



Bharat Heavy Electricals Limited
(A Govt. Of India Undertaking)
PROJECT ENGINEERING MANAGEMENT

Enq No.: PE/PG/RTC/E-5331/2016

DATE. 12.08.2016

TENDER ENQUIRY THROUGH E-PROCUREMENT

DUE DATE
SEP,07,2016
2.00 P.M.

Subject: Tender Enquiry for Rate Contract of PVC Wire for two years

Dear Sir,

We are pleased to invite your tender offers for subject package. Please upload your best quotation/ offer in two (2) parts on <https://bheleps.buyjunction.in> for the requirement strictly as per schedule of price format before above mentioned due date & time. The details of the tender enquiry is as mentioned below:

Sl. No	Description for which Rate Contract is desired	Tentative Quantity	Delivery required
1	PVC Wire - Refer Technical specification no PE-RC-999-558-E003 Rev.00 for detailed description.	1051000 MTR. (break up as per BOQ cum price schedule in Annexure-II) cumulative for the Prospective Projects as per Annexure-I.	The delivery period for all the items of PVC Wires 3 month from the date of PO for respective project/requirement under the RC. Other schedules like submission of drawings, approval of drawings, inspection etc. shall be as per the Technical Specification no. PE-RC-999-558-E003 Rev.00 (Drawings mentioned in Section I shall be submitted within one week of PO for respective project under RC). Delays due to non-fulfilment of the requirements as specified in the specification shall be to the vendor's account. Bidders to note that delivery period mentioned above is for contractual LD calculation purpose, however in case of exigencies BHEL may asked for early delivery.

Rate contract on firm price basis is proposed for 2 year from placement of Rate Contract PO with a provision for further extension after review on mutual consent.

Rate contract shall be decided on the basis of FOR BHEL site price for each type & size of PVC Wire as listed in price format (Annexure-II), Bidders to quote Ex-work price, ED, CST (not VAT) & Freight charges(Including service tax) as percentage (%) of ex-work prices strictly as per schedule of price format considering delivery anywhere in India. List of prospective projects for Rate Contract of PVC Wire is indicated in Annexure-II. However bidders to note that BHEL may ask for delivery anywhere in India to any other project also.

Please reply to:
PEM -Power Sector
PPEI Building,
BHEL House
HRD & ESI Complex,
Plot-25, Sector-16-A NOIDA - 201301

Phone: 0120-4213591
Fax : 0120-4329026
e-mail: ncsharma@bhelpem.co.in

Regd. Office:

Siri Fort
New Delhi - 110049

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Bidders to note that evaluation is proposed on CST basis & hence to quote CST (not VAT) as same state ordering is not envisaged., however in case, the entire business volume goes to one vendor (or volume of business shared between the vendors in line with enquiry) having manufacturing facility in the same state, then BHEL may do suitable amendment in PO on case to case basis for taking care the provision of VAT in case of project falling in the same State where manufacturing factory of the vendor is also located.

Rate Contract is proposed to be done with 2 vendors in ratio of 60: 40 value item wise at (L1) FOR BHEL site price (% of splitting of RC between 2 vendors may be changed during ordering process if L1 bidder is not customer approved); however order for a project shall not be split.

Though item wise evaluation is proposed, however bid for part scope will not be considered, hence bidders are requested to ensure bidding for all the items listed in price format.

Item wise L1 rates shall be counter offered to vendors (L2, L3 & so on) in succession. If none accepts L1 rates, RC shall be done with L1 vendor for 100 % value of that item.

Drawings/ documents, equipment manufacture inspection & dispatch requirement will be as per Technical Specification no. PE-RC-999-558-E003 Rev.00.

Pre-Qualifying Requirements (PQR): All the bidders have to submit documents fulfilling PQR requirements (as per enclosed annex-V) with the bid & their further evaluation shall be done based on qualification in PQR.

Bidders to note that their bid shall be conditional subject to qualify PQR for the package & registration with PEM for the package.

For registration in PEM "Bidders needs to apply & get registered for subject package with PEM before P-2 (price bid opening) & **hence you need to apply online for registration on PEM web portal & have to enclose acknowledgement with this effect with the bid documents else your bid will not be considered for evaluation**"

Online Registration Portal is operational in BHEL. Non-registered Vendors, who wish to apply for registration with BHEL-PEM, have to apply through Online Registration Portal available at www.bhelpem.com → vendor section → Online Supplier Registration. All credentials and/or documents duly signed and stamped related to registration has to be uploaded on the website and submit the application for registration. One set of hard copy of the filled-up SRF downloaded from Online Registration Portal duly signed and stamped has to be submitted.

Bidder are required to give compliance to the technical specification & commercial terms for the tender & hence requested to submit technical & commercial deviation sheet **stating as Nil Deviation** on compliance certificate at section-I of technical specification & at Annex-II of GCC rev06 respectively (refer GCC Rev. 06 which is available on <http://www.bhelpem.com/Documents/GCC/GCC-Rev-06.pdf> You are requested to kindly download the same).

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Phone: 0120-4213591
Fax : 0120-4329026
e-mail: ncsharma@bhelpem.co.in

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Tender Enquiry Terms and Conditions: -

1. Offers should be submitted in two parts online at <https://bheleps.buyjunction.in> as follows:
Part-I: TECHNO-COMMERCIAL BID (along with un-priced copy of Annexure-II)
Part-II: PRICE BID (along with priced copy of Annexure-II)
2. For detailed instructions, please see clause no. 2 of "Instructions to Bidders" of GCC, Rev. 06.
3. No Technical & Commercial deviations are acceptable.
4. Standard pre-printed terms & conditions of the tenderers shall not be considered valid.
5. Bidder to submit complete tender in all respects duly signed & stamped on each and every page by the authorized signatory of the bidder as a token of acceptance of all the terms and conditions of tender.
6. Unsolicited fresh/ revised price bids shall not be entertained.
7. Tender will be opened at **3.00 PM on 07/09/2016**.
8. Purchaser shall be under no obligation to accept the lowest or any other tender and shall be entitled to accept or reject any/ all tender(s) in part or full without assigning any reason whatsoever.
9. Purchaser reserves the right to split up the scope of the tender enquiry and place the orders for different scope/ items with different bidders and also increase or decrease the quantity.
10. Bidder is requested to quote their best competitive prices. "BHEL reserves the right to go for Reverse Auction (RA) instead of opening the price bid, submitted by the bidder on EPS. This will be decided after techno-commercial evaluation. All bidders to give their acceptance for participation in RA. Non-acceptance to participate in RA may result in non-consideration of their bids, in case BHEL decides to go for RA.

In case BHEL decides to go for Reverse Auction, only those bidders who have given their acceptance to participate in RA will be allowed to participate in the Reverse Auction. Those bidders who have given their acceptance to participate in Reverse Auction will have to necessarily submit online sealed bid in the Reverse Auction. Non-submission of online sealed bid by the bidder will be considered as tampering of the tender process and will invite action by BHEL as per extant guidelines in vogue.

Terms and Conditions of Reverse Auction shall be as per attached Annexure-4.

Tenders should be submitted ONLINE via e-Procurement System only, however, all correspondence thereof, shall be addressed to the undersigned by name & designation and sent at the following address :

Mr. N.C Sharma, Sr.ENGR/MM
e-mail : ncsharma@bhhelpem.co.in
Ph. No. 0120- 4213591

Mr. I P Singh, Sr. Mgr./ CMM
e-mail: INDRA@bhhelpem.co.in
Ph. No. 0120-4368749

Please reply to:
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BHEL House
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However, for **Technical clarifications**, following persons may be contacted:

Mr.HIMANSHU BHARDWAJ, Sr.ENGR./ELEC e-mail : himanshub@bhelpem.co.in Ph. No.0120-4213513	Mr NITISH MANU, Sr.ENGR/ELEC e-mail : nitishmanu@bhelpem.co.in Ph. No.0120- 4213687
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11. Any taxes and duties applicable on the date of bid but not quoted by the bidders shall be to the bidder account.
12. Delivery terms for dispatches shall be FOR Dispatch Station.
13. CIF is not available for this package.
14. Bidders to submit their offers strictly in line with the enclosed Price Format (Annexure-II).
15. This enquiry is subject to Conditions/ limits if any imposed in PMD / Vendor registration.
16. Procurement of the subject package shall be done through e-procurement.
17. All corrigenda, addenda, amendments, time extensions, clarifications etc. to the tender will be hosted on EPS website (<https://bheleps.buyjunction.in>), BHEL website (www.bhel.com), BHEL-PEM website (www.bhelpem.com) & CPP Portal. Bidders should regularly visit websites to keep themselves updated.
18. Bidder to note that all other terms and condition shall be strictly as per NIT, GCC Rev. 06 & SCC. In the event of any contradiction in the terms and conditions mentioned, the order of preference shall be NIT (this letter) / SCC / GCC Rev. 06.

NOTE: In case you are not making an offer against this enquiry, you are requested to send a regret letter so as to reach us on or before the due date.

Thanking you,
Yours faithfully,
For and on behalf of BHEL

N.C Sharma
Sr.ENGR/ MM

Enclosures:

- a) NIT (this letter itself)
- b) Technical Specification No. PE-RC-999-558-E003 Rev.00.
- c) Annexure-I: List of prospective projects
- d) Annexure-II: Price Format & Tentative BOQ for Business Volume
- e) Annexure-III: Special Conditions of Rate Contract (SCC).
- f) Annexure-4: Terms and Conditions of Reverse Auction.
- g) Annexure-V: PQR (Pre-qualifying Requirement)

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ANNEXURE-I

S. NO	TENTATIVE PROJECTS LIST
1	1x800 MW WANAKBORI
2	1X660 MW PANKI
3	1X250 MW ROURKELA
4	1x370 MW YELANHANKA





Rate contract period of two years										
PRICE SCHEDULE OF PVC WIRE FOR VARIOUS PROJECTS										
S. No.	ITEM DESCRIPTION	ITEM CODE	UNIT	QTY	UNIT PRICE EX-WORKS (DULY PACKED) (Rs)	TOTAL PRICE EX-WORKS (DULY PACKED) (Rs)	ED @ % (including cess) (Rs.)	CST @ % (Rs) against from C and form E	FREIGHT CHARGES @ % of Ex-work (Including Service Tax) (Rs.)	TOTAL F.O.R. SITE PRICE (Rs.)
		2	3	4	5	6(5x4)	7	8	9	10=(6+7+8+9)
1	Manufacture, Inspection and Testing at Manufacturer's works, proper packing and delivery to sites of PVC wires conforming to as per technical specification no- PE-RC-999-558-E003 Rev.00									
2	PVC Wire									
2.1	WIRES 1X2.5 MM2 CU PVC (FR TYPE)	558-16005-A	MTR	3,50,000						
2.2	WIRES 1X2.5 MM2 CU PVC	558-16002-A	MTR	3,65,000						
2.3	WIRES 1X4.0 MM2 CU PVC	558-16003-A	MTR	85,000						
2.4	WIRES 1X4.0 MM2 CU PVC (FR TYPE)	558-16006-A	MTR	50,000						
2.5	WIRES 1X1.5 MM2 CU PVC	558-16001-A	MTR	1,76,000						
2.6	WIRES 1X6.0 MM2 CU PVC	558-16004-A	MTR	25,000						
Notes:										
1	Breakup for PVC wire colour shall be informed to vendor along with project specific ordering. The vendor to supply the same without any commercial implication to BHEL.									
2	Each size of wire shall be evaluated separately i.e RC shall be decided on the basis of FOR BHEL site price for each PVC Wire.									
3	Same state ordering is not considered for evaluation hence CST is to be quoted.									
4	Please clearly Indicate applicable taxes, duties etc in price schedule & same need to be maintained in price bid.									

ANNEXURE-III- Special Condition of Rate Contract for PVC Wire

1. BHEL/PEM intends to enter into Rate Contract for the tendered various type/Sizes initially for a period of two year. The Rate Contract shall come into force from the date of issue of Purchase order for Rate Contract. Validity for ordering shall be two year from the purchase order for Rate Contract.
2. The items will be required against respective projects. Exact quantities and Project name shall be intimated while placing order for a specific project based on the Rate Contract.
3. The units rate for each item should be quoted inclusive of ex-works including packing & forwarding for tendered specifications/sizes as per price schedule format. Other elements of prices such as Excise Duty, Sales Tax, and freight charges (Including service tax) % of Ex-works are also to be indicated. Destination may be anywhere in India as per project requirement.
4. The freight charges shall be paid on percentage on ex-works prices or actual freight charges paid to transporter whichever is lower against production of documentary evidence. Vendor to quote freight charges as percentage (%) of ex-works price for destination anywhere in India.
5. Vendor to note that Excise Duty is payable on self manufacturing item only as per clause no 4.1.2 of GCC Rev 06 & hence for their BOI may quote Excise Duty is inclusive or Nil.
6. The prices shall remain firm during the period of two year with a provision for further extension after review on mutual consent.
7. Inspection of materials shall be carried out by BHEL / CQA and or by Customer or by an authorized agency at manufacture's works before dispatch, if required. Dispatch of material to be done, only after receipt of BHEL/Customer MDCC. It is responsibility of vendor to for obtain Material Dispatch Clearance Certificate (MDCC) from BHEL or CUSTOMER as required before dispatch of material.
8. Items have to be manufactured as per specification and supplied strictly in accordance with the approved BHEL / Customer's Drawings & Quality Plan. The items/ test certificate of items, which for any reason are not acceptable to BHEL / Customer, shall be required to be retested. No extra charge shall be payable on those account by BHEL.
9. Mode dispatch shall be by road through Schedule Bank/BHEL (PEM) approved transporters.
10. Other terms and conditions shall be as per Standard Technical specification no.PE-RC-999-558-E003 Rev.00 & GCC Rev 06, Enquiry letter.
11. Order shall be placed with CST for respective projects keeping FOR site price same, vendors to quote accordingly.
12. This enquiry is subject to Conditions/ limits if any imposed in PMD/ Vendor registration.
13. Tentative quantity is given in enquiry.
14. Bidders to submit offer for RC of said items ONLINE via e-Procurement System only. Complete tender in all respects duly signed & stamped on each and every page by the authorized signatory of the bidder as a token of acceptance of all the terms and conditions of tender.
15. The Bidder along with its associate/ collaborators/ sub-contractors/ sub-vendor/ consultants/ service providers shall strictly adhere to BHEL Fraud Prevention Policy displayed on BHEL web site <http://www.bhel.com> and shall immediately bring to the notice of BHEL Management about any fraud as soon as it comes to their notice.



Terms & Conditions of Reverse Auction

Against this enquiry for the subject item/ system with detailed scope of supply as per enquiry specifications, BHEL may resort to "REVERSE AUCTION PROCEDURE" i.e., ON LINE BIDDING (THROUGH A SERVICE PROVIDER). The philosophy followed for reverse auction shall be English Reverse (No ties).

1. For the proposed reverse auction, technically and commercially acceptable bidders only shall be eligible to participate.
2. Those bidders who have given their acceptance for Reverse Auction (quoted against this tender enquiry) will have to necessarily submit 'online sealed bid' in the Reverse Auction. Non-submission of 'online sealed bid' by the bidder for any of the eligible items for which techno-commercially qualified, will be considered as tampering of the tender process and will invite action by BHEL as per extant guidelines in vogue.
3. BHEL will engage the services of a service provider who will provide all necessary training and assistance before commencement of on line bidding on internet.
4. In case of reverse auction, BHEL will inform the bidders the details of Service Provider to enable them to contact & get trained.
5. Business rules like event date, time, bid decrement, extension etc. also will be communicated through service provider for compliance.
6. Bidders have to fax the Compliance form (annexure IV) before start of Reverse auction. Without this, the bidder will not be eligible to participate in the event.
7. In line with the NIT terms, BHEL will provide the calculation sheet (e.g., EXCEL sheet) which will help to arrive at "Total Cost to BHEL" like Packing & forwarding charges, Taxes and Duties, Freight charges, Insurance, Service Tax for Services and loading factors (for non-compliance to BHEL standard Commercial terms & conditions) for each of the bidder to enable them to fill-in the price and keep it ready for keying in during the Auction.
8. Reverse auction will be conducted on scheduled date & time.
9. At the end of Reverse Auction event, the lowest bidder value will be known on auction portal.

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10. The lowest bidder has to fax/e-mail the duly signed and filled-in prescribed format for price breakup including that of line items, if required, (Annexure VII) as provided on case-to-case basis to Service provider within two working days of Auction without fail.
11. In case BHEL decides not to go for Reverse Auction procedure for this tender enquiry, the Price bids and price impacts, if any, already submitted and available with BHEL shall be opened as per BHEL's standard practice.
12. Bidders shall be required to read the "Terms and Conditions" section of the auctions site of Service provider, using the Login IDs and passwords given to them by the service provider before reverse auction event. Bidders should acquaint themselves of the 'Business Rules of Reverse Auction', which will be communicated before the Reverse Auction.
13. If the Bidder or any of his representatives are found to be involved in Price manipulation/ cartel formation of any kind, directly or indirectly by communicating with other bidders, action *as per extant BHEL guidelines*, shall be initiated by BHEL and the results of the RA scrapped/ aborted.
14. The Bidder shall not divulge either his Bids or any other exclusive details of BHEL to any other party.
15. In case BHEL decides to go for reverse auction, the H1 bidder (whose quote is highest in online sealed bid) may not be allowed to participate in further RA process.

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	PRE-QUALIFICATION REQUIREMENTS FOR PVC WIRES	PE-PQ-999-558-E003
		REVISION NO. 0 DATE 08/08/2016
		SHEET NO. 1 OF 1

ITEMS : PVC Wires	
SCOPE : Supply : YES; Erection & Commissioning : NO;	
1.0	Vendor should be a BIS approved manufacturer of PVC wire as per IS-694.
2.0	Availability of test reports of PVC insulated copper wire to establish in- house capability at manufacturer's works to carry out all routine, type & acceptance tests as per relevant IS.
3.0	Capacity of manufacturing 100 km of PVC wire per month.
4.0	Manufactured and supplied at least one (1) km of PVC FR copper wire.
5.0	Manufactured and supplied at least 100 km of PVC copper wire in one or more orders.
6.0	Minimum two (2) nos. purchase orders for PVC copper wire shall be submitted which should not be more than five (5) years old from the date of application for registration or date of techno- commercial bid opening (as applicable) for establishing continuity in business.

NOTE:

1. The vendor can offer PVC copper wire of any BIS approved make meeting criteria S.No. 1 to 5 above. The vendor to furnish the following documents:

- Undertaking from BIS approved manufacturer of offered make to get the inspection & testing of wires carried out at manufacturer's works.
- Credentials of the manufacturer of offered make to meet the PQR requirements of S no 1.0 to 5.0 above.
- Vendor's Credentials to meet S no 6.0.

2. Supplier to comply to "general points of PQR" available at <http://bhelpem.com/vensection/PMD/PMD.aspx> In case supplier is not OEM, the offer shall be evaluated as per point no 1 of "general points of PQR".

PREPARED BY <i>Witen Kumar</i> NAME: DESIGNATION:	<i>8/8/16</i> (Himanshu) (Chopra)	REVIEWED BY <i>Pragat</i> NAME: DESIGNATION:	<i>8/8/16</i>	APPROVED BY <i>M. G. S. S. S. S.</i> NAME: DESIGNATION:	<i>8.8.16</i>
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VOLUME-II

TECHNICAL SPECIFICATION

FOR

PVC INSULATED WIRES

SPECIFICATION NO: *PE-RC-999-558-E003*

REVISION: 00



BHARAT HEAVY ELECTRICALS LIMITED

POWER SECTOR

PROJECT ENGINEERING MANAGEMENT

NOIDA, UP (INDIA) – 201301



TECHNICAL SPECIFICATION
FOR
PVC INSULATED WIRES

SPECIFICATION NO. PE-RC-999-558-E003

VOLUME II

SECTION I

REVISION 00

08-08-2016

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1.0	SECTION- I	
	COMPLIANCE CERTIFICATE	01
	SPECIFIC TECHNICAL REQUIREMENTS	01
	DATA SHEET – A	01
	DATA SHEET – C	01
2.0	SECTION- II	
	STANDARD TECHNICAL REQUIREMENTS	02
	STANDARD QUALITY PLAN	01

Total nos. of sheets including cover & separator sheets = 11 sheets



TECHNICAL SPECIFICATION
FOR
PVC INSULATED WIRES

SPECIFICATION NO. PE-RC-999-558-E003

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SECTION I

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SECTION -I



TECHNICAL SPECIFICATION
FOR
PVC INSULATED WIRES

SPECIFICATION NO. PE-RC-999-558-E003

VOLUME II

SECTION I

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COMPLIANCE CERTIFICATE

The bidder shall confirm compliance to the following by signing/ stamping this compliance certificate and furnishing same with the offer.

1. The scope of supply, technical details, construction features, design parameters etc. shall be as per technical specification & there are no exclusion/ deviation with regard to same
2. There are no deviation with respect to specification other than those furnished in the 'schedule of deviations'
3. Only those technical submittals which are specifically asked for in NIT to be submitted at tender stage shall be considered as part of offer. Any other submission, even if made, shall not be considered as part of offer.
4. 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.
5. Any changes made by the bidder in the price schedule with respect to the description/ quantities from those given in 'BOQ-Cum-Price schedule' of the specification shall not be considered (i.e., technical description & quantities as per specification shall prevail).

BIDDER'S STAMP & SIGNATURE



TECHNICAL SPECIFICATION
FOR
PVC INSULATED WIRES

SPECIFICATION NO. PE-RC-999-558-E003

VOLUME II

SECTION I

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SPECIFIC TECHNICAL REQUIREMENTS

1.0 PURPOSE

This specification is intended for finalization of rate contract between BHEL PEM and Bidder. Standard technical detail as indicated in the specification shall be agreed upon between BHEL PEM and bidder. Project specific technical detail shall be made available to the bidder along with project enquiry.

2.0 SCOPE

- 2.1 Manufacture, Inspection and Testing at Manufacturer's works, proper packing and delivery to site of PVC wires conforming to this specification.
- 2.2 Technical requirements of PVC wires are indicated in Data Sheet-A & Section-II.
- 2.3 The stipulation of Data Sheet-A shall prevail in case of any conflict between the stipulations of Data Sheet-A & Section-II.

3.0 BILL OF QUANTITIES

The bidder to quote for items as per price schedule attached with NIT. **The quantity as mentioned in the BOQ is only for evaluation purpose.** However actual ordered quantity may vary from project to project throughout the contract.

4.0 DRAWINGS & DOCUMENTS TO BE SUBMITTED

- 4.1 After rate contract; against specific project requirement following information shall be furnished by BHEL:-
- a) BOQ (Bill of Quantities)
- 4.2 Following documents shall be submitted for specific project requirement after placement of order for BHEL & customer's approval:-

Sl. No.	Drawings / Document Description	Document Number
1.	Technical Data Sheet-C for PVC wires	PE-V0-XXX-558-E403
2.	MQP for PVC Wires	PE-V0-XXX-558-E908



TECHNICAL SPECIFICATION
FOR
PVC INSULATED WIRES

SPECIFICATION NO. PE-RC-999-558-E003

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DATA SHEET-A

1.0 APPLICABLE STANDARDS & CODES

- a) IS:694 PVC insulated unsheathed and sheathed cables/cords with rigid and flexible conductor
- b) IS:5831 PVC insulation and sheath of electric cables
- c) IS:8130 Conductors for insulated electric cables and flexible cords.
- d) IS:10810 Methods of tests for cables.

2.0 MAKE: BIS approved As per enclosed sub-vendor list

3.0 TYPE OF WIRE :

NON-FRLS FIRE RESISTANT (FR) FIRE RESISTANT LOW SMOKE (FRLS)

Refer BOQ for details

4.0 CONDUCTOR

- a) NO. OF CORES : 1
- b) MATERIAL : High conductivity untinned annealed copper
- c) CLASS : Class-2 as per IS: 8130
- d) MINIMUM NUMBER OF STRANDS : As per IS 8130 (table-2)
- e) MAX. RESISTANCE OF CONDUCTOR : As per IS 8130 (table-2)

5.0 INSULATION

- a) INSULATION MATERIAL : PVC, Type-A as per IS :5831
- b) NOMINAL INSULATION THICKNESS : As per IS 694 (table-3)

6.0 MAX. OVERALL DIA. : As per IS 694 (table-3)

7.0 STANDARD BUNDLE LENGTH: 90-100 meters (For all sizes)



TECHNICAL SPECIFICATION
FOR
PVC INSULATED WIRES

SPECIFICATION NO. PE-RC-999-558-E003

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SECTION I

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TECHNICAL PARTICULARS FOR PVC INSULATED WIRES – DATA SHEET-C

(to be submitted by successful bidder after award of contract)

S.No.	Particulars	Unit	Description
1	Manufacturer's name	-	
2	Reference design standards	-	
3	Type of wire		
4	Rated Voltage	V	
5	No. of Cores	No.	
6	Conductor cross section area (nominal)	sq. mm	
7	Conductor		
	a) Material	-	
	b) Reference Standard	-	
	c) Class		
	d) No. of strands	No.	
	e) Diameter of strands (nom.)	mm	
	f) Approx. dia of conductor	mm	
	h) Maximum conductor resistance per Km at 20°C	ohm	
8	Insulation		
	a) Reference Standard	-	
	b) Material composition	-	
	c) Minimum thickness	mm	
	d) Nom. Thickness	mm	
	e) Max. thickness	mm	
	f) Minimum volume resistivity as per IS 5831	Ohm cm	
	g) Dielectric constant	-	
	h) Maximum conductor temperature withstand capacity	°C	
	i) Minimum conductor temperature withstand capacity	°C	
	j) Total diameter including insulation	mm	
9	Length of single bundle	M	
10	Details of Marking/ label provided as per specification	Yes/ No	



TECHNICAL SPECIFICATION
FOR
PVC INSULATED WIRES

SPECIFICATION NO. PE-RC-999-558-E003

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SECTION II

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SECTION-II

STANDARD TECHNICAL REQUIREMENTS



TECHNICAL SPECIFICATION
FOR
PVC INSULATED WIRES

SPECIFICATION NO. PE-RC-999-509-E003

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SECTION II

REVISION 0

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1.0 INTENT OF SPECIFICATION

The intent of specification is not to specify all details of design & construction of material. The material shall, however, conform in all aspects to high standard of design, engineering and workmanship and be capable of performing in continuous operation up to & after bidder's guarantee period in manner acceptable to purchaser who will interpret the drawings & specification and shall have power to reject any work or material which in his judgement is not in full accordance with this specification.

2.0 CODES AND STANDARDS

- 2.1 The material shall comply with all currently applicable safety codes and statutory regulations of India as well as of the locality where the material is to be installed.
- 2.2 The material, construction, manufacture, inspection and testing of PVC wires shall conform to the latest revision of relevant standards as per Data Sheet-A.
- 2.3 In case of conflict between the applicable reference standard and this specification, stringent requirement shall govern.

3.0 TECHNICAL REQUIREMENTS

- 3.1 Lighting wires shall be single core, 1100 V grade, light duty PVC insulated, stranded copper wire for fixed wiring installation.
- 3.2 Wire shall be made with the Colour Codes specified below :

a) 3 phase AC Connections

- Phase 1 (R) Red
- Phase 2 (Y) Yellow
- Phase 3 (B) Blue
- Neutral Black

b) DC Connections

- Positive White
- Negative Grey

c) Earth Connection Green

The Colour wise quantity of PVC wires shall be as specified in 'BOQ cum Price schedule'.

- 3.3 Cross-sectional area of PVC wires shall be as specified in 'BOQ cum Price schedule'.
- 3.4 Technical particulars of PVC wires shall be as specified in Data Sheet – A.

4.0 QUALITY ASSURANCE, TESTING & INSPECTION

- 4.1 Bidder shall confirm compliance with the BHEL's Standard Quality Plan (QP.no. PE-QP-999-558-E003) as attached with the specification without any deviations. At contract stage, the



TECHNICAL SPECIFICATION
FOR
PVC INSULATED WIRES

SPECIFICATION NO. PE-RC-999-509-E003

VOLUME II

SECTION II

REVISION 0

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successful bidder shall submit the Quality Plan for BHEL/ ultimate customer's approval. In case bidder has reference Quality Plan agreed with ultimate customer, same can be submitted for specific project after award of contract for BHEL/ ultimate customer's approval. There shall be no commercial implication to BHEL on account of Quality plan approval.

4.2 All materials shall be procured, manufactured, inspected and tested by vendor/ sub-vendor as per approved quality plan.

4.3 The supplier shall perform all tests necessary to ensure that the material and workmanship conform to the relevant standards and comply with the requirements of the specification. Charges for all these tests for all the equipments & components shall be deemed to be included in the bid price.

In case ordered quantities are manufactured and offered for inspection in more than one lot, BHEL reserves the right to witness testing on all lots without any commercial implications.

5.0 PACKING

5.1 The material shall be packed to ensure protection against damage during transit, storage for prolonged periods and handling.

5.2 The wire shall be clean and dry prior to packaging.

5.3 The wire shall be supplied in packed coils. The tapes used for packing shall not bleed, leave residue, or damage the item when removed.

5.4 The inside coil diameters shall not be smaller than the minimum safe allowable bending diameter for wires.

5.5 The coil shall be placed in a corrugated paperboard/ fibreboard container/ mono carton.

5.6 The mono cartons shall be wrapped or bagged or tied in place in master cartons. The master carton shall be taped and then wrapped with cushioning material.

5.7 The dimensions of cartons shall be as per manufacturer's recommendations.

6.0 MARKING:

6.1 The wire shall carry the following information either stencilled on the reel or contained in a label attached to it:

6.2 Reference of IS 694;

6.3 Manufacturer's name, brand name or trade-mark;


6.4 Type of wire (FR or FRLS , if applicable, to be used) and voltage grade;

6.5 Number of cores & Nominal cross-sectional area of conductor;

6.6 Colour of wire

6.7 Length of wire on the reel or coil;

6.8 Number of lengths on the reel or coil (if more than one);

		STANDARD QUALITY PLAN FOR PVC INSULATED WIRES SHEET 1 OF 1		CUSTOMER :			PROJECT TITLE		SPECIFICATION : PE-RC-999-558-E003				
				BIDDER/ :			QUALITY PLAN		SPECIFICATION :				
				VENDOR			PE-QP-999-558-E003		TITLE PVC INSULATED WIRES				
SYSTEM				ITEM :PVC INSULATED WIRES			SECTION II						
SL. NO.	COMPONENT/OPERATION	CHARACTERISTIC CHECK	CAT.	TYPE/METHOD OF CHECK	EXTENT OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORM	FORMAT OF RECORD	AGENCY			REMARKS	
									P	W	V		
1	2	3	4	5	6	7	8	9	10			11	
1.0	PVC INSULATED WIRES	1.SURFACE DEFECTS	MA	VISUAL	SAMPLE (REFER NOTE-1)	IS:694	IS:694	INSPN. REPORT & TEST REPORT FROM MANUF.	M	C	B	BIS 00000000 00000000 00000000	
		2.CONSTRUCTION OF WIRE	MA	VISUAL & MEASUREMENT	-DO-	IS-694 (TABLE-3) IS-8130 (TABLE-2) DATA SHEET (APPROVED)	IS-694 (TABLE-3) IS-8130 (TABLE-2) DATA SHEET (APPROVED)	-DO-	M	C	B		REFER NOTE-2
		3.TYPE TESTS	CR	TESTS	ONE SAMPLE PER UÜÜÜ	IS:694 (TABLE-1)	IS:694 (TABLE-1)	TEST CERT.	M	C,B	-		
		4.ACCEPTANCE TESTS	MA	-DO-	SAMPLE (REFER NOTE-1)	-DO-	-DO-	-DO-	M	C,B	-		
		5.ROUTINE TESTS	MA	-DO-	100%	-DO-	-DO-	-DO-	M	C	B		
		6. PACKING & MARKING	MA	VISUAL	SAMPLE (REFER NOTE-1)	BHEL SPEC.	BHEL SPEC.	INSPN. REPORT	M	C,B	-		
BHEL			PARTICULARS		BIDDER/VENDOR								
			NAME										
			SIGNATURE										
			DATE					BIDDER'S/VENDORS COMPANY SEAL					

LEGEND: B - BHEL/ BHEL's CUSTOMER, M - MANUFACTURER, C - CONTRACTOR, P - PERFORM, W - WITNESS, V - VERIFICATION

Note: 1) Sampling for each lot

No of reels/ coil in the lot	Number of reels/ coil to be taken as sample	Permissible number of defectives
Upto 50	3	0
51-100	5	0
101-300	8	0
300-500	13	1
500 & above	20	2

2) In case of FR type wires, FR properties test (Oxygen Index & Temp. Index) are also applicable.