	
								VALID UPTO	04.04.2016	RAJEEV GARG	
SN	COMPONENT & OPERATIONS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORM	Format of RECORD	AGENCY	REMARKS	
1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	

D FINAL INSPECTION:										
D.1	COMPLETE ASSEMBLED HOIST ALONG WITH ACTUAL CONTROL PANEL, VVFD & PUSH BUTTON (AS APPLICABLE)	VISUAL & DIMENSIONAL	MAJOR	VISUAL & MEASURE	100%	100%	IS: 3938/ APPROVED DRAWING/ DATA SHEET	IR	✓	P W W
	OVERLOAD TEST AT 125%	HOLDING CAPACITY OF BREAK, LIMIT RELAYS OPERATION	MAJOR	VISUAL	100%	100%	IS: 3938/ APPROVED DRAWING/ DATA SHEET	IR	✓	P W W
	NO LOAD TEST & FULL LOAD TEST	CURRENT DRAWN, SPEED OF HOIST, ENCHING OPERATION, INTERLOCKING SEQUENCE OPERATION	MAJOR	VISUAL & MEASURE	100%	100%	IS: 3938/ APPROVED DRAWING/ DATA SHEET	IR	✓	P W W
D.2	CONTROL PANEL	VISUAL, MAKE VERIFICATION & DIMENSION	MAJOR	VISUAL & MEASURE	100%	100%	IS: 3938/ APPROVED DRAWING/ DATA SHEET	IR	✓	P W W
		DEGREE OF PROTECTION TEST BY PAPER INSERTION METHOD	MAJOR	VISUAL	100%	100%	IS: 3938/ APPROVED DRAWING/ DATA SHEET	IR	✓	P W W
		HV, IR	MAJOR	MEASURE	100%	100%	IS: 3938/ APPROVED DRAWING/ DATA SHEET	IR	✓	P W W
		PAINT SHADE ADHESION, THICKNESS	MAJOR	VISUAL & MEASURE	100%	100%	IS: 3938/ APPROVED DRAWING/ DATA SHEET	IR	✓	P W W
D.3	PAINTING OF HOIST	ADHESION, VISUAL & DFT MEASUREMENT	MAJOR	VISUAL & MEASURE	100%	100%	AS PER NTPC SPECIFICATION	IR	✓	P W W
NOTES:										
1.	BACK WALL ECHO SHALL BE SET AT 100% OF FULL SCREEN HEIGHT AT SOUND AREA OF THE BAR USING NORMAL BEAM PROBE OF 2 MHz TO 5 MHz. AT THIS SENSITIVITY LEVEL, ANY DEFECT ECHO EXCEEDING 20% OF FSH IS NOT ACCEPTABLE. IN ADDITION, LOSS OF BACK WALL ECHO MORE THAN 20% OF FSH IS ALSO NOT ACCEPTABLE.									
2.	WPS, POR & WELDERS QUALIFIED BY LLOYDS, BVQI, TUV, DNV, NTPC, BHEL, INPCL ARE ACCEPTABLE. ONLY QUALIFIED WELDERS SHALL BE DEPLOYED FOR WELDING.									
3.	MOTOR POWER RATING LESS THAN 30KW: ACCEPTANCE OF MOTOR LESS THAN 30KW IS BASED ON COC OF THE MANUFACTURER & THE CONTRACTOR CONFIRMING AS FOLLOWS: IT IS HEREBY CONFIRMED THAT THE ABOVE MENTIONED MOTOR/ MOTORS WAS/WERE MANUFACTURED TAKING CARE OF NTPC SPECIFIC REQUIREMENTS REGARDING AMBIENT TEMP., VOLTAGE & FREQUENCY VARIATION, HOT STARTS, PULL OUT TORQUE, STARTING KV/KW, TEMP. RISE, DISTANCE BETWEEN CENTRE OF STUD & GLAND PLATE AND TESTED IN ACCORDANCE WITH APPROVED DRAWING/ DATA SHEETS.									
3.	HV TEST ON CONTROL PANELS WILL BE DONE ISOLATING VVVF DRIVE AND OTHER ELECTRONIC PARTS. HV TEST AT 2 KV FOR POWER & 1.5 KV FOR CONTROL CIRCUIT.									
4.	ALL CRITICAL DIMENSIONS SHALL BE MEASURED. THE CURRENT AND SPEED FOR HOISTING MOTION AND LONG TRAVEL MOTION SHALL BE MEASURED DURING NO LOAD TEST AND SAFE WORKING LOAD (SWL) TEST. ALL INTERLOCKS, BRAKE OPERATION, LIMIT SWITCHES AND SAFETY MEASURES SHALL BE CHECKED.									

LEGEND: * RECORDS, IDENTIFIED WITH TICK (✓) SHALL BE ESSENTIALLY INCLUDED BY SUPPLIER IN QA DOCUMENTATION.
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FORMAT NO.: QS-01-QA-P-10/F1-R1

1/1

ENG. DIV./QA&I

ITEM (MATERIAL, CLASS, GRADE, RATING, RANGE, SIZE ETC)					STANDARD QUALITY PLAN					CONFORMING TO CODE : IS: 3938				
ELECTRIC OPERATED HOIST UPTO SWL 15 TON					REV. NO. 00					OP NO. 0000-999-QOM-S-053				
					DATE 05.04.2013					REVIEWED BY: H S MAURYA				
					PAGE 4 of 4					S SINGH				
										M K ASTHANA				
										RAJEEV GARG				
										AGENCY				
										REMARKS				

SN	COMPONENT & OPERATIONS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTITY OF CHECK	REFERENCE DOCUMENT	VALID UPTO	ACCEPTANCE NORM	Format of RECORD	M	C	N	REMARKS
1.	2.	3.	4.	5.	6.	7.	8.	9.	D	10.	11.		

LIST OF BOUGHT OUT ITEMS AND THEIR SOURCES

1	STEEL	SAIL, TISCO, RINL, JSW, JISL, ESSAR, IISCO, WELSPUN
2	WIRE ROPE	USHIA MARTIN BHARAT WIRE ROPE, BOMBAY WIRE ROPE
3	HOOK	HERMAN MOHATA, SMRITI FORGING, PARACHIWALA
4	GEAR BOX	ELECON, SHANTI GEAR NEW ALLENBURY WORKS, PETL, BONFIGLIOLI - ITALY
5	MOTOR	LHP, ABB, SIEMENS, MARATHON ELECTRIC, KEC, BRL, CGL, NGE (UP TO 15 KW), JYOTI
6	LIMIT SWITCHES	JAIBALAJI, BCH, SPEED-O-CONTROL (NOTED), SIEMENS
7	CONTACTOR&OR, TIME DELAY RELAY, AUX RELAY	SIEMENS, L&T, TELEMCHANIC, C&S
8	FUSES, SFU, MCB, MCCB	SIEMENS, L&T, GEIL, C&S
9	FLEXIBLE CABLE, LT POWER AND CONTROL CABLE	UNIVERSAL, POLYCAR, KEI, NICCO, DELTON, PARAMOUNT, CORDS, GEMS, HAVELLS* * ONLY FOR FIXED CABLE
10	BEARING	SKF, FAG, NRB, NTN, NBC, TIMKEN
11	PUSH BUTTONS	VAISHNO, SIEMENS, L&T, TELEMCHANIC
12	PUSH BUTTON STATIONS (PENDANT)	VAISHNO, SIEMENS, L&T
13	INDICATING LIGHT	VAISHNO, SIEMENS
14	TRANSFORMERS (CONTROL)	INDCOIL, LOGICSTAT, PACIL, AE, PRAGATI, PRAVAG, PRECISE, SOUTHERN ELECTRIC, GUJARAT PLUG-IN, KAPPA
15	CURRENT TRANSFORMERS	L&T, ABB, SIEMENS, SCHIENDER, DANFOSS
16	VVVF DRIVE	RITUAL, PYROTECH, POSITRONICS, MPP
17	CONTROL PANEL	EMCO, PETHE, WML, BCH
18	BRAKES - DC&M	WML, ELECTROMAG
19	BRAKES - EHT	ELMEX, CONNECTWELL, WAGO (FOR CONTROL ONLY)
20	TERMINAL BLOCK	MECO, RISHABH, IMP
21	INDICATING METER	SUSHEEL, STOMAG
22	DSL&CURRENT COLLECTING SYSTEM	L&T, KAYCEE
23	SELECTOR SWITCH	

LEGEND: * RECORDS, IDENTIFIED WITH TICK (✓) SHALL BE ESSENTIALLY INCLUDED BY SUPPLIER IN QA DOCUMENTATION.
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FORMAT NO.: QS-01-QAI-P-10/F1-R1

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