

ESP-001 - 2A Rev.00		PROJECT ENGINEERING & SYSTEMS DIVISION		Std. / Doc. Number	
				PY56355	
				Rev. No.	00
				Sheet 1 of 8	

COPYRIGHT AND CONFIDENTIAL The information on this document is the property of BHARAT HEAVY ELECTRICALS LIMITED, It must not be used directly or indirectly in any way detrimental to the interest of the company.	TECHNICAL SPECIFICATION FOR QUAD CABLE FOR SIGNAL & TELECOMMUNICATION PURPOSE	

PROJECT	ELECTRIFICATION WORKS FOR BIRLANAGAR - ETAWAH, BHANDAI -UDI,FARRUKHABAD-SHIKOHABAD INCLUDING MAINPURI - ETAWAH SECTIONS OF NORTH CENTRAL RAILWAY 386 RKM/440 TKM
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Revisions: Refer to record of revisions	Prepared by :	Checked by :	Approved by :	Date :
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**1.0 INTENT OF SPECIFICATION:**

This specification governs the requirements of design, manufacture, testing and packing at manufacturer's work and delivery at site and complete in all respects of this specification.

2.0 TECHNICAL REQUIREMENTS:

All the technical requirements of Quad cables shall be as per the enclosed specification with Document Number: TC/30/2005 version 1 with and amendments 1 to 5 or latest. The latest specification shall be procured from the Indian Railways.

3.0 MATERIAL CODES:

Bidder to offer material as per Price format in Annexure-1 and enquiry requirements.

4.0 DRUM LENGTH REQUIREMENTS:

Technical requirement of drums shall be as per above-mentioned specification and the drum length shall be 1000 meters with tolerance of +2% and -2%.

5.0 DOCUMENTATION:**5.1 DRAWINGS, DATA AND MANUAL:****5.1.1 To be submitted along with bid**

a	Technical data sheets for information.
b	Cross sectional drawing of Quad cable for information.
c	RDSO approval certificate for manufacture of cable.
d	Type Test Certificates for information.
e	RDSO Approved Quality Assurance plan.
f	Bidder shall furnish NO DEVIATION SHEET as per Cl.No 6.0 .
g	Check list for Bid Submission as per Cl.No 7.0
h	Duly filled unpriced price schedule as per Annexure-1

Document at Sl. no. a to d above shall be submitted in line with Number: TC/30/2005 version 1 with and amendments 1 to 5 or latest

In case RDSO approval certificate as per RDSO specification as per Number: TC/30/2005 version 1 with and amendments 1 to 5 or latest is not meeting the specification requirements, the bidder's offer will be rejected.

5.1.2 To be submitted in 6 sets after award of contract

Sl. No.	Description
a	Completely filled in technical data sheets as per relevant formats given shall be furnished. Separately typed vendor datasheets are NOT acceptable.
b	Type Test Certificates for review
c	Cross sectional drawing of Quad cable for information.
d	Storage Instruction including handling of material at Site

6 set of all Drawings & document shall be submitted as per Number: TC/30/2005 version 1 with and amendments 1 to 5 or latest within 1 week time after release of LOI/PO whichever is earlier.

BHEL shall provide comments/approval within 10 days of receipt of drawings. Vendor shall incorporate comments, if any, and submit revised drawings within 7 days for final approval. Vendor is responsible for completion of approval cycle and minimizing number of revisions.

**6.0 NO DEVIATION FORMAT**

ENQUIRY NUMBER _____ NAME OF BIDDER _____
 ITEM _____ OFFER REF _____
 NUMBER _____

S/N	Clause/ Spec Number	Description	Deviation	Nature of Deviation	Remarks
1					
2					
3					
4					
5					

NOTES:

- Technical offer of the bidder will be evaluated only on the basis of No Deviation Schedule. No Deviation Schedule constitutes this sheet (with these Notes) duly signed and stamped.**
- As vendor is RDSO approved vendor, deviations are not accepted against RDSO standard specification, RDSO approved drawings & RDSO approved quality assurance plan. Accordingly, No deviation schedule shall be filled and submitted along with technical offer.
- No price implications shall be entertained by BHEL during technical scrutiny & order execution stage. Hence, in no case there will be consideration of price implications.
- Bidder to submit the "No Deviation Schedule" by writing "NO Deviations" in this format.
- If the "No Deviation Schedule" is not submitted along with the offer, the bidder's offer is likely to be rejected without any further interaction with the bidder.

SIGNATURE OF BIDDER _____

NAME _____

DESIGNATION _____

DATE _____

COMPANY SEAL

**7.0 GENERAL:****7.1 CHECKLIST FOR BID SUBMISSION****(TO BE FILLED BY BIDDER AND SUBMITTED ALONG WITH OFFER)**

Sl. No.	Description	Bidder Confirmation	Comments/Remarks
1	Technical offer is conforming to technical specification PY56355 & its associated Annexures (if any), pre-bid clarifications (if any) etc., Bidder to confirm (Yes / No).		
2	Bidder confirms that they have read the provisions of the Deviation Schedule and have included the deviation Schedule in the Offer after agreeing to the said Provisions (Yes/No).		
3	Bidder confirms that Prices for all items have been Quoted. Unpriced & Priced Schedules are included in the Techno-commercial Offer and Priced Offer respectively.(Yes/NO)		

Notes: Offer received without affirmative confirmation against any of the above points may not be considered for evaluation.

(Signature and stamp of bidder with date)

7.2 Quantities mentioned are tentative requirement. Based on the actual requirement, quantity can be increased or decreased by about 15% on overall qty. Final BOQ will be informed before price bid opening. Unit rates quoted by bidder shall be applicable for the revised BOQ also.

TABLE -1: Material Codification

Var. No.	Material Description	BHEL Material Code
1	6 Quad X 0.9 sqmm Jelly Filled cable	PY9756355000
2		
3		
4		
5		

8.0 INSPECTION & TESTING

8.1 Stage & Final Inspection shall be done by Purchaser/CORE/RDSO/Third party appointed by Purchaser or End user as per approved QAP. Twenty days advance notice along with three sets of drawing approved by BHEL with factory test reports shall be furnished along with the inspection call.

8.2 Testing of Quad cable for S&T purpose shall be as per Number: TC/30/2005 version 1 with and amendments 1 to 5 or latest

8.3 Stage and final Inspection including document review shall be carried out by RDSO/CORE/ their representative and BHEL at vendor works as per RDSO approved QAP.

9.0 PACKING & DISPATCH



9.1 Packing and Dispatch of Quad cable for S&T purpose shall be as per Number: TC/30/2005 version 1 with and amendments 1 to 5 or latest

10.0 TECHNICAL DATA SHEET

S.No. Description

1. Cable size
2. BHEL material code
3. Cable code
4. Applicable standards:
5. Name of vendor
6. Voltage Grade
7. Maximum conductor temperature under :
Normal operating conditions
8. Maximum conductor temperature under :
Short circuit conditions
9. Permissible voltage variation:
10. Permissible frequency variation:
11. Combined voltage & frequency variation
12. **Conductor:**
 - a. Conductor material:
 - b. Size (sq.mm) Nominal(Main/Neutral)
 - c. No. of wires & diameter of each wire
(No/mm)
 - d. Shape of conductor
 - e. Maximum DC resistance of conductor at 20deg.C
13. **Insulation:**
 - a. Insulation Material
 - b. Insulation Type
 - c. Extruded (Yes/No)
 - d. Thickness of insulation(Nominal)(mm)(Main/Neutral)
 - e. Filling compound material/composition :
 - f. Filling compound details:
 - g. Filling compound locations:
14. Core identification:
15. Calculated dia over laid up cores:
16. **Inner sheath:**
 - a. Material
 - b. Type
 - c. Minimum Thickness
 - d. Extruded: Yes.
 - e. Calculated diameter of cable :
under armour (as per IS:10462)
17. **Armoring :**
 - a. Material:
 - b. Type of armour :
 - c. Nominal dia of armour:
 - d. No. of armour wires/strips:
 - e. DC resistance of armour
18. Nominal diameter of cable under :
outer sheath
19. Calculated diameter of cable under :



- outer sheath
20. **Outer sheath** :
- a. Material
- b. Type
- c. Minimum Thickness:
- d. Extruded: Yes
21. Nominal outer diameter of cable :
22. Calculated outer diameter of cable:
23. Tolerance on outer diameter :
24. Electrical parameters:
- a. AC resistance at 90 deg. C:
- b. Cable reactance:
- c. Cable impedance:
25. Short circuit rating of conductor for the
Duration of 1 sec(kA)
26. Maximum drum length of cable:
27. Continuous current rating for standard IS conditions laid direct (amps)
28. Embossing on outer sheath:

11.0 Dispatch Instructions :

Location / Div	Area (From – To)	1 st Lot Supply Quantity	1 st Lot Schedule	2nd Lot Supply Quantity	2nd Lot Schedule	Final Lot Quantity	Final Lot Schedule
Gr-239 / Jhansi Div	Birlanagar to Etawa	3 KMs	Oct - 19	3 KMs	Dec - 19	4 KMs	June - 2020
Gr-240 / Agra Div	Bhandai – Udi	3 KMs	Oct - 19	3 KMs	Dec - 19	4 KMs	June - 2020
Gr-241 / Allahabad Div	Farrukhabad to Shikohabad - Etawa	50 KMs	Oct - 19	50 KMs	Feb - 20	60 KMs	June - 2020

Notes:

- Cable to be manufactured after data sheet approval from BHEL / Railway Authority.
- Dispatch location will be intimated during drawing approval stage.
- BHEL will reserve right to modify the location (with in section), right to change the quantities.



RECORD OF REVISIONS

[illegible]

ANNEXURE-1 OF PY56355 REV 00
PRICE BID FORMAT

PROJECT:				BHEL ENQUIRY NO.:								
CUSTOMER: M / s				ITEM : 6 QUAD CABLE x 0.9 MM ² JELLY FILLED CABLE FOR SIGNAL & TELECOMMUNICATION PURPOSE								
SUPPLIER: M / s				QUOTATION REF. NO. & DATE:								
BREAK UP OF PRICE BID OF QUAD CABLE FOR SIGNAL & TELECOMMUNICATION PURPOSE												
LIST OF ITEMS			THESE COLUMNS SHALL APPEAR AND SHALL BE FILLED IN EPS BID ALSO									
SL NO.	DESCRIPTION 1	HSN CODE (8 DIGIT)	QTY. in meter	M U	UNIT PRICE for Line ITEM (RS.) [Ex-Works]	TOTAL PRICE (RS.) [Ex-Works]	P&F Charges (In Rs. <u>OR</u> in % <u>OR</u> Inclusive)	Freight Charges (In Rs. <u>OR</u> in % <u>OR</u> Inclusive)	Total Price (in Rs.)	GST (%)	GST Amount (in Rs.)	
		(A)	(B)	(C)	(D)	(E) = (DxB)	(F)	(G)	(H) = (E)+(F)+(G)	(I)	(J)	
1	MATERIAL CODE: PY9756355000 6 Quad X 0.9 sqmm Jelly filled cable			Meter								
NOTES: i) THE TENDER SHALL BE EVALUATED ON OVERALL L1 BASIS EXCLUDING GST. ii) BIDDER TO ATTACH UN-PRICED BID WITHOUT DISCLOSING RATES/ PRICE BUT MENTIONING ONLY 'QUOTED' AGAINST EACH ITEM IN PART-I. AND PRICE BID SHALL BE FILLED & ATTACHED ALONG WITH THIS BREAK UP IN PART-2 BID. iii) IF ANY ITEM IS LEFT 'BLANK' OR 'UNQUOTED' FOR A PACKAGE IN THE UN-PRICED BID, THE OFFER WILL BE LIABLE FOR REJECTION. iv) VENDOR SHALL ALSO FILL UP 8-DIGIT HSN CODE AGAINST EACH OF THE ITEM IN THE UN-PRICED PRICE FORM AT.												