

***RAJASTHAN RAJYA VIDYUT UTPADAN NIGAM
LIMITED***

2X660 MW SURATGARH STPS, STAGE-V, UNIT-7&8

VOLUME – IIB

**TECHNICAL SPECIFICATION
FOR
MV CABLE TERMINATION & JOINTING KIT**

**SPECIFICATION NO : *PE-TS-392-507-E015*
REVISION : 0**



**BHARAT HEAVY ELECTRICALS LIMITED
POWER SECTOR
PROJECT ENGINEERING MANAGEMENT
NOIDA, UP (INDIA) – 201301**



**RAJASTHAN RAJYA VIDYUT UTPADAN
NIGAM LIMITED
2 X 660 MW SURATGARH TPS
TECHNICAL SPECIFICATION FOR MV
CABLE TERMINATION KITS AND
JOINTING KITS**

SPECIFICATION NO. PE-TS- 392-507-E015

VOLUME II B

SECTION C

REVISION 0

DATE: 16.06.2014

SHEET OF

CONTENTS

VOL-IIB

SL. No.	DESCRIPTION	NO.	OF SHEETS
1.0	INSTRUCTIONS TO BIDDERS FOR PREPARING TECHNICAL OFFER		01
2.0	PREAMBLE		01
3.0	SECTION – ‘A’ SCOPE OF ENQUIRY		02
4.0	SECTION – ‘B’ PROJECT INFORMATION		04
5.0	SECTION – ‘C’ SPECIFIC TECHNICAL REQUIREMENTS		03
6.0	ANNEXURE – I: BILL OF QUANTITY		01
7.0	ANNEXURE –II: (LIST OF DRAWINGS /DOCUMENTS TO BE SUBMITTED BY SUCCESSFUL BIDDER)		01
8.0	ANNEXURE –III: (VENDOR DRAWING/DOCUMENT SCHEDULE)		01
9.0	SECTION – ‘D’ STANDARD TECHNICAL REQUIREMENTS		03
10.0	DATA SHEET – A		02
11.0	DATA SHEET-C (GUARANTEED TECHNICAL PARTICULARS)		01
	TOTAL NO. OF SHEETS (INCLUDING COVER/ SEPARATOR SHEETS)	=	21

IT IS CONFIRMED THAT OUR TECHNICAL OFFER COMPLIES WITH THE SPECIFICATION IN TOTO, & THAT THERE ARE NO TECHNICAL DEVIATIONS.

BIDDER’S STAMP & SIGNATURE



**RAJASTHAN RAJYA VIDYUT UTPADAN
NIGAM LIMITED
2 X 660 MW SURATGARH TPS
TECHNICAL SPECIFICATION FOR MV
CABLE TERMINATION KITS AND
JOINTING KITS**

SPECIFICATION NO. PE-TS- 392-507-E015

VOLUME II B

SECTION C

REVISION 0

DATE: 16.06.2014

SHEET OF

INSTRUCTIONS TO BIDDERS FOR PREPARING TECHNICAL OFFERS

1. Two signed and stamped copies of the following shall be furnished by all bidders as technical offer:
 - a. Unpriced Price Schedule with bidder's signature and company stamp.
 - b. A copy of this sheet ("Instructions to Bidders for Preparing Technical Offer"), with bidder's signature and company stamp.
 - c. A copy of previous sheet ("Contents"), with bidder's signature and company stamp.
2. No other technical submittal such as copies of type test certificates, data Sheets, write -up, drawing, technical literature, etc. is required during tender stage. Any such submission, even if made, shall not be considered as part of offer.
3. No comments/ additions/ deletions shall be made by the bidder on the signed & stamped copy of the specification. Any such changes made by the bidder shall not be considered.
4. Confirmations/ comments (if any) regarding delivery schedules shall be furnished as part of the commercial offer. Any reference elsewhere/ covering letter of technical offer shall not be considered by BHEL.
5. Any comments/ clarifications on technical/ inspection requirements furnished as part of bidder's covering letter shall not be considered by BHEL, and bidder's offer shall be construed to be in conformance with the specification.
6. Any changes made by the bidder in the price schedule with respect to the material description/ quantities, notes etc. from those given in Annexure of specification shall not be considered (i.e., technical description, quantities, notes etc. as per specification shall prevail).

BIDDER'S STAMP & SIGNATURE



**RAJASTHAN RAJYA VIDYUT UTPADAN
NIGAM LIMITED
2 X 660 MW SURATGARH TPS
TECHNICAL SPECIFICATION FOR MV
CABLE TERMINATION KITS AND
JOINTING KITS**

SPECIFICATION NO. PE-TS- 392-507-E015

VOLUME II B

SECTION C

REVISION 0

DATE: 16.06.2014

SHEET OF

PREAMBLE

1. The Tender documents contain Two (2) volumes. The bidder shall meet the requirements of all two volumes.

1.1 VOLUME - I CONDITIONS OF CONTRACT

This consists of four parts as below: -

Volume – IA This part contains Instructions to bidders for making bids to BHEL.

Volume – IB This part contains General Commercial Conditions of the Tender & includes provision that vender shall be responsible for the quality of item supplied by their sub-vendors.

Volume – IC This part contains Special Conditions of Contract.

Volume – ID This part contains Commercial Conditions for Erection & Commissioning site work, as applicable.

1.2 VOLUME – II TECHNICAL SPECIFICATIONS

Technical requirements are stipulated in Volume – II, which comprises of: -

Volume – IIA General Technical Conditions.

Volume – IIB Technical Specification including Drawings, if any.

1.3 VOLUME – IIB

This volume is sub-divided in to following sections:-

Section – A This section outlines the Intent of Specification

Section – B This section provides “Project Information”.

Section – C This section indicates Technical Requirements specific to Contract, not covered in Section - D

Section – D This section comprises of Technical Specifications of Equipments Complete with Data Sheets A & C.

Data sheet -A: - Specific data and other requirements pertaining to the equipments.
Data sheet -C: - Indicate data / documents to be furnished after award of contract as per agreed schedule by the vendor (as applicable).

NOTE: The requirements mentioned in Section-C /Data Sheet-A shall prevail and govern in case of conflict between the same and the corresponding requirements mentioned in the descriptive portion in Section-D.



**RAJASTHAN RAJYA VIDYUT UTPADAN
NIGAM LIMITED
2 X 660 MW SURATGARH TPS
TECHNICAL SPECIFICATION FOR MV
CABLE TERMINATION KITS AND
JOINTING KITS**

SPECIFICATION NO. PE-TS- 392-507-E015

VOLUME II B

SECTION C

REVISION 0

DATE: 16.06.2014

SHEET OF

SECTION – ‘A’

SCOPE OF ENQUIRY



**RAJASTHAN RAJYA VIDYUT UTPADAN
NIGAM LIMITED
2 X 660 MW SURATGARH TPS
TECHNICAL SPECIFICATION FOR MV
CABLE TERMINATION KITS AND
JOINTING KITS**

SPECIFICATION NO. PE-TS- 392-507-E015

VOLUME II B

SECTION C

REVISION 0

DATE: 16.06.2014

SHEET OF

SCOPE OF ENQUIRY

- 1.0 This specification covers design, manufacture, assembly, inspection & testing at manufacturer's works, proper packing, delivery to **2X660 MW SURATGARH TPS** of **TERMINATION AND JOINTING KITS** as mentioned in different sections of this specification, complete with all accessories for efficient and trouble-free operation of project as indicated in Section-B (Project Information).
- 2.0 It is not the intent to specify completely herein all details of the design and manufacture. However, the equipment shall conform in all respects to high standards of design engineering and workmanship and shall be capable of performing in continuous commercial operation up to bidder's guarantee.
- 3.0 The general terms and conditions, instruction to bidders and other attachment referred to elsewhere are hereby made part of the Technical Specification.
- 4.0 The Bidder shall be responsible for and governed by all requirements stipulated hereinafter.
- 5.0 Bidder shall confirm to full compliance to the specification without any deviations from the technical / quality assurance requirements stipulated.
- 6.0 The documents shall be in English language and MKS system of units.



**RAJASTHAN RAJYA VIDYUT UTPADAN
NIGAM LIMITED
2 X 660 MW SURATGARH TPS
TECHNICAL SPECIFICATION FOR MV
CABLE TERMINATION KITS AND JOINTING
KITS**

SPECIFICATION NO. PE-TS-392-507-E015

VOLUME II B

SECTION - B

REVISION 0

DATE: 16.06.2014

Page 1 of 1

PROJECT INFORMATION

SPEC.NO. TCE.5750A-H-500-001	TATA CONSULTING ENGINEERS LIMITED	VOLUME II SECTION – B
	RRVUNL, 2 x 660 MW, Super-Critical TPS, Stage-V, Unit # 7 & 8 at Suratgarh, Rajasthan GENERAL PROJECT INFORMATION	SHEET 1 OF 3

1.0	Owner	Rajasthan Rajya Vidyut Utpadan Nigam Ltd., Jaipur
2.0	Consulting Engineer	TATA Consulting Engineers Ltd. 73/1, St. Marks Road, Bangalore – 560 001 Tel : 080 – 6622 6000 Fax : 080 – 22274874
3.0	Location of the plant	Prabat Nagar, Suratgarh Sriganganagar district, Rajasthan.
4.0	Latitude and longitude	Latitude : 29 deg. 10 min. N Longitude : 74 deg.01 min. E
5.0	Elevation above mean sea level	186 m (approximate)
6.0	Climatic conditions	
6.1	Temperatures : Monthly basis	
	Mean of daily max.	32.8 deg.C (in the month of May)
	Mean of daily min.	17.6 deg.C (in the month of Jan)
6.2	Temperatures : Annual basis	
	Mean of daily max.	32.3 deg.C
	Mean of daily min.	19.6 deg.C
	Highest temperature recorded	50 deg.C
	Lowest temperature recorded	(-) 2.8 deg.C
	Design Ambient Temperature for Electrical Equipment design	50 deg C
6.3	Relative humidity	Varies between 21% and 81%
6.4	Annual average rain fall	312 mm
6.5	Annual mean wind speed :	4 km / hr.
7.0	Wind load	

ISSUE
R1

SPEC.NO. TCE.5750A-H-500-001	TATA CONSULTING ENGINEERS LIMITED	VOLUME II SECTION – B
	RRVUNL, 2 x 660 MW, Super-Critical TPS, Stage-V, Unit # 7 & 8 at Suratgarh, Rajasthan GENERAL PROJECT INFORMATION	SHEET 2 OF 3

	Calculations for wind effect shall be in accordance with IS:875-1987(Part-3) taking into account the following:	
	a) Basic wind speed = 47 m/sec	
	b) Factor K1 = 1.07	
	c) Category of terrain = Category 2	
	d) K3 – as per IS 875	
8.0	Seismic data (As per IS: 1893 latest issue)	
	a) Zone	Zone II
	Designs & design coefficients shall be based on IS 1893:2002	
	Design condenser cooling water inlet temperature	33 Deg C
9.0	Auxiliary power supply:	
	Auxiliary electrical equipment to be supplied against this specification shall be suitable for operation on the following system:	
	a) For motors rated 160 kW and below.	415V AC, 3-phase, 3-wire effectively earthed.
	b) For motors rated above 160 kW and up to 1500 kW	6600V AC, 3-phase, 3-wire, 50 Hz, non-effectively earthed
	c) For motors rated above 1500kW	11000V AC, 3-phase, 3-wire, 50 Hz, non-effectively earthed
	d) For motor control centres	415V AC, 3-phase, 3/4-wire effectively earthed.
	e) DC motor starters, DC solenoids, DC alarm control and protection	220 V DC, 2-wire unearthed
	f) AC control & protective devices	110 V 1 phase, 50Hz, 2 wire AC supply. The single phase 110V AC supply shall be derived by VENDOR by providing 415V / 110 V Control transformers of adequate rating with MCCB / MCB on both the primary and secondary sides.
	g) Uninterrupted power supply	230 V, 1-phase, 50 Hz, 2-wire, AC

ISSUE
R1



**RAJASTHAN RAJYA VIDYUT UTPADAN
NIGAM LIMITED
2 X 660 MW SURATGARH TPS
TECHNICAL SPECIFICATION FOR MV
CABLE TERMINATION KITS AND
JOINTING KITS**

SPECIFICATION NO. PE-TS- 392-507-E015

VOLUME II B

SECTION

REVISION 0

DATE: 16.06.2014

SHEET OF

SECTION – ‘C’

SPECIFIC TECHNICAL REQUIREMENTS



**RAJASTHAN RAJYA VIDYUT UTPADAN
NIGAM LIMITED
2 X 660 MW SURATGARH TPS
TECHNICAL SPECIFICATION FOR MV
CABLE TERMINATION KITS AND
JOINTING KITS**

SPECIFICATION NO. PE-TS- 392-507-E015

VOLUME II B

SECTION C

REVISION 0

DATE: 16.06.2014

SHEET OF

1.0.0 SCOPE OF ENQUIRY

- 1.1.0 This specification covers supply of Termination and Jointing kits for cables as per requirement of this specification.
- 1.2.0 General technical requirement of Termination & Jointing Kits are indicated in section-D and Data sheet-A. Project specific technical / quality requirements / changes are listed below.
- 1.3.0 Termination & Jointing Kits shall confirm in all respect to the requirements stipulated in all the above parts of the specification.
- 1.4.0 The stipulations of Section-C, followed by those of Data sheet-A shall prevail in case of any conflict between stipulations of Section-C, Data sheet-A and Section-D.

2.0.0 BILL OF QUANTITIES:

- 2.1.0 Quantity requirement shall be as per Annexure-I (Bill of Quantities (BOQ)) enclosed.
- 2.2.0 Delivery schedule (i.e. contractual calendar dates) for the package shall be given separately to the bidders for compliance. Supplies shall be completed conforming to the lot requirements stipulated in the BOQ within the overall delivery schedule.

3.0.0 SPECIFIC TECHNICAL REQUIREMENTS:

- 3.1.0 Specific technical requirements shall be specified in Datasheet – A (enclosed with section-D).
- 3.2.0 Refer Clause 2.3 of Section D, it may be read as “Kits shall be complete with all accessories and consumables required for complete termination or jointing. Tinned Copper heavy duty long Barrel type cable lugs for termination kits & jointing ferrules for straight through jointing kits shall form part of the kit.
- 3.3.0 Tinned Copper Earthing lug and braided copper earth lead shall make part of termination kit.
- 3.4.0 Termination kits shall be provided with Bi-metallic washers.
- 3.5.0 Document distribution schedule for the project shall be as per Annexure – III.
- 3.6.0 Documents to be submitted by all bidders;
- Unpriced Price Schedule with bidder’s signature and company stamp.
 - “Instructions to Bidders for Preparing Technical Offer”, with bidder’s signature and company stamp.
 - “Contents” sheet, with bidder’s signature and company stamp.
- 3.7.0 After award of contract, Vendor is required to furnish Drawings / Documents as per Annexure -II of this specification.



**RAJASTHAN RAJYA VIDYUT UTPADAN
NIGAM LIMITED
2 X 660 MW SURATGARH TPS
TECHNICAL SPECIFICATION FOR MV
CABLE TERMINATION KITS AND
JOINTING KITS**

SPECIFICATION NO. PE-TS- 392-507-E015

VOLUME II B

SECTION C


REVISION 0

DATE: 16.06.2014

SHEET OF

4.0.0 QUALITY PLAN & TESTING

- 4.0.1 Bidder shall furnish signed & stamped Manufacturing Quality Plan after award of contract. The same shall be subjected to the BHEL approval. All materials, components covered under this specification shall be procured, manufactured, inspected and tested as per BHEL approved Quality Plan. There shall be no commercial implication to BHEL on account of QP approval.

	RAJASTHAN RAJYA VIDYUT UTPADAN NIGAM LIMITED 2 X 660 MW SURATGARH TPS TECHNICAL SPECIFICATION FOR MV CABLE TERMINATION KITS AND JOINTING KITS	SPECIFICATION NO. PE-TS- 392-507-E015	
		VOLUME II B	
		SECTION C	
		REVISION 0	DATE 16.06.14
		SHEET OF	


ANNEXURE-I

BILL OF QUANTITIES (BOQ) WITH TINNED CU LUGS

ITEM NO.	ITEM	ITEM CODE	UNIT	TOTAL
1	CABLE TERMINATION KITS			
1.1	CABLE TERMINATIONS KITS FOR 11/11 KV (UE) GRADE, XLPE INSULATED, ALUMINIUM CONDUCTOR ARMOURED CABLES FOR THE FOLLOWING SIZES			
a)	1C- 630 Sq.mm	507-24607-A	Nos	164
b)	3C-240 Sq. mm	507-24610-A	Nos	132
1.1	CABLE TERMINATIONS KITS FOR 6.6/6.6 KV (UE) GRADE, XLPE INSULATED, ALUMINIUM CONDUCTOR ARMOURED CABLES FOR THE FOLLOWING SIZES			
a)	1C- 630 Sq.mm	507-24653-A	Nos	144
b)	3C-185 Sq. mm	507-24655-A	Nos	128
c)	1C-185 Sq. mm	507-24648-A	Nos	15
2	STRAIGHT THROUGH JOINTS			
2.1	STRAIGHT THROUGH JOINTS FOR 11KV ARMOURED HT XLPE POWER CABLE FOR FOLLOWING SIZES			
a)	3C-240 Sq. mm	507-24082-A	Nos	48
2.2	STRAIGHT THROUGH JOINTS FOR 6.6KV ARMOURED HT XLPE POWER CABLE FOR FOLLOWING SIZES			
a)	1C- 630 Sq.mm	507-24158-A	Nos	112

Notes:

1. The ordered quantities indicated above shall be released for manufacture along with LOI.
2. Manufacturing of quantities shall be released along with LOI after the approval of technical and quality documentation, and supply of same shall be completed within two months of date of approval of documents.
3. The total quantity variation shall be limited to (+) 20 % of the total contract value derived on the basis of the Order Quantities.
4. Subsequent lots, if any, shall be cleared for manufacture based on progress of engineering and site requirements. A lead-time of two months shall be given for completion of supply of each lot from the date of clearance of the quantities.

	RAJASTHAN RAJYA VIDYUT UTPADAN NIGAM LIMITED 2 X 660 MW SURATGARH TPS TECHNICAL SPECIFICATION FOR MV CABLE TERMINATION KITS AND JOINTING KITS	SPECIFICATION NO. PE-TS- 392-507-E015	
		VOLUME II B	
		SECTION C	
		REVISION 0	DATE: 16.06.2014
		SHEET OF	

ANNEXURE - II

1. List of drawings / documents required to be furnished by successful bidder after award of contract shall be as below

Sl. No	Drawings / Document Description	Drawings / Document Number	Submission schedule by vendor
a)	Technical Data Sheet	PE-V0-392-507-E031	Within two weeks of award of contract
b)	Termination & Jointing kits Manufacturing / Detailed Drawing	PE-V0-392-507-E032	Within two weeks of award of contract
c)	Manufacturing Quality Plan	PE-V0-392-507-E904	Within two weeks of award of contract
d)	Recommended Field Quality Plan	PE-V0-392-507-E035	Within two weeks of award of contract
e)	Type Test Reports for Tests conducted earlier (Ref. Cl. 3.2.0 of section-D enclosed with this spec.)	PE-V0-392-507-E033	Within two weeks of award of contract
f)	Type Test Reports for Tests conducted under this contract (Ref. Cl. 3.3.0 & 3.4.0 of section-D enclosed with this spec.)	PE-V0-392-507-E034	Within a week from the date of conduction of Type Test
g)	O & M Manual	PE-V0-392-507-E036	Within eight weeks of award of contract



**RAJASTHAN RAJYA VIDYUT UTPADAN
NIGAM LIMITED
2 X 660 MW SURATGARH TPS
TECHNICAL SPECIFICATION FOR MV
CABLE TERMINATION KITS AND
JOINTING KITS**

SPECIFICATION NO. PE-TS- 392-507-E015

VOLUME II B

SECTION C

REVISION 0

DATE: 16.06.2014

SHEET OF

ANNEXURE-III

DRAWING & DOCUMENT DISTRIBUTION

S. NO.	DESCRIPTION	No. hard /soft copies	No. of CD-ROMs	Submission through DMS
1	Docs. /drgs. for approval (First submission)	PDF File + 2 Hard copies	NIL YES	
2	Drgs. / d ocs. for approval (Second & subsequent submission till approval)	PDF File + 2 Hard copies	NIL YES	
3	Final approval drgs. / docs. for Distribution after CAT-1.	PDF File + 5 Hard Copies	NIL YES	
4	As Built drgs./doc.	6 Hard Copies	4 CD-ROMS	-
5	Operation, Erection & Maintenance manual for approval	PDF File + 2 Hard Copies	NIL	-
6	Approved Operation & Maintenance Manual for distribution	PDF File + 6 Hard Copies	4 CD-ROMS	-
7	Type Test Certificates/ Reports for approval	PDF+ 2 hard Copies	NIL	-
8	Type Test Certificates/ Reports for distribution	6 hard Copies	6 CD-ROMS	-



**RAJASTHAN RAJYA VIDYUT UTPADAN
NIGAM LIMITED
2 X 660 MW SURATGARH TPS
TECHNICAL SPECIFICATION FOR MV
CABLE TERMINATION KITS AND
JOINTING KITS**

SPECIFICATION NO. PE-SS-999-507-E024

VOLUME II B

SECTION - D

REVISION 0

DATE: 31/3/2006

SHEET OF

SECTION - 'D'
TECHNICAL SPECIFICATION



**RAJASTHAN RAJYA VIDYUT UTPADAN
NIGAM LIMITED
2 X 660 MW SURATGARH TPS
TECHNICAL SPECIFICATION FOR MV
CABLE TERMINATION KITS AND
JOINTING KITS**

SPECIFICATION NO. PE-SS-999-507-E024

VOLUME II B

SECTION - D

REVISION 0

DATE: 31/3/2006

SHEET OF

1.0 GENERAL

- 1.1 This specification covers the design, manufacture, inspection, testing at vendor's/sub-vendor's works, packing, forwarding, transportation and delivery to site of MV termination kits and jointing kits for cables as per the requirements specified in this specification.
- 1.2 Termination kits shall be of proven design and make, which have already been extensively used and fully type, tested. Make and type of the termination shall be to the approval of purchaser.

2.0 DESIGN REQUIREMENTS AND CONSTRUCTIONAL FEATURES

- 2.1 The termination/jointing kits shall be suitable for site ambient conditions and polluted atmosphere, and for storage without deterioration at ambient temperature specified in project information for the project execution period.
- 2.2 Termination kits shall be suitable for installation inside motor terminal boxes, metal clad switchgear, transformer terminal box etc. Each kit shall contain all necessary components, accessories and consumables to make a complete termination in such a way that no live parts of the terminals and connecting lugs are exposed.
- 2.3 Kits shall be complete with all accessories and consumables required for complete termination or jointing. Cable lugs for termination kits & jointing ferrules for straight through jointing kits shall form part of the kit.
- 2.4 Termination and jointing kits shall have requisite stress relieving characteristics.
- 2.5 Termination and joints shall have provision for shield connection and earthing, wherever cable screening is specified.
- 2.6 All materials and components of the terminations/joints shall be suitable for and compatible with the type of cables for which the terminations/joints are intended.
- 2.7 Any surface treatment or sealants used to ensure environmental protection to the components of termination/joint or on the cable surface shall be non-tracking type and shall withstand the associated electric stress.
- 2.8 Cable jointing kits shall be suitable for directly buried cables.
- 2.9 Cable glands are excluded from the scope of supply of termination kit/ jointing kits.

3.0 INSPECTION & TESTING

- 3.1 All items to be supplied shall conform to type tests as per relevant standards and proven type.
- 3.2 The bidder shall furnish the reports of all the type tests carried out earlier in government approved third party laboratory or witnessed by client (such as major utilities/ industries) on identical/ similar items to those ordered under this contract.
- 3.3 In case bidder is not able to submit report of type test(s), or in case type tests report(s) are not found to be meeting the specification/ relevant standard requirements, then all such tests shall be conducted under this contract by the bidder free of cost to BHEL, and reports shall be submitted for approval. No charges shall be paid for testing under such circumstances.
- 3.4 Irrespective of the bidder furnishing type test report as indicated above, BHEL may get type tests conducted as specified in Datasheet-A. Separate price shall be quoted for the conduction of type testing per lot, which shall be used for cost comparison.
- 3.5 Inspection and testing shall be as per approved Manufacturing Quality Plan, to be submitted by the supplier.



**RAJASTHAN RAJYA VIDYUT UTPADAN
NIGAM LIMITED
2 X 660 MW SURATGARH TPS
TECHNICAL SPECIFICATION FOR MV
CABLE TERMINATION KITS AND
JOINTING KITS**

SPECIFICATION NO. PE-SS-999-507-E024

VOLUME II B

SECTION - D

REVISION 0

DATE: 31/3/2006

SHEET OF

4.0 DOCUMENTATION

Following documents are to be submitted by the successful bidder within two weeks of award of contract.

- a) Drawings showing dimensions of components and constructional features of terminations/ jointing kits. The drawing shall include reference/ correlation of each type & size of termination/ jointing kits with those being supplied for the project.
- b) Drawings showing dimensions of the completely installed terminations with phase to phase and phase to ground clearance along the length of termination for cable sizes mentioned in BOQ (in case this information is not contained in 'a' above).
- c) Descriptive literature & catalogues giving design features and manufacturing details.
- d) Type tests certificates.
- f) Manufacturing Quality Plan.



**RAJASTHAN RAJYA VIDYUT UTPADAN
NIGAM LIMITED
2 X 660 MW SURATGARH TPS
TECHNICAL SPECIFICATION FOR MV
CABLE TERMINATION KITS AND
JOINTING KITS**

SPECIFICATION NO. PE-TS-392-507-E015	
VOLUME II B	
SECTION - D	
REVISION 0	DATE: 16/06/2014
SHEET	OF

DATASHEET A
SPECIFIC TECHNICAL REQUIREMENTS

1.0 TERMINATION KITS

- 1.1 Voltage grade: 11/11 KV Un-earthed and 6.6/6.6 KV Un-earthed
- 1.2 Application: Indoor
- 1.3 Type: Heat Shrinkable suitable for XLPE insulation
- 1.4 Sizes: As per BOQ
- 1.5 Type testing conforming to As per IS: 13573
- 1.6 Make To purchaser's approval
- 1.7 Total shrouding of all live parts required Yes

2.0 STRAIGHT THROUGH JOINTING KITS

- 2.1 Voltage grade: 11/11 KV Un-earthed and 6.6/6.6 KV Un-earthed
- 2.2 Type: Heat Shrinkable suitable for XLPE insulation
- 2.3 Sizes: As per BOQ.
- 2.4 Special test(if any): As per IS: 13573
- 2.5 Make: To purchaser's approval

3.0 BRIEF CABLE SPECIFICATION

11/11 KV (UE) and 6.6/6.6KV(UE) grade XLPE:

- 1 Voltage grade: 11/11 KV Un-earthed and 6.6/6.6 KV Un-earthed
- 2 Conductor material: Aluminium H2 grade, class-2 as per IS: 8130
- 3 Conductor screening material: Cross linked Semi-conducting compound
- 4 Insulation material: Cross linked polyethylene as per IS: 7098(Part-II)
- 5 Insulation Screen material
- a) Non-conducting: Cross linked Semi-conducting compound extruded
- b) Conducting: Copper tape



**RAJASTHAN RAJYA VIDYUT UTPADAN
NIGAM LIMITED
2 X 660 MW SURATGARH TPS
TECHNICAL SPECIFICATION FOR MV
CABLE TERMINATION KITS AND
JOINTING KITS**

SPECIFICATION NO. PE-TS-392-507-E015	
VOLUME II B	
SECTION - D	
REVISION 0	DATE: 16/06/2014
SHEET	OF

6. Armour material(if applicable): Non magnetic Aluminium Wire/strip of H4 grade as per IS:8130 for single core cable and GS round wire/strip for multicore cables as IS 3975 & IS:7098 part-II.
7. Inner sheath material: Extruded PVC Type ST2 as per IS: 5831
8. Outer sheath material: Extruded FRLS PVC Type ST2 as per IS: 5831
9. FRLS: Outersheath FRLS

4.0 System Fault Level:

RMS Value – 44kA for 3 seconds for 11kV System
Peak Value- 112kA

RMS Value – 40kA for 3 seconds for 6.6kV System
Peak Value- 100kA

5.0 Type testing requirements:-

NO(Type tests certificates to be submitted in line with clause 3.2 & 3.3 of section – D of specification)

If yes, standard to which type testing shall conform to:

As per IS: 13573

6.0 Bi-metallic washers for different Metallic surfaces Al/Cu.

YES



**RAJASTHAN RAJYA VIDYUT UTPADAN
NIGAM LIMITED
2 X 660 MW SURATGARH TPS
TECHNICAL SPECIFICATION FOR MV
CABLE TERMINATION KITS AND
JOINTING KITS**

SPECIFICATION NO. PE-TS-392-507-E015

VOLUME II B

SECTION - D

REVISION 0

DATE: 16/06/2014

SHEET OF

DATA SHEET - C

**GURANTEED TECHNICAL PARTICULARS
(TO BE SUBMITTED BY SUCCESSFUL BIDDER)
(SEPARATE FOR EACH TYPE & SIZE OF CABLE)**

1.0.0 GENERAL

1.1.0 Name of manufacturer:

1.2.0 Place of manufacture:

2.0.0 Standard Applicable:

IS: 13573/ VDE 0278 for testing of kits:

3.0.0 TECHNICAL DETAILS

3.1.0 TERMINATION KITS

- a) Make:
- b) Type:
- c) Application: Indoor / Outdoor
- c) Voltage Grade:
- d) Kit no. as per catalogue:
- e) Applicable conductor size:
- f) Whether previously type tested/ within past five years:
- g) Shelf life of the least durable component: years
- h) Tinned Copper heavy duty type cable lugs form part of termination kits: Yes
- i) Total shrouding of all live parts: Yes

3.2.0 STRAIGHT THROUGH JOINTS

- a) Make:
- b) Type:
- c) Voltage Grade:
- d) Kit no. as per catalogue:
- e) Applicable conductor size:
- f) Whether previously type tested within past five years:
- g) Shelf life of the least durable component: years