

**CENTRALIZED CONTRACTS GROUP**

NIT No.: TPCODL/CCG/25-26/100008065

**Corrigendum No. – II****Dt.: 14.04.2026****Tender Enquiry No- TPCODL / CCG / FY 25-26 / 100008709****Tender Subject** – RC for Supply of LT Power and Control Cable of various sizes for TPCODL / TPSODL / TPWODL / TPNODL**Corrigendum Summary:****A] Clause 1.3: Revised Calendar of Event shall be as follows:**

Existing Clause	Proposed Clause
Due Date of Posting Consolidated replies to all the pre-bid queries as received : <b>31.03.2026, 18:00 Hours</b>	<i>Revised timeline 14.04.2026</i>

NOTE : All Other Terms &amp; Conditions of the tender shall remain unchanged as per NIT document, Pre-bid reply and GCCs.

Approved By,

Sd/-

(Head – Centralized Contracts Group)

**FORMAT F.1****Format for Query / Clarification / Deviation (QCD)**

Tender No TPCODL/CCG/25-26/1000008709

Package Name Two Years Rate Contract for Supply of 1.1 kV Power and Control Cables

Bidder :

Note : The said format to be used only for any Pre-bid Query / Clarification/ Deviation on any of the Tender documents

Sr. No.	Detailed Reference to concerned Document . Please specify Document No / Clause No / Page No	Description as per Bid Document	Query / Clarification / Deviation	TP Odisha Discom's Response
1	2	3	4	5
1	Annexure-1 (Price Schedule), Group-III, Item No. 1	10Core x 1.5 Sqmm Un-armoured	There is no technical parameters against the item	Kindly consider 10C X 1.5 Sq. mm armoured cable. Technical specification (TPWODL/ENGG/SPEC/200/2025) attached for reference.
2	Annexure-1 (Price Schedule), Group-III, Item No. 11	1 Core x 16 Sqmm Armoured and in technical specification it is mentioned as Unarmoured	Kindly confirm whether it is armoured or Un-armoured?	1Cx16 sqmm shall be un-armoured & as per technical specification for LT Control Cable (TPU-D-ENG-LV-30002-R1).
3	Annexure-1 (Price Schedule), Group-III, Item No. 12	2 Core x 16 Sqmm Armoured	The size is not found in the technical specification of the tender. Kindly provide the exact specification against the size.	As part of the revised tender scope, cable size has been removed.
4		(1) items 1C X 400 , 4C X 70, 4C X 185 & 4C X 630 are not covered under technical specification of LT POWER cable. please Clarify & Share complete technical specification .		Please note the below revisions to the tender scope of work. The cable sizes have been revised as follows: 1. Replacement of 1C × 400 sq.mm with 1C × 630 sq.mm. 2. Replacement of 4C × 70 sq.mm with 4C × 95 sq.mm. 3. Deletion of 4C × 185 sq.mm from the tender scope. 4. Deletion of 4C × 630 sq.mm from the tender scope.
5		(2) items 4C x 4 , 4C x 16 , 1C X 16 & 2C X 16 are mentined Under control cable of BOQ at page no -23 but it is not mentioned In genral technical requiremt of technical specification of control cable & these size are not covered in TYPE TEST REQUIREMENTS of LT Control control cable at page no 15/20 on sheet /71 of pdf . please confirm same sizes are power cable or control cable .		Please note the following clarifications: 1. 4C × 4 sq.mm cable shall be as per the technical specification for LT Power Cable (TPU-D-ENG-LV-30001-R1). 2. 4C × 16 sq.mm cable shall be considered as LT 3-Phase Service Cable in accordance with the technical specification for LT Power Cable (TPU-D-ENG-LV-30001-R1). 3. 1C × 16 sq.mm cable shall be un-armoured and as per the technical specification for LT Control Cable (TPU-D-ENG-LV-30002-R1). 4. 2C × 16 sq.mm cable is removed from the tender scope.
6		3.) Short circuit rating of Armour for 1 sec (kA) of 2c x 4 & 2C x 6, 2C x 10 2C x 16 is not mentioned in technical spec at page no 9/21 of sheet .please clarify .		Please refer to caluse no. 5.F.9 of technical specification for LT Power cable.
7		3.) Please confirm for Raw material of Inner sheath & Ouster sheath That Can we make by use in house ( KEI).		Not acceptable. Need to comply as per specification.
8		(4) Please allow bidders to quote selective items not each and every items as mentioned in cl. No. 6 of tender doc.		It will be as per NIT
9		(5) Please extend the due date further atleast 7 days from 09.04.26.		Please check Ariba portal for the same.

Sr. No.	Detailed Reference to concerned Document . Please specify Document No / Clause No / Page No	Description as per Bid Document	Query / Clarification / Deviation	TP Odisha Discom's Response
10	3.1 Price Basis	Price shall be fixed and firm during the contractual period	Since it is two years Rate Contract, the price should be made as "Variable" and IEEMA PVC clause should be applied	<p>IEEMA formulae and factors governing the price variation shall be as follows:  The prices shall be subject to IEEMA Price Variation Clause with following conditions:  <math>P = P_o + AIF (Al-Alo) + XLFAL (Cc-Cco) + CCFAl(PVCc-PVCco) + FeF (Fe-Feo)</math>  Term Description  Po Price finalized (in Rs/KM)  AIF Variation factor for Aluminum  Al Price of Aluminum - applicable in the month of ordering  Alo Price of Aluminum - as per base month of tender  XLFAL Variation Factor for XLPE compound for aluminium conductor cable  Cc Price of XLPE compound- applicable in the month of ordering  Cco Price of XLPE compound-as per base month of tender  CCFAl Variation for PVC Compound/polymer for aluminium conductor cable  PVCc Price of PVC compound- applicable in the month of ordering  PVCco Price of PVC compound- as per base month of tender  FeF Variation factor for steel  Fe Price of Steel Strips/steel wire - applicable in the month of ordering  Feo Price of Steel Strips/steel wire as per base month of tender  Base date- Date of tender Opening date shall be considered, the same clauses should be mentioned in the tender.  Delivery Date :- The date of delivery is the date on which the cable is notified as being ready for inspection / dispatch ( in the absence of such notification, the date of manufacturer's dispatch note is to be considered as the date of delivery) or the contracted delivery date ( including any agreed extension thereto), whichever is earlier.</p>
11	13.1 Special Conditions of Contract Point No.7	Guarantee Period	Since the supplier do not know when TPCODL will commission the delivered cables, the guarantee period should be changed to 60 months from the date of supply instead of 72 months.	It will be as per attached TS .
12	13.1(1) Special Conditions of Contract	Rate contract shall be valid for a period of 24 months from the placement of the contract. Release Order(RO) shall be placed as per the requirement of respective TP Odisha Discom. Rates shall remain firm throughout RC Period.	Rate contract should be valid for a period of 12 months instead of 24 months from the placement of the contract. The Release Order (RO) should be placed for the full value of Rate Contract, at the beginning of period itself. Rates shall remain "Variable" through RC period.	It will be as per attached TS .
13	General Conditions of Contract for supply orders (Page 8 of 51)- Point No.8.0 Security Cum Performance Deposit	Associates shall submit within 21 ays from the effective date of issue of PO/RC, Security Performance Bank Guarantee (SPBG) in the format.....	Associates shall submit within 21 ays from the effective date of issue of PO Security Performance Bank Guarantee (SPBG) in the format..... RC should be deleted. The SPBG should be 5% of RO Value in case of Rate Contract. This should remain valid till the Guarantee period of 60 months only.	It will be as per NIT.
14	Technical Specification nfor LT Power Cables Page -7/21- Point F-ARMOUR (For multi core cables only) -Sl.No.2. Compliance to standard	Zinc coating shall be medium coated as per IS 4826:1979	It shall copy with the requirements of IS 3975 along with the latest amendments. Zinc coating shall be medium coated as per IS 3975 and not IS 4826:1979 as it refers to Heavy Coating	IS 3975 reffers to IS 4826 for mass of zinc coating. Shall be as per Technical Specification.

Sr. No.	Detailed Reference to concerned Document . Please specify Document No / Clause No / Page No	Description as per Bid Document	Query / Clarification / Deviation	TP Odisha Discom's Response
15	Technical Specification for LT Power Cables Page -11/2111.Acceptance Test Point No.16), Page No.14/21 (III. Type Test-Point No.31), Page No.20/21(Annexue-1- Inspection Plan-Point No.16)	Mass of Zice Coating -	In all places, Mass of Zince Coating should be changed to Medium coated soft wire with IS 3975, as per your requirement. IS 4826 should be deleted	IS 3975 reffers to IS 4826 for mass of zinc coating. Shall be as per Technical Specification.
16	Technical specification for LT Control cable & Lower size of LT PVC Power cables - Page 4/20, 5/20	b.Raw material supplier	PVC compound from cable manufacturer should be considered on a priority basis than external suppliers to maintain perfect quality and control.	Not acceptable. Need to comply as per specification.
17	Technical specification for LT Control cable & Lower size of LT PVC Power cables - Page 5/20- Point NO.4a. Material	Galvanized Steel round wire confirming to IS:3975. Zinc Coating shall be medium coated as per IS 4826	Galvanized Steel round wire shuld be confirming to IS:3975. Zinc Coating should be medium coated as per IS 3975 since your requirement is medium coated.	IS 3975 reffers to IS 4826 for mass of zinc coating. Shall be as per Technical Specification.
18	Technical specification for LT Control cable & Lower size of LT PVC Power cables - Page 10/20- Point NO.4a. Material	Galvanized Steel round wire confirming to IS:3975. Zinc Coating shall be medium coated as per IS 4826	Galvanized Steel round wire shuld be confirming to IS:3975. Zinc Coating should be medium coated as per IS 3975 since your requirement is medium coated.	IS 3975 reffers to IS 4826 for mass of zinc coating. Shall be as per Technical Specification.
19	Technical specification for LT Power cable Page 20/21-Point No.6. MARKING	Non-returnable MS/Steel drum of recycled steel.....Point.3. 2Core& 1 Core Cables-1000 meters+/- 5% tolerance	It should be changed to 2Core & 1 Core Cables - 2000 meters +/- 5% tolerance	Not acceptable. Need to comply as per specification.
20	Technical Specification nfor LT Power Cables Page -15/21- Point no.8- Type Test Certificates	The bidder shall furnish the type test report of 1.1KV cables..... Which are CPRI/ERDA/Govt owned NABL Accredited Lab. The type test should have been conducted in certified test laboratories during the period not exceeding from the date of 5 years from the date of opening of bid as per CEA Guidelins.	CEA Guidelines says 10 Years validity for cables type test reports (Please refer the attached CEA Guidelines). Therefore it should be amended to The bidder shall furnish the type test report of 1.1KV cables..... Which are CPRI/ERDA/Govt owned NABL/Manufacturers NABL Inhouse Accredited Lab. The type test should have been conducted in certified test laboratories during the period not exceeding from the date of 10 years from the date of opening of bid as per CEA Guidelins.	As per latest CEA Guideline validity of type test report for 1.1KV power cable is 5 years. Shall be as per Technical Specification.
21	Technical specification for LT Power cable Page 16/20-Point No.8. TYPE TEST CERTIFICATES	The bidder shall furnish the type test report of 1.1KV cables..... Which are CPRI/ERDA/Govt owned NABL Accredited Lab. The type test should have been conducted in certified test laboratories during the period not exceeding from the date of 5 years from the date of opening of bid as per CEA Guidelins.	CEA Guidelines says 10 Years validity for cables type test reports (Please refer the attached CEA Guidelines). Therefore it should be amended to The bidder shall furnish the type test report of 1.1KV cables..... Which are CPRI/ERDA/Govt owned NABL/Manufacturers NABL Inhouse Accredited Lab. The type test should have been conducted in certified test laboratories during the period not exceeding from the date of 10 years from the date of opening of bid as per CEA Guidelins.	As per latest CEA Guideline validity of type test report for 1.1KV power cable is 5 years. Shall be as per Technical Specification.

Sr. No.	Detailed Reference to concerned Document . Please specify Document No / Clause No / Page No	Description as per Bid Document	Query / Clarification / Deviation	TP Odisha Discom's Response
22		1.Guaranteed Technical Particulars (GTP): Schedule "A" – GTP is not available for both Power and Control Cables. Kindly arrange to provide the same.		Attached as Annexure A1 & A2, bidder has to submit clause-wise compliance of the technical specifications along with corresponding calculation sheets.
23		2.Conductor Material for Control Cables: As per the BOQ, copper conductors are specified for all control cables. However, the specification indicates that a 4C x 16 sq.mm cable is required with an aluminium conductor. Kindly confirm the correct requirement.		4C x 16 sq.mm cable shall be considered as LT 3-Phase Service Cable in accordance with the technical specification for LT Power Cable (TPU-D-ENG-LV-30001-R1).
24		3.Armouring Requirement: As per the BOQ, 1C x 16 sq.mm cable is specified as armoured, while 10C x 1.5 sq.mm and 4C x 2.5 sq.mm cables are specified as unarmoured. However, the specification states that all single-core cables shall be unarmoured and all multicore cables shall be armoured. Kindly clarify the exact requirement.		Please note the following clarifications: 1. 1C x 16 sq.mm cable shall be un-armoured and as per the technical specification for LT Control Cable (TPU-D-ENG-LV-30002-R1). 2. 10C X 1.5 Sq. mm cable shall be armoured and technical specification attached for reference. 3. 4C X 2.5 Sq. mm cable shall be armoured and as per the technical specification for LT Control Cable (TPU-D-ENG-LV-30002-R1).
25		4.Type of Cable Drums: Clause 5.5 of the control cable specification specifies supply on wooden drums of defined length, whereas Clause 6 mentions non-returnable MS/steel drums. Kindly confirm the applicable requirement.		Drums shall be Non-returnable MS/steel drums as per clause no. 6 of technical specification.

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26		<p>In view of the above, we kindly request your esteemed office to consider adopting a <b>variable price mechanism in place of fixed pricing for the current and upcoming tenders. A variable pricing formula linked to standard indices of major raw materials would enable suppliers to submit more practical and competitive offers.</b></p>		<p>IEEMA formulae and factors governing the price variation shall be as follows:  The prices shall be subject to IEEMA Price Variation Clause with following conditions:  <math>P = P_o + AIF (Al-Alo) + XLFAL (Cc-Cco) + CCFAl(PVCc-PVCco) + FeF (Fe-Feo)</math>  Term Description  Po Price finalized (in Rs/KM)  AIF Variation factor for Aluminum  Al Price of Aluminum - applicable in the month of ordering  Alo Price of Aluminum - as per base month of tender  XLFAL Variation Factor for XLPE compound for aluminium conductor cable  Cc Price of XLPE compound- applicable in the month of ordering  Cco Price of XLPE compound-as per base month of tender  CCFAl Variation for PVC Compound/polymer for aluminium conductor cable  PVCc Price of PVC compound- applicable in the month of ordering  PVCco Price of PVC compound- as per base month of tender  FeF Variation factor for steel  Fe Price of Steel Strips/steel wire - applicable in the month of ordering  Feo Price of Steel Strips/steel wire as per base month of tender  Base date- Date of tender Opening date shall be considered, the same clauses should be mentioned in the tender.  Delivery Date :- The date of delivery is the date on which the cable is notified as being ready for inspection / dispatch ( in the absence of such notification, the date of manufacturer's dispatch note is to be considered as the date of delivery) or the contracted delivery date ( including any agreed extension thereto), whichever is earlier.</p>
	1	Due Date for BID submission	In the NIT covering letter, the date is mentioned as 10.04.2026, which is contrary to Clause No. 1.3 under the Calendar of Events, where the stipulated date is 09.04.2026. Kindly clarify	It is be as be ariba portal.

Sr. No.	Detailed Reference to concerned Document . Please specify Document No / Clause No / Page No	Description as per Bid Document	Query / Clarification / Deviation	TP Odisha Discom's Response
	2	Clause 3.1 of tender doc under Price Basis	As per Clause 3.1, the price basis has been specified as <b>FIRM</b> for the entire contractual period. Considering the rate contract spans of 2 years, this stipulation is impractical given the extreme volatility of the present market scenario. We would request that IEEMA price variation be considered, with the base date set one month prior to tender submission, in line with recent past tenders. This will enable us to quote the most competitive and realistic price.	<p>IEEMA formulae and factors governing the price variation shall be as follows:  The prices shall be subject to IEEMA Price Variation Clause with following conditions:  <math>P = P_o + AIF (Al-Alo) + XLFAL (Cc-Cco) + CCFAl(PVCc-PVCco) + FeF (Fe-Feo)</math>  Term Description  Po Price finalized (in Rs/KM)  AIF Variation factor for Aluminum  Al Price of Aluminum - applicable in the month of ordering  Alo Price of Aluminum - as per base month of tender  XLFAL Variation Factor for XLPE compound for aluminium conductor cable  Cc Price of XLPE compound- applicable in the month of ordering  Cco Price of XLPE compound-as per base month of tender  CCFAl Variation for PVC Compound/polymer for aluminium conductor cable  PVCc Price of PVC compound- applicable in the month of ordering  PVCco Price of PVC compound- as per base month of tender  FeF Variation factor for steel  Fe Price of Steel Strips/steel wire - applicable in the month of ordering  Feo Price of Steel Strips/steel wire as per base month of tender  Base date- Date of tender Opening date shall be considered, the same clauses should be mentioned in the tender.  Delivery Date :- The date of delivery is the date on which the cable is notified as being ready for inspection / dispatch ( in the absence of such notification, the date of manufacturer's dispatch note is to be considered as the date of delivery) or the contracted delivery date ( including any agreed extension thereto), whichever is earlier.</p>
	3	Clause no. 6 : Standard Drum Length Under Marking: 500 mtrs with +5% on non-returnable MS/Steel Drums as per IS	We strongly urge for your kind acceptance of 1000 meters with a tolerance of +5% for all Control Cables and lower sizes of LT PVC Power Cables, preferably supplied in non-returnable wooden drums, as per recent past tenders. This measure will not only result in significant cost savings on cables but also smooth execution of order as small steel drums are not readily available in market	Shall be as per Technical Specification & Pre-bid Response.
	4	III. Routine Test : Conductor resistance Test Clause no. 19.3 Under Type test requirements for LT Control Cables and lower sizes of LT PVC Power Cables (Pg 16/20), Reference standard to follow IS 7098 part-2	It should be rectified as IS 1554 /part-1 as all cables are PVC insulated	Noted & Accepted
	5	1.1 Scope of work Cl no. III. Control cable (CU)	As per the spec. 4 C x 16 sq.mm would be AL cond. instead of Cu. Cond. In addition to that there is no spec for 2 C x 16 sq.mm. Pls clarify with detailed spec. need to be followed	Please note the following clarifications: 1. 4C x 16 sq.mm cable shall be considered as LT 3-Phase Service Cable in accordance with the technical specification for LT Power Cable (TPU-D-ENG-LV-30001-R1). 2. 2C x 16 sq.mm cable is removed from the tender scope.



SI No	Material Description	UOM	TPCODL	TPNODL	TPSODL	TPWODL	Grand Total Requirement	HSN /SAC Code	Unit Ex-Work Price (Rs./Unit )	GST (Rs/ Unit)	All Inclusive Unit Rate (Rs.)	Total All Inclusive Value (Rs.)
	<b>CABLES</b>											
<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>		<b>F</b>	<b>G</b>	<b>E</b>	<b>F</b>	<b>G</b>	<b>H=(F+G)</b>	<b>I= (C x H)</b>
I	1.1kV Power Cable (for 2 Years)											
1	1.1kV Al 1CX95 Sq.mm Un-armoured Cable	Mtr.	1,00,000	1,000	84,000	55,000	240000					
2	1.1kV Al 1CX150 Sq.mm Un-armoured Cable	Mtr.		40,000	23,000	0	63000					
3	1.1kV Al 1CX185 Sq.mm Un-armoured Cable	Mtr.	60,000		0	81,000	141000					
4	1.1kV Al 1CX300 Sq.mm Un-armoured Cable	Mtr.	44,000	7,500	30,250	81,000	162750					
5	1.1kV Al 1CX630 Sq.mm Un-armoured Cable	Mtr.	1,30,000	1,000	4,175	22,000	157175					
6	1.1kV Al 4CX150 Sq.mm armoured Cable	Mtr.	1,50,000	8,000	-	-	158000					
7	1.1kV Al 4CX25 Sq.mm Armoured Cable A2XWY-FRLSH	Mtr.	1,50,000	17,000	1,38,075	1,50,000	455075					
8	1.1kV Al 4CX35 Sq.mm Armoured Cable A2XWY-FRLSH	Mtr.	4,000			-	4000					
9	1.1kV Al 4CX50 Sq.mm Armoured Cable A2XWY-FRLSH	Mtr.	4,000		36,277	20,000	60277					
10	1.1kV Al 4CX95 Sq.mm Armoured Cable A2XWY-FRLSH	Mtr.	1,08,000		12,000	10,000	130000					
11	1.1kV Al 4CX150 Sq.mm Armoured Cable A2XWY-FRLSH	Mtr.			5,200	2,000	7200					
12	1.1kV Al 4CX240 Sq.mm Armoured Cable A2XWY-FRLSH	Mtr.	2,000	1,000	-	-	3000					
13	1.1kV Al 4CX300 Sq.mm Armoured Cable A2XWY-FRLSH	Mtr.	60,000	3,000	42,000	50,000	155000					
14	CABLE 1.1KV AL1X 50 SQ MM UNARM XLPE	Mtr.			13,340	-	13340					
II	LT SERVICE CABLE (for 2 Years)											
1	2C X 4sq. mm. Armoured Aluminium Cable - XLPE Insulated	Mtr.	-		36,46,934	-	3646934					
2	2C X 6sq. mm. Armoured Aluminium Cable - XLPE Insulated	Mtr.	36,00,000	55,00,000	-	60,00,000	15100000					
3	2C X 10sq. mm. Armoured Aluminium Cable - XLPE Insulated	Mtr.			23,137	-	23137					
4	4C X 10sq. mm. Armoured Aluminium Cable - XLPE Insulated	Mtr.	40,000		2,63,137	1,50,000	453137					
			36,40,000		39,33,208	61,50,000	13723208					
III	CONTROL CABLE (CU) (for 2 Years)	Mtr.										
1	10 Core X 1.5 mm2 sq, un armoured	Mtr.	-		-	10,000	10000					
2	4 Core X 2.5 mm2 sq, un armoured	Mtr.	90,000	40,000	500	92,000	222500					
3	2 Core x 2.5 mm2 armoured	Mtr.			1000	-	1000					
4	4 Core x 2.5 mm2 armoured	Mtr.			24,000	92,000	116000					
5	7 Core x 2.5 mm2 PVC armoured	Mtr.	73,000		19,000	36,000	128000					
6	10 Core x 2.5 mm2 PVC armoured	Mtr.	42,000	15,000	51,000	92,000	200000					
7	12 Core x 2.5 mm2 armoured	Mtr.	45,000	15,000	3,500	56,000	119500					
8	16 Core x 2.5 mm2 armoured	Mtr.	50,000	10,000	1,000	-	61000					
9	4Core x 4 mm2 armoured	Mtr.	4,000		-	-	4000					
10	4 Core x 16 mm2 armoured	Mtr.		2,00,000	-	92,000	292000					
11	1 Corex16 mm2 armoured	Mtr.	5,000		1,060	-	6060					

\*Mandatory to quote in all line items (If Applicable)

Note :-

- Prices shall be firm till the validity of the contract (As applicable).
- The bids will be evaluated commercially on Individual Line Item basis.

- The unit price to be entered in column “F” of above table is unit price of the tendered item and exclusive of GST.

All itemized prices are to be quoted on FOR basis at TPCODL Store -Cuttack or Bhubaneswar, TPWODL Store-Burla, Sambalpur, TPNODL Store- Sovarampur, Balia, Balasore, Odisha, and TPSODL Store- Berhampur, Odisha should be inclusive of freight, insurance, loading & unloading, handling charges and any other charges which may be applicable.

- Issuance of Release Orders (RO) shall be done by respective Discoms as per their requirement.
- The material shall be delivered as per the location captured in the release order.
- The bidders are advised to quote prices strictly in the above format. Failing to do so, bids are liable for rejection.
- The bidder must fill each and every column of the above format. ***Mentioning “extra/inclusive”/other conditions in any of the column may lead for rejection of the price bid.***
- No cutting/ overwriting in the prices is permissible.
- The quantity mentioned above are for evaluation purpose only and may vary as per actual site requirement.

DOCUMENT TITLE	<b>STANDARD TECHNICAL SPECIFICATION OF CONTROL CABLE OF SIZE (10C*1.5sq mm)</b>	EFFECTIVE DATE 29/05/2025
DOCUMENT NO.	TPWODL/ENGG/SPEC/200/2025	REVISION NO: R0

# **STANDARD TECHNICAL SPECIFICATION OF SIZE 10C\*1.5 sq. mm CONTROL CABLE**

<b>PREPARED BY</b>	<b>REVIEWED BY</b>	<b>APPROVED BY</b>
<b>Anshula Thakur</b>	<b>J P Mohanty</b>	<b>Pramod Tupe</b>

DOCUMENT TITLE	<b>STANDARD TECHNICAL SPECIFICATION OF CONTROL CABLE OF SIZE (10C*1.5sq mm)</b>	EFFECTIVE DATE 29/05/2025
DOCUMENT NO.	TPWODL/ENGG/SPEC/200/2025	REVISION NO: R0

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<b>PREPARED BY</b>	<b>REVIEWED BY</b>	<b>APPROVED BY</b>
<b>Anshula Thakur</b>	<b>J P Mohanty</b>	<b>Pramod Tupe</b>

DOCUMENT TITLE	<b>STANDARD TECHNICAL SPECIFICATION OF CONTROL CABLE OF SIZE (10C*1.5sq mm)</b>	EFFECTIVE DATE 29/05/2025
DOCUMENT NO.	TPWODL/ENGG/SPEC/200/2025	REVISION NO: R0

**1.0 SCOPE:**

This specification covers the technical requirements of design, manufacture, testing at manufacturer's works, packing, Loading, forwarding and unloading at site/store to ensure trouble free and efficient operation.

**2.0 APPLICABLE STANDARDS:**

Cable covered under this specification shall unless otherwise stated, be designed, manufactured and tested in accordance with latest editions of the following Indian, international standards/ IEC and shall confirm to the regulations of the local authorities.

IS-1554 (Part-I)	PVC insulated (heavy duty) electric cables
IS-8130:1984	Conductor for insulated electric cables & flexible cords
IS-5831:1984	PVC insulation and sheath of electric cables
IEC-60228/3-2004	Conductor of insulated cables
IEC 60332-1:1993	Flame retardant, characteristics of electrical cables.
IS-3975:1979	Mild steel wires strips and tapes for armoring cables.
IS:3961-(Part-2)	Recommended current ratings for cables
IS 10418: 1982	Drums for Electric Cables

**3.0 CLIAMTIC CINDITIONS OF THE INSTALLATION:**

1. Maximum altitude above sea level 1,000m
2. Maximum ambient air temperature 50°C
3. Maximum daily average ambient air temperature 35°C
4. Minimum ambient air temperature 0°C
5. Maximum relative humidity 95%
6. Average number of thunderstorm days per annum (isokeraunic level) 70
7. Average number of rainy days per annum 120
8. Average annual rainfall 150cm
9. Earthquakes of an intensity in horizontal direction - equivalent to seismic acceleration of 0.3g

<b>PREPARED BY</b>	<b>REVIEWED BY</b>	<b>APPROVED BY</b>
Anshula Thakur	J P Mohanty	Pramod Tupe

DOCUMENT TITLE	<b>STANDARD TECHNICAL SPECIFICATION OF CONTROL CABLE OF SIZE (10C*1.5sq mm)</b>	EFFECTIVE DATE 29/05/2025
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10. Earthquakes of an intensity in vertical direction - equivalent to seismic acceleration of 0.15g (g being acceleration due to gravity)

11. Wind velocity: 300 km/hr, 200 km/hr and 160 km/hr. environmentally, some of the regions, where the work will take place includes coastal areas, subject to high relative humidity, which can give rise to condensation. Onshore winds will frequently be salt laden. On occasions, the combination of salt and condensation may create pollution conditions for outdoor insulators. Some places are in heavily industrial polluted areas. Therefore,

Outdoor material and equipment shall be designed and protected for use in exposed, heavily polluted, salty, corrosive and humid coastal atmosphere

**4.0 GENERAL TECHNICAL REQUIREMENTS:**

<b>B</b>	<b>Size of cable</b>	sq.m m	<b>10C*1.5</b>
<b>1</b>	<b>Conductor</b>		
a.	Conductor Material		Plain Annealed Copper
b.	No. of cores	Nos.	10
c.	Size of conductor	sq.m m.	1.5
d.	Shape of conductor		Stranded circular
e.	No. & diameter of each wire in conductor		Minimum size shall be corresponding to meet the requirement of conductor resistance as per relevant clause of IS:8130-1984
<b>2</b>	<b>Insulation</b>		
a.	Material		PVC insulation conforming to type C as per IS: 5831-1984 applied by extrusion process
b.	Nominal thickness	mm	0.8
c.	Core Identification		All cores white with core numbers printed in black ink as per clause 10.3 of IS:1554(Part-I)/1988
<b>3</b>	<b>Inner sheath</b>		
a.	Material		PVC conforming to type ST-2 as per IS:5831-1984
b.	Minimum thickness (at any point of measurement)	mm	0.3

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<b>4</b>	<b>Armour</b>		
a.	Material		Galvanized Steel round wire confirming to IS:3975-1999
b.	Nominal Diameter	mm	1.4
c.	Type		Wire
<b>5</b>	<b>Outer Sheath</b>		
a.	Material		FRLS PVC Type ST-2, extruded type as per IS:5831-1984 (With FRLS Properties)
b.	Color		Blue
c.	Minimum thickness (at any point of measurement)	mm	1.4
<b>6</b>	<b>Diameter</b>		
a.	Approx. overall diameter	mm	20
b.	Tolerance of diameter	mm	±3
<b>7</b>	Short circuit capacity for one second	kA	0.172/ As per OEM Type Tested Design
<b>8</b>	Approx. Weight of cable	Kg/k m	To be provided by bidder
<b>9</b>	Standard length of cable drum with tolerance	m	500±5% / 1000±5%
<b>10</b>	Allowable conductor temperature at continuous current	°C	85
<b>11</b>	Allowable conductor temperature during short circuit	°C	160
<b>12</b>	Max. DC resistance at 20°C - Main	Ohm /km	12.1
<b>13</b>	Max. AC resistance at max. Operating temp.	Ohm /km	15.4
<b>14</b>	Guaranteed value of min oxygen index at 27°C	%	29

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<b>15</b>	Guaranteed value of min. temp. index at 21 oxygen-index	°C	250
<b>16</b>	Smoke Density Rating		Max. average 60 SDR

**5.0 GENERAL CONSTRUCTION:**

5.1. The PVC Insulated Cable shall be manufactured and tested strictly in accordance with the Indian Standard IS 1554 (Part – I):1988 and its latest amendments.

5.2. All material used in the manufacturing of cables shall be new and shall be selected as the best available for the intended use and shall withstand the requirement of following tests:

- i) Tensile test & Wrapping test (for Aluminium)
- ii) Annealing test (for copper)

5.3 CABLE: 1.1 kV stranded copper conductor, PVC insulated type-C, extruded inner sheath, galvanized round wire armoured, extruded PVC outer sheathed FRLS cable conforming to IS:1554 (Part-I) with latest amendment. Overall outer sheath in blue color.

**5.4 ARMOURING:**

The armouring shall be with galvanized steel wires for multi core cables. The galvanized steel wires shall comply with the requirements of IS: 3975 with latest amendments.

**5.5 OUTER SHEATH:**

The Outer Sheath shall be of polyvinyl chloride (PVC) compound confirming to the requirements of Type ST2 of IS: 5831 with FRLS properties with latest amendments. The outer sheath shall be applied by extrusion process.

The thickness of the outer sheath shall be as per IS: 1554(Part - I). No tolerance on the negative side shall be acceptable.

**5.6 CORE IDENTIFICATION:**

Individual core of multi-core cable shall be colour-coded and/or numbered for proper identification in accordance with relevant IS/manufacturer’s standard.

**5.7 REELS/DRUMS:**

Cables shall be supplied in the wooden drums in specified length. Wooden drums shall be strong, weatherproof and non-returnable. The ends of the cable shall be sealed by means of non-hygroscopic sealing material.

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## 6. NAME PLATE & MAKING:

**Drum:** Wooden drums shall be of good quality. It shall be free from any damages & sharp edges of nails/ hardware inside the drums. A protective covering of polymeric sheet shall be applied inside the drum before winding the cable on the drum.

The **drum** shall carry the following information **stenciled** on both sides of the drum:

- a) Manufacturer's name
- b) Type of Cable
- c) Voltage Grade
- d) Number of cores
- e) Nominal Cross-sectional Area
- f) Length of the cable on the drum
- g) Number of lengths on the drum (If more than one)
- h) Direction of the rotation of the drum
- i) Gross mass
- j) ISI Certification mark

The following details shall be **embossed** on the **outer sheath** of the cable at regular intervals every meter.

- a) Manufacturer's name
- b) Voltage grade
- c) Number of cores, size, type
- d) FRLSH
- e) Property of TPWODL, ODISHA
- f) IS Reference
- g) ISI Mark
- h) PO Number
- i) Material code
- j) Year of manufacturing
- k) Sequential length marking shall be provided on the outer sheath of the cable by printing.

## 7.0 TESTS:

All routine, acceptance & type tests shall be carried out in accordance with the relevant IS/IEC. All routine/acceptance tests shall be witnessed by TPWODL authorized representative. All the components shall also be type tested as per the relevant standards. Following tests shall be necessarily conducted on the 1.1 kV control cables in addition to others specified in IS/IEC standards

### 7.1 TYPE TESTS:

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- A. Tests on Conductor - Conductor Resistance test
- B. Test for round steel wires/armouring wires
- C. Test for thickness of insulation and sheath (outer and inner)
- D. Physical tests for insulation & outer sheath
  - a. Tensile strength and elongation at break
  - b. Ageing in air oven
  - c. Hot deformation
  - d. Shrinkage test
  - e. Loss of mass in air oven
  - f. Heat shock test
  - g. Thermal stability
- E. Insulation Resistance test
- F. High voltage test (water immersion test) - AC & DC
- G. High voltage test at room temperature
- H. Flammability test

**7.2 ROUTINE TESTS**

- a) Conductor Resistance test
- b) High Voltage test at room temperature

**7.3 ACCEPTANCE TEST**

- a) Tensile Test (for aluminium)
- b) Annealing test (for copper)
- c) Wrapping Test (for aluminium)
- d) Conductor Resistance Test
- e) Test for thickness of insulation and sheath
- f) Tensile strength and elongation at break test for insulation and sheath
- g) High Voltage test at room temperature
- h) Insulation resistance test

**8.0 TYPE TEST CERTIFICATES:**

The bidder shall furnish the type test certificates of the 1.1 kV Control cable for the tests as mentioned above as per the corresponding standards. All the tests shall be conducted at CPRI / ERDA / NABL Accredited Labs as per the relevant standards. Type test shall have been conducted in certified Test Laboratories during the period not exceeding 5 years from the date of opening the bid. In the event of any discrepancy in the test reports i.e, any test report not

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acceptable or any/all type tests (including additional type tests, if any) not carried out, same shall be carried out without any cost implication to TPWODL.

#### **9.0 PRE-DESPATCH INSPECTION:**

The Material shall be subject to inspection by a duly authorized representative of the TPWODL. Inspection may be made at any stage of manufacture at the discretion of TPWODL and the equipment, if found unsatisfactory as to workmanship or material, the same is liable to rejection. Bidder shall grant free access to the places of manufacture to TPWODL's representatives at all times when the work is in progress. Inspection by TPWODL or its authorized representatives shall not relieve the bidder of his obligation of furnishing equipment in accordance with the specifications. Material shall be dispatched after specific MDCC (Material Dispatch Clearance Certificate) is issued by TPWODL.

Following documents shall be sent along with material

- a. Test reports
- b. MDCC issued by TPWODL
- c. Invoice in duplicate
- d. Packing list
- e. Drawings & catalogue
- f. Guarantee / Warrantee card
- g. Delivery Challan
- h. Other Documents (as applicable).

#### **10.0 INSPECTION AFTER RECEIPT AT STORES:**

The material received at TPWODL store shall be inspected for acceptance and shall be liable for rejection, if found different from the reports of the pre-dispatch inspection and one copy of the report shall be sent to Project Engineering department.

#### **11.0 GUARANTEE:**

Bidder shall stand guarantee towards design, materials, workmanship & quality of process / manufacturing of items under this contract for due and intended performance of the same, as an integrated product delivered under this contract. In the event any defect is found by TPWOODL, up to a period of at least 12 months from the date of commissioning or 24 months from the date of last supplies made under the contract whichever is later, (the time scale of 12/24 months could be enhanced subject to mutual agreements). Bidder shall be liable to undertake to replace/rectify such defects at its own costs, within mutually agreed time frame, and to the entire satisfaction of

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TPWODL, failing which TPWODL will be at liberty to get it replaced/rectified at Bidder's risks and costs and recover all such expenses plus the TPWODL's own charges (@ 20% of expenses incurred), from the Bidder or from the "Security cum Performance Deposit" as the case may be.

Bidder shall further be responsible for 'free replacement' for another period of FOUR years from the end of the guarantee period for any 'Latent Defects' if noticed and reported by TPWODL.

#### **12.0 PACKING:**

The cable shall be wound on strong weatherproof and non-returnable wooden drums packed in coil lengths of 500 meters/1000 meters in line with the requirement of

IS 10418 - 1982 and its latest amendments. The ends of the cable shall be sealed by means of non-hygroscopic sealing material.

Bidder shall ensure that cable covered under this specification shall be prepared for rail/road transport in a manner so as to protect the equipment from damage in transit.

#### **13.0 TENDER SAMPLE:**

Bidder shall have to submit the sample of material (1 meter length) with the offer (in case of first supply to TPWODL).

#### **14.0 QUALITY CONTROL:**

The bidder shall submit with the offer Quality assurance plan indicating the various stages of inspection, the tests and checks which will be carried out on the material of construction, components during manufacture and bought out items and fully assembled component and equipment after finishing. As part of the plan, a schedule for stage and final inspection within the parameters of the delivery schedule shall be furnished.

TPWODL reserves the sole rights for the type test of random sample from the lot and in case of any discrepancy or deviation from the Type test certificates submitted along with the bid, the complete Lot shall be rejected.

TPWODL's engineer or its nominated representative shall have free access to the bidder's works to carry out inspections.

#### **15.0 MINIMUM TESTING FACILITIES:**

Bidder shall Bidder save adequate inhouse testing facilities for carrying out all routine test & acceptance tests as per relevant International / Indian standards.

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**16.0 MANUFACTURING ACTIVITIES:**

The successful bidder will have to submit the bar chart for various manufacturing activities clearly elaborating each stage, with quantity. This bar chart should be in line with the Quality assurance plan submitted with the offer. This bar chart will have to be submitted within 15 days from the release of the order.

**17.0 SPARES, ACCESSORIES AND TOOLS:**

Not Required.

**18.0 DRAWINGS AND DOCUMENTS:**

Following documents shall be prepared based on TPWODL specifications and statutory requirements with complete BOM and shall be submitted with the bid:

- a) Completely filled-in Technical Parameters
- b) General description of the equipment and all components including brochures
- c) Type test Certificates
- d) Experience List.
- e) Cross sectional diagram of the cable.

Drawings/Documents to be submitted after the award of the contract:

S No	Description	For Approval	For Review / Information	Final Submission
1	Technical Parameters	√		√
2	Manual/Catalogues/drawings for all components.		√	
3	Installation Instructions		√	√
4	Cross sectional diagram of the cable	√		√
5	Instruction for use		√	√

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6	Transport/shipping dimension drawing		√	√
7	QA & QC Plan	√	√	√
8	Routine, Acceptance and Type test Certificates	√	√	√

All the Documents and Drawings shall be in English Language.

After receipt of the order, the successful bidder will be required to furnish two copies of all relevant drawings/Documents for TPWODL approval.

**Instruction Manuals:** Bidder shall furnish manual (in English Language) covering erection and maintenance instructions and all relevant information pertaining to the cables in case supplying for the first time.

**19.0 GUARANTEED TECHNICAL PARTICULARS:**

S.No.	Particulars	Unit	To be provided by Bidders
<b>1</b>	<b>Conductor</b>		
a.	Conductor Material		
b.	No. of cores	Nos.	
c.	Size of conductor	sq.mm.	
d.	Shape of conductor		
e.	No. & diameter of each wire in conductor		
<b>2</b>	<b>Insulation</b>		
a.	Material		
b.	Nominal thickness	mm	
c.	Core Identification		
<b>3</b>	<b>Inner sheath</b>		
a.	Material		

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b.	Minimum thickness (at any point of measurement)	mm	
<b>4</b>	<b>Armour</b>		
a.	Material		
b.	Nominal Diameter	mm	
c.	Type		
<b>5</b>	<b>Outer Sheath</b>		
a.	Material		
b.	Color		
c.	Minimum thickness (at any point of measurement)	mm	
<b>6</b>	<b>Diameter</b>		
a.	Approx. overall diameter	mm	
b.	Tolerance of diameter	mm	
<b>7</b>	Short circuit capacity for one second	kA	
<b>8</b>	Approx. Weight of cable	Kg/km	
<b>9</b>	Standard length of cable drum with tolerance	m	
<b>10</b>	Allowable conductor temperature at continuous current	°C	
<b>11</b>	Allowable conductor temperature during short circuit	°C	
<b>12</b>	Max. DC resistance at 20°C - Main	Ohm/km	
<b>13</b>	Max. AC resistance at max. Operating temp.	Ohm/km	
<b>14</b>	Guaranteed value of min oxygen index at 27°C	%	

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<b>15</b>	Guaranteed value of min. temp. index at 21 oxygen-index	°C	
<b>16</b>	Smoke Density Rating		

**20.0 SCHEDULE OF DEVIATIONS:**

**(TO BE ENCLOSED WITH TECHNICAL BID)**

All deviations from this specification shall be set out by the Bidders, clause by Clause in this schedule. Unless specifically mentioned in this Schedule, the tender shall be deemed to confirm the purchaser's specifications.

Sr. No.	Clause No.	Details of deviation with justifications

We confirm that there are no deviations apart from those detailed above.

Signature of Bidder:

Date:

Name of the Company:

Office Seal:

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